UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-Q

☒ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the quarterly period ended September 30, 2020

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from to
Commission File Number 001-37368

ADAPTIMMUNE THERAPEUTICS PLC
(Exact name of Registrant as specified in its charter)

England and Wales	**Not Applicable**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

60 Jubilee Avenue, Milton Park
Abingdon, Oxfordshire OX14 4RX
United Kingdom
(Address of principal executive offices)

(44) 1235 430000
(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol	Name of each exchange on which registered
American Depositary Shares, each representing 6 Ordinary Shares, par value £0.001 per share	ADAP	The Nasdaq Global Select Market

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. ☒ Yes ☐ No

Indicate by check mark whether the registrant has submitted electronically, every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). ☒ Yes ☐ No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer☐	Accelerated filer ☒
Non-accelerated filer☐	Smaller reporting company ☒
	Emerging growth company☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standard provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). ☐ Yes ☒ No

As of November 4, 2020, the number of outstanding ordinary shares par value £0.001 per share of the Registrant is928,672,584.

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General information

In this Quarterly Report on Form 10-Q ("Quarterly Report"), "Adaptimmune," the "Group," the "Company," "we," "us" and "our" refer to Adaptimmune Therapeutics plc and its consolidated subsidiaries, except where the context otherwise requires.

Information Regarding Forward-Looking Statements

This Quarterly Report contains forward-looking statements that are based on our current expectations, assumptions, estimates and projections about us and our industry. All statements other than statements of historical fact in this Quarterly Report are forward-looking statements.

These forward-looking statements are subject to known and unknown risks, uncertainties, assumptions and other factors that could cause our actual results of operations, financial condition, liquidity, performance, prospects, opportunities, achievements or industry results, as well as those of the markets we serve or intend to serve, to differ materially from those expressed in, or suggested by, these forward-looking statements. These forward-looking statements are based on assumptions regarding our present and future business strategies and the environment in which we expect to operate in the future. Important factors that could cause those differences include, but are not limited to:

- our ability to progress and continue with business operations as a result of the outbreak ofcoronavirus, SARS-CoV-2 ("COVID-19") including our ability to treat and enroll patients in clinical trials, manufacture cell therapies for patients, obtain responses and approvals from regulatory authorities, progress third party relationships and collaborations, obtain and publish data from our clinical trials and source and procure resources and supplies needed for ongoing activities;

- our ability to successfully advance our ADP-A2M4 (MAGE-A4), ADP-A2M4CD8 (MAGE-A4CD8) and ADP-A2AFP (AFP) SPEAR T-cell therapies through clinical development and the timing within which we can recruit and treat patients in all of our clinical trials;

- our ability to continue to fund our operations including as a result of the impact of the COVID-19 pandemic;

- our ability to successfully and reproducibly manufactureSpecific Peptide Enhanced Affinity Receptor ("SPEAR") T-cells and other cell therapies in order to meet patient demand;

- our ability to further develop our commercial manufacturing process for our cell therapies, transfer such commercial process to third party contract manufacturers, if required, and for such third party contract manufacturers or ourselves to manufacture cell therapies to the quality and on the timescales we require;

- our ability to successfully advance our cell therapy platform, to improve the safety and effectiveness of our existing cell therapy candidates, to identify and develop new cell therapies and to submit Investigational New Drug Applications, or INDs, for new cell therapies;

- the rate and degree of market acceptance of cell therapy generally, and of our particular cell therapies including our SPEAR T-cells and HLA-independent TCR ("HiT") therapies;

- government regulation and approval, including, but not limited to, the expected regulatory approval timelines for our cell therapies and the level of pricing and reimbursement for our cell therapies, if approved for marketing;

- our ability to successfully commercialize any products including the planned launch of ADP-A2M4 in 2022;

- the existence of any third-party patents preventing further development of any of our cell therapies, including, any inability to obtain appropriate third party licenses, or enforcement of patents against us or our collaborators;

- our ability to obtain granted patents covering our cell therapies and to enforce such patents against third parties;

- volatility in equity markets in general, and in the biopharmaceutical sector in particular;
- fluctuations in the price of materials and bought-in components;
- the scope and timing of performance of our ongoing collaborations with GlaxoSmithKline ("GSK") and with Astellas Pharma Inc. through its wholly-owned subsidiary Universal Cells Inc. ("Astellas");
- our relationships with suppliers, contract manufacturing organizations or CROs and other third-party providers including fluctuations in the price of materials and services, ability to obtain reagents particularly where such reagents are only available from a single source, and performance of third party providers;
- increased competition from other companies in the biotechnology and pharmaceutical industries including where such competition impacts ability to recruit patients into clinical trials;
- claims for personal injury or death arising from the use of our cell therapies;
- our ability to attract and retain qualified personnel; and
- additional factors that are not known to us at this time.

Additional factors that could cause actual results, financial condition, liquidity, performance, prospects, opportunities, achievements or industry results to differ materially include, but are not limited to, those discussed under "Risk Factors" in Part II, Item 1A in this Quarterly Report and in our other filings with the Securities and Exchange Commission (the "SEC"). Additional risks that we may currently deem immaterial or that are not presently known to us could also cause the forward-looking events discussed in this Quarterly Report not to occur. The words "believe," "may," "will," "estimate," "continue," "anticipate," "intend," "expect" and similar words are intended to identify estimates and forward-looking statements. Estimates and forward-looking statements speak only at the date they were made, and we undertake no obligation to update or to review any estimate and/or forward-looking statement because of new information, future events or other factors. Estimates and forward-looking statements involve risks and uncertainties and are not guarantees of future performance. Our future results may differ materially from those expressed in these estimates and forward-looking statements. In light of the risks and uncertainties described above, the estimates and forward-looking statements discussed in this Quarterly Report might not occur, and our future results and our performance may differ materially from those expressed in these forward-looking statements due to, inclusive of, but not limited to, the factors mentioned above. Because of these uncertainties, you should not make any investment decision based on these estimates and forward-looking statements.

PART I — FINANCIAL INFORMATION

Item 1. Financial Statements.

ADAPTIMMUNE THERAPEUTICS PLC
UNAUDITED CONDENSED CONSOLIDATED BALANCE SHEETS
(In thousands, except share data)

	September 30, 2020	December 31, 2019
Assets		
Current assets		
Cash and cash equivalents	$ 78,466	$ 50,412
Marketable securities - available-for-sale debt securities	321,442	39,130
Other current assets and prepaid expenses (including current portion of clinical materials)	26,825	30,947
Total current assets	**426,733**	**120,489**
Restricted cash	4,441	4,496
Clinical materials	160	2,503
Operating lease right-of-use assets, net of accumulated amortization	18,775	20,789
Property, plant and equipment, net of accumulated depreciation of $28,503 (2019: $23,649)	26,943	31,068
Intangibles, net of accumulated amortization	1,970	2,198
Total assets	$ **479,022**	$ **181,543**
Liabilities and stockholders' equity		
Current liabilities		
Accounts payable	$ 4,030	$ 6,357
Operating lease liabilities, current	2,619	2,493
Accrued expenses and other accrued liabilities	24,615	23,363
Deferred revenue, current	3,635	2,128
Total current liabilities	**34,899**	**34,341**
Operating lease liabilities, non-current	21,090	22,966
Deferred revenue, non-current	46,212	—
Other liabilities, non-current	615	598
Total liabilities	**102,816**	**57,905**
Stockholders' equity		
Common stock - Ordinary shares par value £0.001, 1,038,249,630 authorized and 928,525,410 issued and outstanding (2019: 785,857,300 authorized and 631,003,568 issued and outstanding)	1,325	943
Additional paid in capital	932,518	585,623
Accumulated other comprehensive loss	(8,494)	(7,264)
Accumulated deficit	(549,143)	(455,664)
Total stockholders' equity	**376,206**	**123,638**
Total liabilities and stockholders' equity	$ **479,022**	$ **181,543**

See accompanying notes to unaudited condensed consolidated financial statements.

ADAPTIMMUNE THERAPEUTICS PLC
UNAUDITED CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands, except share and per share data)

	Three months ended September 30,		Nine months ended September 30,	
	2020	2019	2020	2019
Revenue	**$ 1,193**	**$ 237**	**$ 2,456**	**$ 394**
Operating expenses				
Research and development (including losses accrued on firm purchase commitments of $0, $5,000, $0 and $5,000)	(24,067)	(29,617)	(65,791)	(77,147)
General and administrative	(13,001)	(10,741)	(32,557)	(32,662)
Total operating expenses	**(37,068)**	**(40,358)**	**(98,348)**	**(109,809)**
Operating loss	**(35,875)**	**(40,121)**	**(95,892)**	**(109,415)**
Interest income	2,147	615	4,024	2,324
Other (expense) income, net	(1,689)	291	(1,501)	(556)
Loss before income taxes	**(35,417)**	**(39,215)**	**(93,369)**	**(107,647)**
Income taxes	(15)	(87)	(110)	(154)
Net loss attributable to ordinary shareholders	**$ (35,432)**	**$ (39,302)**	**$ (93,479)**	**$ (107,801)**
Net loss per ordinary share				
Basic and diluted	**$ (0.04)**	**$ (0.06)**	**$ (0.11)**	**$ (0.17)**
Weighted average shares outstanding:				
Basic and diluted	928,022,057	630,866,800	829,973,177	629,403,293

See accompanying notes to unaudited condensed consolidated financial statements.

ADAPTIMMUNE THERAPEUTICS PLC
UNAUDITED CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(In thousands)

	Three months ended September 30,		Nine months ended September 30,	
	2020	2019	2020	2019
Net loss	**$ (35,432)**	**$ (39,302)**	**$ (93,479)**	**$ (107,801)**
Other comprehensive income (loss), net of tax				
Foreign currency translation adjustments, net of tax of $0, $0, $0 and $0	(15,522)	6,617	3,583	7,916
Foreign currency gains (losses) on intercompany loan of a long-term investment nature, net of tax of $0, $0, $0 and $0	15,698	(8,388)	(5,061)	(8,388)
Unrealized gains (losses) on available-for-sale debt securities				
Unrealized holding gains (losses) on available-for-sale debt securities, net of tax of $0, $0, $0 and $0	211	(55)	324	223
Reclassification adjustment for gains on available-for-sale debt securities included in net loss, net of tax of $0, $0, $0 and $0	(76)	—	(76)	(13)
Total comprehensive loss for the period	**$ (35,121)**	**$ (41,128)**	**$ (94,709)**	**$ (108,063)**

See accompanying notes to unaudited condensed consolidated financial statements.

ADAPTIMMUNE THERAPEUTICS PLC
UNAUDITED CONDENSED CONSOLIDATED STATEMENTS OF CHANGE IN EQUITY
(In thousands, except share data)

	Common stock	Common stock	Additional paid in capital	Accumulated other comprehensive loss: Accumulated foreign currency translation adjustments	Accumulated other comprehensive loss: Accumulated unrealized gains (losses) on available-for-sale debt securities	Accumulated deficit	Total stockholders' equity
Balance as of 1 January 2020	631,003,568	$ 943	$ 585,623	$ (7,302)	$ 38	$ (455,664)	$ 123,638
Net loss	—	—	—	—	—	(28,167)	(28,167)
Issuance of shares upon exercise of stock options	4,610,772	6	888	—	—	—	894
Issuance of shares upon completion of public offering, net of issuance costs	144,900,000	190	90,360	—	—	—	90,550
Other comprehensive loss							
Foreign currency translation adjustments	—	—	—	17,911	—	—	17,911
Foreign currency losses on intercompany loan of a long-term investment nature, net of tax of $0	—	—	—	(19,651)	—	—	(19,651)
Unrealized holding losses on available-for-sale debt securities, net of tax of $0	—	—	—	—	(586)	—	(586)
Share-based compensation expense	—	—	1,448	—	—	—	1,448
Balance as of March 31, 2020	**780,514,340**	**$ 1,139**	**$ 678,319**	**$ (9,042)**	**$ (548)**	**$ (483,831)**	**$ 186,037**
Net loss	—	—	—	—	—	(29,880)	(29,880)
Issuance of shares upon exercise of stock options	5,704,606	7	4,174	—	—	—	4,181
Issuance of shares upon completion of public offering, net of issuance costs	141,450,000	178	243,660	—	—	—	243,838
Other comprehensive income							
Foreign currency translation adjustments	—	—	—	1,194	—	—	1,194
Foreign currency losses on intercompany loan of a long-term investment nature, net of tax of $0	—	—	—	(1,108)	—	—	(1,108)
Unrealized holding gains on available-for-sale debt securities, net of tax of $0	—	—	—	—	699	—	699
Share-based compensation expense	—	—	2,624	—	—	—	2,624
Balance as of June 30, 2020	**927,668,946**	**$ 1,324**	**$ 928,777**	**$ (8,956)**	**$ 151**	**$ (513,711)**	**$ 407,585**
Net loss	—	—	—	—	—	(35,432)	(35,432)
Issuance of shares upon exercise of stock options	856,464	1	461	—	—	—	462
Other comprehensive income							
Foreign currency translation adjustments	—	—	—	(15,522)	—	—	(15,522)
Foreign currency losses on intercompany loan of a long-term investment nature, net of tax of $0	—	—	—	15,698	—	—	15,698
Unrealized holding gains on available-for-sale debt securities, net of tax of $0	—	—	—	—	211	—	211
Reclassification from accumulated other comprehensive income of gains on available-for-sale debt securities included in net loss, net of tax of $-	—	—	—	—	(76)	—	(76)
Share-based compensation expense	—	—	3,280	—	—	—	3,280
Balance as of September 30, 2020	**928,525,410**	**$ 1,325**	**$ 932,518**	**$ (8,780)**	**$ 286**	**$ (549,143)**	**$ 376,206**

See accompanying notes to unaudited condensed consolidated financial statements.

ADAPTIMMUNE THERAPEUTICS PLC
UNAUDITED CONDENSED CONSOLIDATED STATEMENTS OF CHANGE IN EQUITY
(In thousands, except share data)

	Common stock	Common stock	Additional paid in capital	Accumulated other comprehensive loss		Accumulated deficit	Total stockholders' equity
				Accumulated foreign currency translation adjustments	Accumulated unrealized gains (losses) on available-for-sale debt securities		
Balance as of 1 January 2019	627,454,270	939	574,208	(9,607)	(156)	(318,499)	246,885
Net loss						(27,412)	(27,412)
Issuance of shares upon exercise of stock options	840,432	1	35	—	—	—	36
Other comprehensive loss							
Foreign currency translation adjustments	—	—	—	(3,543)	—	—	(3,543)
Unrealized holding gains on available-for-sale debt securities, net of tax of $0	—	—	—	—	210	—	210
Share-based compensation expense	—	—	3,479	—	—	—	3,479
Balance as of March 31, 2019	**628,294,702**	**$ 940**	**$ 577,722**	**$ (13,150)**	**$ 54**	**$ (345,911)**	**$ 219,655**
Net loss	—	—	—	—	—	(41,087)	(41,087)
Issuance of shares upon exercise of stock options	2,377,876	3	327	—	—	—	330
Other comprehensive income before reclassifications							
Foreign currency translation adjustments	—	—	—	4,842	—	—	4,842
Unrealized holding gains on available-for-sale debt securities, net of tax of $0	—	—	—	—	68	—	68
Reclassification from accumulated other comprehensive loss of gains on available-for-sale debt securities included in net income, net of tax of $0	—	—	—	—	(13)	—	(13)
Share-based compensation expense	—	—	3,196	—	—	—	3,196
Balance as of June 30, 2019	**630,672,578**	**$ 943**	**$ 581,245**	**$ (8,308)**	**$ 109**	**$ (386,998)**	**$ 186,991**
Net loss	—	—	—	—	—	(39,302)	(39,302)
Issuance of shares upon exercise of stock options	280,158	—	—	—	—	—	—
Other comprehensive loss							
Foreign currency translation adjustments	—	—	—	6,617	—	—	6,617
Foreign currency losses on intercompany loan of a long-term investment nature, net of tax of $0	—	—	—	(8,388)	—	—	(8,388)
Unrealized holding losses on available-for-sale debt securities, net of tax of $0	—	—	—	—	(55)	—	(55)
Share-based compensation expense	—	—	1,820	—	—	—	1,820
Balance as of September 30, 2019	**630,952,736**	**$ 943**	**$ 583,065**	**$ (10,079)**	**$ 54**	**$ (426,300)**	**$ 147,683**

See accompanying notes to unaudited condensed consolidated financial statements.

ADAPTIMMUNE THERAPEUTICS PLC
UNAUDITED CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	Nine months ended September 30,	
	2020	**2019**
Cash flows from operating activities		
Net loss	$ (93,479)	$ (107,801)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation	5,151	5,406
Amortization	718	511
Share-based compensation expense	7,352	8,495
Unrealized foreign exchange (gains) losses	(1,102)	522
Other	2,817	(208)
Changes in operating assets and liabilities:		
Decrease (increase) in receivables and other operating assets	3,345	(20,075)
Decrease in non-current operating assets	2,291	1,468
(Decrease) increase in payables and other current liabilities	(117)	8,879
Increase in deferred revenue	48,649	2,824
Net cash used in operating activities	**(24,375)**	**(99,979)**
Cash flows from investing activities		
Acquisition of property, plant and equipment	(1,174)	(1,425)
Acquisition of intangibles	(496)	(1,036)
Maturity or redemption of marketable securities	78,915	92,803
Investment in marketable securities	(363,777)	(19,080)
Net cash (used in) provided by investing activities	**(286,532)**	**71,262**
Cash flows from financing activities		
Proceeds from issuance of common stock, net of issuance costs	334,388	—
Proceeds from exercise of stock options	5,541	366
Net cash provided by financing activities	**339,929**	**366**
Effect of currency exchange rate changes on cash, cash equivalents and restricted cash	(1,023)	(398)
Net increase (decrease) in cash, cash equivalents and restricted cash	27,999	(28,749)
Cash, cash equivalents and restricted cash at start of period	54,908	72,476
Cash, cash equivalents and restricted cash at end of period	$ **82,907**	$ **43,727**

See accompanying notes to unaudited condensed consolidated financial statements.

ADAPTIMMUNE THERAPEUTICS PLC
NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

Note 1 — General

Adaptimmune Therapeutics plc is registered in England and Wales. Its registered office is 60 Jubilee Avenue, Milton Park, Abingdon, Oxfordshire, OX14 4RX, United Kingdom. Adaptimmune Therapeutics plc and its subsidiaries (collectively "Adaptimmune" or the "Company") is a clinical-stage biopharmaceutical company primarily focused on providing novel cell therapies to people with cancer. We are a leader in the development of T-cell therapies for solid tumors. The Company's proprietary platform enables it to identify cancer targets, find and develop cell therapy candidates active against those targets and produce therapeutic candidates for administration to patients.

The Company is subject to a number of risks similar to other biopharmaceutical companies in the early stage of clinical development including, but not limited to, the need to obtain adequate additional funding, possible failure of preclinical programs or clinical programs, the need to obtain marketing approval for its cell therapies, competitors developing new technological innovations, the need to successfully commercialize and gain market acceptance of its cell therapies, the need to develop a reliable commercial manufacturing process, the need to commercialize any cell therapies that may be approved for marketing, and protection of proprietary technology. If the Company does not successfully commercialize any of its cell therapies, it will be unable to generate product revenue or achieve profitability. The Company had an accumulated deficit of $549.1 million as of September 30, 2020.

Note 2 — Summary of Significant Accounting Policies

(a) Basis of presentation

The condensed consolidated financial statements of Adaptimmune Therapeutics plc and its subsidiaries and other financial information included in this Quarterly Report are unaudited and have been prepared in accordance with generally accepted accounting principles in the United States of America ("U.S. GAAP") and are presented in U.S. dollars. All significant intercompany accounts and transactions between the Company and its subsidiaries have been eliminated on consolidation.

The unaudited condensed consolidated financial statements presented in this Quarterly Report should be read in conjunction with the consolidated financial statements and accompanying notes included in the Company's Annual Report on Form 10-K filed with the SEC on February 27, 2020 (the "Annual Report"). The balance sheet as of December 31, 2019 was derived from audited consolidated financial statements included in the Company's Annual Report but does not include all disclosures required by U.S. GAAP. The Company's significant accounting policies are described in Note 2 to those consolidated financial statements.

Certain information and footnote disclosures normally included in financial statements prepared in accordance with U.S. GAAP have been condensed or omitted from these interim financial statements. However, these interim financial statements include all adjustments, consisting only of normal recurring adjustments, which are, in the opinion of management, necessary to fairly state the results of the interim period. The interim results are not necessarily indicative of results to be expected for the full year.

(b) Use of estimates in interim financial statements

The preparation of interim financial statements, in conformity with U.S. GAAP and SEC regulations, requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the interim financial statements and reported amounts of revenues and expenses during the reporting period. Estimates and assumptions are primarily made in relation to the valuation of share options, valuation allowances relating to deferred tax assets, revenue recognition, estimation of the incremental borrowing rate for operating leases, estimating clinical trial expenses and estimating R&D tax and expenditure credits. If actual results differ from the Company's estimates, or to the extent these estimates are adjusted in future periods, the Company's results of operations could either benefit from, or be adversely affected by, any such change in estimate.

(c) Fair value measurements

The Company is required to disclose information on all assets and liabilities reported at fair value that enables an assessment of the inputs used in determining the reported fair values. The fair value hierarchy prioritizes valuation inputs based on the observable nature of those inputs. The hierarchy defines three levels of valuation inputs:

Level 1 - Quoted prices in active markets for identical assets or liabilities

Level 2 - Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly

Level 3 - Unobservable inputs that reflect the Company's own assumptions about the assumptions market participants would use in pricing the asset or liability

The carrying amounts of the Company's cash and cash equivalents, restricted cash, accounts receivable, accounts payable and accrued expenses approximate fair value because of the short-term nature of these instruments. The fair value of marketable securities, which are measured at fair value on a recurring basis is detailed in Note 6, Fair value measurements.

(d) New accounting pronouncements

Adopted in the period

Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract

On January 1, 2020, the Company adopted ASU 2018-15 – Intangibles — Goodwill and Other — Internal-Use Software (Subtopic 350-40) Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract. The guidance aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software (and hosting arrangements that include an internal use software license). The Company elected to apply the guidance prospectively to all implementation costs incurred after the date of adoption. The guidance has not had a material effect on the condensed consolidated financial statements.

Simplifying the Accounting for Income Taxes

On January 1, 2020, the Company adopted ASU 2019-12 – Simplifying the Accounting for Income Taxes (Topic 740). The simplifications to accounting for income taxes cover a variety of areas, including the removal of the exception to the incremental approach for intraperiod tax allocation when there is a loss from continuing operations and income or a gain from other items (for example, discontinued operations or other comprehensive income). The changes also add a requirement for an entity to reflect the effect of an enacted change in tax laws or rates in the annual effective tax rate computation in the interim period that includes the enactment date. Most of the amendments should be applied on a prospective basis. The guidance has not had a material effect on the condensed consolidated financial statements.

Changes to the Disclosure Requirements for Fair Value Measurement

On January 1, 2020, the Company adopted ASU 2018-13 – Fair Value Measurement (Topic 820) - Disclosure Framework— Changes to the Disclosure Requirements for Fair Value Measurement, which modifies the disclosure requirements on fair value measurements in Topic 820, Fair Value Measurement. Certain amendments apply prospectively with all other amendments applied retrospectively to all periods presented upon their effective date. The guidance has not had a material effect on the condensed consolidated financial statements.

Revenue Recognition in Collaborative Arrangements

On January 1, 2020, the Company adopted ASU 2018-18 – Collaborative Arrangements — Clarifying the Interaction between Topic 808 and Topic 606, which clarifies that certain transactions between collaborative arrangement participants should be accounted for as revenue under Topic 606 when the collaborative arrangement participant is a customer in the context of a unit of account. In those situations, all the guidance in Topic 606 should be applied, including recognition, measurement, presentation, and disclosure requirements. The guidance has been applied retrospectively to all contracts that were not completed at the date of initial application of Topic 606. The guidance has not had a material effect on the condensed consolidated financial statements because it did not change the Company's accounting for existing or previous collaborative arrangements.

To be adopted in future periods

Measurement of Credit Losses on Financial Instruments

In June 2016, the FASB issued ASU 2016-13 - Financial Instruments - Credit losses, which replaces the incurred loss impairment methodology for financial instruments in current GAAP with a methodology that reflects expected credit losses and requires consideration of a broader range of reasonable and supportable information to inform credit loss estimates. The guidance is effective for the fiscal year beginning January 1, 2020, including interim periods within that fiscal year. In November 2019, the FASB issued ASU 2019-10 which resulted in the postponement of the effective date of the new guidance for eligible smaller reporting companies to the fiscal year beginning January 1, 2023. The Company currently intends to adopt the guidance in the fiscal year beginning January 1, 2023. The guidance must be adopted using a modified-retrospective approach and a prospective transition approach is required for debt securities for which an other-than-temporary impairment had been recognized before the effective date. The Company is currently evaluating the impact of the guidance on its condensed consolidated financial statements.

Note 3 — Revenue

The Company has two contracts with customers: a collaboration and license agreement with GSK (the "GSK Collaboration and License Agreement") and a collaboration agreement with Astellas Pharma Inc. (the "Astellas Collaboration Agreement") through its wholly-owned subsidiary, Universal Cells, Inc. ("Astellas").

Development revenue from contracts with customers in the three and nine months ended September 30, 2020 comprises the following (in thousands):

	Three months ended September 30,		Nine months ended September 30,	
	2020	2019	2020	2019
Development revenue	$ 1,193	$ 237	$ 2,456	$ 394
	$ 1,193	**$ 237**	**$ 2,456**	**$ 394**

Deferred revenue increased by $47.7 million from $2.1 million at January 1, 2020 to $49.8 million at September 30, 2020. The movement is largely due to the upfront payment of $50.0 million received under the Astellas Collaboration Agreement in January 2020 offset by revenue recognized under our collaboration agreements in the nine months ended September 30, 2020.

As of December 31, 2019, there was deferred revenue of $2.1 million associated with the third target under the GSK Collaboration Agreement, of which $0.4 million and $1.5 million was recognized as revenue in the three and nine months ended September 30, 2020 respectively.

The Astellas Collaboration Agreement

On January 13, 2020, the Company entered into the Astellas Collaboration Agreement. The Company received $50.0 million as a non-refundable upfront payment in January 2020 after entering into the agreement. Under the agreement the parties will agree on up to three targets and will co-develop T-cell therapies directed to those targets pursuant to an agreed research plan. For each target, Astellas will fund co-development up until completion of a Phase 1 trial for products directed to such target.

Upon successful completion of the Phase 1 trial for a product, Astellas and Adaptimmune will elect whether to progress with co-development and co-commercialization of such product, or to allow the other party to pursue the candidate independently. If the parties progress with co-development and co-commercialization of a product, then each party will grant the other party a co-exclusive license to co-develop and co-commercialize such product in the field of T-cell therapy. If a product is developed solely by one party, then the other party will grant to the continuing party an exclusive license to develop and commercialize such product in the field of T-cell therapy.

In the three months ended June 30, 2020, the parties nominated the target for the first collaboration program and the Company commenced development of this target under the agreement and began recognizing revenue for this performance obligation.

In addition, Astellas was also granted the right to develop, independently of Adaptimmune, allogeneic T-cell therapy candidates directed totwo targets selected by Astellas. Astellas will have sole rights to develop and commercialize products resulting from these two targets.

Under the terms of the agreement, Adaptimmune could be entitled to receive up to $847.5 million in further payments, including:

- Development milestones of up to $73.75 million for each co-developed and co-commercialized product; and
- Development milestones of up to $147.5 million per product and up to $110.0 million in sales milestones for products developed unilaterally by Astellas.

In addition, Adaptimmune is entitled to receive research funding of up to $7.5 million per year on a per collaboration target basis, which is payable on a quarterly basis within standard payment terms, and tiered royalties on net sales in the mid-single to mid-teen digits.

In consideration for rights under certain contributed Astellas technology for a product unilaterally developed by Adaptimmune, Astellas could be eligible to receive up to $552.5 million, including up to $147.5 million in milestone payments per product, and up to $110.0 million in sales milestones for products developed unilaterally by Adaptimmune. In addition, Astellas is entitled to receive tiered royalties on net sales in the mid-single to mid-teen digits.

To the extent that Astellas and Adaptimmune co-develop and co-commercialize any product, the parties would share equally all worldwide costs and profits.

Either party can terminate the agreement in the event of material breach or insolvency of the other party. Astellas can terminate the Agreement for convenience in its entirety or partly in relation to any targets and products directed to such targets. Adaptimmune can terminate the Agreement for convenience in relation to any target it is unilaterally developing and to products directed to such target.

The Company has assessed the agreement under the provisions of ASC 606,*Revenue from Contracts with Customers* and ASC 808, *Collaborative Arrangements*. The Company determined that Astellas is a customer and has applied the provisions of ASC 606 to the contract and related performance obligations. The Company identified the following performance obligations under the agreement: (i) research services and rights granted under the co-exclusive license for each of the three co-development targets and (ii) the rights granted for each of the two independent Astellas targets.

The aggregate transaction price at inception of the agreement was the $50.0 million upfront payment. Future development milestones are not considered probable as of September 30, 2020 and have not been included in the transaction price. Reimbursement of the research funding over the co-development period (up until completion of a Phase 1 trial for products directed to such target) is variable consideration and included in the transaction price as of September 30, 2020 to the extent that a significant reversal of revenue is not probable. The Company may also receive sales milestones upon the achievement of specified levels of annual net sales by Astellas under an independent Astellas program. These amounts have not been included within the transaction price as of September 30, 2020 because they are sales-based and would be recognized when the subsequent sales occur.

The aggregate transaction price is allocated to the performance obligations depending on the relative standalone selling price of the performance obligations. In determining the best estimate of the standalone selling price, the Company considered internal pricing objectives it used in negotiating the contract, together with internal data regarding the cost and margin of providing research services and adjusted-market data from comparable arrangements. The variable consideration is allocated to the performance obligation to which it relates.

The amount of the transaction price allocated to the performance obligation is recognized as or when the Company satisfies the performance obligation. The Company expects to satisfy the performance obligations relating to the three co-development targets as development progresses and recognizes revenue based on an estimate of the percentage of completion of the project determined based on the costs incurred on the project as a percentage of the total expected costs. The Company considers that this depicts the progress of the project, where the significant inputs would be internal project resources and third-party costs. The determination of the percentage of completion requires the Company to estimate the costs-to-complete the project. The Company makes a detailed estimate of the costs-to-complete, which is re-assessed every reporting period based on the latest project plan and discussions with project teams. If a change in facts or circumstances occurs, the estimate will be adjusted and the revenue will be recognized based on the revised estimate. The difference between the cumulative revenue recognized based on the previous estimate and the revenue recognized based on the revised estimate would be recognized as an adjustment to revenue in the period in which the change in estimate occurs. The revenue allocated to the research services will be recognized as development of products directed to the target progresses up until completion of a Phase 1 trial.

The Company has determined that the performance obligations relating to thetwo independent Astellas targets would be recognized at a point-in-time, upon commencement of the licenses in the event of nomination of the target, since they are right-to-use licenses.

The amount of the transaction price that is allocated to performance obligations that are unsatisfied or partially satisfied under the agreement as of September 30, 2020 was $62.9 million, of which $14.3 million is allocated to the rights granted for each of the two independent Astellas targets, $6.9 million is allocated to research services and rights under the co-exclusive license for each of the second and third co-development targets, and $20.5 million is allocated to research services and rights granted under the co-exclusive license for the first co-development target.

Note 4 — Loss per share

The dilutive effect of 91,263,299 and 90,072,300 stock options outstanding as of September 30, 2020 and 2019 respectively have been excluded from the diluted loss per share calculation for the three and nine months ended September 30, 2020 and 2019, because they would have an antidilutive effect on the loss per share for the period.

Note 5 — Fair value measurements

Assets and liabilities measured at fair value on a recurring basis based on Level 1, Level 2, and Level 3 fair value measurement criteria as of September 30, 2020 are as follows (in thousands):

		Fair value measurements using		
	September 30, 2020	Level 1	Level 2	Level 3
Assets:				
Corporate debt securities	$ 315,437	$ 315,437	—	—
Agency bonds	6,005		6,005	—
	$ 321,442	**$ 315,437**	**$ 6,005**	**$ —**

The Company estimates the fair value of available-for-sale debt securities with the aid of a third party valuation service, which uses actual trade and indicative prices sourced from third-party providers on a daily basis to estimate the fair value. If observed market prices are not available (for example securities with short maturities and infrequent secondary market trades), the securities are priced using a valuation model maximizing observable inputs, including market interest rates.

