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

FORM 6-K

Report of Foreign Private Issuer
Pursuant to Rule 13a-16 or 15d-16
under the Securities Exchange Act of 1934

For the month of **September 2021**

Commission File Number: 001-40106

4D pharma plc
(Translation of Registrant's name into English)

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Leeds
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United Kingdom
Tel: +44 (0) 113 895 013

(Address of principal executive offices)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F. Form 20-F ☒ Form 40-F ☐

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1): ____

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7): ____

On September 30, 2021, 4D pharma plc (the "Company") issued a press release entitled "Interim results for the six months ended 30 June 2021," in which the Company reported its financial results as of and for the six month period ended June 30, 2021.

A copy of the press release is attached as Exhibit 99.1 to this current report on Form 6-K and is incorporated by reference herein.

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.

4D pharma plc

Date: September 30, 2021

/s/ Duncan Peyton
Duncan Peyton
Chief Executive Officer

INDEX TO EXHIBITS

Exhibit Number	Exhibit Title
99.1	Press Release, dated September 30, 2021.

Exhibit 99.1

4D PHARMA PLC

("4D", "4D Pharma" or "the Company")

Interim results for the six months ended 30 June 2021

Leeds, UK, 30 September 2021 - 4D pharma plc (AIM: DDDD), a pharmaceutical company leading the development of Live Biotherapeutics, is pleased to announce the interim results for the Company and its subsidiaries (together "the Group") for the six months ended 30 June 2021.

All details stated hereafter relate to the UK IFRS accounts; the Group also produces US GAAP accounts, the details of which are included in the Form 6-K to be filed with the U.S. Securities and Exchange Commission.

Financial highlights

- Net assets at 30 June 2021 of £39.7 million (30 June 2020: £31.5 million and 31 December 2020: £28.0 million).
- Cash and cash equivalents and short-term deposits at 30 June 2021 of £20.7 million (30 June 2020: £10.0 million and 31 December 2020: £8.8 million).
- Loss and total comprehensive income for the six months ended 30 June 2021 of £56.1 million (30 June 2020: £13.6 million and 31 December 2020: £25.9 million).
- Research and development expenditure for the six months ended 30 June 2021 of £9.9 million (30 June 2020: £12.4 million and 31 December 2020: £22.0 million).

Operational highlights

- Completed the acquisition of Longevity Acquisition Corporation (Longevity), a special purpose acquisition company (SPAC), and the listing on NASDAQ of 4D pharma American Depository Shares (ADSs) under the ticker symbol 'LBPS'. As a result of the business combination, cash of $14.8 million held by Longevity became available to 4D pharma.
- In conjunction with the merger and NASDAQ listing, 4D pharma completed a private placement raising gross proceeds of approximately $25.0 million (£18.0 million), including participation of existing investor Merck Sharp & Dohme Corp.
- Presented additional supportive data from the completed Phase II trial of Blautix® in subjects with irritable bowel syndrome with constipation (IBS-C) or with diarrhea (IBS-D) at Digestive Disease Week (DDW). The DDW 2021 poster can be accessed via the Posters & Publications page of our website at https://www.4dpharmaplc.com/en/newsroom/posters-and-publications.
- Announced the completion of target enrollment of 30 patients in Part A of the Phase I/II first-in-human clinical trial of MRx-4DP0004 for the treatment of asthma.
- Announced a clinical trial collaboration and drug supply agreement with Merck KGaA, Darmstadt, Germany, and Pfizer Inc. for BAVENCIO® (avelumab). Under the collaboration, 4D pharma intends to commence a clinical trial to evaluate BAVENCIO® in combination with MRx0518 as a first-line maintenance therapy for patients with locally advanced or metastatic urothelial carcinoma that has not progressed with first-line platinum-containing chemotherapy. This is the second clinical collaboration combining MRx0518 with an immune checkpoint inhibitor.
- Also provided a clinical update on the MRx0518 clinical program, with updates on patient recruitment and study status across the three ongoing MRx0518 clinical trials.
- Entered into a collaboration with Parkinson's UK, a non-profit organization, to establish a Patient Advisory Board to present patient-centric perspectives as the Company advances novel Live Biotherapeutics for the treatment of neurodegenerative conditions such as Parkinson's disease.
- Announced the appointment of John Beck as Chief Financial Officer.
- Announced the appointment of Paul Maier as Non-Executive Director.

Since the period end

- Announced the passing of John Beck, Chief Financial Officer.
- Published pre-clinical research relating to its second-generation immuno-oncology LBP MRx1299 improving the activity of CAR-T.
- Announced the acceptance of two e-Poster presentations of MRx0518 clinical biomarker data at the European Society for Medical Oncology (ESMO) Congress, held from 16–21 September 2021. The ESMO 2021 posters can be accessed via the Posters & Publications page of our website at https://www.4dpharmaplc.com/en/newsroom/posters-and-publications.
- Closed a senior secured credit facility for up to $30 million with Oxford Finance SARL, in three tranches: an initial tranche of $12.5 million at closing which extends 4D pharma's cash runway into Q4 2022, with the remaining $7.5 million and $10 million tranches dependent on the achievement of certain milestones.