Note 6 — Marketable securities – available-for-sale debt securities

As of September 30, 2020, the Company has the following investments in marketable securities (in thousands):

	Remaining Contractual Maturity	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Aggregate Estimated Fair Value
Available-for-sale debt securities:					
Corporate debt securities	Less than 3 months	$ 14,272	$ 16	$ (4)	$ 14,284
Corporate debt securities	3 months to 1 year	164,830	336	(40)	165,126
Agency bonds	1 year to 2 years	5,996	9	—	6,005
Corporate debt securities	1 year to 2 years	136,058	107	(138)	136,027
		$ 321,156	**$ 468**	**$ (182)**	**$ 321,442**

As of September 30, 2020 and December 31, 2019, the aggregate fair value of securities held by the Company in an unrealized loss position was $35.0 million and $2.0 million respectively, which consisted of 23 and 1 separate securities, respectively. No securities have been in an unrealized loss position for more than one year.

As of September 30, 2020, the securities in an unrealized loss position are not considered to be other than temporarily impaired because the impairments are not severe and have been for a short duration. The Company does not intend to sell the debt securities in an unrealized loss position and believes that it has the ability to hold the debt securities to maturity.

Note 7 — Other current assets

Other current assets consisted of the following (in thousands):

	September 30, 2020	December 31, 2019
Corporate tax receivable	$ 13,921	$ 19,284
Prepayments	7,754	8,395
Clinical materials	2,488	1,459
Other current assets	2,662	1,809
	$ 26,825	**$ 30,947**

Note 8 — Accrued expenses and other current liabilities

Accrued expenses and other current liabilities consisted of the following (in thousands):

	September 30, 2020	December 31, 2019
Accrued clinical and development expenditure	$ 11,097	$ 8,782
Accrued employee expenses	8,127	6,863
Other accrued expenditure	2,784	2,662
Accrued purchase commitments	2,500	5,000
Other	107	56
	$ 24,615	**$ 23,363**

In 2016, the Company entered into a supply agreement with ThermoFisher for the supply of the Dynabeads® CD3/CD28 technology. The supply agreement runs until December 31, 2025. Under the supply agreement, the Company is required to purchase its requirements for CD3/CD28 magnetic bead product exclusively from ThermoFisher for a period of 5 years. In the three months ended September 30, 2019, management considered that there was sufficient uncertainty surrounding the utility of the Dynabeads to result in $5.0 million of minimum purchasing obligations being recognized in in research and development expense in that period. The related per-share amount for both the three and nine months ended September 30, 2019 is $(0.01). Of the minimum purchasing obligations of $5.0 million, $2.5 million was paid during the nine-months ended September 30, 2020. The remaining minimum purchase obligations of $2.5 million are payable within the next year, and are included within accrued purchase commitments above.

Note 9 — Share-based compensation

The following table shows the total share-based compensation expense included in the unaudited consolidated statements of operations (in thousands):

	Three months ended September 30,		Nine months ended September 30,	
	2020	2019	2020	2019
Research and development	$ 1,219	$ 144	$ 3,126	$ 2,951
General and administrative	2,061	1,676	4,226	5,544
	$ 3,280	**$ 1,820**	**$ 7,352**	**$ 8,495**

The following table shows information about share options and options which have a nominal exercise price (similar to restricted stock units (RSUs)) granted:

	Three months ended September 30,		Nine months ended September 30,	
	2020	2019	2020	2019
Number of options over ordinary shares granted	1,882,966	3,733,359	14,851,182	15,477,255
Weighted average fair value of ordinary shares options	$ 1.25	$ 0.31	$ 0.57	$ 0.48
Number of additional options with a nominal exercise price granted	571,320	743,292	7,410,136	7,700,658
Weighted average fair value of options with a nominal exercise price	$ 1.70	0.51	$ 0.78	$ 0.89

Note 10 — Stockholders' equity

On January 24, 2020, the Company closed an underwritten public offering of21,000,000 American Depository Shares (ADSs), which together with the full exercise by the underwriters of their option to purchase an additional 3,150,000 ADSs, generated net proceeds of $90.5 million.

On June 4, 2020, the Company closed an underwritten public offering of23,575,000 ADSs, which together with the full exercise by the underwriters of their option to purchase an additional 3,075,000 ADSs, generated net proceeds of $243.8 million.

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our unaudited condensed consolidated financial statements and related notes included in this Quarterly Report. The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our consolidated financial statements and related notes appearing elsewhere in this Quarterly Report and the audited consolidated financial statements and notes thereto and management's discussion and analysis of financial condition and results of operations for the year ended December 31, 2019, included in our Annual Report on Form 10-K that was filed with the SEC on February 27, 2020. Some of the information contained in this discussion and analysis or set forth elsewhere in this Quarterly Report, including information with respect to our plans and strategy for our business, includes forward-looking statements that involve risks and uncertainties. As a result of many factors, including those factors set forth in the "Risk Factors" section of this Quarterly Report, our actual results could differ materially from the results described in, or implied by, these forward-looking statements.

Overview

We are a clinical-stage biopharmaceutical company focused on providing novel cell therapies to people with cancer. We are a leader in the development of engineered T-cell therapies for solid tumors. Our proprietary platform enables us to identify cancer targets, find and develop cell therapy candidates active against those targets and produce therapeutic candidates for administration to patients. Our cell therapies include Specific Peptide Enhanced Affinity Receptor ("SPEAR") T-cells, which use genetically engineered T-cell receptors, and HLA-independent TCRs (HiTs) that recognize targets independently of the HLA profile of the tumor cell. Using our SPEAR T-cells, we aim to become the first company to have a TCR T-cell approved for the treatment of solid tumor indication.

As the COVID-19 pandemic continues, we remain focused on ensuring the safety of our workforce and continuing, where possible, to safely treat patients with our cell therapies. We continue to work with our clinical sites to ensure that patients are treated as soon as clinical sites are able to do so. Our facilities in the United States ("U.S.") and the United Kingdom ("U.K.") remain open to support manufacturing and delivery of our existing cell therapies as well as research and development of new cell therapies. Further information on risks related to COVID-19 is provided in the "Information Regarding Forward-Looking Statements" and "Risk Factors" sections.

We have clinical trials ongoing with our wholly-owned ADP-A2M4, ADP-A2M4CD8, and ADP-A2AFP SPEAR T-cell therapies.

- ***SPEARHEAD-1 Phase 2 Trial with ADP-A2M4:*** A Phase 2 clinical trial is underway in synovial sarcoma and myxoid round cell liposarcoma ("MRCLS") indications. Subject to the successful conclusion of the SPEARHEAD-1 study, which we aim to fully enroll during the first half of 2021, and approval of a Biologics License Application by the FDA, we plan to commercially launch ADP-A2M4 in 2022. Orphan Drug designation for ADP-A2M4 for the treatment of soft tissue sarcomas has been granted in the European Union and U.S. together with Regenerative Medicine Advanced Therapy (RMAT) designation in the U.S. for the treatment of synovial sarcoma and access to the Priority Medicines ("PRIME") Regulatory Support initiative by the European Medicines Agency ("EMA") for ADP-A2M4 for the treatment of synovial sarcoma.

- ***SPEARHEAD-2 Phase 2 Trial with ADP-A2M4:*** A Phase 2 trial combining ADP-A2M4 with pembrolizumab in ten patients with head and neck cancer is underway at clinical sites in the United States.

- ***SURPASS Phase 1 Trial with ADP-A2M4CD8***: Enrollment is ongoing in a Phase 1 trial for a next generation SPEAR T-cell, ADP-A2M4CD8. We are focussing on the treatment of patients with lung, gastroesophageal, head and neck and bladder cancers. This next generation SPEAR T-cell utilizes the same engineered T-cell receptor as ADP-A2M4, but with the addition of a CD8α homodimer. The addition of the CD8α homodimer has been shown in vitro to increase cytokine release and SPEAR T-cell potency. As of July 16, 2020, five patients (one patient with MRCLS, two patients with esophagogastric junction ("EGJ") cancers, one patient with ovarian cancer, and one patient with head and neck cancer) were treated with ADP-A2M4 CD8 in the dose escalation phase of the trial. One patient with EGJ cancer had a partial response and has had progression-free survival for greater than six months. One patient with head and neck cancer also had a partial response. All other patients have had best overall response of stable disease ("SD"). We will update on the dose escalation cohorts of the trial at the Society for Immunotherapy of Cancer ("SITC") conference in November 2020.

  Based on the responses seen in the Phase 1 clinical trial using ADP-A2M4 and these initial responses seen in the SURPASS trial, we are currently planning to initiate a Phase 2 clinical trial with ADP-A2M4CD8 in gastric, EGJ and esophageal cancers in the first half of 2021.

- ***ADP-A2M4 Pilot Trial***: Our Phase 1 clinical trial of ADP-A2M4 in urothelial, melanoma, head and neck, ovarian, non-small cell lung, esophageal and gastric, synovial sarcoma and MRCLS cancers has now completed enrollment. A data update on the trial was presented at ASCO on May 29, 2020. Clinical responses and promising durability was reported in patients with synovial sarcoma, with a 50% response rate (eight partial responses in 16 patients treated) reported, including an unconfirmed partial response (44% response rate without inclusion of unconfirmed partial response). Responses were also reported in head and neck cancer (one confirmed partial response in three patients treated) and lung cancer (one confirmed partial response in two patients treated), with evidence of anti-tumor activity in ovarian cancer and bladder cancer. A radiation sub-study under the Phase 1 clinical trial also continues to enroll patients and a partial response in rectal mucosal melanoma was reported in the first patient treated.

- ***ADP-A2AFP Phase 1 Trial***: We continue dosing patients in our Phase 1, open-label, dose-escalation trial designed to evaluate the safety and anti-tumor activity of our alpha fetoprotein ("AFP") therapeutic candidate for the treatment of hepatocellular carcinoma ("HCC"). Data from the trial was reported at the International Liver Congress in August 2020. Overall four patients have been treated with approximately five billion or more transduced cells (three in Cohort 3 and one in the expansion phase): One patient was reported to have had a complete response, one patient had SD, and two patients were reported to have had progressive disease. Five patients were previously treated in the first two dose cohorts with doses of 100 million and 1 billion transduced cells, respectively, and all patients had best responses of SD. A further cohort has also been initiated for patients with tumors other than HCC that express the AFP antigen. The first patient treated in that cohort was assessed by the investigator to have progressive disease.

We have a number of next generation and combination strategies designed to further enhance our SPEAR T-cells in development both internally and in collaboration with third parties. We have two strategic collaboration programs ongoing;

- ***Astellas co-development and co-commercialization***: We are collaborating with Astellas (through its wholly owned subsidiary Universal Cells) in relation to up to three targets with the aim of co-developing T-cell therapy candidates directed to those targets and utilising our allogeneic platform for "off-the-shelf" cell therapies.

- ***GSK collaboration***: We are collaborating with GSK in relation to the development, manufacture and commercialization of TCR therapeutic candidates for up to five programs. The third target program under the Collaboration and License Agreement remains ongoing.

We continue to invest and expand our manufacturing and research capabilities to facilitate a strong future pipeline of cell therapies, to enhance translational understanding of our cell therapies and to support our target of launching ADP-A2M4 in 2022, including:

- expanding our ability to manufacture cell therapies at our Navy Yard facility in the U.S.;

- enhancing commercial resources and activities within the Company ahead of a targeted launch date in 2022;

- increasing our ability to manufacture vector at our dedicated manufacturing space within the Cell and Gene Therapy Catapult Manufacturing Centre at Stevenage, U.K. including recent confirmation of GMP compliance from the U.K. regulatory authority, the MHRA;
- focussing on development of our allogeneic platform for "off-the-shelf" cell immunotherapies, including CAR-T and TCR T-cells; and
- expanding the type of cell therapies being developed.

Significant Events in the Three Months Ended September 30, 2020

On July 24, 2020 the Company announced that the EMA has granted access to the PRIME initiative for the Company's ADP-A2M4 therapy for the treatment of synovial sarcoma.

Subsequent Events since September 30, 2020

On October 15, 2020 the Company provided the full contents of its SITC abstract for the Phase 1 SURPASS trial.

Financial Operations Overview

Revenue

The Company has two contracts with customers: the GSK Collaboration and License Agreement and the Astellas Collaboration Agreement.

The GSK Collaboration Agreement

The GSK Collaboration and License Agreement consists of multiple performance obligations. GSK nominated its third target under the Collaboration and License Agreement in 2019, and the Company received $3.2 million following the nomination of the target, which is being recognized as revenue as development progresses.

The Astellas Collaboration Agreement

On January 13, 2020, the Company entered into a collaboration agreement with Astellas. The Company received $50.0 million as an upfront payment in January 2020 after entering into the agreement. Under the agreement the parties will agree on up to three targets and will co-develop T-cell therapies directed to those targets pursuant to an agreed research plan. For each target, Astellas will fund co-development up until completion of a Phase 1 trial for products directed to such target. In addition, Astellas was also granted the right to develop, independently of Adaptimmune, allogeneic T-cell therapy candidates directed to two targets selected by Astellas. Astellas will have sole rights to develop and commercialize products resulting from these two targets.

The agreement consists of the following performance obligations: (i) research services and rights granted under the co-exclusive license for each of the three co-development targets and (ii) the rights granted for each of the two independent Astellas targets. The revenue allocated to the co-development targets is recognized as the development of products directed to the targets progresses up until completion of a Phase 1 trial. The revenue allocated to each of the research licenses for the targets being independently developed by Astellas will be recognized when the associated license commences, which is upon designation of a target by Astellas.

Research and Development Expenses

Research and development expenditures are expensed as incurred. Research and development expenses consist principally of the following:

- salaries for research and development staff and related expenses, including benefits;
- costs for production of preclinical compounds and drug substances by contract manufacturers;
- fees and other costs paid to contract research organizations in connection with additional preclinical testing and the performance of clinical trials;
- costs associated with the development of a process tomanufacture and supply our lentiviral vector and cell therapies for use in clinical trials;
- costs to develop manufacturing capability at our U.S. facility for manufactureof cell therapies for use in clinical trials;
- costs relating to facilities, materials and equipment used in research and development;
- costs of acquired or in-licensed research and development which does not have alternative future use;
- amortization and depreciation of property, plant and equipment and intangible assets used to develop our cells therapies; and
- share-based compensation expenses;

offset by:

- reimbursable tax and expenditure credits from the U.K. government.

Research and development expenditure is presented net of reimbursements from reimbursable tax and expenditure credits from the U.K. government. As a company that carries out extensive research and development activities, we benefit from the U.K. research and development tax credit regime for small and medium sized companies ("SME R&D Tax Credit Scheme"), whereby our principal research subsidiary company, Adaptimmune Limited, is able to surrender the trading losses that arise from its research and development activities for a payable tax credit of up to approximately 33.4% of eligible research and development expenditures. Qualifying expenditures largely comprise employment costs for research staff, consumables and certain internal overhead costs incurred as part of research projects for which we do not receive income. Subcontracted research expenditures are eligible for a cash rebate of up to approximately 21.7%. A large proportion of costs in relation to our pipeline research, clinical trials management and manufacturing development activities, all of which are being carried out by Adaptimmune Limited, are eligible for inclusion within these tax credit cash rebate claims.

Expenditures incurred in conjunction with our collaboration agreements are not qualifying expenditures under the SME R&D Tax Credit Scheme but certain of these expenditures can be reimbursed through the U.K. research and development expenditure credit scheme (the "RDEC Scheme"). Under the RDEC Scheme tax relief is given at 12% (up to April 1, 2020) and 13% (after April 1, 2020) of allowable R&D costs, which may result in a payable tax credit at an effective rate of approximately 10.3% of qualifying expenditure for the year ended December 31, 2020.

Our research and development expenses may vary substantially from period to period based on the timing of our research and development activities, which depends upon the timing of initiation of clinical trials and the rate of enrollment of patients in clinical trials. The duration, costs, and timing of clinical trials and development of our cell therapies will depend on a variety of factors, including:

- the scope, rate of progress, and expense of our ongoing as well as any additional clinical trials and other research and development activities;
- uncertainties in clinical trial enrollment rates;

- future clinical trial results;
- significant and changing government regulation;
- the timing and receipt of any regulatory approvals;
- supply and manufacture of lentiviral vector and cell therapies for clinical trials; and
- an allocation of indirect costs clearly related to research and development.

For further detail please see Part II — Item 1A Risk Factors — Risks Related to the Development of our cell therapies of this Quarterly Report

A change in the outcome of any of these variables may significantly change the costs and timing associated with the development of that SPEAR T-cell. For example, if the FDA, or another regulatory authority, requires us to conduct clinical trials beyond those that we currently anticipate will be required for regulatory approval, or if we experience significant delays in enrollment in any of our clinical trials, we could be required to expend significant additional financial resources and time on the completion of clinical development.

General and Administrative Expenses

Our general and administrative expenses consist principally of:

- salaries for employees other than research and development staff, including benefits;
- business development expenses, including travel expenses;
- professional fees for auditors, lawyers and other consulting expenses;
- costs of facilities, communication, and office expenses;
- information technology expenses;
- amortization and depreciation of property, plant and equipment and intangible assets not related to research and development activities; and
- share-based compensation expenses.

Other (Expense) Income, Net

Other (expense) income, net primarily comprises foreign exchange (losses) gains. We are exposed to foreign exchange rate risk because we currently operate in the United Kingdom and United States. Our revenue from the GSK Collaboration and License Agreement is denominated in pounds sterling and is generated by our U.K.-based subsidiary, which has a pounds sterling functional currency. As a result, these sales are subject to translation into U.S. dollars when we consolidate our financial statements. Our expenses are generally denominated in the currency in which our operations are located, which are the United Kingdom and United States. However, our U.K.-based subsidiary incurs significant research and development costs in U.S. dollars and, to a lesser extent, Euros. Our U.K. subsidiary has an intercompany loan balance in U.S. dollars payable to the ultimate parent company, Adaptimmune Therapeutics plc. Since July 1, 2019, the intercompany loan has been considered of a long-term investment nature as repayment is not planned or anticipated in the foreseeable future. It is Adaptimmune Therapeutics plc's intent not to request payment of the intercompany loan for the foreseeable future. The foreign exchange gains or losses arising on the revaluation of intercompany loans of a long-term investment nature are reported within other comprehensive loss.

Our results of operations and cash flows will be subject to fluctuations due to changes in foreign currency exchange rates, which could harm our business in the future. We seek to minimize this exposure by maintaining currency cash balances at levels appropriate to

meet foreseeable expenses in U.S. dollars and pounds sterling. To date, we have not used hedging contracts to manage exchange rate exposure, although we may do so in the future.

Taxation

We are subject to corporate taxation in the United Kingdom and the United States. We incur tax losses and tax credit carryforwards in the United Kingdom. No deferred tax assets are recognized on our U.K. losses and tax credit carryforwards because there is currently no indication that we will make sufficient taxable profits to utilize these tax losses and tax credit carryforwards.

We benefit from reimbursable tax credits in the United Kingdom through the SME R&D Tax Credit Scheme as well as the RDEC Scheme which are presented as a deduction to research and development expenditure.

Our subsidiary in the United States has generated taxable profits due to a Service Agreement between our U.S. and U.K. operating subsidiaries and is subject to U.S. federal corporate income tax of 21%. Due to its activity in the United States, and the sourcing of its revenue, the U.S. subsidiary is not currently subject to any state or local income taxes. The Company also benefits from the U.S Research Tax Credit and Orphan Drug Credit.

In the future, if we generate taxable income in the United Kingdom, we may benefit from the United Kingdom's "patent box" regime, which would allow certain profits attributable to revenues from patented products to be taxed at a rate of 10%. As we have many different patents covering our products, future upfront fees, milestone fees, product revenues, and royalties may be taxed at this favorably low tax rate.

U.K. Value Added Tax ("VAT") is charged on all qualifying goods and services by VAT-registered businesses. An amount of 20% of the value of the goods or services is added to all relevant sales invoices and is payable to the U.K. tax authorities. Similarly, VAT paid on purchase invoices paid by Adaptimmune Limited and Adaptimmune Therapeutics plc is reclaimable from the U.K. tax authorities.

Critical Accounting Policies and Significant Judgments and Estimates

The preparation of our unaudited condensed consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities, and the revenues and expenses incurred during the reported periods. We base our estimates on historical experience and on various other factors that we believe are relevant under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. The accounting policies considered to be critical to the judgments and estimates used in the preparation of our financial statements are disclosed in the Management's Discussion and Analysis of Financial Condition and Results of Operations included in our Annual Report.

Allocation of transaction price and determination of costs to complete

Under our revenue generating collaboration agreements, we allocate the aggregate transaction price to the performance obligations depending on the standalone selling price of the performance obligations. In determining the best estimate of the standalone selling price, we considered internal pricing objectives used in negotiating the contract, together with internal data regarding the cost and margin of providing services for each deliverable taking into account the different stage of development of each development program included in the contract. Assessing the pricing objectives, internal data and the relative standalone selling price of each performance obligation is highly judgmental and can have a significant impact on the amount and timing of revenue recognition.

We expect to satisfy the performance obligations relating to the development activities as development progresses and recognize revenue based on an estimate of the percentage of completion of the project determined based on the costs incurred on the project as a percentage of the total expected costs. We consider that this depicts the progress of the project, where the significant inputs would be internal project resources and third-party costs. The determination of the percentage of completion requires management to estimate the costs-to-complete the project. We make a detailed estimate of the costs-to-complete, which is re-assessed every reporting period based on the latest project plan and discussions with project teams. If a change in facts or circumstances occurs, the estimate will be adjusted and the revenue will be recognized based on the revised estimate. The difference between the cumulative revenue recognized based on the previous estimate and the revenue recognized based on the revised estimate would be recognized as an adjustment to revenue in the period in which the change in estimate occurs. Identifying the most appropriate basis on which to recognize revenue and assessing the inputs and

outputs of the costs-to-complete estimate require significant judgment and may have a significant impact on the amount and timing of revenue recognition. In addition, judgment is required to determine the costs-to-complete at each reporting date, and it is possible that the costs-to-complete in subsequent periods may differ significantly to those initially anticipated.

Results of Operations

Comparison of Three Months Ended September 30, 2020 and 2019

The following table summarizes the results of our operations for the three months ended September 30, 2020 and 2019, together with the changes to those items (in thousands):

	Three months ended September 30,		Increase/decrease	
	2020	2019		
Revenue	**$ 1,193**	**$ 237**	**$ 956**	**403 %**
Research and development expenses	(24,067)	(29,617)	5,550	(19)%
General and administrative expenses	(13,001)	(10,741)	(2,260)	21 %
Total operating expenses	**(37,068)**	**(40,358)**	**3,290**	**(8)%**
Operating loss	**(35,875)**	**(40,121)**	**4,246**	**(11)%**
Interest income	2,147	615	1,532	249 %
Other (expense) income, net	(1,689)	291	(1,980)	(680)%
Loss before income taxes	**(35,417)**	**(39,215)**	**3,798**	**(10)%**
Income taxes	(15)	(87)	72	(83)%
Loss for the period	**$ (35,432)**	**$ (39,302)**	**$ 3,870**	**(10)%**

Revenue

Revenue increased by $1.0 million to $1.2 million in the three months ended September 30, 2020 compared to $0.2 million for the three months ended September 30, 2019 due to an increase in development activities under our collaboration agreements.

We expect that revenues will increase in future periods as the Company increases development activities on the first target under the Astellas Collaboration Agreement.

Research and Development Expenses

Research and development expenses decreased by 19% to $24.1 million for the three months ended September 30, 2020 from $29.6 million for the three months ended September 30, 2019.

Our research and development expenses comprise the following (in thousands):

	Three months ended September 30,		Increase/decrease	
	2020	2019		
Salaries, materials, consumables, depreciation of property, plant and equipment and other employee-related costs[1]	$ 15,901	$ 15,465	$ 436	3 %
Subcontracted expenditure	9,636	9,528	108	1 %
Manufacturing facility expenditure	2,079	1,877	202	11 %
Accrued purchase commitments	—	5,000	(5,000)	(100)%
Share-based compensation expense	1,219	144	1,075	747 %
In-process research and development costs	—	2,476	(2,476)	(100)%
Reimbursements receivable for research and development tax and expenditure credits	(4,768)	(4,873)	105	(2)%
	$ 24,067	**$ 29,617**	**$ (5,550)**	**(19)%**

(1) These costs are not analyzed by project since employees may be engaged in multiple projects simultaneously.

The net decrease in our research and development expenses of $5.6 million for the three months ended September 30, 2020 compared to the same period in 2019 was primarily due to the following:

- a decrease of $5.0 million in accrued purchase commitment expenses related to the supply of the Dynabeads® CD3/CD28 technology. In the three months ended September 30, 2019, management considered that there was sufficient uncertainty surrounding the utility of the Dynabeads, which was dependent upon then current clinical trial plans, the Company's clinical pipeline, manufacturing methods and undetermined future projects, to result in the purchase commitment being recognized in Research and Development expenses in the period
- an increase of $1.1 million in share-based compensation expense due to option forfeitures in the three months ended September 30, 2019; and
- a decrease of $2.5 million in costs for in-process research and development as a result of entering into a collaboration agreement relating to the development of next-generation SPEAR T-cell products with Noile-Immune Biotech, Inc. in the three months ended September 30, 2019.

Our subcontracted costs for the three months ended September 30, 2020 were $9.6 million, compared to $9.5 million in the same period of 2019. This includes $6.0 million of costs directly associated with our ADP-A2M4, ADP-A2M4CD8, ADP-A2AFP and ADP-A2M10 SPEAR T-cells and $3.6 million of other development costs.

Our research and development expenses are highly dependent on the phases and progression of our research projects and will fluctuate depending on the outcome of ongoing clinical trials. We expect that our research and development expenses will increase in future periods as we continue to invest in our translational sciences and other research and development capabilities.

General and Administrative Expenses

General and administrative expenses increased by 21% to $13.0 million for the three months ended September 30, 2020 from $10.7 million in the same period in 2019. Our general and administrative expenses consist of the following:

	Three months ended September 30,			
	2020	2019	Increase/decrease	
Salaries, depreciation of property, plant and equipment and other employee-related costs	$ 6,233	$ 6,211	$ 22	— %
Other corporate costs	4,707	2,853	1,854	65 %
Share-based compensation expense	2,061	1,677	384	23 %
	$ 13,001	**$ 10,741**	**$ 2,260**	**21 %**

The net increase in our general and administrative expenses of $2.3 million for the three months ended September 30, 2020 compared to the same period in 2019 was primarily due an increase of $1.9 million in other corporate costs, which include professional fees, investment in our IT systems and costs associated with the buildout of our commercial capabilities.

We expect that our general and administrative expenses will increase in the future as we expand our operations and move towards commercial launch.

Other Expense (Income), Net

Other expense (income), net was an expense of $1.7 million for the three months ended September 30, 2020 compared to income of $0.3 million for the three months ended September 30, 2019. Other expense (income), net primarily relates to unrealized foreign exchange gains and losses on cash, cash equivalents and on intercompany loans held in U.S. dollars by our U.K. subsidiary, other than those of a long-term investment nature, where repayment is not planned or anticipated in the foreseeable.

Income Taxes

Income taxes decreased to a charge of $15,000 for the three months ended September 30, 2020 from a charge of $87,000 for the three months ended September 30, 2019. Income taxes arise in the United States due to our U.S. subsidiary generating taxable profits. We incur losses in the United Kingdom.

Comparison of Nine Months Ended September 30, 2020 and 2019

The following table summarizes the results of our operations for the nine months ended Septmeber 30, 2020 and 2019, together with the changes to those items (in thousands):

	Nine months ended September 30,		Increase/decrease	
	2020	2019		
Revenue	**$ 2,456**	**$ 394**	**$ 2,062**	**523 %**
Research and development expenses	(65,791)	(77,147)	11,356	(15)%
General and administrative expenses	(32,557)	(32,662)	105	(0)%
Total operating expenses	**(98,348)**	**(109,809)**	**11,461**	**(10)%**
Operating loss	**(95,892)**	**(109,415)**	**13,523**	**(12)%**
Interest income	4,024	2,324	1,700	73 %
Other expense, net	(1,501)	(556)	(945)	170 %
Loss before income taxes	**(93,369)**	**(107,647)**	**14,278**	**(13)%**
Income taxes	(110)	(154)	44	(29)%
Loss for the period	**$ (93,479)**	**$ (107,801)**	**$ 14,322**	**(13)%**

Revenue

Revenue increased by $2.1 million to $2.5 million in the nine months ended September 30, 2020, compared to $0.4 million for the nine months ended September 30, 2019, due to an increase in development activities under our collaboration agreements.

We expect that revenues will increase in future periods as the Company increases development activities on the first target under the Astellas Collaboration Agreement.

Research and Development Expenses

Research and development expenses decreased by 15% to $65.8 million for the nine months ended September 30, 2020 from $77.1 million for the nine months ended September 30, 2019.

Our research and development expenses comprise the following (in thousands):

	Nine months ended September 30,		Increase/decrease	
	2020	2019		
Salaries, materials, equipment, depreciation of property, plant and equipment and other employee-related costs[1]	$ 46,192	$ 48,872	$ (2,680)	(5)%
Subcontracted expenditure	24,234	25,554	(1,320)	(5)%
Manufacturing facility expenditure	5,133	5,221	(88)	(2)%
Accrued purchase commitments	—	5,000	(5,000)	(100)%
Share-based compensation expense	3,126	2,951	175	6 %
In-process research and development costs	784	4,463	(3,679)	(82)%
Reimbursements receivable for research and development tax and expenditure credits	(13,678)	(14,914)	1,236	(8)%
	$ 65,791	**$ 77,147**	**$ (11,356)**	**(15)%**

(1) These costs are not analyzed by project since employees may be engaged in multiple projects simultaneously.

The net decrease in our research and development expenses of $11.4 million for the nine months ended September 30, 2020 compared to the same period in 2019 was primarily due to the following:

- a decrease in salaries, materials, consumables, depreciation of property, plant and equipment and other employee-related costs of $2.7 million, primarily due to lower consumables costs and a reduction in travel costs as a result of COVID-19 delays;
- a reduction in subcontracted expenditure of $1.3 million, largely driven by delays brought about by COVID-19;
- a decrease of $5.0 million in accrued purchase commitment expenses related to the supply of the Dynabeads® CD3/CD28 technology. In the nine months ended September 30, 2019, management considered that there was sufficient uncertainty surrounding the utility of the Dynabeads, which was dependent upon then current clinical trial plans, the Company's clinical pipeline, manufacturing methods and undetermined future projects, to result in the purchase commitment being recognized in Research and Development expenses in the period
- a decrease of $3.7 million in in-process research and development costs, as a result of our entering into a collaboration agreement relating to the development of next-generation SPEAR T-cell products with Alpine Immune Sciences, Inc. and Noile-Immune Biotech Inc. in the nine months ended September 30, 2019, offset by work performed by Universal Cells on gene-edited cell lines under our amended existing agreement with Universal Cells in the nine months ended September 30, 2020; and
- a decrease in reimbursements receivable for research and development tax and expenditure credits of $1.2 million, which is driven by the overall reduction in expenditure in the nine months ended September 30, 2020.

Our subcontracted costs for the nine months ended September 30, 2020 were $24.2 million, compared to $25.6 million in the same period of 2019. This includes $15.2 million of costs directly associated with our ADP-A2M4, ADP-A2M4CD8, ADP-A2AFP and ADP-A2M10 SPEAR T-cells and $9.0 million of other development costs.

Our research and development expenses are highly dependent on the phases and progression of our research projects and will fluctuate depending on the outcome of ongoing clinical trials. We expect that our research and development expenses will increase in future periods as we continue to invest in our translational sciences and other research and development capabilities.

General and Administrative Expenses

General and administrative expenses were $32.6 million for the nine months ended September 30, 2020 compared to $32.7 million in the same period in 2019. Our general and administrative expenses consist of the following:

	Nine months ended September 30,			
	2020	2019	Increase/decrease	
Salaries, depreciation of property, plant and equipment and other employee-related costs	$ 17,992	$ 19,784	$ (1,792)	(9)%
Other corporate costs	11,535	8,239	3,296	40 %
Share-based compensation expense	4,226	5,545	(1,319)	(24)%
Reimbursements	(1,196)	(906)	(290)	32 %
	$ 32,557	**$ 32,662**	**$ (105)**	**— %**

The net decrease in our general and administrative expenses of $0.1 million for the nine months ended September 30, 2020 compared to the same period in 2019 was primarily due to the following:

- a decrease of $1.8 million in salaries, depreciation of property, plant and equipment and other employee-related costs, which is mainly driven by reduced travel costs due to COVID-19 and other staff-related costs
- an increase of $3.3 million in other corporate costs due to increased professional fees, investment in our IT systems and costs associated with the buildout of our commercial capabilities; and

- a decrease of $1.3 million in share-based compensation expense due to option forfeitures.

We expect that our general and administrative expenses will increase in the future as we expand our operations and move towards commercial launch.

Other Expense, Net

Other expense, net was $1.5 million for the nine months ended September 30, 2020 compared to $0.6 million for the nine months ended September 30, 2019. Other expense, net primarily relates to unrealized foreign exchange gains and losses on cash, cash equivalents and on intercompany loans held in U.S. dollars by our U.K. subsidiary, other than those of a long-term investment nature, where repayment is not planned or anticipated in the foreseeable. From July 1, 2019, the intercompany loan between the parent company, Adaptimmune Therapeutics Plc and its subsidiary, Adaptimmune Limited, has been considered of a long-term investment nature as repayment is not planned or anticipated in the foreseeable future. It is Adaptimmune Therapeutics plc's intent not to request payment of the intercompany loan for the foreseeable future. The foreign exchange gains or losses arising on the revaluation of intercompany loans of a long-term investment nature are reported within other comprehensive loss.

Income Taxes

Income taxes decreased to a charge of $110,000 for the nine months ended September 30, 2020 from a charge of $154,000 for the nine months ended September 30, 2019. Income taxes arise in the United States due to our U.S. subsidiary generating taxable profits. We incur losses in the United Kingdom.

Liquidity and Capital Resources

Sources of Funds

Since our inception, we have incurred significant net losses and negative cash flows from operations. We financed our operations primarily through sales of equity securities, cash receipts under our collaboration arrangements and research and development tax and expenditure credits. From inception through to September 30, 2020, we have raised:

- $853.8 million, net of issuance costs, through the issuance of shares, including $90.5 million raised through a public offering in January and February 2020 and $243.8 million through a public offering in June 2020;
- $201.6 million through collaborative arrangements with GSK and Astellas; and
- $59.2 million in the form of reimbursable U.K. research and development tax credits and receipts from the U.K. RDEC Scheme.

We use a non-GAAP measure, Total Liquidity, which is defined as the total of cash and cash equivalents and marketable securities, to evaluate the funds available to us in the near-term. A description of Total Liquidity and reconciliation to cash and cash equivalents, the most directly comparable U.S. GAAP measure, are provided below under "Non-GAAP measures".

As of September 30, 2020, we had cash and cash equivalents of $78.5 million and Total Liquidity of $399.9 million. We regularly assess Total Liquidity against our activities and make decisions regarding prioritization of those activities and deployment of Total Liquidity. We believe that our Total Liquidity will be sufficient to fund our operations, based upon our currently anticipated research and development activities, planned capital spending, and planned commercialization costs into 2022. This belief is based on estimates that are subject to risks and uncertainties and may change if actual results differ from management's estimates.

Cash Flows

The following table summarizes the results of our cash flows for the nine months ended September 30, 2020 and 2019 (in thousands).

	Nine months ended September 30,	
	2020	2019
Net cash used in operating activities	$ (24,375)	$ (99,979)
Net cash (used in) provided by investing activities	(286,532)	71,262
Net cash provided by financing activities	339,929	366
Cash, cash equivalents and restricted cash	82,907	43,727

Operating Activities

Net cash used in operating activities was $24.4 million for the nine months ended September 30, 2020 compared to $100.0 million for the nine months ended September 30, 2019. The net cash used in operating activities has been significantly reduced by the receipt of the $50.0 million upfront payment from Astellas in January 2020 and a reduction in operating expenditure due to COVID-19.

Net cash used in operating activities of $24.4 million for the nine months ended September 30, 2020 comprised a net loss of $93.5 million, offset by non-cash items of $14.9 million and a net cash inflow of $54.2 million from changes in operating assets and liabilities. The non-cash items consisted primarily of depreciation expense on plant and equipment of $5.2 million, share-based compensation expense of $7.4 million, amortization of $0.7 million and other items of $2.8 million. This was partially offset by unrealized foreign exchange gains of $1.1 million.

Investing Activities

Net cash used in investing activities was $286.5 million for the nine months ended September 30, 2020 compared to net cash provided by investing activities of $71.3 million for the nine months ended September 30, 2019. The net cash (used in) provided by investing activities for the respective periods consisted of:

- purchases of property and equipment of $1.2 million and $1.4 million for the nine months ended September 30, 2020 and 2019, respectively;
- purchases of intangible assets of $0.5 million and $1.0 million primarily relating to development of internal-use software for the nine months ended September 30, 2020 and 2019, respectively; and
- cash outflows from investment in marketable securities of $363.8 million and $19.1 million for the nine months ended September 30, 2020 and 2019, respectively, and cash inflows from maturity or redemption of marketable securities of $78.9 million and $92.8 million for the nine months ended September 30, 2020 and 2019, respectively.

The Company invests surplus cash and cash equivalents in marketable securities. In the nine months ended September 30, 2019, the investments in marketable securities were reduced to fund the Company's ongoing operations. In the nine months ended September 30, 2020, the Company increased its investments in marketable securities with proceeds from its public offerings.

Financing Activities

Net cash provided by financing activities was $339.9 million and $0.4 million for the nine months ended September 30, 2020 and 2019, respectively. For the nine months ended September 30, 2020, the net cash provided by financing activities consisted of net proceeds from public offerings of $334.4 million, and proceeds from share option exercises of $5.5 million. The net cash provided by financing activities in the nine months ended September 30, 2019 consisted of proceeds from share option exercises.

Non-GAAP Measures

Total Liquidity (a non-GAAP financial measure)

Total Liquidity (a non-GAAP financial measure) is the total of cash and cash equivalents and marketable securities. Each of these components appears in the condensed consolidated balance sheet. The U.S. GAAP financial measure most directly comparable to Total Liquidity is cash and cash equivalents as reported in the condensed consolidated financial statements, which reconciles to Total Liquidity as follows (in thousands):

	September 30, 2020	December 31, 2019
Cash and cash equivalents	$ 78,466	$ 50,412
Marketable securities - available-for-sale debt securities	321,442	39,130
Total Liquidity	**$ 399,908**	**$ 89,542**

We believe that the presentation of Total Liquidity provides useful information to investors because management reviews Total Liquidity as part of its management of overall liquidity, financial flexibility, capital structure and leverage. The definition of Total Liquidity includes investments, which are highly-liquid and available to use in our current operations, such as marketable securities.

Off-Balance Sheet Arrangements

We did not have during the periods presented, and we do not currently have, any off-balance sheet arrangements, as defined in the rules and regulations of the SEC.

Contractual Obligations

For a discussion of our contractual obligations, see “Part II, Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations” in our 2019 Annual Report on Form 10-K.

Safe Harbor

See the section titled “Information Regarding Forward-Looking Statements” at the beginning of this Quarterly Report.

Item 3. Quantitative and Qualitative Disclosures about Market Risk.

Smaller reporting companies are not required to provide information in response to this item under Item 10(f) of Regulation S-K, Securities Act Rule 405, Exchange Act Rule 12b-2 and Rule 3-05 of Regulation S-X.

Item 4. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e)) under the Securities and Exchange Act of 1934, as amended (“Exchange Act”) as of September 30, 2020. Based on such evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that, as of September 30, 2020, our disclosure controls and procedures were effective to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC’s rules and forms, and is accumulated and communicated to our management, including our Chief Executive and Chief Financial Officer, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure.

Changes in Internal Control over Financial Reporting

No changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) occurred during the quarter ended September 30, 2020 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II - OTHER INFORMATION

Item 1. Legal Proceedings.

As of September 30, 2020, we were not a party to any material legal proceedings.

Item 1A. Risk Factors.

Our business has significant risks. You should carefully consider the following risk factors as well as all other information contained in this Quarterly Report, including our condensed consolidated financial statements and the related notes, before making an investment decision regarding our securities. The risks and uncertainties described below are those significant risk factors currently known and specific to us that we believe are relevant to our business, results of operations and financial condition. Additional risks and uncertainties not currently known to us or that we now deem immaterial may also impair our business, results of operations and financial condition.

Risks Related to the COVID-19 pandemic

The outbreak of COVID-19 or any other similar pandemic may materially and adversely impact our business including our ability to advance our clinical programs and research pipeline as planned, to commercialize our therapies as planned or obtain additional financing on favorable terms or at all.

The outbreak of coronavirus, SARS-CoV-2 ("COVID-19") has developed into a global pandemic, spreading to most regions of the world including the United States, the United Kingdom and areas of Europe where we have facilities or ongoing clinical trials. The pandemic has impacted directly and indirectly businesses, including disruptions to resources, inability for workers to work, disruptions to supply chains, inability to travel, inability to publish data at or attend conferences, and increased pressure on health systems required to treat COVID-19 patients.

As a result of government and local regulation we have been required to introduce a work from home policy for at least some of our work force, with our facilities remaining open to support those activities that cannot be conducted from home, in particular the manufacture of cell therapies, treatment of clinical patients and research and development activities. The requirement to stay at home and the control measures required to mitigate risks to our work force including social distancing requirements imposed by government and local regulations limits effectiveness of our work force, the numbers of individuals that can work at the facility at any one time and is resulting in delays to performance of manufacturing, development and research activities. Increased working from home also impacts normal communications and may increase the cyber security risk or create data accessibility concerns. It also significantly curtails the numbers of individuals who can attend and work at our facilities which results in a reduction of lab-based work, particularly as required to progress research programs. As we increase the number of workers attending at our facilities, and restrictions outside of our facilities reduce this may also increase the risk of a COVID-19 outbreak impacting workers at that facility, despite measures in place to mitigate the risk to those workers. This could result in manufacturing operations or facilities being closed or necessitate a reduction in the work we are able to perform at those facilities which in turn could result in a delay to the treatment of patients and a delay in our research and development programs.

Further, given the impact of COVID-19 on health systems in impacted countries, many clinical sites have diverted resources away from the performance of clinical trials or have imposed restrictions on their ability to perform clinical trials, particularly where those clinical trials may increase the risk to the patients being treated. This has resulted in many of our clinical trial sites choosing to delay treatment of cell therapy patients and not enrolling or screening patients until the situation improves. This has inevitably delayed our ability to obtain data from our clinical trials and will extend the time required to complete enrollment in current clinical trials. We continue

to work with all our clinical sites to support them and the patients on our clinical trials and aim to safely treat patients as soon as possible or once the situation improves. Although we have provided our clinical sites with guidance in relation to the treatment of patients during the COVID-19 pandemic, there is an increased risk to our patients as a result of the pandemic including as a result of infection with COVID-19 whilst they are being treated in any of our clinical trials or are attending at clinical sites for routine scans or treatments. This risk is increased by the requirement in our clinical trial protocols to treat patients with a lymphodepletion regimen which leaves patient immune-compromised for a period of time.

Similarly, the COVID-19 pandemic may impact third parties necessary for commercialization of our cell therapies in the timelines and scales targeted. Developing a commercially viable process is a difficult and uncertain task, and there are risks associated with scaling to the level required for advanced clinical trials or commercialization, including the timely availability of reagents or raw materials or contract manufacturing services or facilities. A failure to develop such a commercially viable process within anticipated timescales may prevent or delay progression of our T-cell therapies into pivotal clinical trials and ultimately commercialization. This failure to develop a timely process may result from, for example, inability to scale-up within required timelines, inability to put in place the required processes and control measures for a commercial process, or failure of third parties (including vector suppliers) to put in place adequate facilities or processes to enable commercial manufacture. This risk is increased as we continue to rely on third parties for the availability of key materials and services, and such third parties are unable to commit to meeting the necessary timelines and scales targeted due to the on-going impact of COVID-19.

The COVID-19 pandemic continues to rapidly evolve and the extent to which it may impact our future business is highly uncertain and difficult to predict. The impact on global health systems, the life sciences industry more generally or the economy as a whole is not yet known. Depending on the length and progression of such pandemic, we may experience disruptions that would significantly impact our business. For our clinical programs we may experience delays or interruptions to our ability to enroll and treat patients in our trials, recruit patients and screen patients for eligibility to our clinical trials, initiate and activate clinical sites. The current restrictions in place as a result of COVID-19 will result in interruption to our ability and that of our clinical sites to conduct clinical trial activities in accordance with the applicable clinical trial protocol or other regulatory requirements including monitoring requirements, timing of patient visits, ability to follow patients after they have received treatment, ability to perform scans and patient assessments. Deviations and changes to clinical trial protocols may be required in order to address the interruptions caused by COVID-19. Inability to perform clinical trials in accordance with regulatory requirements may impact a later ability to obtain regulatory approval in relation to our cell therapies or may delay our ability to obtain such regulatory approval. There may also be delays in responses from regulatory authorities impacting our ability to obtain required regulatory approvals.

As a result of any delay in clinical trials and the restrictions imposed as a result of COVID-19 there may be a delay in our ability to raise further financing to support our business as a consequence of any delay to clinical data availability or opportunities to publish data, or impact on investment and stock prices more generally. Our ability to close and negotiate third party collaborations and progress existing third party collaborations may also be impacted, for example as a result in the delay to research and development activities. Given the U.K. and U.S. government ‘stay at home’ guidance delays will occur in research and development programs. The impact on operations in both the U.K. and U.S. may also be further impacted as a result of limitations on employee resources or third party resources and supplies caused by increased sickness, requirement for staff to care for family members or requirements for staff to self-isolate.

Risks Related to Our Financial Condition and Capital Requirements

We are a clinical-stage biopharmaceutical company with no commercial products and prediction of future performance is very difficult.

We are a clinical-stage biopharmaceutical company focused on novel cancer immunotherapy products. We have no products or therapeutics approved for commercial sale and have not generated any revenue from product supplies or royalties. Our therapeutic candidates, in particular our SPEAR T-cells, are new and largely unproven. Investment in biopharmaceutical product development is highly speculative because it entails substantial upfront capital expenditures and significant risk that any potential product candidate will fail to demonstrate adequate effect or an acceptable safety profile, gain regulatory approval and become commercially viable. Our inability to address these risks successfully would have a materially adverse effect on our business and prospects.

We have incurred net losses every year since our inception and expect to continue to incur net losses in the future.

We have generated losses since our inception in 2008, during which time we have devoted substantially all of our resources to research and development efforts relating to our SPEAR T-cells and other cell therapies (including the NY-ESO SPEAR T-cell), including engaging in activities to manufacture and supply our cell therapies for clinical trials in compliance with current good manufacturing practice, or cGMP, conducting clinical trials of our cell therapies, providing general and administrative support for these operations, enhancing capabilities to support commercialization plans for ADP-A2M4 and protecting our intellectual property. We do not have any products approved for sale and have not generated any revenue from product supplies or royalties. Based on our current plans, we do not expect to generate product or royalty revenues unless and until we obtain marketing approval for, and commercialize, any of our SPEAR T-cells or other cell therapies.

For the nine months ended September 30, 2020, and the years ended December 31, 2019 and 2018, we incurred net losses of $93.5, $137.2 million and $95.5 million, respectively. As of September 30, 2020, we had accumulated losses of $549.1 million. We expect to continue incurring significant losses as we continue with our research and development programs and to incur general and administrative costs associated with our operations. The extent of funding required to develop our product candidates is difficult to estimate given the novel nature of our cell therapies and their un-proven route to market and the impact of external factors including the COVID-19 pandemic; however, as we move towards commercialisation of our cell therapies the amount of funding required to support the activities enabling such commercialization will increase significantly. Our profitability is dependent upon the successful development, approval, and commercialization of our SPEAR T-cells and other cell therapies, further development of the NY-ESO SPEAR T-cells by GSK (given the NY-ESO program has now been transitioned to GSK), achieving collaboration agreement milestones under the GSK Collaboration and License Agreement and the Astellas Collaboration Agreement, progression of programs under the agreement with Universal Cells Inc. and achieving a level of revenue adequate to support our cost structure. We may never achieve profitability, and unless and until we do, we will continue to need to raise additional cash or alternative funding.

Although our financial statements have been prepared on a going concern basis, if we fail to obtain additional financing in the future, this may raise substantial doubt about our ability to continue as a going concern in future reporting periods

As of September 30, 2020, the Company had cash and cash equivalents of $78.5 million, marketable securities of $321.4 million, and stockholders' equity of $376.2 million. During the nine months ended September 30, 2020, the Company incurred a net loss of $93.5 million, generated cash of $24.4 million from its operating activities, and generated revenues of $2.5 million. The Company has incurred net losses in most periods since inception and it expects to incur operating losses in future periods. On January 13, 2020, the Company entered into the Astellas Collaboration Agreement. The Company received an upfront payment of $50.0 million in January 2020 under the agreement and is entitled to receive research funding of up to $7.5 million per year on a per collaboration target basis. Additional milestones are possible under the agreement, but these are dependent on the success of the development and commercialization of research and products.

On January 24, 2020, the Company closed an underwritten public offering of 21,000,000 ADSs which, together with the full exercise by the underwriters on February 7, 2020, of their option to purchase an additional 3,150,000 ADSs, generated net proceeds of $90.5 million. In addition, on June 4, 2020, the Company closed an underwritten public offering of 23,575,000 ADSs, which included 3,075,000 ADSs pursuant to the full exercise by the underwriters of their option to purchase additional ADSs and generated net proceeds of $243.8 million.

We believe that our Total Liquidity, combined with the upfront payment and the proceeds from the public offerings of ADSs described above, will be sufficient to fund our operations, based upon our currently anticipated research and development activities and planned capital spending, into 2022. This belief is based on estimates that are subject to risks and uncertainties and may change if actual results differ from management's estimates.

We have never generated any revenue from sales of our cell therapies and our ability to generate revenue from sales of our cell therapies and become profitable depends significantly on our success in a number of factors.

We have no cell therapies approved for commercial sale, have not generated any revenue from sales of our cell therapies, and do not anticipate generating any revenue from sales of our cell therapies until sometime after we receive regulatory approval, if at all, for the commercial sale of a cell therapy. We intend to fund future operations through milestone payments under the GSK Collaboration and

License Agreement and the Astellas Collaboration Agreement and through additional equity financings or other third party collaborations. Our ability to generate revenue and achieve profitability depends on our success in many factors, including:

- completing preclinical development and advancing our cell therapies to clinic;
- delivering on the clinical development strategy for our cell therapies including the strategy associated with the aim to commercialize ADP-A2M4 in synovial sarcoma and in the future, other indications;
- progressing our clinical trials and development activities within predicted timeframes and without any substantial delays, for example as may be caused by delays in patient recruitment, regulatory requirements to hold or suspend any clinical trials, delays from the COVID-19 outbreak or similar pandemics or delays in obtaining approvals required to conduct clinical trials;
- demonstrating a favorable benefit (efficacy parameters): risk (safety) for our SPEAR T-cells and the NY-ESO SPEAR T-cell that translate into a differentiated product of value for patients;
- obtaining data from clinical trials which are ongoing for SPEAR T-cells;
- obtaining regulatory approvals and marketing authorizations for SPEAR T-cells for which we or our collaborator complete clinical trials;
- developing sustainable and scalable manufacturing and supply processes for our cell therapies, including establishing and maintaining commercially viable supply relationships with third parties and establishing our own commercial manufacturing and supply chain capabilities and infrastructure;
- developing a reliable and commercially viable/cost effective commercial manufacturing process to enable commercial supply of our cell therapies;
- launching and commercializing therapies for which we obtain regulatory approvals and marketing authorizations, either directly or with a collaborator or distributor;
- obtaining market acceptance, pricing and reimbursement of our SPEAR T-cells and other cell therapies as viable treatment options;
- addressing any competing technological and market developments;
- identifying, assessing, acquiring and/or developing new cell therapies including new SPEAR T-cells;
- maintaining, protecting, and expanding our portfolio of intellectual property rights, including patents, trade secrets and know-how; and
- attracting, hiring and retaining qualified personnel.

Even if one or more of the SPEAR T-cells is approved for commercial sale, we anticipate incurring significant costs associated with commercializing any approved SPEAR T-cell. Our expenses could increase beyond expectations if the FDA or any other regulatory agency requires changes to our manufacturing processes or assays, or for us to perform preclinical programs and clinical or other types of trials in addition to those that we currently anticipate, including where such additional requirements result from impacts caused by the COVID-19 outbreak. If we are successful in obtaining regulatory approvals to market one or more cell therapies, our revenue will be dependent, in part, upon the size of the markets in the territories for which we gain regulatory approval, the accepted price for the cell therapy, the ability to get reimbursement at any price, and whether we own the commercial rights for that territory. If the number of our addressable disease patients is not significant or not as significant as we estimate, the indication approved by regulatory authorities is narrower than we expect, or the reasonably accepted population for treatment is narrowed by competition, physician choice or treatment guidelines, we may not generate significant revenue from sales or supplies of such cell therapies, even if approved. If we are not able to generate revenue from the sale of any approved cell therapies, we may never become profitable.

If we fail to obtain additional financing, we may be unable to complete the development and commercialization of our cell therapies.

Our operations have required substantial amounts of cash since inception. We expect to continue to spend substantial amounts to continue the development of our cell therapies, including future clinical trials. If we receive approval for any of our SPEAR T-cells or other cell therapies, we will require significant additional amounts in order to launch and commercialize these therapeutic candidates.

As of September 30, 2020, we had $78.5 million of cash and cash equivalents and $321.4 million of marketable securities. We expect to use these funds to advance and accelerate the clinical development of our cell therapies, to further develop and enhance our manufacturing capabilities and secure a commercially viable manufacturing platform for all of our cell therapies, to advance additional cell therapies into preclinical testing and progress such cell therapies through to clinical trials, to enhance our capabilities to support commercialisation plans for ADP-A2M4 and to fund working capital, including for other general corporate purposes. Changing circumstances beyond our control, including changes to the scope and timing of the programs under the GSK Collaboration and License Agreement and the Astellas Collaboration Agreement, delays caused by third party providers, delays to business operations caused by the COVID-19 outbreak or similar pandemic or data seen in any of our clinical trials may cause us to increase our spending significantly faster than we currently anticipate. We will require additional capital for the further development and commercialization of our cell therapies in accordance with currently planned operations.

We cannot be certain that additional funding will be available on acceptable terms, or at all. We have no committed source of additional capital and if we are unable to raise additional capital in sufficient amounts or on terms acceptable to us, we may have to significantly delay, scale back or discontinue the development or commercialization of our cell therapies or other research and development initiatives. Our license and supply agreements may also be terminated if we are unable to meet the payment obligations under these agreements. We could be required to seek collaborators for our cell therapies at an earlier stage than otherwise would be desirable or on terms that are less favorable to us than might otherwise be available or relinquish or license on unfavorable terms our rights to our cell therapies in markets where we otherwise would seek to pursue development or commercialization ourselves. Any of the above events could significantly harm our business, prospects, financial condition and results of operations and cause the price of our American Depositary Shares, or ADSs, to decline.

Raising additional capital may cause dilution to our existing shareholders, restrict our operations or require us to relinquish rights to our technologies or product candidates.

We may seek additional capital through a combination of public and private equity offerings, debt financings, strategic partnerships and alliances and licensing arrangements. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms may include liquidation or other preferences that adversely affect your rights as a shareholder. The incurrence of indebtedness would result in increased fixed payment obligations and could involve certain restrictive covenants, such as limitations on our ability to incur additional debt, limitations on our ability to acquire or license intellectual property rights and other operating restrictions that could adversely impact our ability to conduct our business. If we raise additional funds through strategic partnerships and alliances and licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies or product candidates, or grant licenses on terms unfavorable to us.

Risks Related to the Development of Our Cell Therapies

Our business is highly dependent on our wholly-owned SPEAR T-cell candidates including ADP-A2M4, ADP-A2M4CD8, and ADP-A2AFP, which will require significant additional clinical testing before we can seek regulatory approval and begin commercialization of any of our SPEAR T-cells.

There is no guarantee that any SPEAR T-cells will achieve regulatory approval or proceed to the next stage of clinical programs. The process for obtaining marketing approval for any candidate is very long and risky and there will be significant challenges for us to address in order to obtain marketing approval, if at all.

There is no guarantee that the results obtained in current clinical trials for our ADP-A2M4, ADP-A2M4CD8, and ADP-A2AFP SPEAR T-cells will be sufficient for us to plan one or more pivotal clinical trials and obtain regulatory approval or marketing authorization. Negative results in any SPEAR T-cell clinical program (including in any program using the NY-ESO SPEAR T-cell) may also impact our ability to obtain regulatory approval for other SPEAR T-cells or other cell therapies, either at all or within anticipated timeframes because, although the SPEAR T-cell may target a different cancer peptide, the underlying technology platform and other

aspects of our clinical programs are the same or substantially similar for all of our SPEAR T-cells and may be the same for certain other cell therapies. Accordingly, a failure or delay in any one program may affect the ability to obtain regulatory approval to continue or conduct clinical programs for other SPEAR T-cells or related cell therapies.

The data produced in our ongoing clinical trials is at an early stage and future data may not show responses in patients treated or support continued progression of any of our therapies through development.

The patient response data that has been reported in our ADP-A2M4 trials (other than for synovial sarcoma), ADP-A2AFP trials and ADP-A2M4CD8 trials represents data from small numbers of patients within each study at the applicable dosing level. As such, the data is initial data and we cannot know at this stage whether any patient who has seen a response will continue to respond favorably to our therapy or that any response will persist. In addition, given the data is initial patient data, there is no assurance that we will see responses in any other patients or that such patients will not suffer severe adverse events which may result in a delay or halt to any clinical trial. Further data may be required in order to determine whether any specific SPEAR T-cell is able to be further developed, proceed to the next stage of clinical program and in particular whether any SPEAR T-cell will achieve regulatory approval

We plan to provide further data updates as and when the applicable data is believed to be sufficiently mature. We do not, however, intend to update patient response information on a frequent basis or as and when we obtain further patient information. Given the nature of T-cell therapies and the time taken to observe patient responses to our SPEAR T-cells, we cannot provide any assurance that further data updates will be provided frequently or that such data updates will be available at any particular time. In addition, data updates may be delayed as a result of the progression of COVID-19 and the resulting delay in conference meetings.

Negative results in any clinical program may also impact our ability to obtain regulatory approval for other SPEAR T-cells or related cell therapies, either at all or within anticipated timeframes because, although the SPEAR T-cell may target a different cancer peptide, the underlying technology platform and other aspects of our clinical programs are the same or substantially similar for all of our SPEAR T-cells and cell therapies. Accordingly, a failure or delay in any one program may affect the ability to obtain regulatory approval to continue or conduct clinical programs for other cell therapies.

We may not be able to commercialize our cell therapies as broadly as planned or on the timescales we plan.

Our ability to commercialize is dependent on the clinical data from our clinical trials and the ability to obtain regulatory authority approval for the use of our cell therapy in any specific indication. Obtaining regulatory approval for a new cell therapy is inherently risky and can require additional documentation, evidence, data or a requirement for the development of further processes or assays before approval can be obtained. In addition although approval may be obtained in one country, there is no certainty that approval can be obtained in other countries based on the same data or documentation that has been filed. In addition, although we may believe that the clinical data support marketing authorisation in any particular indication, the regulatory authorities may disagree and additional clinical data may be required before we can obtain marketing authorisation. For example in our ADP-A2M4 trial in synovial sarcoma indications and MRCLS indications, it is not currently known whether we will be able to treat sufficient patients in both indications or obtain clinical data in both indications to support the filing of an application for regulatory approval or whether the clinical data seen in both indications will support the filing for regulatory approval in both indications.

Commercialization of our cell therapies requires the filing of an application for marketing authorisation and the development of processes and characterization of processes for manufacture that are satisfactory to regulatory authorities. Development and characterization of suitable processes and cell therapy products takes a large amount of resource and time and the regulatory authorities may not agree that any processes are satisfactory, either as part of any application for marketing authorisation or alternatively following an inspection of those processes and our facilities. For example, the potency of our cell therapies will need to be assessed by a potency assay and although we believe that our assay will be satisfactory to assess potency, the regulatory authorities may disagree. Development of additional assays or further charactersiation or validation of any part of our process or the assays used will delay our ability to obtain marketing authorisation and ultimately to commercialize any cell therapy. In addition, manufacture of a commercial cell therapy will require an increase in manufacturing capacity and it is not currently known whether this will be possible on the timescales currently planned for commercialization.

Our ability to commercialize is dependent on certain third parties, including third parties who supply raw materials or intermediate materials for our cell manufacturing processes. For example, our lentiviral vector which is used to manufacture our ADP-A2M4 cell therapy is manufactured by a third party and we are also using a third party to develop the companion diagnostic assay that will assess presence of the required target antigen in patients. In order to file the required regulatory information in support of our application for a marketing authorisation, information and development of a characterised process may be required by such third parties. These third parties may be unable to provide the information or develop and required processes or assays in accordance with the timescales we require and this may delay our ability to obtain marketing authorisation for our cell therapies. In addition commercialisation of our cell therapies will require approval for and access to a companion diagnostic. Development of a companion diagnostic can take some time and there is no certainty that development will be possible in the timelines we require, including as a result of the impact of the COVID-19 pandemic.

We may not be able to submit INDs, or the foreign equivalent outside of the U.S., to commence additional clinical trials for cell therapies on the timeframes we expect, and even if we are able to, the FDA or comparable foreign regulatory authorities may not permit us to proceed with planned clinical trials.

Progression of new cell therapies, including other SPEAR T-cells, into clinical trials is inherently risky and dependent on the results obtained in preclinical programs, the results of other clinical programs and results of third-party programs that utilize common components, such as production of the lentiviral vector lot used for production and administration of our SPEAR T-cell. If results are not available when expected (including as a result of delays caused by the COVID-19 outbreak) or problems are identified during any cell therapy development, we may experience significant delays in development of pipeline products and in existing clinical programs, which may impact our ability to receive regulatory approval. This may also impact our ability to achieve certain financial milestones and the expected timeframes to market any of our cell therapies. Failure to submit further INDs or the foreign equivalent and commence additional clinical programs will significantly limit our opportunity to generate revenue.

There is no guarantee that the FDA, or any other regulatory authority, will approve any IND (or equivalent application) for any of our future cell therapies, or for new indications for our SPEAR T-cells already in clinical trials, or that amendments to existing protocols will not be required (including as a result of the COVID-19 outbreak). For example, we amended the protocols for all of our pending and on-going ADP-A2M4 and ADP-A2M10 clinical trials in response to reported serious adverse events of prolonged serious pancytopenia in our clinical trials for ADP-A2M4 and ADP-A2M10 in two patients treated with the highest lymphodepletion regimen. Updates and changes to clinical trial documentation (such as protocols, Investigators Brochure, informed consent forms) may be required for ADP-A2M4CD8 given a further event of pancytopenia has been reported and evaluation of that further event remains ongoing. Such

amendments and updates may delay our clinical trials, may require changes or resubmission of our INDs, or may result or be related to a halt in our planned or contemplated clinical trials.

We are continuing to expand our clinical trial footprint in Europe. This requires gaining the approval of country specific review bodies for GMO application and Clinical Trial Application ("CTA"). As this is not a harmonized process, the requirements can vary considerably, and delays can be incurred at a country level. For example, the information required in relation to manufacturing processes or assays may differ between countries and may require additional testing to be conducted in order for approval to be obtained.

In the USA, some institutional review boards, or IRBs, have requested that the Sponsor obtain Investigational Device Exemptions (IDE) from the FDA for the validated clinical trial assay being used to select patients. This has delayed the initiation of some sites and limited the ability to obtain high risk biopsies until an IDE has been granted. We plan to proactively seek IDEs for our cell therapy assays where appropriate.

Our cell therapies being developed may have potentially fatal cross-reactivity to other peptides or protein sequences within the human body.

One of our prior SPEAR T-cells, designed to target an HLA-1 restricted MAGE-A3 cancer-specific peptide, recognized another unrelated peptide from a protein called TITIN, expressed within normal cardiac and other muscle tissues in patients. As a result of this cross-reactivity to the TITIN protein in the heart, two patients died during our MAGE-A3 clinical program, the program was put on pause, then formally placed on hold by the FDA, after which we terminated the program. We subsequently developed a preclinical safety testing program that identifies potential cross-reactivity risks but there may be gaps or other problems detected in the testing program at a later date. Even with the use of this testing program, there can be no guarantee that the FDA will permit us to begin clinical trials of any additional SPEAR T-cells other than those for which INDs already exist or that other off-target cross-reactivity will not be identified or present in any patient group. Failure to develop an effective preclinical safety testing program will prevent or delay clinical trials of any SPEAR T-cell. Detection of any cross-reactivity will halt or delay any ongoing clinical trials for any SPEAR T-cell and prevent or delay regulatory approval. Given that the underlying technology platform, manufacturing process and development process is similar or has shared elements for all of our cell therapies, issues pertaining to cross-reactivity for one SPEAR T-cell may impact our ability or our collaborator's ability to obtain regulatory approval for other cell therapies undergoing development and clinical trials, which would significantly harm our business, prospects, financial condition and results of operations.

Cross-reactivity or allo-reactivity (binding to peptides presented on other HLA types) could also occur where the affinity-enhanced engineered TCR contained within any cell therapy including SPEAR T-cells binds to peptides presented by HLAs other than the HLA type for which the relevant TCR was developed. We have developed a preclinical screening process to identify allo-reactivity risk, however it is not possible to identify all potential risks or to screen all HLA types. Where any allo-reactivity risk is identified, patients with the allo-reactive alleles will be excluded from the trial. Any allo-reactivity or other cross-reactivity that impacts patient safety could materially impact our ability to advance our SPEAR T-cells into clinical trials or to proceed to market approval and commercialization. In addition, there is no guarantee that exclusion of patients with the identified allo-reactive allele will successfully eliminate the risk of allo-reactivity, and serious side effects for patients may still exist. Given that the underlying technology platform, manufacturing process and development process are similar or shared for all of our cell therapies, issues pertaining to allo-reactivity for one SPEAR T-cell may impact our ability or our collaborator's ability to obtain regulatory approval for other cell therapies undergoing development and clinical trials, which would significantly harm our business, prospects, financial condition and results of operations.

Our T-cell therapy, which is a type of cell therapy that uses gene therapy technology, represents a novel approach to cancer treatment that could result in heightened regulatory scrutiny, delays in clinical development, or delays in our or our collaborator's ability to achieve regulatory approval or commercialization of cell therapies including our SPEAR T-cells.

Use of any of our cell therapies to treat a patient requires the use of gene therapy technology, which involves combining a patient's T-cells with our lentiviral delivery vector or other vector containing the gene for our affinity-enhanced engineered receptor or TCR. This is a novel treatment approach that carries inherent development risks. We are therefore constantly evaluating and adapting our cell therapies following the results obtained during development work and the clinical programs. Further development, characterization and evaluation may be required, depending on the results obtained, in particular where such results suggest any potential safety risk for patients. The need to develop further assays, or to modify in any way the protocols related to our cell therapies to improve safety or effectiveness, may delay the clinical program, regulatory approval or commercialization, if approved at all, of any cell therapy.

Consequently, this may have a material impact on our ability to receive milestone payments and/or generate revenue from our SPEAR T-cells or other cell therapies.

In addition, given the novelty of our cell therapies, the end users and medical personnel require a substantial amount of education and training in their administration of cell therapies. Regulatory authorities have very limited experience with commercial engineered cell therapies and SPEAR T-cells for the treatment of cancer. As a result, regulators may be more risk averse or require substantial dialogue and education as part of the normal regulatory approval process for each stage of development of any cell therapy. To date, only a limited number of gene therapy products have been approved in the United States and European Union. Consequently, it is difficult to predict and evaluate what additional regulatory hurdles may apply to the development of our cell therapies and whether additional investment, time or resources will be required to overcome any such hurdles.

Additionally, because our technology involves the genetic modification of patient cells*ex-vivo* using a viral vector, we are subject to many of the challenges and risks of gene therapy, including the following challenges:

- Regulatory requirements governing gene and cell therapy products have changed frequently and may continue to change in the future.
- Random gene insertion associated with retrovirus-mediated genetically modified products, known as insertional oncogenesis, could lead to lymphoma, leukemia or other cancers, or other aberrantly functioning cells. Insertional oncogenesis was seen in early gene therapy studies conducted outside of the United States in 2003. In those studies, insertional oncogenesis resulted in patients developing leukemia following treatment with the relevant gene therapy, with one patient dying. As a result of the data from those studies, the FDA temporarily halted gene therapy trials in the United States. The previous trials involved modification of stem cells rather than T-cells and utilized a murine gamma-retroviral vector rather than a lentiviral vector. We cannot guarantee that insertional oncogenesis resulting from administration of our SPEAR T-cells or other cell therapies will not occur.
- Although our viral vectors are not able to replicate, there may be a risk with the use of retroviral or lentiviral vectors that they could undergo recombination and lead to new or reactivated pathogenic strains of virus or other infectious diseases.
- There is the potential for delayed adverse events following exposure to gene therapy products due to persistent biological activity of the genetic material or other components of products used to carry the genetic material. In part for this reason, the FDA recommends a 15-year follow-up observation period for all surviving patients who receive treatment using gene therapies in clinical trials. We may need to adopt such an observation period for our therapeutic candidates; however, the FDA does not require that the tracking be complete prior to its review of the Biologics License Application, or BLA.
- Clinical trials using genetically modified cells may be subject to additional or further regulatory processes, for example by the NIH Office of Biotechnology Activities' Recombinant DNA Advisory Committee, or RAC or the need to apply for a specific applications relating to the use of Genetically Modified Organism application in the European Union. These additional processes may delay or impede the initiation of a clinical trial.
- Increased risk to patient safety caused by the need to lymphodeplete patients prior to administration of our cell therapies including in circumstances in which there is a heightened safety risk or in which medical resources could be prioritized elsewhere, for example during a pandemic such as COVID-19.

If adverse events of the type described above were to occur, further advancement of our clinical trials could be halted or delayed, which would have a material adverse effect on our business and operations. In addition, heightened regulatory scrutiny of gene therapy product candidates may result in delays and increased costs in bringing a product candidate to market, if at all. Delay or failure to obtain, or unexpected costs in obtaining, the regulatory approval necessary to bring a potential product to market could decrease our ability to generate revenue in the future.

In addition, results seen in third party clinical trials using other cell therapy products, for example CAR-T products, or in clinical trials conducted by our collaborators may impact on the further advancement of our clinical trials.

Results seen in third party clinical trials using products that are also used in our combination clinical trials, may impact on the further advancement of our similar clinical trials or clinical trials of our collaborators where similar product types are used.

T-cell therapy is a novel approach to cancer treatment that creates significant increased risk in terms of side-effect profile, ability to satisfy regulatory requirements associated with clinical trials and the long- term viability of administered SPEAR T-cells or other cell therapies.

Development of a pharmaceutical or biologic therapy or product has inherent risks based on differences in patient population and responses to therapy and treatment. The mechanism of action and impact on other systems and tissues within the human body following administration of our cell therapies is not completely understood, which means that we cannot predict the long-term effects of treatment with any of our cell therapies (whether by us or a collaborator). In addition, it is not possible for any pre-clinical safety package to completely identify all potential safety risks.

We are aware that certain patients do not respond to our SPEAR T-cells and that other patients may relapse or cease to present the peptide being targeted by such SPEAR T-cells. The percentage of the patient population in which these events may occur is unknown, but the inability of patients to respond and the possibility of relapse may impact our or our collaborator's ability to conduct clinical trials, to obtain regulatory approvals, if at all, and to successfully commercialize any SPEAR T-cell.

Clinical trials using our cell therapies are still in the early stages, and it is difficult to predict the results that will be obtained by us or our collaborator in ongoing clinical trials or the next phase or phases of any clinical program. It is also difficult to predict the way in which SPEAR T-cells or other cell therapies will interact with third-party products used in combination clinical trials. Any undesirable side effects seen in combination trials may affect our ability or our collaborator's ability to continue with and obtain regulatory approval for any combination therapy and may also impact our or our collaborator's ability to continue with and obtain regulatory approval for the cell therapies alone. These side effects may be exacerbated by external circumstances such as the COVID-19 pandemic or other similar events. Our patients undergo lymphodepletion prior to receiving our SPEAR T-cells which leaves them immune-compromised for a period of time after the lymphodepletion and increases their risk of contracting other unrelated diseases or pathogens including COVID-19.

There is a significant risk at each stage of any clinical program that serious adverse events or low efficacy, as well as less favorable benefit:risk profiles, will prevent any SPEAR T-cell program from proceeding further or will result in those programs being suspended or placed on hold (whether voluntarily or as a result of a regulatory authority requirement). For example, there is a risk that the target (or similar) peptide to which any SPEAR T-cell is directed may be present in both patients' cancer cells and other non-cancer cells and tissues. Should this be the case, patients may suffer a range of side effects associated with the SPEAR T-cell binding to both the cancer cells and/or other cells and tissues and such side effects could cause patient death. The extent of these side effects will depend on which cells and tissues are affected as well as the degree to which the target (or similar) peptide is expressed in these cells and tissues. The treatment regimen used in our protocols, in particular the use of chemotherapy, also carries an inherent risk of cytopenia, where blood cell levels reduce to lower than normal. If blood cell levels do not recover sufficiently the patient may suffer serious adverse events, which may even be life threatening. Serious adverse events seen with other immunotherapy products, such as the severe cytokine release syndrome ("CRS") and neurotoxicity events observed with CD19-directed CAR-T cell treatments, may also occur at any stage of the clinical program. Further, following infusion of any SPEAR T-cells, there may be a transient inflammatory reaction of the disease to the treatment. Symptoms in any given subject would be dependent on the location and other characteristics of their tumor. For example, subjects with lung tumors may experience dyspnea. Cardiac toxicities may be observed in patients with pre-existing cardiac or pericardial masses. These inflammatory reactions and related symptoms may be mild and self-limited, but can be severe, potentially life-threatening and require medical intervention.

Summary information on adverse events seen in relation to each of our cell therapies are provided below as of particular dates. We have not seen any significant changes in the type of adverse events observed since those previously communicated in our Annual Report.

Summary information on adverse events seen in relation to each of our cell therapies are provided below as of particular dates.

As of July 6, 2020, for ADP-A2AFP:

- The adverse events occurring in >10% of patients treated with ADP-A2AFP and considered by investigators to be at least possibly related to ADP-A2AFP include neutropenia/neutrophil count decreased, leukopenia/white blood cell count

decreased, lymphopenia/lymphocyte count decreased, thrombocytopenia/platelet count decreased, hypoalbuminemia, febrile neutropenia, neutropenia/neutrophil count decreased, pyrexia, increase in alanine aminotransferase, increase in aspartate aminotransferase, increase in alkaline phosphatase, diarrhea, vomiting, CRS, hyperkalemia, hypokalemia, lethargy, cognitive disorder, hypotension, infusion related reaction, pain in extremity, fatigue and muscular weakness. Serious adverse events reported with ADP-A2AFP whether considered related to the SPEAR T-cells or not include CRS, infusion related reaction, neutropenia/neutrophil count decreased, bile duct obstruction and abdominal pain.

As of August 3, 2020, for ADP-A2M4 pilot trial:

- The adverse events occurring in >10% of patients treated with ADP-A2M4 and considered by investigators to be at least possibly related to ADP-A2M4 include neutropenia/neutrophil count decreased, thrombocytopenia/platelet count decreased, lymphopenia/lymphocyte count decreased, anemia/red blood cells decreased, CRS, fatigue, pyrexia, decreased appetite, rash, dyspnoea, sinus tachycardia/tachycardia, hypophosphatemia, headache, nausea, chills, diarrhoea, hypotension and tumor pain.

- Serious adverse events reported with ADP-A2M4 in two or more patients whether considered related to the SPEAR T-cells or not include CRS, pneumonia, sepsis, pyrexia, pancytopenia, atrial fibrillation, neurotoxicity, thrombocytopenia/platelet count decreased, and pleural effusion. Two patients have had treatment related fatal SAE reports - one patient experienced prolonged pancytopenia/aplastic anemia and the other experienced a cerebrovascular accident (stroke).

As of June 25, 2020, for ADP-A2M10:

- The adverse events occurring in >10% of patients treated with ADP-A2M10 and considered by investigators to be at least possibly related to ADP-A2M10 include leukopenia/white blood cells decreased, lymphopenia/lymphocyte count decreased, thrombocytopenia/platelet count decreased, pyrexia, CRS, peripheral edema, sinus tachycardia/tachycardia, anemia/red blood cells decreased, and rash. Serious adverse events reported with ADP-A2M10 in two or more patients, whether considered related to the SPEAR T-cells or not, include, CRS, neutropenia/neutrophil count decreased and acute kidney injury. One patient had a treatment-related fatal SAE of prolonged pancytopenia with aplastic anemia following treatment with a second infusion of ADP-A2M10.

As of October 1, 2020, for ADP-A2M4CD8:

- The adverse events occurring in one or more patients and considered by investigators to be at least possibly related to ADP-A2M4CD8 include lymphopenia/lymphocyte count decreased, neutropenia/neutrophil count decreased, CRS, fatigue, decreased appetite, hypocalcaemia, hypomagnesaemia, weight decreased, acute kidney injury, hypoxia, neurotoxicity, pleural effusion, pruritus, pustule, pyrexia and vomiting. There has been one reported SAE: one subject experienced Grade 1 CRS, considered probably related to ADP-A2M4CD8.

In addition, following the October 1, 2020 data cut-off date, the same patient experienced Grade 3 pancytopenia, considered by the investigator as possibly related to treatment with ADP-A2M4CD8, fludarabine and cyclophosphamide. There is another patient who experienced Grade 2 CRS and Grade 2 immune effector cell-associated neurotoxicity syndrome (ICANS). Both events were considered probably related to treatment by the investigator. Both cases have been reported to the FDA and EMA.

Validation of our cell therapies requires access to human samples but there is no guarantee that such samples can be obtained or, if they can be obtained, that the terms under which they are provided will be favorable to us.

Certain of the steps involved in validating and carrying out safety testing in relation to our cell therapies require access to samples (e.g., tissues samples or cell samples) from third parties. Such samples may be obtained from universities or research institutions and will often be provided, subject to satisfaction of certain terms and conditions. There can be no guarantee that we will be able to obtain samples in sufficient quantities to enable development of and use of the full preclinical safety testing program for all cell therapies undergoing research and development, particularly during the period in which COVID-19 impacts the ability of research institutions to supply and

access such samples. In addition, the terms under which such samples are available may not be acceptable to us or may restrict our use of any generated results or require us to make payments to the third parties.

Our cell therapies and their application are not fully scientifically understood and are still undergoing validation and investigation.

Cell therapies including our SPEAR T-cells and their potential associated risks are still under investigation. There is no guarantee that any of our cell therapies including our SPEAR T-cells will work in the way that we currently anticipate or that affinity modification of the receptors within T-cells or other cellular therapies will produce the anticipated enhancements in activity. For example, there is a potential risk that, given that the TCR chains in our SPEAR T-cells are produced separately and then assembled within patient T-cells into full TCRs, the TCR chains from both transduced and naturally occurring T-cells could be assembled into an unintended end TCR due to mispairing of TCR chains, which could create unknown recognition and cross-reactivity problems within patients. Although this phenomenon has not been reported in humans, it remains a theoretical risk for our SPEAR T-cells and other similar cell therapies and is still being studied and investigated. This could delay regulatory approval, if any, for the relevant cell therapy. To the extent that any mispairing is identified, either in our or our competitors' clinical trials, additional investment may be required in order to modify relevant cell therapies and to further assess and validate the risk of such mispairing to patients. There is also no guarantee that following modification of the relevant SPEAR T-cell or other cell therapy, such modified cell therapy will remain suitable for patient treatment, that it will eliminate the risk of mispairing of TCR chains or that regulatory approval will be obtained at all or on a timely basis in relation to such modified cell therapy. The occurrence of such events would significantly harm our business, prospects, financial condition and results of operations.

We may not be able to identify and validate additional target peptides or isolate and develop affinity-enhanced TCRs that are suitable for validation and further development.

The success of our cell therapies depends on both the identification of target peptides presented on cancer cells, which can be bound by our cell therapy products, and isolation and affinity enhancement of receptors including TCRs, which can be used to treat patients if regulatory approval is obtained. There is an inherent risk that the number of target peptides that can be identified and/or our ability to develop and isolate suitable receptors for affinity enhancement could be significantly lower than projected or that no additional cell therapies suitable for further development can be identified. Any failure to identify and validate further target peptides will reduce the number of potential SPEAR T-cells and other cell therapies that we can successfully develop, which in turn will reduce the commercial opportunities available to us and increase our reliance on our existing SPEAR T-cells. Delays in our ability to identify and develop target peptides and cell therapies, including as caused by COVID-19 or similar pandemics, may also impact our ability to progress development of programs and obtain additional funds to support our business.

In addition, there is no guarantee that our attempts to develop further SPEAR T-cells will result in candidates for which the safety and efficacy profiles enable progression to and through preclinical testing. Failure to identify further candidates for progression into preclinical testing and clinical programs will significantly impact our commercial returns, increase our reliance on the success of our existing SPEAR T-cell programs and may significantly harm our business, prospects, financial condition and results of operations. If resources become limited or if we fail to identify suitable target peptides, receptors including TCRs or affinity-enhanced receptors, our ability to submit INDs for further cell therapies may be delayed or never realized, which would have a materially adverse effect on our business. We have multiple research projects ongoing both internally and with third parties, for example Universal Cells, Inc., Noile-Immune Biotech, Inc., Alpine Immune Sciences Inc. and Bellicum, Inc. The outcomes of these research projects are uncertain and such research projects may or may not generate cell therapies with profiles suitable for further development or progression into clinical trials.

We may encounter substantial delays in our clinical trials or may not be able to conduct our trials on the timelines we expect.

Conduct of clinical trials is dependent on finding clinical sites prepared to carry out the relevant clinical trials, screening of patients by the clinical sites, recruitment of patients both in terms of number and type of patients and general performance of the relevant clinical site. It is difficult to predict how quickly we or our collaborators will be able to recruit suitable patients, find suitable sites, begin clinical programs and administer our cell therapies including our SPEAR T-cells. In addition, during the COVID-19 outbreak, resources at clinical sites are being prioritized towards treatment of COVID-19 and as a result there may be a delay in their ability to progress our clinical trials, recruit and enroll patients in to clinical trials or to start new clinical trials. The patient population in which any required peptide antigen is presented may be lower than expected which will increase the timescales required to find and recruit patients into the applicable clinical trial. Screening of a large number of patients is required to identify HLA and tumor antigen positive patients for all of our clinical trials with our SPEAR T-cells. Any delay in identification of suitable patients will result in the Company incurring additional

costs associated with the need to find and initiate additional clinical trial sites. It is also difficult to predict whether changes may be required to any clinical trial design as our clinical trials progress. The need to make changes to any clinical trial design can result in delays to the performance of that clinical trial whilst any changes are approved and implemented at applicable clinical trial sites.

Our and our collaborator's clinical trials will compete with other clinical trials that are in the same therapeutic areas as our cell therapies, which will reduce the number and types of patients available to us, because some patients who might have opted to enroll in our trials may instead opt to enroll in a trial being conducted by one of our competitors. In addition, GSK is also opening T-cell therapy clinical trials in synovial sarcoma and MRCLS in the U.S. and European Union which could impact the number of sites available to us to run our ADP-A2M4 trials in the same indications and the number and types of patients in these indications available to us. Because the number of qualified clinical investigators is limited, we will conduct some of our clinical trials at the same clinical trial sites where competing trials are ongoing, which will reduce the number of patients who are available for our clinical trials at such clinical trial sites. Moreover, because our cell therapies represent a departure from more commonly used methods for cancer treatment, potential patients and their physicians may opt to use conventional therapies, such as chemotherapy and hematopoietic cell transplantation, rather than enrollment in any of our current or future clinical trials. This may also mean we cannot recruit patients at a suitable time in their disease progression. In addition, in relation to any indication, the standard of care for patients in that indication may change or further develop meaning that clinical sites are no longer prepared to continue with any clinical trial or require amendments to agreed protocols for clinical trials. For example, the standard of care in melanoma changed during the course of our clinical trials in melanoma with the NY-ESO SPEAR T-cell and as a result the clinical trial was halted due to anticipated unavailability of patients. Such circumstances can lead to the suspension of the relevant clinical trial at a site, inability to recruit further patients at that clinical site or a requirement to amend the protocol, all of which will delay or potentially halt progression of a cell therapy through clinical trials.

Even if we are able to enroll a sufficient number of patients in our clinical trials, delays in patient enrollment may result, and have resulted in, increased costs or may affect the timing or outcome of the planned clinical trials, which could prevent completion of these trials and adversely affect our and our collaborator's ability to advance the development of our SPEAR T-cells and other cell therapies.

Comparability studies related to the manufacturing of any cell therapies may be required ahead of any pivotal trial start date or ahead of use in the European Union or alternatively in connection with any changes made to our manufacturing process, including changes in certain third party suppliers. The requirement to carry out such comparability studies or other similar studies may delay the uptake of any changed process, start of any pivotal trial or use of the relevant cell therapy. If the results from the comparability studies are not acceptable, this may further delay the start of such trials or changed process and require re-evaluation of the process used to manufacture of such cell therapy.

We may not be able to develop or obtain approval for the analytical assays and companion diagnostics required for commercialization of our cell therapies including ADP-A2M4.

Administration of our cell therapies requires the use of an immuno-chemistry or other screening assay in which patients are screened for the presence of the cancer peptide targeted by our cell therapies. For example, in our ADP-A2M4 trial patients are screened for the presence of MAGE-A4. This assay requires the identification of suitable antibodies which can be used to identify the presence of the relevant target cancer peptide.

If safe and effective use of a biologic product depends on an *in vitro* diagnostic, such as a test to detect patients with a particular cancer peptide, then the FDA generally requires approval or clearance of the diagnostic, known as a companion diagnostic, concurrently with approval of the therapeutic product. To date, the FDA has generally required *in vitro* companion diagnostics that are intended for use in selection of patients who will respond to cancer treatment to obtain a pre-market approval, or PMA, which can take up to several years, for that diagnostic approval or clearance to occur simultaneously with approval of the biologic product.

We expect that, for all our cell therapies, the FDA and similar regulatory authorities outside of the United States will require the development and regulatory approval of a companion diagnostic assay as a condition to approval. We also expect that the FDA may require PMA supplemental approvals for use of that same companion diagnostic as a condition of approval of additional cell therapies. We do not have experience or capabilities in developing or commercializing these companion diagnostics and plan to rely in large part on third parties to perform these functions.

If we or our collaborators, or any third parties that we engage to assist us, are unable to successfully develop companion diagnostic assays for use with any SPEAR T-cells, or are unable to obtain regulatory approval or experience delays in either development

or obtaining regulatory approval (including as a result of the impact of the COVID-19 pandemic), we may be unable to identify patients with the specific profile targeted by the relevant cell therapy for enrollment in our clinical trials. In addition, delay in development and approval of any companion diagnostic (including as a result of the impact of the COVID-19 pandemic) may also impact our ability to obtain a marketing approval for the therapeutic product and to commercialize the therapeutic product. For example, delays in the development of a companion diagnostic for detection of the MAGE-A4 antigen in synovial sarcoma and MRCLS indications may result in delays to any marketing approval for ADP-A2M4 in those indications. Accordingly, further investment may be required to further develop or obtain the required regulatory approval for the relevant companion diagnostic assay, which would delay or substantially impact our ability or our collaborators' ability to conduct further clinical trials or obtain regulatory approval.

Manufacturing and administering cell therapies is complex and we and our collaborators may encounter difficulties in production including as a result of factors outside of our control including the COVID-19 pandemic. If we or our collaborators encounter such difficulties, our or our collaborators' ability to provide supply of our cell therapies for clinical trials or for commercial purposes could be delayed or stopped.

The process of manufacturing and administering cell therapies is complex and highly regulated. The manufacture of cell therapies including our SPEAR T-cells involves complex processes, including manufacture of a lentiviral delivery vector containing the gene for our affinity-enhanced engineered receptor. Administration of SPEAR T-cells includes harvesting white blood cells from the patient, isolating certain T-cells from the white blood cells, combining patient T-cells with our lentiviral delivery vector through a process known as transduction, expanding the transduced T-cells to obtain the desired dose, and ultimately infusing the modified T-cells back into the patient. As a result of the complexities, our manufacturing and supply costs are likely to be higher than those at more traditional manufacturing processes and the manufacturing process is less reliable and more difficult to reproduce.

Delays or failures in the manufacture of cell therapies (whether by us, any collaborator or our third party contract manufacturers) can result in a patient being unable to receive their cell therapy or a requirement to re-manufacture which itself then causes delays in manufacture for other patients. Any delay or failure or inability to manufacture on a timely basis can adversely affect a patient's outcomes and delay the timelines for our clinical trials. Such delays or failure or inability to manufacture (including as a result of the impact of the COVID-19 pandemic) can result from:

- a failure in the manufacturing process itself for example by an error in manufacturing process (whether by us or our third party contract manufacturing organization), equipment or reagent failure, failure in any step of the manufacturing process, failure to maintain a GMP environment, failure in quality systems applicable to manufacture, sterility failures, contamination during process;

- a lack of reliability or reproducibility in the manufacturing process itself leading to variability in end manufacture of cell therapy. Should the process be unreliable, the relevant regulatory agency (such as the FDA in the U.S.) may place a hold on a clinical trial or request further information on the process which could in turn result in delays to the clinical trials;

- variations in patient starting material or apheresis product resulting in less product than expected or product which is not viable, or which cannot be used to successfully manufacture a cell therapy;

- product loss or failure due to logistical issues including issues associated with the differences between patients' white blood cells or characteristics, interruptions to process, contamination, failure to supply patient apheresis material within required timescales (for example as a result of an import or export hold-up) or supplier error;

- inability to obtain manufacturing slots from third party contract manufacturers or to have enough manufacturing slots (including those at our Navy Yard facility) to manufacture cell therapies for patients as and when those patients require manufacture;

- inability to procure starting materials or to manufacture starting materials (including at our U.K. vector facility), for example vector required for SPEAR T-cell manufacture including as a result of the COVID-19 outbreak;

- loss of or close-down of any manufacturing facility used in the manufacture of our cell therapies. For example, we will be manufacturing cell therapies at our Navy Yard manufacturing facility. Should there be a contamination event at the facility

resulting in the close-down of that facility or a COVID-19 outbreak preventing workers from attending at the facility, it may not be possible to find alternative manufacturing capability for these cell therapies within the timescales required for ongoing clinical trials. In addition, as with many pharmaceutical manufacturing facilities, the facility will have periods of time within which it cannot be used for manufacture of patient product to enable routine checks to be performed on the facility;

- loss or contamination of patient starting material, requiring the starting material to be obtained again from the patient or the manufacturing process to be re-started;

- a requirement to modify or make changes to any manufacturing process. Such changes may additionally require comparability testing which then may reduce the amount of manufacturing slots available for manufacture of our cell therapies. Delays in our ability to make the required modifications or perform any required comparability testing within currently anticipated timeframes or that such modifications or comparability testing, when made, will obtain regulatory approval or that the new processes or modified processes will successfully be transferred to the third party contract suppliers within currently anticipated timeframes can also impact timelines for manufacture;

- reduction or loss of the staff resources required to manufacture our cell therapies at our facilities or those of our CMOs;

- allocation of the resources, materials, and services of any collaborator or our third party contract manufacturers away from our cell therapy programs, for example to utilize such assets on the research, development and manufacture of COVID-19 vaccines or therapies; and

- reduction in available workforce to perform manufacturing processes, for example as a result of a COVID-19 outbreak or workforce exhibiting potential COVID-19 symptoms, and pending receipt of test results for COVID-19 infection.

The requirements for manufacture and supply of cell therapies for clinical trials in Europe have additional complexities. Where manufacture occurs in the United States, there is a need to transfer patient specific apheresis material from clinical sites in Europe to the manufacturer in the United States, for the patient product to be converted into our end cell therapy product, for that product to be released for use in Europe and then for that cell therapy product to be transported back to the site in Europe for administration to the patient. The supply and manufacturing chain required to achieve this is very complex and could be subject to failures at any point. Any inability to set up acceptable manufacturing and supply chains to enable treatment of patients in Europe could result in a delay to those trials starting in Europe or could result in a delay in patient treatment, requirement to re-apherese a patient or a requirement to re-manufacture patient material.

As our cell therapies progress through preclinical programs and clinical trials towards approval and commercialization, it is expected that various aspects of the manufacturing and administration process will be altered in an effort to optimize processes and results. We have already identified some improvements to our manufacturing and administration processes, but these changes may not achieve the intended objectives, may not be transferable to third parties or able to be used at larger scales and could cause our cell therapies to perform differently or affect the results of planned clinical trials or other future clinical trials. In addition, such changes may require amendments to be made to regulatory applications or comparability tests to be conducted which may further delay the timeframes under which modified manufacturing processes can be used for any cell therapy. If cell therapies manufactured under the new process have a worse safety or efficacy profile than the prior investigational product or the process is less reproducible than the previous process, we may need to re-evaluate the use of that manufacturing process, which could significantly delay or even result in the halting of our clinical trials.

Developing a commercially viable process is a difficult and uncertain task, and there are risks associated with scaling to the level required for advanced clinical trials or commercialization, including, among others, increased costs, potential problems with process scale-out, process reproducibility, stability issues, lot consistency, loss of product, and timely availability of reagents or raw materials or contract manufacturing services or facilities. A failure to develop such a commercially viable process within anticipated timescales may prevent or delay progression of our T-cell therapies into pivotal clinical trials and ultimately commercialization. This failure to develop a timely process may result from, for example, inability to scale-up within required timelines, inability to put in place the required processes and control measures for a commercial process or failure of third parties (including vector suppliers) to put in place adequate facilities or processes to enable commercial manufacture. In addition, we may ultimately be unable to reduce the expenses associated with our SPEAR T-cells to levels that will allow us to achieve a profitable return on investment.

We have a platform process which may enable us to treat patient populations with an 'off-the-shelf' product. We have entered into an alliance with Universal Cells, Inc. to further develop that platform process. However, there is no guarantee that our research program or the research program with Universal Cells, Inc. will be successful, will be carried out within the timescales currently anticipated, or even if successful will result in a cell therapy that can be used to treat patients or that such cell therapy will allow us to achieve a profitable return on investment.

We have insurance to cover certain business interruption events which is capped at £10 million in the U.K. and $5 million in the U.S. However, because our level of insurance is capped, it may be insufficient to fully compensate us if any of these events were to occur in the future.

Manufacture of a commercially available cell therapy will require an increase in manufacturing capacity and it is not currently known whether this will be possible within the timescales planned for commercialization.

Subject to the successful conclusion of the SPEARHEAD-1 study, which we aim to fully enroll during the first half of 2021, and approval of a Biologics License Application by the FDA, we plan to commercially launch ADP-A2M4 in 2022. Manufacture of a commercial cell therapy will require an increase in manufacturing capacity and further development of processes for manufacture and supply to support commercialization. Such increase in manufacturing and development will require significant additional resources and may take considerable time, costs and effort to facilitate.

Our manufacturing process needs to comply with FDA regulations and foreign regulations relating to the quality and reliability of such processes. Any failure to comply with relevant regulations could result in delays in or termination of our clinical programs and suspension or withdrawal of any regulatory approvals.

In order to commercially produce our products, we will need to comply with the FDA's and other regulatory authorities' cGMP requirements at our Navy Yard facility, vector facility and third party contract manufacturing facilities. We may encounter difficulties in achieving quality control and quality assurance and may experience shortages in qualified personnel. We and our third party contract manufacturers are subject to inspections by the FDA and comparable agencies in other jurisdictions to confirm compliance with applicable regulatory requirements once the process has been approved. Any failure to follow cGMP or other regulatory requirements, reliably manufacture product or delay, interruption or other issues that arise in the manufacture, fill- finish, packaging, or storage of our cell therapies as a result of a failure of our facilities or the facilities or operations of third parties to comply with regulatory requirements or pass any regulatory authority inspection could significantly impair our ability to develop and commercialize our cell therapies, including leading to significant delays in the availability of our cell therapies for our clinical trials or the termination of or suspension of a clinical trial, or the delay or prevention of a filing or approval of marketing authorization applications for our cell therapies. Significant non-compliance could also result in the imposition of sanctions, including warning letters, fines, injunctions, civil penalties, failure of regulatory authorities to grant marketing approvals for our cell therapies, delays, suspension or withdrawal of approvals, license revocation, seizures or recalls of products, operating restrictions and criminal prosecutions, any of which could damage our reputation and our business.

Given we now manufacture cell therapies at our own U.S. manufacturing facility and vector at a dedicated U.K. vector facility, there is no guarantee that regulatory authorities will not raise non-compliance issues or that regulatory authorities may require us to make changes to the way in which either facility is operated. This may result in a delay in our ability to manufacture cell therapies at our own facility or in our ability to supply vector material for use in the manufacturing process. In addition, there is no guarantee that any cell therapy or vector produced in any of our facilities will be able to meet regulatory requirements or that we will be able to recruit and maintain sufficient staff to enable manufacture of products within required timescales. Resourcing of cell manufacturing facilities is increasingly competitive, which restricts the number of available skilled operators which can be recruited at our manufacturing facilities. Any failure to meet regulatory requirements or produce cell therapies and vector according to regulatory requirements could result in delays to our clinical programs, potential side effects and even fatalities to patients and may result in withdrawal of regulatory approval for our manufacturing facility.

The outcome of clinical trials is uncertain and clinical trials may fail to demonstrate adequately the safety and efficacy of any cell therapies which would prevent or delay regulatory approval and commercialization.

There is a risk in any clinical trial (whether sponsored by us, a collaborator or investigator-initiated) that side effects from cell therapies will require a hold on, or termination of, clinical programs or further adjustments to clinical programs in order to progress any

cell therapy. Our cell therapies are novel and unproven, and regulators will therefore require evidence that the cell therapies are safe before permitting clinical trials to commence and evidence that the cell therapies are safe and effective before granting any regulatory approval. In particular, because our cell therapies are subject to regulation as biological products, we will need to demonstrate that they are safe, pure and potent for use in each target indication. Our cell therapy must demonstrate an acceptable benefit:risk profile in its intended patient population and for its intended use. The benefit:risk profile required for product licensure will vary depending on these factors and may include not only the ability to show tumor shrinkage, but also adequate duration of response, a delay in the progression of the disease and/or an improvement in survival. For example, response rates from the use of the SPEAR T-cells may not be sufficient to obtain regulatory approval unless we or our collaborators can also show an adequate duration of response.

The regulatory authorities (including the FDA) may issue a hold on our or our collaborators' clinical trials as a result of safety information and data obtained in third party clinical trials or in relation to third party products. Any such hold will require addressing by us and our collaborators and will inevitably delay progression of the clinical trials concerned, if such clinical trials progress at all.

Clinical testing is expensive and can take many years to complete, and its outcome is inherently uncertain. Failure can occur at any time during the clinical trial process. Success in preclinical programs and early clinical trials does not ensure that later clinical trials will be successful. Moreover, the results of preclinical programs and early clinical trials of cell therapies may not be predictive of the results of later-stage clinical trials. To date, we have only obtained interim results from Phase 1/2 clinical trials that are uncontrolled, involve small sample sizes and are of shorter duration than might be required for regulatory approval. There may be other reasons why our early clinical trials are not predictive of later clinical trials. In addition, the results of trials in one set of patients or line of treatment may not be predictive of those obtained in another and protocols may need to be revised based on unexpected early results.

We expect there may be greater variability in results for cell therapies which are administered on a patient-by-patient basis than for "off-the-shelf" products, like many other biologics. There is typically an extremely high rate of attrition from the failure of any products proceeding through clinical trials. Cell therapies in later stages of clinical trials may fail to show the desired safety and efficacy profile despite having progressed through preclinical programs and initial clinical trials. A number of companies in the biopharmaceutical industry have suffered significant setbacks in advanced clinical trials due to lack of efficacy or unacceptable safety issues, notwithstanding promising results in earlier trials. Most biologic candidates that begin clinical trials are never approved by regulatory authorities for commercialization. We cannot therefore guarantee that we will be successful in demonstrating the required efficacy and safety profile from the performance of any of our clinical programs.

Certain of our clinical trials include dose escalation studies in which the dose of cell therapies administered to patients is varied or initial studies in which the pre-treatment regimen may be varied, for example a regimen with and without fludarabine. The outcome of such dose escalation or initial studies will inform the clinical study going forward. However, the need to carry out dose escalation or other initial studies may result in delays in data from such clinical programs while the most suitable dose or regimen is assessed. For example, the trial design for our SPEAR T-cell trials includes dose escalation and therefore efficacy data may not be obtained from initial patients treated in such studies during the dose escalation phase.

In addition, even if such trials are successfully completed, we cannot guarantee that the FDA or foreign regulatory authorities will interpret the results as we or our collaborators do. Accordingly, more trials may be required before we can submit any cell therapy for regulatory approval. To the extent that the results of the trials are not satisfactory to the FDA or foreign regulatory authorities for support of a marketing authorization application, we may be required to expend significant resources, which may not be available to us, to conduct additional trials in support of potential approval of our cell therapies. We cannot predict whether any of our cell therapies will satisfy regulatory requirements at all or for indications in which such cell therapies are currently being evaluated as part of any clinical programs.

We have limited experience conducting later stage clinical trials which may cause a delay in any clinical program and in the obtaining of regulatory approvals.

Although we have recruited a team that has significant experience with clinical trials, as a company we have limited experience in conducting clinical trials through to regulatory approval. In part because of this lack of experience, we cannot be certain that planned clinical trials will begin or be completed on time, if at all. Large-scale trials would require significant additional financial and management resources, and reliance on third-party clinical investigators, contract research organizations, or CROs, or consultants. Relying on third-party clinical investigators, consultants or CROs may force us to encounter delays that are outside of our control.

Cell therapies may have undesirable side effects or have other properties that could halt their clinical development, prevent their regulatory approval, limit their commercial potential or otherwise result in significant negative consequences.

Where any of our cell therapies has undesirable side effects, regulatory approval for such therapeutic may be delayed or suspended, or alternatively may be restricted to particular disease indications or states that are more limited than desirable. This could result in the failure of products reaching the market or a reduction in the patient population for which any cell therapy can be used.

Summary information on adverse events seen in relation to each of our cell therapies are provided below as of particular dates.

As of July 6, 2020, for ADP-A2AFP:

- The adverse events occurring in >10% of patients treated with ADP-A2AFP and considered by investigators to be at least possibly related to ADP-A2AFP include neutropenia/neutrophil count decreased, leukopenia/white blood cell count decreased, lymphopenia/lymphocyte count decreased, thrombocytopenia/platelet count decreased, hypoalbuminemia, febrile neutropenia, neutropenia/neutrophil count decreased, pyrexia, increase in alanine aminotransferase, increase in aspartate aminotransferase, increase in alkaline phosphatase, diarrhea, vomiting, CRS, hyperkalemia, hypokalemia, lethargy, cognitive disorder, hypotension, infusion related reaction, pain in extremity, fatigue and muscular weakness. Serious adverse events reported with ADP-A2AFP whether considered related to the SPEAR T-cells or not include CRS, infusion related reaction, neutropenia/neutrophil count decreased, bile duct obstruction and abdominal pain.

As of August 3, 2020, for ADP-A2M4 pilot trial:

- The adverse events occurring in >10% of patients treated with ADP-A2M4 and considered by investigators to be at least possibly related to ADP-A2M4 include neutropenia/neutrophil count decreased, thrombocytopenia/platelet count decreased, lymphopenia/lymphocyte count decreased, anemia/red blood cells decreased, CRS, fatigue, pyrexia, decreased appetite, rash, dyspnoea, sinus tachycardia/tachycardia, hypophosphatemia, headache, nausea, chills, diarrhoea, hypotension and tumor pain.

- Serious adverse events reported with ADP-A2M4 in two or more patients whether considered related to the SPEAR T-cells or not include CRS, pneumonia, sepsis, pyrexia, pancytopenia, atrial fibrillation, neurotoxicity, thrombocytopenia/platelet count decreased, and pleural effusion. Two patients have had treatment related fatal SAE reports - one patient experienced prolonged pancytopenia/aplastic anemia and the other experienced a cerebrovascular accident (stroke).

As of June 25, 2020, for ADP-A2M10:

- The adverse events occurring in >10% of patients treated with ADP-A2M10 and considered by investigators to be at least possibly related to ADP-A2M10 include leukopenia/white blood cells decreased, lymphopenia/lymphocyte count decreased, thrombocytopenia/platelet count decreased, pyrexia, CRS, peripheral edema, sinus tachycardia/tachycardia, anemia/red blood cells decreased, and rash. Serious adverse events reported with ADP-A2M10 in two or more patients, whether considered related to the SPEAR T-cells or not, include, CRS, neutropenia/neutrophil count decreased and acute kidney injury. One patient had a treatment-related fatal SAE of prolonged pancytopenia with aplastic anemia following treatment with a second infusion of ADP-A2M10.

As of October 1, 2020, for ADP-A2M4CD8:

- The adverse events occurring in one or more patients and considered by investigators to be at least possibly related to ADP-A2M4CD8 include lymphopenia/lymphocyte count decreased, neutropenia/neutrophil count decreased, CRS, fatigue, decreased appetite, hypocalcaemia, hypomagnesaemia, weight decreased, acute kidney injury, hypoxia, neurotoxicity, pleural effusion, pruritus, pustule, pyrexia and vomiting. There has been one reported SAE: one subject experienced Grade 1 CRS, considered probably related to ADP-A2M4CD8.

  In addition, following the October 1, 2020 data cut-off date, the same patient experienced Grade 3 pancytopenia, considered by the investigator as possibly related to treatment with ADP-A2M4CD8, fludarabine and

cyclophosphamide. There is another patient who experienced Grade 2 CRS and Grade 2 immune effector cell-associated neurotoxicity syndrome (ICANS). Both events were considered probably related to treatment by the investigator. Both cases have been reported to the FDA and EMA.

Any unacceptable toxicities arising in ongoing clinical programs could result in delay, suspension or termination of those clinical programs. The more SAEs that are reported the greater the risk of delay, suspension of termination of clinical programs, even where the SAEs are unrelated to each other or to our cell therapies. For example, we have seen multiple events of pancytopenia across our trials and further SAEs of a similar nature could result in regulatory authorities imposing a hold on one or more clinical programs whilst the events are investigated further. Any delay, suspension or termination may affect other SPEAR T-cells and thereby impact our ability to recognize any product revenues. Any side effects may also result in the need to perform additional trials, which will delay regulatory approval for such cell therapies, if at all, and require additional resources and financial investment to bring the relevant cell therapy to market.

In addition, the impact of cell therapies may vary from patient to patient and this may affect the number of patients who can be successfully treated with our cell therapies. Depending on the nature of the indication, certain patients may need to be excluded from treatment, which could also impact our ability to delivery therapies to some patients.

Use of cell therapies in combination with other third party products or therapies may increase or exacerbate side effects that have been seen with our cell therapies alone or may result in new side effects that have not previously been identified with our cell therapies alone. Any undesirable side effects seen in combination trials may affect our ability to continue with and obtain regulatory approval for the combination therapy, but may also impact our ability to continue with and obtain regulatory approval for our cell therapies alone.

Clinical trials are expensive, time-consuming and difficult to implement.

Clinical trials, depending on the stage, can be costly as well as difficult to implement and define, particularly with technologies that are not tried and tested, such as our cell therapies. These factors can lead to a longer clinical development timeline and regulatory approval process, including a requirement to conduct further or more complex clinical trials in order to obtain regulatory approval. Regulatory authorities may disagree with the design of any clinical program, and designing an acceptable program could lead to increased timeframes for obtaining of approvals, if any. In addition, progression of clinical trials depends on the ability to recruit suitable patients to those trials and delay in recruiting will impact the timeframes of such clinical trials and as a result the timeframes for obtaining regulatory approval, if any, for the relevant cell therapy.

In particular, eligible patients must be screened for the target peptide and HLA type, which may reduce the number of patients who can be recruited for any clinical program. For example, low target peptide expression levels in the NY-ESO SPEAR T-cell and ADP-A2M10 programs affected speed of patient recruitment in certain of the clinical trials. The ability to administer cell therapies to patients in accordance with set protocols for the clinical trials and the results obtained depends on patient participation for the duration of the clinical trial, which many of these patients are unable to do because of their late-stage cancer and limited life expectancy.

Although the initial results in our clinical trials to date may suggest a promising tolerability profile, these results may not be indicative of results obtained in later and larger clinical trials. Long-term follow-up of patients from earlier trials may also result in detection of additional side effects or identification of other safety issues. There is no guarantee of success in any clinical trial and there is a very high attrition rate for pharmaceutical or biological compounds entering clinical trials. Any side effects or negative safety issues identified at any stage of clinical development will require additional investigation and assessment which can result in additional costs and resource requirements that could delay or potentially terminate our clinical trials.

We may face difficulty in enrolling patients in our clinical trials.

We or our collaborators may find it difficult to enroll patients in our clinical trials. Identifying and qualifying patients, including testing of patients for appropriate target peptides and HLA type, to participate in clinical trials of our cell therapies are critical to our success. The patient population in which any required peptide antigen is presented may be lower than expected which will increase the timescales required to find and recruit patients into the applicable clinical trial. The timing of clinical trials depends on the speed at which we or our collaborators can recruit patients to participate in testing of our cell therapies. If patients are unwilling to participate in trials because of negative publicity from adverse events, as a result of the COVID-19 outbreak or for other reasons, including competitive clinical trials for similar patient populations, negative results seen in competitive third party clinical trials utilizing similar cell therapy products, the timeline for recruiting patients, conducting trials and obtaining regulatory approval of potential products may be delayed or

prevented. These delays could result in increased costs, delays in advancing product development, delays in testing the effectiveness of our technology or termination of the clinical trials altogether. We or our collaborators may not be able to identify, recruit and enroll a sufficient number of patients, or those with required or desired characteristics to achieve sufficient diversity in a given trial in order to complete our clinical trials in a timely manner. Successful execution of patient treatment and assessment of outcomes is affected by several factors including:

- eligibility criteria for the trial in question, in particular, presenting the correct HLA type and expression levels of the target antigen;
- ability to detect required expression levels of target antigens in any patient population;
- ability to detect required target antigens in any patient population and to set detection levels at an appropriate level to facilitate patient recruitment;
- severity of the disease under investigation and the type of patient being recruited into the clinical trial;
- design of the trial protocol;
- patients' willingness to enroll or continue to participate in a clinical trial during the COVID pandemic;
- the COVID-19 pandemic or any other similar pandemic or global event, which may result in clinical site closures, delays to patient enrollment, patients discontinuing their treatment or follow up visits or changes to trial protocols;
- size of the patient population;
- perceived risks and benefits of the cell therapy under trial;
- novelty of the cell therapy and acceptance by oncologists;
- proximity and availability of clinical trial sites for prospective patients;
- availability of competing therapies and clinical trials and ability to obtain patient insurance coverage;
- efforts to facilitate timely enrollment in clinical trials and to provide manufactured product on a timely basis;
- patient referral practices of physicians;
- changes in the underlying standard of care applicable or treatments available for the relevant indication for which a patient is being treated;
- availability of reimbursement from insurance companies in relation to the costs of clinical trials using our cell therapies which can vary between clinical sites; and
- ability to monitor patients adequately during and after treatment, for example where patients decide not to attend follow-up appointments.

If we have difficulty enrolling a sufficient number of patients to conduct our clinical trials as planned, we may need to delay, limit or terminate ongoing or planned clinical trials, any of which would have an adverse effect on our business. The COVID-19 outbreak has meant that many clinical sites are delaying the treatment of patients in clinical trials and this may in turn cause delays in our ability to recruit and enroll patients in to our trials. The course of the COVID-19 outbreak is currently uncertain and is rapidly evolving and it is not possible to predict when the impact on clinical sites may be alleviated.

Our cell therapies for which we intend to seek approval as biologic products may face competition sooner than anticipated.

The enactment of the Biologics Price Competition and Innovation Act of 2009, or BPCIA, created an abbreviated pathway for the approval of biosimilar and interchangeable biological products. The abbreviated regulatory pathway establishes legal authority for the FDA to review and approve biosimilar biologics, including the possible designation of a biosimilar as "interchangeable" based on its similarity to an existing reference product. Under the BPCIA, an application for a biosimilar product cannot be approved by the FDA until 12 years after the original branded product or "reference" is approved under a BLA. On March 6, 2015, the FDA approved the first biosimilar product under the BPCIA. However, the law is complex and is still being interpreted and implemented by the FDA and as a result, its ultimate impact, implementation and meaning are subject to uncertainty. While it is uncertain when such processes intended to implement BPCIA may be fully adopted by the FDA, any such processes could have a material adverse effect on the future commercial prospects for our biological products.

There is a risk that the FDA will not consider our cell therapies to be reference products for competing products, potentially creating the opportunity for generic competition sooner than anticipated. Additionally, this period of regulatory exclusivity does not apply to companies pursuing regulatory approval via their own traditional BLA, rather than via the abbreviated pathway. Moreover, the extent to which a biosimilar, once approved, will be substituted for any one of our reference products in a way that is similar to traditional generic substitution for non-biological products is not yet clear, and will depend on a number of marketplace and regulatory factors that are still developing.

Foreign countries also have abbreviated regulatory pathways for biosimilars and hence even where the FDA does not approve a biosimilar biologic, a biosimilar could be approved using an abbreviated regulatory pathway in other markets where our cell therapies are approved and marketed.

Risks Related to Government Regulation

The FDA regulatory approval process is lengthy and time-consuming, and we may experience significant delays in the clinical development and regulatory approval of our cell therapies.

We have not previously submitted a BLA to the FDA, or similar approval submissions to comparable foreign authorities. A BLA must include extensive preclinical and clinical data and supporting information to establish the cell therapy's safety and effectiveness for each desired indication. The BLA must also include significant information regarding the chemistry, manufacturing and controls for the product. We expect the novel nature of our cell therapies including our SPEAR T-cells to create additional challenges in obtaining regulatory approval, if at all. For example, the FDA has limited experience with commercial development of T-cell therapies for cancer. Accordingly, the regulatory approval pathway for our SPEAR T-cells may be uncertain, complex, expensive and lengthy, and approval may not be obtained. Requests for additional information can delay the start of any pivotal or other trial or result in clinical holds being imposed on ongoing trials and there is no guarantee that the FDA will not continue to require further or additional information ahead of approving any trial whether from our collaborators or from us.

We or our collaborators could also encounter delays if physicians encounter unresolved ethical issues associated with enrolling patients in clinical trials of our cell therapies in lieu of prescribing existing treatments that have established safety and efficacy profiles. Further, a clinical trial may be suspended or terminated by us or a collaborator, IRBs for the institutions in which such trials are being conducted, the Data Monitoring Committee for such trial, or by the FDA or other regulatory authorities due to a number of factors, including failure to conduct the clinical trial in accordance with regulatory requirements or our clinical protocols, inspection of the clinical trial operations or trial site by the FDA or other regulatory authorities resulting in the imposition of a clinical hold, unforeseen safety issues or adverse side effects, failure to demonstrate a benefit from using a cell therapy, changes in governmental regulations or administrative actions or lack of adequate funding to continue the clinical trial. If we or our collaborators experience termination of, or delays in the completion of, any clinical trial of our cell therapies, the commercial prospects for our cell therapies will be harmed, and our ability to generate product revenue will be delayed. In addition, any delays in completing our clinical trials will increase our costs, slow our product development and approval process and jeopardize our ability to commence product sales and generate revenue.

Many of the factors that cause, or lead to, a delay in the commencement or completion of clinical trials may ultimately lead to the denial of regulatory approval of our cell therapies. In addition, as a result of the COVID-19 outbreak certain deviations to processes and changes in the way we carry out our clinical trials may be necessary, for example use of remote monitoring at clinical sites, variations to

patient visit dates. The impact these variations and deviations may have on the regulatory approval process are not yet fully understood but they may delay our ability to obtain regulatory approvals for our cell therapies.

Separately, in response to the COVID-19 global pandemic, on March 10, 2020 the FDA announced its intention to postpone most foreign inspections of manufacturing facilities and products through April 2020, and subsequently, on March 18, 2020, the FDA announced its intention to temporarily postpone routine surveillance inspections of domestic manufacturing facilities. Regulatory authorities outside the United States may adopt similar restrictions or other policy measures in response to the COVID-19 global pandemic. If a prolonged government shutdown occurs, or if global health concerns continue to prevent the FDA or other regulatory authorities from conducting their regular inspections, reviews or other regulatory activities, it could significantly impact the ability of the FDA or other regulatory authorities to timely review and process our regulatory submissions, which could have a material adverse effect on our business.

The FDA regulatory process can be difficult to predict, in particular whether for example accelerated approval processes are available or further unanticipated clinical trials are required will depend on the data obtained in our ongoing clinical trials.

The regulatory approval process and the amount of time it takes us to obtain regulatory approvals for our cell therapies will depend on the data that are obtained in our ongoing clinical trials and in one or more future registration or pivotal clinical trials. We may attempt to seek approval on a per indication basis for our cell therapies on the basis of a single pivotal trial or on the basis of data from a Phase 2 trial. While the FDA requires in most cases two adequate and well-controlled pivotal clinical trials to demonstrate the efficacy of a product candidate, a single trial with other confirmatory evidence may be sufficient in rare instances where the trial is a large multicenter trial demonstrating internal consistency and a statistically very persuasive finding of a clinically meaningful effect on mortality, irreversible morbidity or prevention of a disease with a potentially serious outcome and confirmation of the result in a second trial would be practically or ethically impossible. Depending on the data we obtain, the FDA or other regulatory authorities may require additional clinical trials to be carried out or further patients to be treated prior to the granting of any regulatory approval for marketing of our cell therapies. It is difficult for us to predict with such a novel technology exactly what will be required by the regulatory authorities in order to take our cell therapies to market or the timeframes under which the relevant regulatory approvals can be obtained.

We obtained breakthrough therapy status for the NY-ESO SPEAR T-cell for the treatment of certain patients with inoperable or metastatic synovial sarcoma who have received prior chemotherapy. Following exercise of the option over the NY-ESO SPEAR T-cell program by GSK, it is not known whether such breakthrough therapy status will continue or whether GSK will apply for and obtain any accelerated approval for the NY-ESO SPEAR T-cell. In addition, we have obtained RMAT designation (Regenerative Medicine Advanced Therapy designation) from the FDA for ADP-A2M4 for the treatment of synovial sarcoma and the European Medicine Agency's (EMA) Committee of Orphan Medicinal Products (COMP) has adopted a positive opinion for Orphan Drug Designation for ADP-A2M4 for the treatment of soft tissue sarcomas. We may apply for similar status or accelerated programs in other countries and for other of our products and indications. However, given the novel nature of our cell therapies, it is difficult for us to predict or guarantee whether the FDA or other regulatory authorities will approve such requests or what further clinical or other data may be required to support an application for such accelerated approval procedures.

The process of obtaining marketing approvals, both in the United States and in countries outside of the United States, is expensive, may take many years if additional clinical trials are required, if approval is obtained at all, and can vary substantially based upon a variety of factors, including the type, complexity and novelty of the cell therapies involved. For example, clinical trials may be required in pediatric populations before any marketing approval can be obtained, which can be time consuming and costly. Changes in marketing approval policies during the development period, changes in or the enactment of additional statutes or regulations, or changes in regulatory review for each submitted product application, may cause delays in the approval or rejection of an application. The FDA and foreign regulatory authorities also have substantial discretion in the drug and biologics approval process. The number and types of preclinical programs and clinical trials that will be required for regulatory approval varies depending on the cell therapy, the disease or condition that the cell therapy is designed to address, and the regulations applicable to any particular cell therapy. Approval policies, regulations or the type and amount of clinical data necessary to gain approval may change during the course of a cell therapy's clinical development and may vary among jurisdictions, and there may be varying interpretations of data obtained from preclinical programs or

clinical trials, either of which may cause delays or limitations in the approval or the decision not to approve an application. In addition, approval of our cell therapies could be delayed or refused for many reasons, including the following:

- the FDA or comparable foreign regulatory authorities may disagree with the design or implementation of our or our collaborators' clinical trials;
- we or our collaborators may be unable to demonstrate to the satisfaction of the FDA or comparable foreign regulatory authorities that our SPEAR T-cells have a beneficial risk: benefit profile for any of their proposed indications;
- the results of clinical trials may not meet the level of statistical significance required by the FDA or comparable foreign regulatory authorities for approval;
- the FDA or comparable foreign regulatory authorities may disagree with our interpretation of data from preclinical programs or clinical trials;
- the data collected from clinical trials of our cell therapies may not be sufficient to the satisfaction of the FDA or comparable foreign regulatory authorities to support the submission of a BLA (including as a result of impacts caused by the COVID-19 outbreak) or other comparable submission in foreign jurisdictions or to obtain regulatory approval in the United States or elsewhere;
- our manufacturing processes or facilities or those of the third-party manufacturers we use may not be adequate to support approval of our cell therapies; and
- the approval policies or regulations of the FDA or comparable foreign regulatory authorities may significantly change in a manner rendering our clinical data insufficient for approval.

It is possible that no cell therapies will ever obtain the appropriate regulatory approvals necessary to commercialize the TCR therapeutics. Any delay in obtaining, or failure to obtain, required approvals would materially adversely affect our ability to generate revenue from the particular cell therapy, which would result in significant harm to our business.

Obtaining and maintaining regulatory approval of our cell therapies in one jurisdiction does not mean that we will be successful in obtaining regulatory approval of our cell therapies in other jurisdictions.

Obtaining and maintaining regulatory approval of our cell therapies in one jurisdiction does not guarantee that we or our collaborators will be able to obtain or maintain regulatory approval in any other jurisdiction, while a failure or delay in obtaining regulatory approval in one jurisdiction may have a negative effect on the regulatory approval process in others. For example, even if the FDA grants marketing approval of a SPEAR T-cell, comparable regulatory authorities in foreign jurisdictions must also approve the manufacturing, marketing and promotion of the SPEAR T-cell in those countries. Approval procedures vary among jurisdictions and can involve requirements and administrative review periods different from, and greater than, those in the United States, including additional preclinical programs or clinical trials as clinical trials conducted in one jurisdiction may not be accepted by regulatory authorities in other jurisdictions. In many jurisdictions outside the United States, a cell therapy must be approved for reimbursement before it can be approved for sale in that jurisdiction. In some cases, the price that we or our collaborators intend to charge for our cell therapies is also subject to approval.

We or our collaborators may also submit marketing authorization applications in other countries. Regulatory authorities in jurisdictions outside of the United States have requirements for approval of cell therapies with which we must comply prior to marketing in those jurisdictions. Obtaining foreign regulatory approvals and compliance with foreign regulatory requirements could result in significant delays, difficulties and costs for us and could delay or prevent the introduction of our cell therapies in certain countries. For example, in certain jurisdictions additional clinical trials in different patient populations may be required. If we fail to comply with the regulatory requirements in international markets and/or receive applicable marketing approvals, our target market will be reduced and our ability to realize the full market potential of our cell therapies will be harmed.

We may seek breakthrough therapy or fast track designations and may pursue accelerated approval for some or all of our current SPEAR T-cells, but we may be unable to obtain such designations or, where obtained we may be unable to maintain breakthrough therapy designation or, obtain or maintain the benefits associated with such designations.

We obtained breakthrough therapy status in the United States and access to the PRIME status in Europe for the NY-ESO SPEAR T-cell for the treatment of certain patients with inoperable or metastatic synovial sarcoma who have received prior chemotherapy. We have obtained RMAT designation (Regenerative Medicine Advanced Therapy designation) from the FDA for ADP-A2M4 in synovial sarcoma. We may seek breakthrough therapy or fast track designations for our other SPEAR T-cells in the United States or equivalent regulations elsewhere in the world.

In 2012, the FDA established a breakthrough therapy designation which is intended to expedite the development and review of products that treat serious or life-threatening diseases when "preliminary clinical evidence indicates that the drug may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development." The designation of a SPEAR T-cell as a breakthrough therapy provides potential benefits that include more frequent meetings with the FDA to discuss the development plan for the SPEAR T-cell and ensure collection of appropriate data needed to support approval; more frequent written correspondence from the FDA about things such as the design of the proposed clinical trials and use of biomarkers; intensive guidance on an efficient drug development program, beginning as early as Phase 1; organizational commitment involving senior managers; and eligibility for rolling review and priority review.

Breakthrough therapy designation does not change the standards for product approval. There can be no assurance that we will receive breakthrough therapy designation for any SPEAR T-cell or any particular indication. Additionally, other treatments from competing companies may obtain the designations and impact our ability to develop and commercialize our SPEAR T-cells, which may adversely impact our business, financial condition or results of operation.

We may also seek fast track designation. If a drug or biologic candidate is intended for the treatment of a serious or life-threatening condition or disease and the drug demonstrates the potential to address unmet medical needs for the condition, the sponsor may apply for fast track designation. Under the fast track program, the sponsor of a new drug or biologic candidate may request that the FDA designate the candidate for a specific indication as a fast track drug or biologic concurrent with, or after, the submission of the IND for the candidate. The FDA must determine if the drug or biologic candidate qualifies for fast track designation within 60 days of receipt of the sponsor's request. Even if we do apply for and receive fast track designation, we may not experience a faster development, review or approval process compared to conventional FDA procedures. The FDA may withdraw fast track designation if it believes that the designation is no longer supported by data from our clinical development program.

We may also seek accelerated approval under the FDA's fast track and accelerated approval programs, the FDA may approve a drug or biologic for a serious or life-threatening illness that provides meaningful therapeutic benefit to patients over existing treatments based upon a surrogate endpoint that is reasonably likely to predict clinical benefit, or on a clinical endpoint that can be measured earlier than irreversible morbidity or mortality, that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit, taking into account the severity, rarity, or prevalence of the condition and the availability or lack of alternative treatments. For drugs granted accelerated approval, post-marketing confirmatory trials have been required to describe the anticipated effect on irreversible morbidity or mortality or other clinical benefit. These confirmatory trials must be completed with due diligence. Moreover, the FDA may withdraw approval of our SPEAR T-cell or indication approved under the accelerated approval pathway if, for example:

- the trial or trials required to verify the predicted clinical benefit of our SPEAR T-cell fail to verify such benefit or do not demonstrate sufficient clinical benefit to justify the risks associated with the drug;
- other evidence demonstrates that our SPEAR T-cell is not shown to be safe or effective under the conditions of use;
- we fail to conduct any required post approval trial of our SPEAR T-cell with due diligence; or
- we disseminate false or misleading promotional materials relating to the relevant SPEAR T-cell.

In Europe, the EMA has implemented the so-called "PRIME" (Priority Medicines) status in order support the development and accelerate the approval of complex innovative medicinal products addressing an unmet medical need. The PRIME status enables early dialogue with the relevant EMA scientific committees and, possibly, some payers; and thus reinforces the EMA's scientific and regulatory

support. It also opens accelerated assessment of the marketing authorization application (150 days instead of 210 days). The PRIME status, which is decided by the EMA, is reserved to medicines that may benefit from accelerated assessment, i.e. medicines of major interest from a public health perspective, in particular from a therapeutic innovation perspective.

In 2016, the EMA granted PRIME status to NY-ESO SPEAR T-Cell for the treatment of certain patients with metastatic synovial sarcoma who have received prior chemotherapy. In 2020, the EMA granted access to the PRIME initiative to ADP-A2M4 for the treatment of certain patients with synovial sarcoma. We may apply for PRIME status for other of our cell therapy products. There can be no assurance that any application will be successful in obtaining PRIME status.

Even if we receive regulatory approval of our cell therapies, we will be subject to ongoing regulatory obligations and continued regulatory review, which may result in significant additional expense as well as significant penalties if we fail to comply with regulatory requirements or experience unanticipated problems with our cell therapies.

Any regulatory approvals that we receive for our cell therapies will require surveillance to monitor the safety and efficacy of the cell therapy. The FDA may also require a risk evaluation and mitigation strategy in order to approve our cell therapies, which could entail requirements for a medication guide, physician communication plans or additional elements to ensure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. In addition, if the FDA or a comparable foreign regulatory authority approves our cell therapies, the manufacturing processes, labeling, packaging, distribution, adverse event reporting, storage, advertising, promotion, import, export and recordkeeping for our cell therapies will be subject to extensive and ongoing regulatory requirements. These requirements include submissions of safety and other post-marketing information and reports, registration and listing, as well as continued compliance with cGMPs and cGCPs for any clinical trials that we conduct post-approval. We and our contract manufacturers will be subject to periodic unannounced inspections by the FDA to monitor and ensure compliance with cGMPs. We must also comply with requirements concerning advertising and promotion for any cell therapies for which we obtain marketing approval. Promotional communications with respect to prescription drugs, including biologics, are subject to a variety of legal and regulatory restrictions and must be consistent with the information in the product's approved labeling. Thus, we will not be able to promote any cell therapies we develop for indications or uses for which they are not approved. Later discovery of previously unknown problems with our cell therapies, including adverse events of unanticipated severity or frequency, or with our third-party manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may result in, among other things:

- restrictions on our ability to conduct clinical trials, including full or partial clinical holds on ongoing or planned trials;
- restrictions on such products' manufacturing processes;
- restrictions on the marketing of a product;
- restrictions on product distribution;
- requirements to conduct post-marketing clinical trials;
- untitled or warning letters;
- withdrawal of the products from the market;
- refusal to approve pending applications or supplements to approved applications that we submit;
- recall of products;
- fines, restitution or disgorgement of profits or revenue;
- suspension or withdrawal of regulatory approvals;
- refusal to permit the import or export of our products;

- product seizure;
- injunctions;
- imposition of civil penalties; or
- criminal prosecution.

The FDA's and other regulatory authorities' policies may change, and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of our cell therapies. We cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action, either in the United States or abroad. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may lose any marketing approval that we may have obtained and we may not achieve or sustain profitability.

In addition, if following any pivotal clinical trial we were able to obtain accelerated approval of any of our cell therapies, the FDA will require us to conduct a confirmatory trial or trials to verify the predicted clinical benefit and additional safety studies. The results from the confirmatory trial or trials may not support the clinical benefit, which would result in the approval being withdrawn.

We may seek a conditional marketing authorization in Europe for some or all of our current cell therapies, but we may not be able to obtain or maintain such authorization.

As part of its marketing authorization process, the EMA may grant marketing authorizations for certain categories of medicinal products on the basis of less complete data than is normally required, when doing so may meet unmet medical needs of patients and serve the interest of public health. In such cases, it is possible for the Committee for Medicinal Products for Human Use, or CHMP, to recommend the granting of a marketing authorization, subject to certain specific obligations to be reviewed annually, which is referred to as a conditional marketing authorization. This may apply to medicinal products for human use that fall under the centralized procedure (EMA's scientific assessment and European Commission's approval), including those that aim at the treatment, the prevention, or the medical diagnosis of seriously debilitating diseases or life-threatening diseases and those designated as orphan medicinal products.

A conditional marketing authorization may be granted when the CHMP finds that, although comprehensive clinical data referring to the safety and efficacy of the medicinal product have not been supplied, all the following requirements are met:

- the risk: benefit balance of the medicinal product is positive;
- it is likely that the applicant will be in a position to provide the comprehensive clinical data;
- unmet medical needs will be fulfilled; and
- the benefit to public health of the immediate availability on the market of the medicinal product concerned outweighs the risk inherent in the fact that additional data is still required.

The granting of a conditional marketing authorization is restricted to situations in which only the clinical part of the application is not yet fully complete. Incomplete preclinical or quality data may only be accepted if duly justified and only in the case of a product intended to be used in emergency situations in response to public-health threats. Conditional marketing authorizations are valid for one year, on a renewable basis. The holder will be required to complete ongoing trials or to conduct new trials with a view to confirming that the benefit-risk balance is positive. In addition, specific obligations may be imposed in relation to the collection of pharmacovigilance data.

Granting a conditional marketing authorization allows medicines to reach patients with unmet medical needs earlier than might otherwise be the case and will ensure that additional data on a product are generated, submitted, assessed and acted upon. Although we may seek a conditional marketing authorization for one or more of our cell therapies, the CHMP may ultimately not agree that the requirements for such conditional marketing authorization have been satisfied. This would delay the commercialization of our cell therapies as we would have to wait for a complete data package before submitting the marketing authorization application.

We or our collaborators may not be able to obtain or maintain orphan drug exclusivity for our cell therapies.

Regulatory authorities in some jurisdictions, including the United States and Europe, may designate drugs or biologics for relatively small patient populations as orphan drugs. Under the Orphan Drug Act, the FDA may designate a product as an orphan drug if it is a drug or biologic intended to treat a rare disease or condition, which is generally defined as a patient population of fewer than 200,000 individuals in the United States or, if they affect more than 200,000 individuals in the United States, there is no reasonable expectation that the cost of developing and making a drug product available in the United States for these types of diseases or conditions will be recovered from sales of the product. If the FDA grants orphan drug designation, the identity of the therapeutic agent and its potential orphan use are disclosed publicly by that agency. Orphan drug designation does not convey any advantage in or shorten the duration of the regulatory review and approval process, but it can lead to financial incentives, such as opportunities for grant funding toward clinical trial costs, tax advantages in-lieu of R&D tax credits and user-fee waivers. If a product that has orphan drug designation subsequently receives the first FDA approval for the disease or condition for which it has such designation, the product is entitled to orphan drug marketing exclusivity for a period of seven years. Orphan drug marketing exclusivity generally prevents the FDA from approving another application, including a full BLA, to market the same drug for the same indication for seven years, except in limited circumstances, including if the FDA concludes that the later drug is clinically superior to the approved drug.

The European criteria for orphan designation are different from the U.S. criteria. On the one hand, the prevalence criterion is five in 10,000 individuals in the European Economic Area (EU plus Iceland, Liechtenstein and Norway). On another hand, no therapy is available for the rare condition or, if such a therapy exists, the future orphan product must bring a significant benefit over that therapy. The significant benefit may be any benefit to patients, including improved safety, improved efficacy, better quality of life or better patient compliance to treatment, provided that it is significant. It must be demonstrated by means of a comparison with the other available therapies, including the medicinal products already approved for the same rare condition. The Committee for Orphan Medicinal Products, or COMP, examines if the orphan criteria are met, and the orphan status is granted by a decision of the European Commission. The meeting of the criteria for orphan designation is examined again by the COMP at the time of approval of the medicinal product. If the criteria for orphan designation are no longer met at that time, the European Commission withdraws the orphan status.

Generally, if a product with an orphan drug designation subsequently receives the first marketing approval for the indication for which it has such designation, the product is entitled to a period of marketing exclusivity, which precludes the EMA or the FDA from approving another marketing authorization application for the same drug for that time period. The applicable period is seven years in the United States and 10 years in Europe. The European exclusivity period can be reduced to six years if a drug no longer meets the criteria for orphan drug designation or if the drug is sufficiently profitable so that market exclusivity is no longer justified. Orphan drug exclusivity may be lost if the FDA determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantity of the drug to meet the needs of patients with the rare disease or condition. In Europe, the orphan exclusivity may be lost vis-à-vis another drug in cases the manufacturer is unable to assure sufficient quantity of the drug to meet patient needs or if that other product is proved to be clinically superior to the approved orphan product. A drug is clinically superior if it is safer, more effective or makes a major contribution to patient care.

There can be no assurance that any of our cell therapies will be eligible for orphan drug designation in the United States or in other jurisdictions or that it will obtain orphan drug marketing exclusivity upon approval or that we or GSK will not lose orphan drug designation for ADP-A2M4 or the NY-ESO SPEAR T-cell. Inability to obtain orphan drug designation for a specific cell therapy or loss of such designation for ADP-A2M4 or the NY-ESO SPEAR T-cell in the future would prevent any ability to take advantage of the financial benefits associated with orphan drug designation and would preclude us from obtaining marketing exclusivity upon approval, if any. Even if we obtain orphan drug exclusivity for a product, that exclusivity may not effectively protect the product from competition because different drugs can be approved for the same condition. The extent of market exclusivity which is obtained may also be affected if the indication for any relevant registration or pivotal trial is narrower than the orphan designation granted. Even after an orphan drug is approved, the FDA can subsequently approve another drug for the same condition if the FDA concludes that the later drug is clinically superior in that it is shown to be safer, more effective or makes a major contribution to patient care.

Any failure by us to comply with existing regulations could harm our reputation and operating results.

The production of cell therapies is highly regulated and subject to constant inspection. The regulatory environment may also change from time to time. Any failure to comply with regulatory requirements, whether in the United States or in other countries in which our cell therapies are supplied, may result in investigation by regulatory authorities, suspension of regulatory authorizations and, as a result, suspension of clinical programs or ability to supply any of our cell therapies and potentially significant fines or other penalties being imposed in relation to any breach. Any failure may also harm our reputation and impact our ability going forward to obtain regulatory approvals for other cell therapies or require us to undertake additional organizational changes to minimize the risk of further breach. A failure to comply may apply to any part of our business, for example to the processes used for manufacture of our cell therapies (including the reliability of the process) or to the processes used for treatment of patients (including tracking of patient product and supply of patient specific product).

Because administration of cell therapies is patient-specific, the process requires careful handling of patient-specific products and fail-safe tracking, namely the need to ensure that the tracking process is without error and that patient samples are tracked from patient removal, through manufacturing and re-administration to the same patient. While such mechanisms are in place, should the tracking process fail, whether at our own facility, a third party facility or at any point in the manufacturing and supply process, a patient could receive another patient's T-cells resulting in significant toxicity and potentially patient fatality. We will need to invest in enhanced systems, such as bar coding, to further ensure fail safe tracking. There is always a risk of a failure in any such system. Inability to develop or adopt an acceptable fail-safe tracking methodology and handling regime may delay or prevent us from receiving regulatory approval and/or result in significant toxicity and potentially patient fatality if a patient receives another patient's T-cells. This risk may be increased where cell therapies are used in clinical programs that we do not control or sponsor and, should an error be made in the administration of our cell therapies in such clinical programs, this could affect the steps required in our own clinical programs and manufacturing process requiring the addition of further tracking mechanisms to ensure fail-safe tracking. The tracking systems required to further ensure safe patient administration may also require increased administration to satisfy other regulatory requirements, for example data protection requirements in Europe. The need to ensure tracking systems are adequate and to comply with these additional regulatory requirements may result in delay to the start of trials or the need to obtain additional regulatory licenses or consents prior to starting such trials.

Our research and development activities utilize hazardous, radioactive and biological materials. Should such materials cause injury or be used other than in accordance with applicable laws and regulations, we may be liable for damages.

We use hazardous and biological reagents and materials in our research and development at our U.K. site. We also use radioactive reagents and materials in our research and development in the United Kingdom. We have obtained the appropriate certification or ensured that such certification has been obtained as required for the use of these reagents but our use is subject to compliance with applicable laws and there is a risk that should any third party or employee suffer injury or damage from radioactive, hazardous or biological reagents that we may incur liability or obligations to compensate such third parties or employees. We have employer's liability insurance capped at £10.0 million per occurrence and public liability insurance capped at £5.0 million per occurrence; however, these amounts may be insufficient to compensate us if these events actually occur in the future.

We are subject to the U.K. Bribery Act, the U.S. Foreign Corrupt Practices Act and other anti-corruption laws, as well as export control laws, customs laws, sanctions laws and other laws governing our operations. If we fail to comply with these laws, we could be subject to civil or criminal penalties, other remedial measures, and legal expenses, which could adversely affect our business, results of operations and financial condition.

Our operations are subject to anti-corruption laws, including the U.K. Bribery Act 2010, or Bribery Act, the U.S. Foreign Corrupt Practices Act, or FCPA, and other anti-corruption laws that apply in countries where we do business. The Bribery Act, the FCPA and these other laws generally prohibit us and our employees and intermediaries from bribing, being bribed or making other prohibited payments to government officials or other persons to obtain or retain business or gain some other business advantage. Under the Bribery Act, we may also be liable for failing to prevent a person associated with us from committing a bribery offense. We and our commercial partners may operate in a number of jurisdictions that pose a high risk of potential Bribery Act or FCPA violations, and we participate in collaborations and relationships with third parties whose actions, if non-compliant, could potentially subject us to liability under the Bribery Act, FCPA or local anti-corruption laws. In addition, we cannot predict the nature, scope or effect of future regulatory requirements to which our international operations might be subject or the manner in which existing laws might be administered or interpreted.

We are also subject to other laws and regulations governing our international operations, including regulations administered by the governments of the United Kingdom and the United States, and authorities in the European Union, including applicable export control regulations, economic sanctions on countries and persons, anti-money laundering laws, customs requirements and currency exchange regulations, collectively referred to as the Trade Control laws.

However, there is no assurance that we will be completely effective in ensuring our compliance with all applicable anti-corruption laws, including the Bribery Act, the FCPA or other legal requirements, including Trade Control laws. If we are not in compliance with the Bribery Act, the FCPA and other anti-corruption laws or Trade Control laws, we may be subject to criminal and civil penalties, disgorgement and other sanctions and remedial measures, and legal expenses, which could have an adverse impact on our business, financial condition, results of operations and liquidity. Likewise, any investigation of any potential violations of the Bribery Act, the FCPA, other anti-corruption laws or Trade Control laws by United Kingdom, United States or other authorities could also have an adverse impact on our reputation, our business, results of operations and financial condition.

If we are found in violation of federal or state "fraud and abuse" or other health care laws, we may be required to pay a penalty and/or be suspended from participation in federal or state health care programs, which may adversely affect our business, financial condition and results of operations.

If we obtain marketing approval for our products in the United States, if at all, we will be subject to various federal and state health care "fraud and abuse" and other health care laws. Healthcare providers, physicians and third-party payors play a primary role in the recommendation and use of pharmaceutical products that are granted marketing approval. Accordingly, arrangements with third-party payors, existing or potential customers and referral sources are subject to broadly applicable fraud and abuse and other healthcare laws and regulations, and these laws and regulations may constrain the business or financial arrangements and relationships through which manufacturers market, sell and distribute the products for which they obtain marketing approval.

Such restrictions under applicable federal and state healthcare laws and regulations include the following:

- the Anti-Kickback Statute, which prohibits, among other things, persons from knowingly and willfully soliciting, receiving, offering or paying remuneration, directly or indirectly, in cash or kind, in exchange for, or to induce, either the referral of an individual for, or the purchase, order or recommendation of, any good or service for which payment may be made under federal healthcare programs such as the Medicare and Medicaid programs. This statute has been interpreted to apply to arrangements between pharmaceutical manufacturers, on the one hand, and prescribers, purchasers and formulary managers on the other. Cases have been brought under false claims laws alleging that off-label promotion of pharmaceutical products or the provision of kickbacks has resulted in the submission of false claims to governmental health care programs. The Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, collectively, the Healthcare Reform Act, amended the intent requirement of the Anti-Kickback Statute. A person or entity no longer needs to have actual knowledge of this statute or specific intent to violate it. Under federal government regulations, some arrangements, known as safe harbors, are deemed not to violate the Anti-Kickback Statute and analogous state law requirements;

- the False Claims Act, or FCA, which prohibits, among other things, individuals or entities from knowingly presenting, or causing to be presented, claims for payment from Medicare, Medicaid or other third-party payors that are false or fraudulent. Violations under the Anti-Kickback Statute and certain marketing practices, including off-label promotion, also may implicate the FCA. In addition, private individuals have the ability to bring actions on behalf of the government under the FCA and under the false claims laws of several states;

- federal criminal laws that prohibit executing a scheme to defraud any healthcare benefit program or making false statements relating to healthcare matters;

- the Physician Payment Sunshine Act, which requires certain manufacturers of drugs, devices, biologics and medical supplies to report annually to the Centers for Medicare & Medicaid Services, or CMS, information related to payments and other transfers of value to physicians, other healthcare providers and teaching hospitals, and ownership and investment interests held by physicians and other healthcare providers and their immediate family members. The CMS publishes the reported data in a searchable form on an annual basis;

- The Health Insurance Portability and Accountability Act of 1996 (HIPAA) imposes criminal and civil liability for executing a scheme to defraud any healthcare benefit program or making false statements relating to healthcare matters;

- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, which governs the conduct of certain electronic healthcare transactions and protects the security and privacy of protected health information; and

- state and foreign law equivalents of each of the above federal laws, such as anti-kickback and false claims laws which may apply to: items or services reimbursed by any third-party payor, including commercial insurers; state laws that require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance issued by the federal government or otherwise restrict payments that may be made to healthcare providers and other potential referral sources; state laws that require drug manufacturers to report information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures; and state laws governing the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts. California and a few other states have passed laws that require pharmaceutical companies to comply with the April 2003 Office of Inspector General Compliance Program Guidance for Pharmaceutical Manufacturers and/or the Pharmaceutical Research and Manufacturers of America Code on Interactions with Healthcare Professionals. In addition, several states impose other marketing restrictions or require pharmaceutical companies to make marketing or price disclosures to the state. There are ambiguities as to what is required to comply with these state requirements and if we fail to comply with an applicable state law requirement, we could be subject to penalties.

Neither the government nor the courts have provided definitive guidance on the application of fraud and abuse laws to our business. Law enforcement authorities are increasingly focused on enforcing these laws. Although we seek to structure our business arrangements in compliance with all applicable requirements, these laws are broadly written, and it is often difficult to determine precisely how the law will be applied in specific circumstances. Accordingly, it is possible that, once we begin marketing our product(s) some of our practices may be challenged under these laws. While we intend to structure our business arrangements to comply with these laws, it is possible that the government could allege violations of, or convict us of violating, these laws. Violation of any of the laws described above or any other governmental laws and regulations may result in penalties, including civil and criminal penalties, damages, fines, the curtailment or restructuring of operations, the exclusion from participation in federal and state healthcare programs and imprisonment. Furthermore, efforts to ensure that business activities and business arrangements comply with applicable healthcare laws and regulations can be costly for manufacturers of branded prescription products. Additionally, if we are found in violation of one or more of these laws our business, results of operations and financial condition may be adversely affected.

Our current cash projections include reliance on the ability to obtain certain tax credits and the operation of certain tax regimes within the United Kingdom. Should these cease to be available, this could impact our ongoing requirement for investment and the timeframes within which additional investment is required.

As a company that carries out extensive research and development activities, we benefit from the U.K. research and development tax credit regime for small and medium sized companies, whereby our principal research subsidiary company, Adaptimmune Limited, is able to surrender the trading losses that arise from its research and development activities for a payable tax credit of up to approximately 33.4% of eligible research and development expenditures. Qualifying expenditures largely comprise employment costs for research staff, consumables and certain internal overhead costs incurred as part of research projects. Subcontracted research expenditures are eligible for a cash rebate of up to approximately 21.7%. The majority of our pipeline research, clinical trials management and manufacturing development activities, all of which are being carried out by Adaptimmune Limited, are eligible for inclusion within these tax credit cash rebate claims.

We may not be able to continue to claim research and development tax credits (R&D tax credits) in the future as we increase our personnel and expand our business because we may no longer qualify as an SME (small or medium-sized enterprise). In order to qualify as an SME for R&D tax credits, we must continue to be a company with fewer than 500 employees and also have either an annual turnover not exceeding €100 million or a balance sheet not exceeding €86 million.

We may also benefit in the future from the United Kingdom's "patent box" regime, which would allow certain profits attributable to revenues from patented products to be taxed at a rate of 10%. As we have many different patents covering our products, future upfront

fees, milestone fees, product revenues, and royalties could be taxed at this favorably low tax rate. When taken in combination with the enhanced relief available on our research and development expenditures, we expect a long-term lower rate of corporation tax to apply to us. If, however, there are unexpected adverse changes to the United Kingdom research and development tax credit regime or the "patent box" regime, or we are unable to qualify for such advantageous tax legislation, our business, results of operations and financial condition may be adversely affected.

Risks Related to the Commercialization of Our Cell Therapies

The market opportunities for cell therapies may be limited to those patients who have failed prior treatments.

Initial approval of new cancer therapies may be limited to what is referred to as third-line use. Third-line treatment is the third type of treatment following initial, or first-line, treatment and second-line treatment, which is given when first-line treatment does not work or ceases working. However, cancer therapies may be used from the point at which cancer is detected in its early stages (first line) onward. Whenever the first-line therapy fails or the process is unsuccessful, second-line therapy may be administered, such as additional rounds of chemotherapy, radiation and antibody drugs or a combination of these treatments. If second-line therapies fail, patients are generally given the opportunity to receive third-line therapies, which tend to be more novel therapies. Our and our collaborators current clinical trials generally require that patients have received chemotherapy prior to enrollment. Depending upon the outcome of current trials, we or our collaborators may conduct future clinical trials using cell therapies for first-line therapy, but there can be no guarantee that clinical trials will be approved or that if approved such trials will lead to regulatory approval. If our cell therapies only receive third-line or second-line approval, the patient population into which we or our collaborators can supply our cell therapies will be significantly reduced, which may limit commercial opportunities.

In addition, our patient population may be derived from those who have previously failed checkpoint therapy, which may result in tumor resistance mechanisms which also impart resistance to our cell therapies and hence may reduce the effectiveness of our cell therapies.

Our estimates of the patient population that may be treated by our cell therapies is based on published information. This information may not be accurate in relation to our cell therapies and our estimates of potential patient populations could therefore be much higher or lower than those that are actually available or possible for commercialization. In addition, these estimates are based on assumptions about the number of eligible patients which have the peptide and HLA type targeted by the applicable cell therapy. Different patient populations will present different peptides according to their specific HLA type. HLA types vary across the patient population and, due to this variability, any therapy will initially only be suitable for treatment of patients expressing the particular HLA type presenting the relevant peptide. Current SPEAR T-cells have been developed for patients who are HLA A2 which will reduce the size of the patient population that can be treated unless we develop and we or our collaborators receive regulatory approval for cell therapies approved for additional HLA peptides.

We currently have no marketing and sales organization and have no experience in marketing products. If we are unable to establish marketing and sales capabilities or enter into agreements with third parties to market and sell our cell therapies, we may not be able to generate product revenue.

As an organization, we have never marketed or supplied commercial pharmaceutical or biologic products or therapies. We will need to transition from a company with a development focus to a company capable of supporting commercial activities. We may not be successful in such a transition.

We do not currently have a sales force and will need to grow and develop the sales function and associated support network if we are to supply cell therapies on a commercial basis. As our cell therapies proceed through clinical programs, we intend to develop an in-house marketing organization and sales force, which will require significant capital expenditures, management resources, and time. We will have to compete with other pharmaceutical and biotechnology companies to recruit, hire, train, and retain marketing and sales personnel. This process may result in additional delays in bringing our cell therapies to market or in certain cases require us to enter into alliances with third parties in order to do so. However, there can be no assurance that we will be able to establish or maintain such collaborative arrangements, or even if we are able to do so, that they will result in effective sales forces. Any revenue we receive will depend upon the efforts of such third parties, which may not be successful. We may have little or no control over the marketing and sales efforts of such third parties, and our revenue from cell therapy sales may be lower than if we had commercialized our cell therapies ourselves. We also face significant competition in our search for third parties to assist us with the sales and marketing efforts of our cell

therapies. Such competition may also result in delay or inability to supply cell therapies to particular countries or territories in the world which in turn will restrict the revenue that can be obtained from any cell therapy. Any inability on our part to develop in-house sales and commercial distribution capabilities or to establish and maintain relationships with third-party collaborators that can successfully commercialize any cell therapy in the United States or elsewhere will have a materially adverse effect on our business and results of operations.

If product liability lawsuits are brought against us, we may incur substantial liabilities and may be required to limit commercialization of our cell therapies.

We face an inherent risk of product liability as a result of the clinical testing of our cell therapies and our ongoing manufacture of cell therapies and will face an even greater risk upon any commercialization. For example, we may be sued if any of our SPEAR T-cells causes or is perceived to cause injury or is found to be otherwise unsuitable during clinical testing, manufacturing, marketing or sale. Any such product liability claims may include allegations of defects in manufacturing, defects in design, a failure to warn of dangers inherent in the product, negligence, strict liability or a breach of warranties. Claims could also be asserted under state consumer protection acts. If we cannot successfully defend ourselves against product liability claims, we may incur substantial liabilities or be required to limit commercialization of our cell therapies. Even a successful defense would require significant financial and management resources and, regardless of the merits or eventual outcome, liability claims may result in:

- decreased demand for our cell therapies;
- injury to our reputation;
- withdrawal of clinical trial participants;
- initiation of investigations by regulators;
- costs to defend the related litigation;
- a diversion of management's time and our resources;
- substantial monetary awards to trial participants or patients;
- product recalls, withdrawals or labeling, marketing or promotional restrictions;
- loss of revenue;
- exhaustion of any available insurance and our capital resources;
- the inability to commercialize our cell therapies; and
- a decline in our share price.

Our inability to obtain sufficient product liability insurance at an acceptable price to protect against potential product liability claims could also prevent or inhibit the commercialization of our cell therapies. We currently hold £15.0 million in clinical trial insurance coverage in the aggregate per year, with a per trial limit of £5.0 million. We also hold products and services liability insurance capped at £3.0 million in the aggregate and public liability insurance capped at £5.0 million per occurrence. These levels may not be adequate to cover all liabilities that we may incur. We may also need to increase our insurance coverage as we expand the scope of our clinical trials and commercialize any of our cell therapies. In addition, insurance coverage is increasingly expensive. We may not be able to maintain insurance coverage at a reasonable cost or in an amount adequate to satisfy any liability that may arise.

Even if we or our collaborators obtain regulatory approval of our cell therapies, they may not gain market acceptance among physicians, patients, hospitals, cancer treatment centers and others in the medical community.

The use of engineered T-cells and cell therapies more generally as a potential cancer treatment is a recent development and may not become broadly accepted by physicians, patients, hospitals, cancer treatment centers and others in the medical community. Additional factors will influence whether SPEAR T-cells are accepted in the market, including:

- the clinical indications for which our cell therapies are approved;
- physicians, hospitals, cancer treatment centers and patients considering the SPEAR T-cells as a safe and effective treatment;
- the potential and perceived advantages of our cell therapies over alternative treatments;
- the prevalence and severity of any side effects;
- product labeling or prescribing information requirements of the FDA or other regulatory authorities;
- limitations or warnings contained in the labeling approved by the FDA;
- the timing of market introduction of our cell therapies as well as competitive products;
- the cost of treatment in relation to alternative treatments;
- the availability of coverage, adequate reimbursement and pricing by third-party payors and government authorities;
- the willingness of patients to pay for cell therapies on an out-of-pocket basis in the absence of coverage by third-party payors and government authorities;
- relative convenience and ease of administration as compared to alternative treatments and competitive therapies; and
- the effectiveness of our sales and marketing efforts.

In addition, although we are not utilizing embryonic stem cells or replication competent vectors in our manufacturing process, adverse publicity due to the ethical and social controversies surrounding the therapeutic use of such technologies, and reported side effects from any clinical trials using these technologies or the failure of such trials to demonstrate that these therapies are safe and effective may limit market acceptance of cell therapies including SPEAR T-cells. If our cell therapies are approved but fail to achieve market acceptance among physicians, patients, hospitals, cancer treatment centers or others in the medical community, we or our collaborators will not be able to generate significant revenue.

Even if our cell therapies achieve market acceptance, we or our collaborators may not be able to maintain that market acceptance over time if new products or technologies are introduced that are more favorably received than our cell therapies, are more cost effective or render our cell therapies obsolete.

Coverage and reimbursement may be limited or unavailable in certain market segments for cell therapies, which could make it difficult for us or our collaborators to sell cell therapies profitably.

Successful sales of cell therapies, if approved, depend on the availability of coverage and adequate reimbursement from third-party payors. In addition, because cell therapies represent new approaches to the treatment of cancer, we cannot accurately estimate the potential revenue from cell therapies.

Patients who are provided medical treatment for their conditions generally rely on third-party payors to reimburse all or part of the costs associated with their treatment. Obtaining coverage and adequate reimbursement from governmental healthcare programs, such as Medicare and Medicaid, and commercial payors is critical to new product acceptance.

Government authorities and third-party payors, such as private health insurers and health maintenance organizations, decide which drugs and treatments they will cover and the amount of reimbursement. Reimbursement by a third-party payor may depend upon a number of factors, including, but not limited to, the third-party payor's determination that use of a product is:

- a covered benefit under its health plan;
- safe, effective and medically necessary;
- appropriate for the specific patient;
- cost-effective; and
- neither experimental nor investigational.

Obtaining coverage and reimbursement approval of a cell therapy from a government or other third-party payor is a time-consuming and costly process which could require us to provide to the payor supporting scientific, clinical and cost-effectiveness data for the use of our products. Even if we obtain coverage for a given cell therapy, the resulting reimbursement payment rates might not be adequate for us to achieve or sustain profitability or may require co-payments that patients find unacceptably high. Patients are unlikely to use cell therapies unless coverage is provided and reimbursement is adequate to cover a significant portion of the cost of the cell therapy.

In the United States, no uniform policy of coverage and reimbursement for products exists among third-party payors. Therefore, coverage and reimbursement for products can differ significantly from payor to payor. As a result, the coverage determination process is often a time-consuming and costly process that will require us to provide scientific and clinical support for the use of our cell therapies to each payor separately, with no assurance that coverage and adequate reimbursement will be obtained.

We intend to seek approval to market our cell therapies in both the United States and in selected jurisdictions. If we obtain approval in one or more foreign jurisdictions for our cell therapies, we will be subject to rules and regulations in those jurisdictions.

In some foreign countries, particularly those in the European Union, the pricing of biologics is subject to governmental control. In these countries, pricing negotiations with governmental authorities can take considerable time after obtaining marketing approval of a cell therapy. In addition, market acceptance and sales of our cell therapies will depend significantly on the availability of coverage and adequate reimbursement from third-party payors for the cell therapies and may be affected by existing and future health care reform measures.

Third-party payors, whether domestic or foreign, or governmental or commercial, are developing increasingly sophisticated methods of controlling healthcare costs. In both the United States and certain foreign jurisdictions, there have been a number of legislative and regulatory changes to the health care system that could impact our ability to sell our products profitably. In particular, the recently enacted U.S. Healthcare Reform Act and its implementing regulations, among other things, revised the methodology by which rebates owed by manufacturers to the state and federal government for covered outpatient drugs and certain biologics, including our SPEAR T-cells and other cell therapies, under the Medicaid Drug Rebate Program are calculated, increased the minimum Medicaid rebates owed by most manufacturers under the Medicaid Drug Rebate Program, extended the Medicaid Drug Rebate program to utilization of prescriptions of individuals enrolled in Medicaid managed care organizations, subjected manufacturers to new annual fees and taxes for certain branded prescription drugs, and provided incentives to programs that increase the federal government's comparative effectiveness research.

Other legislative changes have been proposed and adopted in the United States since the Healthcare Reform Act was enacted. In August 2011, the Budget Control Act of 2011, among other things, created measures for spending reductions by Congress. A Joint Select Committee on Deficit Reduction, tasked with recommending a targeted deficit reduction of at least $1.2 trillion for the years 2013 through 2021, was unable to reach required goals, thereby triggering the legislation's automatic reduction to several government programs.

This includes aggregate reductions of Medicare payments to providers up to two percent per fiscal year, which went into effect on April 1, 2013 and will remain in effect until 2024, unless additional congressional action is taken. In January 2013, President Obama signed into law the American Taxpayer Relief Act of 2012, or the ATRA, which, among other things, reduced Medicare payments to

several providers, including hospitals, imaging centers and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years.

There have been, and likely will continue to be, legislative and regulatory proposals at the foreign, federal and state levels directed at broadening the availability of healthcare and containing or lowering the cost of healthcare. We cannot predict the initiatives that may be adopted in the future. The continuing efforts of the government, insurance companies, managed care organizations and other payors of healthcare services to contain or reduce costs of healthcare and/or impose price controls may adversely affect:

- the demand for cell therapies, if we or our collaborators obtain regulatory approval;
- our or our collaborators' ability to set a price that is fair for our cell therapies;
- our or our collaborators' ability to generate revenue and achieve or maintain profitability;
- the level of taxes that we are required to pay; and
- the availability of capital.

Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors, which may adversely affect our future profitability.

Risks Related to Our Reliance Upon Third Parties

We rely on GSK in relation to the performance of programs under the GSK Collaboration and License Agreement and associated payments.

Performance of the GSK Collaboration and License Agreement and the extent to which further targets are nominated under that agreement depend on decisions taken by GSK. We have no control over whether GSK will elect to progress additional targets under the collaboration arrangements and therefore trigger additional payments from GSK under the GSK Collaboration and License Agreement. GSK also has the ability to influence or control decisions taken in relation to the development of any cell therapies covered by the agreement.

The GSK Collaboration and License Agreement is effective until all payment obligations expire, including any ongoing royalty payments due in relation to GSK's sale of any covered TCR therapeutic candidates. The agreement can also be terminated on a collaboration program-by-collaboration program basis by GSK for lack of feasibility or inability to meet certain agreed requirements. Both parties have rights to terminate the agreement for material breach upon 60 days' written notice or immediately upon insolvency of the other party. GSK has additional rights to terminate either the agreement or any specific license or collaboration program upon 60 days' written notice to us. Additional payments may be due to us as a result of such termination, and where we continue any development of any TCR therapeutic candidate resulting from a terminated collaboration program, depending on the stage of development, royalties may be payable to GSK at a mid-single-digit percentage rate of net sales. We also have rights to terminate any license where GSK ceases development or withdraws any licensed SPEAR T-cells in specified circumstances.

The current development plans or any future development plan agreed upon between GSK and us, including those relating to the third target program, may be delayed (including as a result of the impact of the COVID-19 pandemic) or may be unsuccessful or fail to result in candidate therapies that are feasible for further development or commercialization. Changes to the development plans or collaboration agreement may impact the timing and extent of milestone payments made by GSK to us, the nature of the relationship with GSK or the scope of the collaboration with GSK.

There is no guarantee that any payments due on commercialization of products under the GSK Collaboration and License Agreement will be due or payable by GSK at any time or on the timeframes currently expected. In particular, GSK has now exercised its option to the NY-ESO SPEAR T-cell program and commercialization of the NY-ESO SPEAR T-cell is now the responsibility of GSK. The timing for commercialization of the NY-ESO SPEAR T-cell and the route to commercialization will be determined by GSK and we cannot guarantee that GSK will commercialize the NY-ESO SPEAR T-cell within expected timelines or at all.

Under the GSK Collaboration and License Agreement, we are also prohibited from independently developing or commercializing therapies directed at the targets subject to outstanding options granted to GSK. All intellectual property rights arising from the performance of the collaboration and license agreement will be jointly owned apart from intellectual property rights that we solely create. Both GSK and we have freedom to use jointly owned intellectual property rights.

The relationship with GSK could also result in disputes arising between us and GSK which could result in costly arbitration or litigation and could impact the ongoing clinical programs or progress of such clinical programs.

We rely on Universal Cells Inc. in relation to the performance of collaboration agreements between us and Universal Cells Inc. for the further development of 'off-the-shelf' cell therapies.

Development of allogeneic T-cell therapies and our ability to commercialize those allogeneic T-cell therapies may depend heavily on the performance of Universal Cells under the ongoing collaboration (the "Universal Cells Collaboration") and payments made by Universal Cells to us in relation to such development.

Under the Universal Cells Collaboration, the parties will agree on up to three targets and will co-develop T-cell therapies directed to those targets pursuant to an agreed research plan. For each target, Universal Cells will fund co-development up until completion of a Phase 1 trial for products directed to such target. Upon completion of the Phase 1 trial for a product, we and Universal Cells will elect whether to progress with co-development and co-commercialization of such product, or to allow the other party to pursue the candidate independently. If we progress with co-development and co-commercialization of a product, then each party will grant the other party a co-exclusive license to co-develop and co-commercialize such product in the field of T-cell therapy. If a product is developed solely by one party, then the other party will grant to the continuing party an exclusive license to develop and commercialize such product in the field of T-cell therapy. Universal Cells will also have the right to select two targets and develop allogeneic T-cell therapy candidates independently. Universal Cells will have sole rights to develop and commercialize these products, subject to necessary licenses and the payment of milestones and royalties. The targets to be developed and the resulting therapies to be developed are currently unknown and, to the extent being co-developed, will need to be agreed between us and Universal Cells.

Under the terms of the agreement, we received an upfront payment of $50.0 million and may receive up to an additional $847.5 million in development and sales milestones together with up to $7.5 million in research funding per year on a per collaboration target basis and tiered royalties on net sales in the mid-single to mid-teen digits where Universal Cells takes cell therapy candidates forward unilaterally through development and commercialization. Where we take products forward unilaterally through development and commercialization, we may have to pay Universal Cells up to $552.5 million in development and sales milestones. In addition, Universal Cells would receive tiered royalties on net sales in the mid-single to mid-teen digits. To the extent that we and Universal Cells co-develop and co-commercialize any therapies, we will equally share the costs of such co-development and co-commercialization, with the resulting profits from co-commercialization also shared equally. There is no guarantee that any research funding, development or sales milestones or product royalties or any other sums will become due or payable to us at any time or on the time frames currently expected.

Universal Cells has a right to terminate programs under the Universal Cells Collaboration and the agreement in whole or in part for convenience, on provision of prior written notice. Termination may impact not only our requirement for additional investment or capital but also the timeframes within which current research and development programs (including clinical programs) can be performed or whether we can continue to perform those research and development programs at all. Termination may also impact our ability to access and use certain Universal Cells technology within our own allogeneic platform and products arising from that platform.

Any research or development plan agreed upon between Universal Cells and us may be delayed (including as a result of the impact of the COVID-19 pandemic) or may be unsuccessful or fail to result in therapies that are feasible for further development or commercialization. In addition, milestone payments and research funding may not be paid or may be varied where any research or development plan is amended or where any research or development plan is terminated prior to completion. There is no guarantee that any payments due or payable on commercialization of products under the Universal Cells Collaboration will be due or payable at any time or on the timeframes currently expected. The timing for commercialization of any products under the Universal Cells Collaboration is currently unknown and will depend on the targets selected and the type of allogeneic T-cell therapy being developed.

Any research and development plans for allogeneic T-cell therapies under the Universal Cells Collaboration will be subject to change as a result of risks inherent with the development of any pharmaceutical, biological or gene therapy product. Changes may be agreed to expand or change the scope of the collaboration or the responsibilities of the parties under the collaboration. Changes to the

development plans or agreement may impact the timing and extent of milestone payments, the amount of research funding received, the nature of the relationship with Universal Cells or the scope of the collaboration. Delay in performance of responsibilities under any research or development plan could impact our ability to progress T-cell therapies through research and development, including where Universal Cells delays the performance of any of its responsibilities. In addition, risks identified during the Universal Cells Collaboration may impact the development of our own allogeneic therapies outside of the collaboration with Universal Cells.

Universal Cells has the ability to influence or control certain decisions relating to the development of therapies covered by the Universal Cells Collaboration. This ability could result in delays to the research and development programs covered by the collaboration or changes to the scope of those programs, including the disease indications relevant to such clinical programs. Under the Universal Cells Collaboration, restrictions apply to the ability of either party to independently develop or commercialize certain competing T-cell therapies directed to the same targets as those nominated under the collaboration. In addition, Universal Cells or its affiliates may have competing internal or commercial interests which could impact our collaboration or Universal Cells' decision to take any clinical programs forward to the next stage. This could increase the costs required to further develop or commercialize any therapy or impact on our ability to take any therapy into further development and commercialization.

The relationship with Universal Cells could also result in disputes arising between us and Universal Cells, which could result in costly arbitration or litigation and could adversely impact the progress of research and development programs or progress of such clinical programs.

Commercialization of any cell therapies arising from the Universal Cells Collaboration additionally requires a license from iPS Academia Japan, Inc. under certain intellectual property rights owned by IPS Academia Japan, Inc. Although licenses are available, there is no assurance that the license can be obtained on commercially acceptable terms.

We rely heavily on ThermoFisher and the technology that we license from them.

The ability to use the ThermoFisher Dynabeads® CD3/CD28 technology to isolate, activate and expand T-cells is important to our ongoing ability to offer SPEAR T-cells. In December 2012, we entered into a series of license and sub-license agreements with Life Technologies Corporation (now part of ThermoFisher), such agreements having been amended as of November 2019. These agreements provide us with a field-based non-exclusive license under certain intellectual property rights owned or controlled by ThermoFisher in relation to the methods of use of the ThermoFisher Dynabeads® CD3/CD28 technology to isolate, activate and expand T-cells and enable transfection of the T-cells with any TCR genes to manufacture our TCR products and use and sell those TCR products to treat cancer, infectious disease and/or autoimmune disease. We also have a field-based non-exclusive sub-license under certain other patents which cover the method of use of the Dynabeads® CD3/CD28 and are controlled by ThermoFisher under a head-license from the University of Michigan, the United States Navy and the Dana-Farber Cancer Institute.

In June 2016, we entered into a supply agreement with ThermoFisher for the supply of the Dynabeads® CD3/CD28 technology. The supply agreement runs until December 31, 2025.

ThermoFisher has the right to terminate the above described agreements for material breach or insolvency. On termination of the license agreements, the supply agreement will also automatically terminate. If ThermoFisher terminates the exclusive license, sub-license and supply agreements or otherwise refuses or is unable to supply the Dynabeads® product, we will have to seek an alternative source of the beads or develop an alternative process methodology to enable supply of our cell therapies.

We rely on third parties to manufacture and supply our cell therapies and to develop next generation cell therapies, and we may have to rely on third parties to produce and process our cell therapies, if approved.

We currently rely partly on outside contract manufacturing organizations (“CMOs”) and other third parties to provide services related to the manufacture, supply, and processing of our cell therapies. If one or more of these third parties become unable or unwilling to continue to manufacture our cell therapies (including any raw or intermediate material required for the manufacture of our cell therapies) or provide their services in the future (including as a result of the impact of the COVID-19 pandemic), we may be forced to find an alternative third-party service provider, which we may not be able to do on commercially reasonable terms, if at all. Failure to identify a suitable alternative service provider could impact our business, financial condition or results of operations.

We rely on a limited number of third-party manufacturers and third party service providers for clinical trial product supplies and services at each stage of the manufacturing process, and as a result we are exposed to the following risks (including where such third party risks arise as a result of the impact of COVID-19):

- We may be unable to contract with manufacturers on commercially acceptable terms or at all because the number of potential manufacturers is limited and the FDA, EMA and other comparable foreign regulators must approve any replacement manufacturer, which would require new testing and compliance inspections. In addition, a new manufacturer would have to be educated in, and develop substantially equivalent processes for, production of our cell therapies after receipt of any applicable regulatory approval.

- We may not be able to obtain lentiviral delivery manufacturing slots with third party contract manufacturers within the timescales we require for supply of lentiviral delivery vector or to obtain agreed dates for such manufacturing slots sufficiently in advance of the requirement for supply.

- Our third-party manufacturers might be unable to timely formulate and manufacture our cell therapies or produce the quantity and quality required to meet our clinical trial and commercial needs or to provide commercially viable product on the timelines we require or at all, which may necessitate a change in third-party manufacturers or a requirement to further develop internal capabilities, all of which may result in delays to clinical trials or to commercialisation plans.

- With any new manufacturing process or new CMO we will need to transfer the manufacturing process or new process to that CMO. Any delay in the development and transfer of these new processes to the third-party contract supplier or inability of the third-party contract supplier to replicate or carry out the transferred process at the appropriate level and quality or in a reproducible fashion will result in delays in our ability to progress clinical programs, further develop our cell therapies and obtain marketing approval for our cell therapies.

- Introduction of new raw material or intermediate material manufacturers, such as CMOs for vectors, may require comparability testing to be carried out to show that the manufacturing process and end material is comparable to the currently used manufacturing process and/or material. Any inability to show comparability or delay in comparability testing may result in delays to the supply of the affected materials and as a result delays to clinical trials.

- Contract manufacturers may not be able to execute our manufacturing procedures appropriately, or we may be unable to transfer our manufacturing processes to contract manufacturers successfully or without additional time and cost. Even where CMOs fail to manufacture our cell therapies successfully, it may not be possible to achieve re-manufacture quickly or without expending resources or additional costs.

- Our future contract manufacturers may not perform as agreed, may be acquired by competitors or may not remain in the contract manufacturing business for the time required to supply our clinical trials or to successfully produce, store and distribute our cell therapies. In addition, contract manufacturers may not manufacture within agreed timescales for manufacture and/or may cancel pre-agreed manufacturing slots, which would result in delays in manufacturing and could require us to find replacement manufacturers which may not be available to us on favorable terms or at all.

- Manufacturers are subject to ongoing periodic unannounced inspection by the FDA, EMA, and other comparable foreign regulators and corresponding state agencies to ensure strict compliance with cGMP and other government regulations and corresponding foreign standards. Although we do not have day-to-day control over third-party manufacturers' compliance with these regulations and standards, we are responsible for ensuring compliance with such regulations and standards.

- We may not own, or may have to share, the intellectual property rights to any improvements made by our third-party manufacturers in the manufacturing process for our cell therapies. Our third party manufacturers may use processes which infringe or potentially infringe third party intellectual property rights which may result in inability to use such processes going forward, an increase in the pricing of such processes or a need to change a different process.

- Our third party manufacturers may fail to perform testing and analysis services accurately, in a manner that can be interpreted or on a timely basis. This could delay or prevent release of our cell therapies and as a result delay clinical trials and patient treatment.

- Our third-party manufacturers could breach or terminate their agreement with us.

- Our third-party manufacturers may cease to be able to do business with us (whether for insolvency or other reasons, including takeover, merger or acquisition) at a time when we are unable to source such manufacture elsewhere or at our own manufacturing facility.

- Increased costs, unexpected delays, equipment failures, lack of reproducibility, labor shortages, natural disasters, power failures and numerous other factors which are outside of our control or which may be imposed by our CMOs. For example, moving to commercial phase manufacture usually incurs increased cost and qualification requirements at our CMOs. Such costs may be prohibitive, or such activities may not be able to be performed within appropriate timelines.

- Our collaborators or third party contract manufacturers may allocate their resources, materials, and services away from our cell therapy programs, for example to utilize such assets on the research, development and manufacture of COVID-19 vaccines or therapies.

Certain raw materials or precursor materials used in the manufacture and supply of our cell therapies may come from sole source or limited source suppliers. For example, there are currently a limited number of third party manufacturers within the United States that can supply us with our lentiviral delivery vector and ThermoFisher is currently the only supplier of the Dynabeads® CD3/CD28 technology. Should such suppliers be unable to supply or manufacture such raw materials or precursor materials either at all or within required timescales we may be unable to supply our cell therapies or such supply may be significantly delayed. Inability to obtain such raw materials or precursor materials may also necessitate changes in the manufacturing process used for supply of our cell therapies. Such changes to the manufacturing process may need to be developed internally or by a third party and may also require additional regulatory approvals to be obtained before they can be used for the manufacture and supply of our cell therapies for clinical trials.

In addition, we are focusing manufacture of our cell therapies at a single manufacturing site, namely our Navy Yard facility. Should the Navy Yard facility be unable to manufacture our cell therapies for any reason, including natural disaster, contamination or for any regulatory reason, we may be unable to supply cell therapies for our clinical trials unless we can procure manufacture from a third party manufacturer. There is no assurance that we will be able to procure manufacture from a third party manufacturer or that such manufacture will be provided within the timescales we require or at an acceptable price. Any change in manufacturer used to produce our cell therapies requires notification to regulatory authorities which can be time consuming. There is no assurance that regulatory authorities will agree that any change in manufacturer is acceptable or that the processes used at such manufacturer are comparable to the processes previously used and additional evidence of comparability may be required.

Our contract manufacturers are also subject to the same risks we face in developing our own manufacturing capabilities, as described above. Each of these risks could delay our clinical trials, the approval, if any, of our cell therapies by the FDA or the commercialization of our cell therapies or result in higher costs or deprive us of potential product revenue. We have insurance to cover certain costs and expenses related to business interruption, which is capped at £3.0 million in the aggregate.

In addition, we will rely on third parties to perform release tests on our cell therapies prior to delivery to patients. If these tests are not appropriately performed and test data is not reliable, patients could be put at risk of serious harm. For example, if the HLA testing is not accurate then a patient without the correct HLA-type could be provided with incompatible cell therapies and as a result such patient could suffer severe side effects or fatality.

We also rely on certain third parties to assist us in the future development of cell therapies including next generation SPEAR T-cells and manufacture and supply of SPEAR T-cells for patient administration. For example, we have research collaborations with Noile-Immune and Alpine Immune Sciences in which we are looking to develop next generation cell therapy approaches. As with any research and development program there is no guarantee of the success of such program or that such program will be carried out by us or our collaborators within the timescales we currently anticipate.

We have a shared development history with Immunocore, and as a result jointly own certain intellectual property rights which are required for our ongoing business.

Our TCR technology was originally developed by Avidex, which was subsequently acquired by Medigene in 2006. We were formed as a new, separate company and licensed our TCR technology for T-cell therapy from Medigene in July 2008. Immunocore was subsequently formed as a new separate company and acquired the TCR technology for soluble TCRs from Medigene later in 2008 to develop soluble TCR proteins. Certain of our shareholders also hold shares in Immunocore.

Since January 1, 2018, the Company no longer considers Immunocore to be a related party due to several factors including the mutual termination of the target collaboration agreement that terminated effective March 1, 2017, our lack of common directors and the decrease in Immunocore's share ownership in 2017 to less than 5% of our ordinary shares. However, under the terms of that target collaboration agreement, we will continue to share a database of identified targets with Immunocore which resulted from the joint target identification efforts under that agreement.

In addition, many of the patents relating to our underlying core technology in TCR engineering, are co-owned by us and Immunocore pursuant to a separate assignment and license agreement. Under this agreement, both Immunocore and Adaptimmune utilize the jointly owned patents and know-how, with Adaptimmune focused on the treatment of patients with engineered SPEAR T-cells and Immunocore focused on the treatment of patients with soluble TCRs. Under the agreement, each of Immunocore and Adaptimmune grants the other an exclusive, royalty-free, irrevocable license, with the right to sub-license, to certain jointly owned patents and know-how. However, there is the potential that Immunocore could develop a soluble TCR product targeting the same cancer target that one of our cell therapies is targeting, and therefore compete directly with us.

We rely on third parties to conduct our clinical trials. If these third parties do not successfully carry out their contractual duties or meet expected deadlines, we may not be able to obtain regulatory approval of or commercialize our cell therapies.

We depend upon independent investigators and collaborators, such as universities, medical institutions, CROs and strategic partners to conduct our preclinical programs and sponsored clinical trials under agreements with us. We expect to have to negotiate budgets and contracts with CROs and trial sites (either directly or through a third party consultant), which may result in delays to our development timelines and increased costs. We rely heavily on these third parties over the course of our clinical trials, and we do not have day-to-day control of their activities. Nevertheless, we are responsible for ensuring that each of our trials is conducted in accordance with applicable protocols and legal, regulatory and scientific standards, and our reliance on third parties does not relieve us of our regulatory responsibilities. We and these third parties are required to comply with cGCPs, which are regulations and guidelines enforced by the FDA and comparable foreign regulatory authorities for cell therapies in clinical development. Regulatory authorities enforce these cGCPs through periodic inspections of trial sponsors, principal investigators and trial sites. If we or any of these third parties fail to comply with applicable cGCP regulations and guidelines (including as a result of the outbreak of COVID-19), the clinical data generated in our clinical trials may be deemed unreliable and the FDA or comparable foreign regulatory authorities may require us to perform additional clinical trials before approving our marketing authorization applications. We cannot provide assurances that, upon inspection, such regulatory authorities will determine that any of our clinical trials comply with the cGCP regulations. In addition, our clinical trials must be conducted with biologic product produced under cGMPs and will require a large number of subjects. Our failure or any failure by these third parties to comply with these regulations or to support BLA for approval of any of our cell therapies for the treatment of a sufficient number of patients may require us to repeat clinical trials, which would delay the regulatory approval process. Moreover, our business may be implicated if any of these third parties violates federal or state fraud and abuse or false claims laws and regulations or healthcare privacy and security laws.

Any third parties conducting our clinical trials are not and will not be our employees and, except for remedies available to us under our agreements with such third parties which could be limited, we cannot control whether or not they devote sufficient time and resources to our ongoing clinical trials and preclinical programs. These third parties may also have relationships with other commercial entities, including our competitors, for whom they may also be conducting clinical trials or other drug or biologic development activities, which could affect their performance on our behalf. If these third parties do not successfully carry out their contractual duties or obligations or meet expected deadlines (including as a result of the outbreak of COVID-19), if they need to be replaced or if the quality or accuracy of the clinical data they obtain is compromised due to the failure to adhere to our clinical protocols or regulatory requirements or for other reasons, our clinical trials may be extended, delayed or terminated and we may not be able to complete development of, obtain regulatory approval of, or successfully commercialize our cell therapies. As a result, our financial results and the commercial prospects for our cell therapies would be harmed, our costs could increase and our ability to generate revenue could be delayed.

Switching or adding third parties to conduct our clinical trials involves substantial cost and requires extensive management time and focus. In addition, there is a natural transition period when a new third party commences work. As a result, delays may occur, which can materially impact our ability to meet our timelines for bringing our cell therapies to market, if at all.

We rely on third parties to obtain reagents and raw materials.

The manufacture of our cell therapies requires access to a number of reagents and other raw materials from third parties. Such third parties may refuse to supply such reagents or other raw materials or alternatively refuse to supply on commercially reasonable terms. There may also be capacity issues at such third-party suppliers that impact our ability to increase production of our cell therapies, including where such capacity or supply issues result from the impact of the COVID-19 outbreak on such third party suppliers.

Some of the materials used in the manufacture and processing of our cell therapies may only be supplied by one or a few vendors, which means that, should those vendors be unable to supply, for whatever reason, our ability to manufacture cell therapies and progress cell therapies through clinical trials could be severely impacted and result in additional delays. Such failure to supply could also impact other supply relationships with other third parties and potentially result in additional payments being made or required in relation to such delays. In addition, where any raw material or precursor material (including, for example, lentiviral delivery vector, medium or other essential raw material) is currently supplied by one or a few vendors, replacing such raw material or precursor or finding alternative vendors may not be possible or may significantly impact on the timescales for manufacture and supply of our cell therapies. Even where alternative materials or precursors or alternative vendors are identified, such alternative materials, precursors or vendors will need to be properly assessed, validated and qualified and additional regulatory approvals may also need to be obtained all of which could result in significant delays to the supply of our cell therapies or an inability to supply our cell therapies within anticipated timescales, if at all.

We rely on third parties for equipment and components necessary to manufacture our cell therapies.

As we further develop our manufacturing process, the manufacture of our cell therapies may require access to specialized or customized equipment and components from third parties. Such third parties may refuse to supply such equipment and components or alternatively refuse to supply on commercially reasonable terms, including as a result of the impact of the COVID-19 outbreak. There may also be capacity issues at such third-party suppliers that impact our ability to manufacture our cell therapies or increase the cost associated with such manufacture.

Some of the equipment and components used in the manufacture and processing of our cell therapies may only be supplied by one or a few vendors, which means that, should those vendors be unable to supply, for whatever reason, our ability to manufacture cell therapies and progress cell therapies through clinical trials could be severely impacted and result in additional delays. While other equipment and components may be available to perform the same or similar operational steps, such alternative equipment and components may be less efficient, more costly, and may result in production delays that may detrimentally impact timescales for the manufacture and supply of our cell therapies. Even where alternative equipment and components are available, such alternatives will need to be properly assessed, validated and qualified and additional regulatory approvals may also need to be obtained all of which could result in significant delays to the supply of our cell therapies or an inability to supply cell therapies within anticipated timescales, if at all.

We have formed and may form or seek collaboration agreements or enter into additional licensing arrangements with third parties and either fail to realize the benefits of such relationships or incur substantial additional costs in performing such relationships.

We have formed and may form or seek further third party alliances, create joint ventures or collaborations or enter into additional licensing arrangements with third parties that we believe will complement or augment our development, manufacturing and commercialization efforts with respect to our SPEAR T-cell therapies and any future products. For any of these third party alliances we are reliant on performance of a third party to achieve the end aims of the alliances. For example, we have a collaboration agreement with Astellas under which Astellas is required to perform certain collaboration activities. Any delays in the performance of these activities or any requirement to amend or modify those activities (including as a result of the impact of the COVID-19 pandemic) will result in delay to the overall program. Any of these relationships may require us to incur non-recurring and other charges, increase our near and long-term expenditures, issue securities that dilute our existing stockholders or disrupt our management and business. There is no guarantee that such third party relationships will result in any positive improvements to our SPEAR T-cells, cell therapies or associated manufacturing processes or that performance of such third party relationships will occur in accordance with expected timelines. Such third party alliances may result in us incurring additional costs or requiring additional resources over and above the costs and resources committed to those alliances. In addition, we face significant competition in seeking appropriate partners and the negotiation process is time-consuming and complex. Moreover, we may not be successful in our efforts to establish third party arrangements for our cell therapies which may impact our ability to further develop our cell therapies or delay the further development of our cell therapies.

Risks Related to Our Intellectual Property

Our cell therapies could be at risk of biosimilar development.

Expedited routes or abbreviated procedures for obtaining regulatory approval for products aiming to target the same cancer peptide as any SPEAR T-cells or any of our cell therapies may be available to third parties, which we cannot control or prevent. For example, third parties could develop affinity-enhanced TCRs binding to the same targets and regulatory authorities may accept that they are interchangeable with our corresponding SPEAR T-cells and, as a result, grant regulatory approval for such competing products. Entry into the market of such competing products may impact the price of SPEAR T-cells and the extent of commercialization possible in relation to such SPEAR T-cells.

We may be forced to litigate to enforce or defend our intellectual property rights, and/or the intellectual property rights of our licensors.

We may be forced to litigate to enforce or defend our intellectual property rights against infringement and unauthorized use by competitors, and to protect our trade secrets. In so doing, we may place our intellectual property at risk of being invalidated, held unenforceable, narrowed in scope or otherwise limited. Further, an adverse result in any litigation or defense proceedings may increase the risk of non-issuance of pending applications. In addition, if any licensor fails to enforce or defend its intellectual property rights, this may adversely affect our ability to develop and commercialize our SPEAR T-cells and to prevent competitors from making, using, and selling competing products. Any such litigation could be very costly and could distract our management from focusing on operating our business. The existence and/or outcome of any such litigation could harm our business, results of operations and financial condition.

Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential and proprietary information could be compromised by disclosure during this type of litigation. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our ADSs.

We may also be forced to defend our intellectual property rights in opposition proceedings in front of patent offices in order to obtain or continue to hold granted patent rights. Our inability to successfully defend our patents and patent applications in opposition proceedings may result in a reduction in the scope of protection offered by such patents or patent applications or alternatively the patents or patent applications may be revoked.

We may not be able to protect our proprietary technology in the marketplace or the cost of doing so may be prohibitive or excessive.

Our success will depend, in part, on our ability to obtain patents, protect our trade secrets and operate without infringing on the proprietary rights of others. We rely upon a combination of patents, trade secret protection (i.e., know-how), and confidentiality

agreements to protect the intellectual property of our cell therapies. The scope and validity of patents in the pharmaceutical field involve complex legal and scientific questions and can be uncertain. Where appropriate, we seek patent protection for certain aspects of our cell therapies and technology. Filing, prosecuting and defending patents throughout the world would be prohibitively expensive, so our policy is to patent technology in jurisdictions with significant commercial opportunities. However, patent protection may not be available for some of the cell therapies or technology we are developing. If we must spend significant time and money protecting or enforcing our patents, designing around patents held by others or licensing, potentially for large fees, patents or other proprietary rights held by others, our business results of operations and financial condition may be harmed. We may not develop additional proprietary products that are patentable.

Many companies have encountered significant problems in protecting and enforcing intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents and other intellectual property rights, particularly those relating to pharmaceuticals, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our proprietary rights generally. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial cost and divert our efforts and attention from other aspects of our business.

In addition, patents have a limited lifespan. In most countries, including the United States, the standard expiration of a patent is 20 years from the effective filing date. Various extensions of patent term may be available in particular countries; however, in all circumstances the life of a patent, and the protection it affords, has a limited term. If we encounter delays in obtaining regulatory approvals, the period of time during which we could market a product under patent protection could be reduced. We expect to seek extensions of patent terms where these are available in any countries where we are prosecuting patents. Such possible extensions include those permitted under the Drug Price Competition and Patent Term Restoration Act of 1984 in the United States, which permits a patent term extension of up to five years to cover an FDA-approved product. The actual length of the extension will depend on the amount of patent term lost while the product was in clinical trials. However, the applicable authorities, including the FDA in the United States, and any equivalent regulatory authority in other countries, may not agree with our assessment of whether such extensions are available, and may refuse to grant extensions to our patents, or may grant more limited extensions than we request. If this occurs, our competitors may be able to take advantage of our investment in development and clinical trials by referencing our clinical and non-clinical data, and then may be able to launch their product earlier than might otherwise be the case.

Any loss of, or failure to obtain, patent protection could have a material adverse impact on our business. Enforcement of patents may also be cost prohibitive and we may be unable to prevent competitors from entering the market with products that are similar to or the same as our cell therapies. This is particularly the case where third parties are using T-cell therapies falling within the scope of our patents in clinical trials. It may not be possible to enforce our patents against such third parties during the course of those clinical trials.

Further given that our technology relates to the field of genetic engineering, political pressure or ethical decisions may result in a change to the scope of patent claims for which we may be eligible. Different patent offices throughout the world may adopt different procedures and guidelines in relation to what is and is not patentable and as a result different protection could be obtained in different areas of the world which may impact our ability to maximize commercialization of our technology.

We may also incur increased expenses and cost in relation to the filing and prosecution of patent applications where third parties choose to challenge the scope or oppose the grant of any patent application or, following grant, seek to limit or invalidate any patent. Any increased prosecution or defense required in relation to such patents and patent applications, whether relating to this third party observation or any other third party challenge or opposition, entails increased cost and resource commitment to the business and may result in patents and patent applications being abandoned, invalidated or narrowed in scope.

We may be unable to adequately prevent disclosure of trade secrets and other proprietary information.

We rely on trade secrets to protect our proprietary know-how and technological advances, especially where we do not believe patent protection is appropriate or obtainable. However, trade secrets are difficult to protect. We rely, in part, on confidentiality agreements with our employees, consultants, outside scientific collaborators, sponsored researchers and other advisors to protect our trade secrets and other proprietary information. These agreements may not effectively prevent disclosure of confidential information and may not provide an adequate remedy in the event of unauthorized disclosure of confidential information. In addition, others may independently discover our trade secrets and proprietary information. Costly and time-consuming litigation could be necessary to enforce and determine the scope of our proprietary rights. Failure to obtain or maintain trade secret protection, or failure to adequately protect our intellectual property, could enable competitors to develop generic products or use our proprietary information to develop other products that compete

with our SPEAR T-cells or other cell therapies or have additional, material adverse effects upon our business, results of operations and financial condition.

In addition, we provide samples to third parties under material transfer agreements, including to research institutions or other organizations that we cannot control. There is a risk that such third parties could disclose details of those samples or carry out further research in relation to provided samples which results in intellectual property rights that block our future freedom to operate, and to which we may not be able to obtain a license on commercially acceptable terms or at all. In addition, provision of samples and our confidential information to such parties could facilitate or assist such parties in development of competing products.

If third parties claim that our activities or products infringe upon their intellectual property, our operations could be adversely affected.

There is a substantial amount of litigation, both within and outside the United States, involving patents and other intellectual property rights in the pharmaceutical industry. We may, from time to time, be notified of claims that we or our third party suppliers are infringing upon patents, trademarks, copyrights, or other intellectual property rights owned by third parties, and we cannot provide assurances that other companies will not, in the future, pursue such infringement claims against us or any third-party proprietary technologies we have licensed. If we or our third party suppliers were found to infringe upon a patent or other intellectual property right, or if we failed to obtain or renew a license under a patent or other intellectual property right from a third party, or if a third party that we were licensing technologies from was found to infringe upon a patent or other intellectual property rights of another third party, we may be required to pay damages, including triple damages if the infringement is found to be willful, suspend the manufacture of certain of our cell therapies or reengineer or rebrand our cell therapies, if feasible, or we may be unable to enter certain new product markets. Any such claims could also be expensive and time- consuming to defend and divert management's attention and resources. Our competitive position could suffer as a result. In addition, if we have declined to enter into a valid non-disclosure or assignment agreement for any reason, we may not own an invention or intellectual property rights and may not be adequately protected. Although we have reviewed certain third-party patents and patent filings that we believe may be relevant to our cell therapies, we have not conducted a full freedom-to-operate search or analysis for such cell therapies, and we may not be aware of patents or pending or future patent applications that, if issued, would block us from commercializing our cell therapies. Thus, we cannot guarantee that we can successfully commercialize our cell therapies in a way that will not infringe any third party's intellectual property.

Licenses may be required from third parties in relation to any of cell therapies developed or commercialized by us.

We may identify third-party intellectual property rights that are required to enable the further development, commercialization, manufacture or development of our SPEAR T-cells. Licenses to such intellectual property rights may or may not be available on commercial terms that are acceptable to us. As a result we may incur additional license fees for such intellectual property rights, or the cost and expenses to identify an alternative route for commercialization, that does not require the relevant third-party intellectual property rights, or the cost and diversion of resources required to challenge any such third party intellectual property rights. For example, commercialization of iPSC derived 'off-the-shelf' cell therapies are likely to require a license from iPS Academia Japan Inc. under intellectual property rights covering the generation of iPSC cell lines.

We may also require licenses under third-party patents covering certain peptide sequences or the use of those peptides. Such licenses will require payment of sums by us and we cannot guarantee that the terms of such licenses will be available on commercially acceptable terms or at all, which could limit the peptides which can be used by us and the efficacy of the final affinity- enhanced TCRs that we are able to offer.

As we change, develop and modify our manufacturing processes we may identify further third-party patents covering those developments and modifications. We cannot guarantee that we will be able to obtain licenses under these third-party patents or other intellectual property rights and as a result we may not be able to undertake the developments of modifications that we wish, either at all or in the timescales we require. This could ultimately impact our ability to deliver commercial T-cell products at the cost required.

The fees associated with such third-party licenses, including any associated up-front fees, milestone payments, and/or on-going royalty payments may be significant and may not be aligned with the value obtained by us from such licenses. For example, we may not be successful in commercializing any next-generation SPEAR T-cell products which incorporate licensed technology to offset any up-front or milestone payments we may have incurred in the development of such next-generation SPEAR T-cell products.

Further or other third-party patents and patent applications may be identified from time to time that require prospective action by us to prevent the grant of broad claims. Such prospective action requires time and expense and also impacts on the resources generally available to us.

Where we license certain technology from a third party, the prosecution, maintenance and defense of the patent rights licensed from such third party may be controlled by the third party which may impact the scope of patent protection which will be obtained or enforced.

Where we license patent rights or technology from a third-party, control of such third party patent rights may vest in the licensor, particularly where the license is non-exclusive or field restricted. This may mean that we are not able to control or affect the scope of the claims of any relevant third-party patent or have control over any enforcement of such a patent. Where a licensor brings an enforcement action, this could negatively impact our business or result in additional restrictions being imposed on the license we have and the scope of such license or result in invalidation or limitation of the scope of the licensed patent. In addition, should we wish to enforce the relevant patent rights against a third person, we may be reliant on consent from the relevant licensor or the cooperation of the licensor. The licensor may refuse to bring such action and leave us unable to restrict competitor entry into the market.

Issued patents protecting our SPEAR T-cells or other cell therapies could be found invalid or unenforceable if challenged in court or at the USPTO.

If we or one of our collaborators initiate legal proceedings against a third party to enforce a patent protecting one of our SPEAR T-cells or cell therapies, the defendant could counterclaim that the patent protecting our cell therapy, as applicable, is invalid and/or unenforceable. In patent litigation in the United States, defendant counterclaims alleging invalidity and/or unenforceability are commonplace, and there are numerous grounds upon which a third party can assert invalidity or unenforceability of a patent. Third parties may also raise similar claims before administrative bodies in the United States or abroad, even outside the context of litigation. Such mechanisms include re-examination, post grant review, and equivalent proceedings in foreign jurisdictions (e.g., opposition proceedings). Such proceedings could result in revocation or amendment to our patents in such a way that they no longer cover our cell therapies. The outcome following legal assertions of invalidity and unenforceability is unpredictable. With respect to the validity question, for example, we cannot be certain that there is no invalidating prior art, of which we, our patent counsel and the patent examiner were unaware during prosecution. If a defendant were to prevail on a legal assertion of invalidity and/or unenforceability, we would lose at least part, and perhaps all, of the patent protection for our cell therapies. Such a loss of patent protection could have a material adverse impact our business, financial condition and results of operations.

Changes in U.S. patent law could diminish the value of patents in general, thereby impairing our ability to protect our products.

As is the case with other biopharmaceutical companies, our success is heavily dependent on intellectual property, particularly patents. Obtaining and enforcing patents in the biopharmaceutical industry involve both technological and legal complexity, and is therefore costly, time-consuming and inherently uncertain. In addition, the United States has recently enacted and is currently implementing wide-ranging patent reform legislation. Recent U.S. Supreme Court rulings have narrowed the scope of patent protection available in certain circumstances and weakened the rights of patent owners in certain situations. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents, once obtained. Depending on decisions by the U.S. Congress, the federal courts, and the USPTO, the laws and regulations governing patents could change in unpredictable ways that would weaken our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future. For example, in Assoc. for Molecular Pathology v. Myriad Genetics, Inc., the U.S. Supreme Court held that certain claims to DNA molecules are not patentable. While we do not believe that any of the patents owned or licensed by us will be found invalid based on this decision, we cannot predict how future decisions by the courts, the U.S. Congress or the USPTO may impact the value of our patents.

Our ability to protect our intellectual property rights in territories outside of the United States may vary and thus affect our ability to obtain revenue from our cell therapies.

Filing, prosecuting and defending patents on our cell therapies in all countries throughout the world would be prohibitively expensive, and the extent of intellectual property rights may be less extensive than those which can be obtained in the United States. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries outside the United States, or from selling or importing products made using our inventions in and into the United States or other jurisdictions. Competitors may use our

technologies in jurisdictions where we have not obtained patent protection to develop their own products and further, may export otherwise infringing products to territories where we have patent protection, but enforcement is not as strong as that in the United States. These products may compete with our products and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents, trade secrets and other intellectual property protection, particularly those relating to biopharmaceutical products, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our proprietary rights generally. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not issuing and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate, and the damages or other remedies awarded, if any, may not be commercially meaningful. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

Risks Related to Employee Matters and Managing Growth

We depend upon our key personnel and our ability to attract and retain employees.

We are heavily dependent on the ongoing employment and involvement of certain key employees in particular, Adrian Rawcliffe, our Chief Executive Officer; Dr. Helen Tayton-Martin, our Chief Business Officer; William Bertrand, our Chief Operating Officer; John Lunger, our Chief Patient Supply Officer, Dr. Elliot Norry, our Senior Vice President and Chief Medical Officer, and Gavin Wood, who was appointed as our Chief Financial Officer effective April 1, 2020. We do not hold key-man insurance for our senior managers.

Our business is dependent on our ability to recruit experienced and suitably trained employees or consultants, and to retain such employees on a long-term basis. To induce employees to remain at our company, in addition to salary and cash incentives, we have provided share options that vest over time, with higher awards of share options being made to senior employees. The value to employees of share options that vest over time may be significantly affected by movements in our share price that are beyond our control and may at any time be insufficient to counteract more lucrative offers from other companies. Despite our efforts to retain valuable employees, members of our management, scientific and development teams may terminate their employment with us on short notice. Although we have employment agreements with all of our employees in the United Kingdom, these employment agreements provide for a mutual nine months' notice period in the case of Dr. Tayton-Martin and Mr. Wood; mutual three months' or two months' notice periods in the case of senior managers and mutual one-month notice periods for all other employees. In the United States, the employment agreements provide for at-will employment except that, under their employment agreements, Mr. Rawcliffe, Mr. Bertrand and Mr. Lunger must provide 60 days' written notice and our senior vice-presidents, including Dr. Norry, must provide 30 days' written notice. This means that any of our employees in the United States, except for Mr. Rawcliffe, Mr. Bertrand, Mr. Lunger and our senior vice-presidents, could leave our employment at any time, with or without notice. Our success also depends on our ability to continue to attract, retain and motivate highly skilled junior, mid-level and senior managers as well as junior, mid-level and senior scientific and medical personnel. The uncertainty around the impact of the U.K.'s exit from the European Union ("Brexit") may make it more difficult to retain and to continue to attract employees into our U.K. facilities.

We will need to grow the size and capabilities of our organization, and we may experience difficulties in managing this growth.

As of September 30, 2020, we had 420 employees. As our development and commercialization plans and strategies develop, we must add a significant number of additional managerial, operational, sales, marketing, financial, and other personnel. Future growth will impose significant added responsibilities on members of management, including:

- identifying, recruiting, integrating, maintaining, and motivating additional employees;
- managing our internal development efforts effectively, including the clinical and FDA review process for our SPEAR T-cells, while complying with our contractual obligations to contractors and other third parties; and
- improving our operational, financial and management controls, reporting systems, and procedures.

Our future financial performance and our ability to commercialize our SPEAR T-cells will depend, in part, on our ability to retain employees and effectively manage any future growth. Our management may also have to divert a disproportionate amount of its attention away from day-to-day activities in order to devote a substantial amount of time to managing growth activities and the resourcing of replacement employees in the event employees leave. For example, competition for employees able to perform manufacturing activities in the cell therapy area is increasing as more companies develop their own manufacturing capabilities. Should we be unable to retain key manufacturing employees, this could impact our ability to manufacture cell therapies for our clinical trials or result in delays to patient treatment.

We also rely on third parties to provide certain of our manufacturing and quality capabilities. See "Risks Related to Our Reliance Upon Third Parties."

If we are not able to effectively expand our organization by hiring new employees and expanding our groups of consultants and contractors, we may not be able to successfully implement the tasks necessary to further develop and commercialize our cell therapies and, accordingly, may not achieve our research, development, and commercialization goals.

We have our own manufacturing facility which may result in increased costs being incurred by the company

During 2017, we opened a manufacturing facility for our SPEAR T-cell products within our Navy Yard facility in Philadelphia, Pennsylvania and have started manufacturing SPEAR T-cells for use in our clinical trials. We cannot guarantee that the regulatory authorities, in particular the FDA, will continue to approve our ability to manufacture SPEAR T-cells or other cell therapies at the Navy Yard facility.

Our ability to successfully manufacture our own cell therapies at the Navy Yard facility within a reasonable period of time and within currently projected costs is dependent on a number of factors including:

- our ability to recruit the required employees at a suitable level and experience and within required timescales and to maintain employment of such required employees;
- our ability to obtain regulatory approval for the facility and for the manufacture of cell therapies at the facility and to satisfy regulatory authorities on an ongoing basis;
- our ability to manufacture cell therapies reliably and reproducibly and to timescales sufficient to support required patient administration;
- our ability to manufacture cell therapies in compliance with the applicable regulatory requirements, including requirements applicable in both the United States and European Union;
- our ability to develop internal quality controls and processes sufficient to enable manufacture and supply of cell therapies at our Navy Yard facility;
- our ability to establish comparability with currently used manufacturing processes and for such comparability data to be accepted by the appropriate regulatory authorities; and
- our ability to be able to fund the ongoing development including equipment requirements necessary for successful manufacture of cell therapies at our facility.

Any delay or failure in manufacture at our facility could result in delays to the supply of cell therapies for our clinical programs. Should any of our third party manufacturers also cease to be able to supply cell therapies at a time where our own manufacturing facility is unable to produce cell therapies for use in our clinical programs or is unable to produce cell therapies at the required level, then we will be unable to support such clinical programs until alternative manufacturing capability is secured.

We are in the process of increasing the number of manufacturing slots available at our Navy Yard facility. The cost of developing, out-fitting and operating a larger manufacturing facility may also be greater than currently anticipated and we may require

additional capital for the completion of the upscaling of the manufacturing facility which may result in the need for us to raise additional funds earlier than expected. As a result of the COVID-19 outbreak there may be a delay in our ability to increase the number of manufacturing slots available at our Navy Yard facility. There may also be an impact on the resources available at our Navy Yard to manufacture our cell therapies should staff at the facility become infected with COVID-19 or potentially infected with COVID-19. Any impact to resources may delay our ability to manufacture our cell therapies.

We cannot guarantee that we will be successful in manufacturing cell therapies at all or in a manner that complies with regulatory requirements. For example, there is a risk that any cell therapies we manufacture are contaminated or are otherwise incorrectly manufactured resulting in injury or death to any patient receiving those cell therapies. Such failure could result in a halt being placed on manufacture at our Navy Yard facility. We may also face difficulties in properly tracking and administering our cell therapies to patients, again potentially resulting in injury or death to any patient receiving those cell therapies.

We may also be unable to support use of our own manufacturing facility together with third party suppliers and become the sole supply for our cell therapies. Any inability to supply cell therapies at the required levels and to the required specifications, will result in delays to clinical trials and may result in holds being applied to such clinical trials.

We expect to face intense competition, which may be from companies with greater resources and experience than we have.

The pharmaceutical industry, and the immuno-oncology industry specifically, is highly competitive and subject to rapid developments in treatment options. Competitors include large global pharmaceutical companies, biotechnology companies, speciality immune-therapy companies and universities and research organisations, whether alone or in collaboration with other entities. Many of our competitors have substantially greater financial, technical and other resources, such as larger research and development staff and may also be able to progress clinical candidates through clinical studies quicker than we are able to. Mergers and acquisitions within the pharmaceutical and biotechnology industry can also result in resources being concentrated within our competitors. Our competitors may also have better developed commercialization capabilities and already established sales forces and manufacturing capability.

Within in any particular cancer indication we may face competition from other cell therapy companies, from personalized medicine approaches, from other modalities of treatment, alternative drug products or therapies or from pre-existing treatment regimens used to treat patients with that cancer indication.

- Our competitors may be able to develop other compounds or drugs that are able to achieve similar or better results. This may prevent us from being able to obtain marketing approval for our products or restrict the number of patients which may be able to benefit from our products.
- Our competitors may develop compounds or drugs in any indication which change the standard of care for patients and which may change the need for or type of treatment with our cell therapy.
- Our competitors may directly compete for patients within our clinical trials which may impact our ability to recruit patients and obtain data from our clinical trials.
- Our competitors may obtain marketing authorisation ahead of us in similar indications which may result in inability for us to obtain marketing authorisation or a requirement to show an increase in benefit to patients or may result in reluctance from physicians to switch from a competitor product to our cell therapies.
- Our competitors may develop manufacturing processes or delivery mechanisms which significantly reduce the cost of cell therapy products or alternatively make patient administration easier, reducing the commercialization potential for our cell therapy products or the amount of pricing reimbursement we can obtain from our cell therapy products.
- Following marketing of any of our products, the availability and price of any competitor’s products could limit the demand and price we are able to charge for our product candidates and the number of patients able to benefit from our products.
- Our competitors could also develop enhanced versions or next generation versions of our cell therapies which directly

compete with our cell therapies and potentially show enhanced benefit over our cell therapies.

- Our competitors may obtain patents which prevent us from further developing our cell therapies or from developing cell therapies which continue to be competitive.

In particular there are several companies which are actively developing cell therapies both in relation to haematological indications and solid tumour indications including TCR T-cells which could directly compete with our SPEAR T-cells. Companies are also developing allogeneic or "off-the-shelf" immunotherapy products including stem-cell derived products, HLA-matched products, healthy-donor derived products and use of cells with no or limited HLA type (for example GammaDelta T-cell, or NK cells) which could significantly reduce both the cost of manufacture of cell therapies and time to treat patients and as a result negatively impact the availability and price for our own product candidates.

For further additional information on our competitors, please see "Item 1. Competition" in our Annual Report.

The United Kingdom's withdrawal from the European Union could lead to increased market volatility, which could adversely impact the market price of our ADSs and make it more difficult for us to do business in Europe or have other adverse effects on our business.

The United Kingdom formally exited the European Union, commonly referred to as Brexit, on January 31, 2020. Under the terms of its departure, the United Kingdom will enter a transition period during which it will continue to follow all European Union rules and the trading relationship will remain the same. The transition period is scheduled to end on December 31, 2020. The long-term effects of Brexit will depend on the agreements and arrangements the United Kingdom negotiates with the European Union including whether and to what extent it will retain access to the European Union markets following the transition period. There will be a period of considerable uncertainty particularly in relation to United Kingdom financial and banking markets as well as on the regulatory process in Europe as these negotiations continue to unfold. As a result of this uncertainty, financial markets could experience volatility which could adversely affect the market price of our ADSs. Depending on the final terms of the agreements and arrangements negotiated with the European Union, we may also face new regulatory costs and challenges that could have a material adverse effect on our operations, including the potential for a delay in our clinical progress and approvals in Europe. In particular, we could be subject to increased regulatory requirements in relation to the procurement, supply and transport of our end products, apheresis product used to manufacture end product and samples taken during clinical trials. There may be increased requirements for additional resources, procedures or licenses to facilitate the performance of our clinical trial protocols for example in relation to the release of our cell therapies, which are manufactured outside of the European Union, for use within the European Union. Further, we may need to appoint third parties to perform certain activities on our behalf, for example a data protection representative under the General Data Protection Regulation (GDPR) and/or we may need to establish alternative vehicles to hold EU authorisations, such as our orphan drug designation for ADP-A2M4 in synovial sarcoma. Given the uncertainty created by Brexit, we may find it more difficult to recruit and retain staff from the European Union and certain staff may choose to seek employment in other European Union countries rather than remain in the United Kingdom.

As a result of the foregoing developments, and in the absence of any clear indication that any agreement or arrangement with the European Union will contain a contrary requirement, we have already appointed our CROs to act as European Union legal representatives to act on our behalf in accordance with Article 19 of the European Union Clinical Trials Directive (Directive 2001/20/EC). We have also appointed quality representatives within the European Union to ensure our therapies can be released for use in the European Union in our clinical trials. Depending on the final terms of any agreements of arrangements there may be an impact on movement of goods between the European Union and the United Kingdom and additional requirements may apply prior to use of our products within the European Union.

Depending on the terms of Brexit, the United Kingdom could lose the benefits of global trade agreements negotiated by the European Union on behalf of its members, which may result in increased trade barriers which could make our doing business worldwide more difficult. In addition, currency exchange rates in the pound sterling and the euro with respect to each other and the U.S. dollar have already been adversely affected by Brexit. Should this foreign exchange volatility continue it could cause volatility in our financial results.

Failure of our information technology systems could significantly disrupt the operation of our business.

Our ability to execute our business plan and to comply with regulators' requirements with respect to data control and data integrity, depends, in part, on the continued and uninterrupted performance of our information technology systems and similar systems

used by third-party providers that we rely on. These systems are vulnerable to damage from a variety of sources, including telecommunications or network failures, malicious human acts and natural disasters. There is an increase in vulnerability to damage as a result of the working from home policy adopted at our U.S. and U.K. facilities for certain of our employees during the course of the COVID-19 outbreak and the increase in malicious human acts occurring at the same time. Moreover, despite network security and back-up measures, some of our servers are potentially vulnerable to physical or electronic break-ins, computer viruses and similar disruptive problems. Despite the precautionary measures we have taken to prevent unanticipated problems that could affect our information systems, sustained or repeated system failures or problems arising during the upgrade of any of our information systems that interrupt our ability to generate and maintain data, and in particular to operate our proprietary technology platform, could adversely affect our ability to operate our business. In addition, where disruption to such systems occurs at third-party providers, we may have limited ability to find alternative providers in any required timeframes or at all, and such disruption could significantly affect our ability to proceed with clinical or analytical or development programs.

Business disruptions could seriously harm our future revenue and financial condition and increase our costs and expenses.

Our operations and those of our third party suppliers and collaborators could be subject to earthquakes, power shortages, telecommunications failures, water shortages, floods, hurricanes or other extreme weather conditions, medical epidemics (including COVID-19), labor disputes or other business interruptions. While the company has business interruption insurance policies in place, any interruption could seriously harm our ability to timely proceed with any clinical programs or to supply SPEAR T-cells on a commercial basis or for use in clinical programs.

We are exposed to risks related to currency exchange rates.

We conduct a significant portion of our operations within the United Kingdom in both U.S. dollars and pounds sterling and our arrangements with GSK are denominated in pounds sterling. Changes in currency exchange rates have had and could have a significant effect on our operating results. Exchange rate fluctuations between the U.S. dollar and local currencies create risk in several ways, including the following: weakening of the pound sterling may increase the cost of overseas research and development expenses and other costs outside the United Kingdom; strengthening of the U.S. dollar may decrease the value of any future revenues denominated in other currencies. Effects of exchange rates on transactions and cash deposits held in a currency other than the functional currency of a subsidiary can distort our financial results; and commercial pricing and profit margins are affected by currency fluctuations.

We may be classified as a passive foreign investment company in any taxable year and U.S. holders of our ADSs could be subject to adverse U.S. federal income tax consequences.

The rules governing passive foreign investment companies, or PFICs, can have adverse effects for U.S. federal income tax purposes. The tests for determining PFIC status for a taxable year depend upon the relative values of certain categories of assets and the relative amounts of certain kinds of income. The determination of whether we are a PFIC depends on the particular facts and circumstances (such as the valuation of our assets, including goodwill and other intangible assets) and may also be affected by the application of the PFIC rules, which are subject to differing interpretations. In addition, it is not entirely clear how to apply the income test to a company like us, which for any particular taxable year may have gross income that is either entirely passive or that significantly exceeds any active gross income, but the overall losses of which from research and development activities exceed the overall amount of its gross income for that year. Based on our estimated gross income, the average value of our assets, including goodwill and the nature of our active business, although not free from doubt, we do not believe that the Company was classified as a PFIC for U.S. federal income tax purposes for the U.S. taxable year ended December 31, 2019. There can be no assurance, however, that we will not be considered to be a PFIC for this taxable year or any particular year in the future because PFIC status is factual in nature, depends upon factors not wholly within our control, generally cannot be determined until the close of the taxable year in question and is determined annually.

If we are a PFIC, U.S. holders of our ADSs would be subject to adverse U.S. federal income tax consequences, such as ineligibility for any preferred tax rates on capital gains or on actual or deemed dividends, interest charges on certain taxes treated as deferred, and additional reporting requirements under U.S. federal income tax laws and regulations. A U.S. holder of our ADSs may be able to mitigate some of the adverse U.S. federal income tax consequences described above with respect to owning the ADSs if we are classified as a PFIC, provided that such U.S. investor is eligible to make, and validly makes, a “mark-to-market” election. In certain circumstances a U.S. Holder can make a “qualified electing fund” election to mitigate some of the adverse tax consequences described with respect to an ownership interest in a PFIC by including in income its share of the PFIC’s income on a current basis. However, we do not currently intend to prepare or provide the information that would enable a U.S. Holder to make a qualified electing fund election.

Investors should consult their own tax advisors regarding our PFIC status for any taxable year and the potential application of the PFIC rules to an investment in our ADSs or ordinary shares.

Risks Related to Ownership of our American Depositary Shares (ADSs)

The market price and trading volume of our ADSs may be volatile.

Many factors may have a material adverse effect on the market price of the ADSs, including but not limited to:

- the commencement, enrollment or results of our planned clinical trials;
- the loss of any of our key scientific or management personnel;
- announcements of the failure to obtain regulatory approvals or receipt of a complete response letter from the FDA;
- announcements of undesirable restricted labeling indications or patient populations, or changes or delays in regulatory review processes;
- announcements of therapeutic innovations or new products by us or our competitors;
- adverse actions taken by regulatory agencies with respect to our clinical trials, manufacturing supply chain or sales and marketing activities;
- changes or developments in laws or regulations applicable to SPEAR T-cells;
- any adverse changes to our relationship with licensors, manufacturers or suppliers;
- the failure of our testing and clinical trials;
- unanticipated safety concerns;
- the failure to retain our existing, or obtain new, collaboration partners;
- announcements concerning our competitors or the pharmaceutical industry in general;
- the achievement of expected product sales and profitability;
- the failure to obtain reimbursements for SPEAR T-cells, if approved for marketing, or price reductions;
- manufacture, supply or distribution shortages;
- actual or anticipated fluctuations in our operating results;
- our cash position;
- changes in financial estimates or recommendations by securities analysts;
- potential acquisitions;
- the trading volume of ADSs on the Nasdaq Global Select Market, or Nasdaq;
- sales of our ADSs by us, our executive officers and directors or our shareholders in the future;

- general economic and market conditions and overall fluctuations in the U.S. equity markets including as resulting from the COVID-19 outbreak and economic effects of such outbreak; and

- changes in accounting principles.

In addition, the stock market in general, and Nasdaq and biopharmaceutical companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of these companies. Broad market and industry factors may negatively affect the market price of our ADSs, regardless of our actual operating performance. Further, a decline in the financial markets and related factors beyond our control may cause the price of our ADSs to decline rapidly and unexpectedly. In the past, securities class action litigation has often been instituted against companies following periods of volatility in their stock price. This type of litigation could result in substantial costs and could divert our management and other resources.

We may not be able to maintain compliance with the continued listing requirements of Nasdaq.

Our ADSs are listed on Nasdaq. In order to maintain that listing, we must satisfy minimum financial and other requirements including, without limitation, a requirement that our closing bid price must not fall below $1.00 per ADS for 30 consecutive business days. In the event that it was necessary to regain compliance with this closing bid price requirement, we would be permitted 180 days in which to do so and would need to demonstrate that we had maintained a closing bid price of a minimum of $1.00 per ADS for 10 consecutive business days. In the event that we were unable to regain compliance during this initial 180 day period, or a possible further 180 day period, we may need to implement reverse stock splits or change the ratio of ADSs to ordinary shares or take other measures in order to regain compliance with this closing bid price requirement. If we fail to continue to meet all applicable continued listing requirements for Nasdaq in the future and Nasdaq determines to delist our ADSs, the delisting could adversely affect the market liquidity of our ADSs and our ability to obtain financing to fund our operations.

Substantial future sales of our ADSs in the public market, or the perception that these sales could occur, could cause the price of the ADSs to decline and dilute shareholders.

Substantial future sales of our ADSs in the public market, or the perception that these sales could occur, could cause the market price of the ADSs to decline. Sales of a substantial number of our ADSs in the public market could occur at any time. In addition, we have registered an aggregate of 151,248,915 ordinary shares that we may issue under our equity compensation plans and, as a result, they can be freely sold in the public market upon issuance and following conversion into ADSs, but subject to volume limitations applicable to affiliates under Rule 144. Additionally, the majority of ordinary shares that may be issued under our equity compensation plans also remain subject to vesting in tranches over a four-year period. As of September 30, 2020, an aggregate of 51,747,595 options over our ordinary shares had vested and become exercisable. If a large number of our ADSs are sold in the public market after they become eligible for sale, the sales could reduce the trading price of our ADSs and impede our ability to raise capital in the future.

We incur increased costs as a result of being a public company whose ADSs are publicly traded in the United States and our management must devote substantial time to public company compliance and other compliance requirements.

As a U.S. public company whose ADSs trade on Nasdaq, we have incurred and will continue to incur significant legal, accounting, insurance and other expenses. We are subject to the reporting requirements of the Exchange Act, which requires, among other things, that we file with the SEC annual, quarterly and current reports with respect to our business and financial condition and must comply with the Nasdaq listing requirements and other applicable securities rules and regulations. In addition, the Sarbanes-Oxley Act, as well as rules subsequently adopted by the SEC and the Nasdaq to implement provisions of the Sarbanes-Oxley Act, impose significant requirements on public companies, including requiring establishment and maintenance of effective disclosure and financial controls and changes in corporate governance practices. Further, pursuant to the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, the SEC has adopted and will adopt additional rules and regulations, such as mandatory “say on pay” voting requirements, that we must comply with. We expect the rules and regulations applicable to public companies to substantially increase our legal and financial compliance costs and to make some activities more time-consuming and costly. Our insurance costs have increased, particularly for directors and officers liability insurance, and we may be required to incur further substantial increased costs to maintain the same or similar coverage or be forced to accept reduced coverage in future. To the extent these requirements divert the attention of our management and personnel from other business concerns, they could have a material adverse effect on our business, financial condition and results of operations. The increased costs will increase our net loss and may require us to reduce costs in other areas of our business.

These laws and regulations could also make it more difficult and expensive for us to attract and retain qualified persons to serve on our board of directors, our board committees or as our executive officers. Furthermore, if we are unable to satisfy our obligations as a public company, we could be subject to delisting of the ADSs from Nasdaq, fines, sanctions and other regulatory action and potentially civil litigation.

If we fail to establish and maintain proper internal controls, our ability to produce accurate financial statements or comply with applicable regulations could be impaired.

We must maintain effective internal control over financial reporting in order to accurately and timely report our results of operations and financial condition. In addition, as a U.S. public company, the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act, requires, among other things, that we assess the effectiveness of our disclosure controls and procedures and the effectiveness of our internal control over financial reporting at the end of each fiscal period. Pursuant to Section 404 of the Sarbanes-Oxley Act, we are required to furnish a report by our management on our internal control over financial reporting, and we are required to include an attestation report on internal control over financial reporting issued by our independent registered public accounting firm. The rules governing the standards that must be met for our management to assess our internal control over financial reporting pursuant to Section 404 of the Sarbanes-Oxley Act are complex and require significant documentation, testing and possible remediation. These stringent standards require that our audit committee be advised and regularly updated on management's review of internal control over financial reporting.

Our compliance with applicable provisions of Section 404 requires that we incur substantial accounting expenses and expend significant management attention and time on compliance-related issues as we implement additional corporate governance practices and comply with reporting requirements. If we fail to staff our accounting and finance function adequately or maintain internal control over financial reporting adequate to meet the requirements of the Sarbanes-Oxley Act, our business and reputation may be harmed. Moreover, if we are not able to comply with the applicable requirements of Section 404 in a timely manner, we may be subject to sanctions or investigations by regulatory authorities, including the SEC and Nasdaq. Furthermore, if we are unable to conclude that our internal control over financial reporting is effective or if our independent registered public accounting firm identifies deficiencies in our internal control over financial reporting that are deemed to be material weaknesses, we could lose investor confidence in the accuracy and completeness of our financial reports, the market price of our ADSs could decline, and we could be subject to sanctions or investigations by the SEC, Nasdaq or other regulatory authorities. Failure to implement or maintain effective internal control systems required of U.S. public companies could also restrict our access to the capital markets. The occurrence of any of the foregoing would also require additional financial and management resources.

U.S. investors may have difficulty enforcing civil liabilities against our company, our directors, officers and members of senior management.

We are incorporated under the laws of England and Wales. The rights of holders of our ordinary shares and, therefore, certain of the rights of holders of ADSs, are governed by English law, including the provisions of the Companies Act 2006, and by our articles of association. These rights differ in certain respects from the rights of shareholders in typical U.S. corporations organized in, for example, Delaware. Some of our directors, officers and members of senior management reside outside the United States, and a substantial portion of our assets and all or a substantial portion of the assets of such persons are located outside the United States. As a result, it may be difficult for you to serve legal process on us or our directors and executive officers or have any of them appear in a U.S. court. The United States and the United Kingdom do not currently have a treaty providing for the recognition and enforcement of judgments, other than arbitration awards, in civil and commercial matters. The enforceability in the United Kingdom of any judgment of a U.S. federal or state court will depend on the particular facts of the case as well as the laws and any treaties in effect at the time, including conflicts of laws principles (such as those bearing on the question of whether a U.K. court would recognize the basis on which a U.S. court had purported to exercise jurisdiction over a defendant). In this context, there is doubt as to the enforceability in the United Kingdom, in original actions or in actions for enforcement of judgments of U.S. courts, of civil liabilities based solely on the federal securities laws of the United States. In addition, awards for punitive damages in actions brought in the United States or elsewhere may be unenforceable in the United Kingdom. An award for monetary damages under the U.S. securities laws would likely be considered punitive if it did not seek to compensate the claimant for loss or damage suffered and was intended to punish the defendant.

Provisions in the U.K. City Code on Takeovers and Mergers that may have anti-takeover effects do not apply to us.

The U.K. City Code on Takeovers and Mergers, or the Takeover Code, applies to an offer for, among other things, a public company whose registered office is in the United Kingdom if the company is considered by the Panel on Takeovers and Mergers, or the Takeover Panel, to have its place of central management and control in the United Kingdom (or the Channel Islands or the Isle of Man). This is known as the "residency test." The test for central management and control under the Takeover Code is different from that used by the U.K. tax authorities. Under the Takeover Code, the Takeover Panel will determine whether we have our place of central management and control in the United Kingdom by looking at various factors, including the structure of our Board, the functions of the directors and where they are resident.

In July 2018, the Takeover Panel confirmed that, based on our current circumstances, we are not subject to the Takeover Code. As a result, our shareholders are not entitled to the benefit of certain takeover offer protections provided under the Takeover Code. We believe that this position is unlikely to change at any time in the near future but, in accordance with good practice, we will review the situation on a regular basis and consult with the Takeover Panel if there is any change in our circumstances which may have a bearing on whether the Takeover Panel would determine our place of central management and control to be in the United Kingdom.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds.

None.

Item 3. Defaults Upon Senior Securities.

None.

Item 4. Mine Safety Disclosures.

Not applicable.

Item 5. Other Information.

None.

Item 6. Exhibits.

The following exhibits are either provided with this Quarterly Report on Form 10-Q or are incorporated herein by reference:

Exhibit Number	Description of Exhibit
31.1**	Certification of Principal Executive Officer pursuant to Rule 13a-14(a) and Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2**	Certification of Principal Financial Officer pursuant to Rule 13a-14(a) and Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1**	Certification of Principal Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2**	Certification of Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101**	The following financial information from Adaptimmune Therapeutics plc's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2020, formatted in iXBRL (Inline eXtensible Business Reporting Language): (i) Unaudited Condensed Consolidated Balance Sheets as of September 30, 2020 and December 31, 2019, (ii) Unaudited Condensed Consolidated Statements of Operations for the three and nine months ended September 30, 2020 and 2019, (iii) Unaudited Condensed Consolidated Statements of Comprehensive (Loss) Income for the three and nine months ended September 30, 2020 and 2019, (iv) Unaudited Condensed Consolidated Statements of Change in Equity for the three and nine months ended September 30, 2020 and 2019, (v) Unaudited Condensed Consolidated Statements of Cash Flows for the nine months ended September 30, 2020 and 2019 and (vi) Notes to the Unaudited Condensed Consolidated Financial Statements.
104**	Cover Page Interactive data File (formatted in Inline XBRL and contained in Exhibit 101)

* Previously filed.

** Filed herewith.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

ADAPTIMMUNE THERAPEUTICS PLC

Date: November 5, 2020

/s/ Adrian Rawcliffe
Adrian Rawcliffe
Chief Executive Officer

Date: November 5, 2020

/s/ Gavin Wood
Gavin Wood
Chief Financial Officer

Exhibit 31.1

Certification Required by Rule 13a-14(a) or 15d-14(a) under the Securities Exchange Act of 1934 as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Adrian Rawcliffe, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Adaptimmune Therapeutics plc;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)), for the registrant and have:

    a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

    b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

    c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

    d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter that has materially affected or is reasonably likely to materially affect the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

    a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

    b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: November 5, 2020

/s/ Adrian Rawcliffe
Adrian Rawcliffe
Chief Executive Officer

Exhibit 31.2

Certification Required by Rule 13a-14(a) or 15d-14(a) under the Securities Exchange Act of 1934 as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Gavin Wood, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Adaptimmune Therapeutics plc;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)), for the registrant and have:

    a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

    b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

    c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

    d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter that has materially affected or is reasonably likely to materially affect the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

    a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

    b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: November 5, 2020

/s/ Gavin Wood
Gavin Wood
Chief Financial Officer

Exhibit 32.1

Section 906 Certificate

Certification Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (subsections (a) and (b) of Section 1350, Chapter 63 of Title 18, United States Code), I, Adrian Rawcliffe, Chief Executive Officer of Adaptimmune Therapeutics plc, a public limited company incorporated under English law (the "Company"), hereby certify, to my knowledge, that:

1. The Company's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2020, to which this Certification is attached as Exhibit 32.1 (the "Quarterly Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

2. The information contained in the Quarterly Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: November 5, 2020

/s/ Adrian Rawcliffe
Adrian Rawcliffe
Chief Executive Officer

Exhibit 32.2

Section 906 Certificate

Certification Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (subsections (a) and (b) of Section 1350, Chapter 63 of Title 18, United States Code), I, Gavin Wood, Chief Financial Officer of Adaptimmune Therapeutics plc, a public limited company incorporated under English law (the "Company"), hereby certify, to my knowledge, that:

1. The Company's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2020, to which this Certification is attached as Exhibit 32.2 (the "Quarterly Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

2. The information contained in the Quarterly Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: November 5, 2020

/s/ Gavin Wood
Gavin Wood
Chief Financial Officer