For further information please contact:

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Chairperson and Chief Executive Officer's Joint Review

As we move into the second half of 2021, we look forward to capitalizing on the efforts of the team throughout the first six months of 2021. We have generated more data expanding our unique understanding of mechanisms of host-microbe interactions and are seeing the benefits in our clinical programs while we continue to drive research through our proprietary MicroRx® platform. This work has allowed us to discover new therapeutic possibilities in disease such as Parkinson's, and demonstrate potential of our Live Biotherapeutics alongside new modalities such as CAR-T. Alongside the continued push to bring our Live Biotherapeutics to an approval in oncology, 4D pharma achieved a significant milestone at the beginning of the year following our listing on NASDAQ.

Building the oncology franchise

We continue our commitment to oncology, building a strong understanding of the utility of our Live Biotherapeutics in this field. In particular recognizing the value of a therapeutic which has little or no side effects to combination with existing therapies in the fight against cancer while many other combination treatments currently evaluated in immune-oncology increase toxicity.

With our lead oncology candidate MRx0518, we have built on our ongoing work with MSD (Merck & Co.) and its anti-PD-1 immune checkpoint inhibitor (ICI) Keytruda® (pembrolizumab), announcing a new clinical collaboration and drug supply agreement with Merck KGaA and Pfizer and their anti-PD-L1 ICI Bavencio® (avelumab). In contrast to the ongoing study with Keytruda in ICI-refractory patients, the new Bavencio collaboration takes MRx0518 into earlier lines of treatment, and expands our clinical portfolio targeting the PD-1 axis.

Under the collaboration we will conduct a clinical study to evaluate MRx0518 in combination with Bavencio as a first-line maintenance therapy for urothelial carcinoma, a common form of bladder cancer. Bavencio is the first and only ICI approved in this setting, and we are excited to commence this fourth clinical study of MRx0518 before the end of 2021.

In addition, we announced progress updates for the three ongoing clinical studies of MRx0518 – in combination with Keytruda in patients with solid tumors refractory to prior ICI therapy; as a neoadjuvant monotherapy; and in combination with radiation prior to surgery for pancreatic cancer. These studies continue to progress well, giving more insights into the biological mechanisms of MRx0518 and its activity on the patient immune system, potentially allowing us to understand which patients may benefit most from MRx0518 in combination with ICIs like Keytruda and Bavencio.

After the period end, in September, 4D pharma presented new data from the Keytruda combination and neoadjuvant monotherapy studies at the European Society for Medical Oncology (ESMO) Congress. The ESMO 2021 posters can be accessed via the Posters & Publications page of our website at https://www.4dpharmaplc.com/en/newsroom/posters-and-publications. The new data includes tumor immune biomarkers associated with response to the combination with MRx0518 and Keytruda, which is an exciting proposition we look forward to investigating further as we continue to progress MRx0518. This is supported by additional data for MRx0518 as a monotherapy, providing further evidence of immune activation by our oral Live Biotherapeutic, including positive changes in prognostic indicators predictive of response to immunotherapy. These data continue to deepen our understanding of the activity of MRx0518 on patients, and will help inform engagement with regulatory authorities and clinicians as we continue to develop this leading immuno-oncology Live Biotherapeutic.

The main focus of our work in oncology at this time is the preparation of a pivotal development program for MRx0518 in an oncologic indication.

Through our clinical programs and research, our work in oncology illustrates the potential of the MicroRx® platform to expand 4D pharma's leadership in oncology.

Alongside our work in solid tumors, 4D also continues to push forward in identifying new LBP candidates in additional oncology settings, such as CAR-T. 4D pharma recently published pre-clinical research relating to second-generation oncology LBP MRx1299 in the respected peer-reviewed journal Nature Communications. The research demonstrates the ability of the bacterium Megasphaera massiliensis and its short chain fatty acid (SCFA) metabolite pentanoate to enhance the anti-tumor activity of cytotoxic T lymphocytes (CTL) and Chimeric antigen receptor T cell (CAR-T) therapies in animal models of cancer.

Blautix® – a leading late-stage LBP candidate

IBS remains a misunderstood disease and not easily characterized. In the US, as many as 35 million people report IBS symptoms, with 60-70% being women. IBS remains a disease with significant unmet need. Current treatments target sub-type specific symptoms (diarrhea or constipation) but, due to side effects and sub-optimal efficacy, patient satisfaction and compliance remains an issue. Further, there currently is no therapeutics approved for patients with fluctuating or mixed symptoms, known as IBS-M.

Following publication of topline efficacy and safety results from our Phase II study of Blautix® in irritable bowel syndrome with constipation (IBS-C) and with diarrhea (IBS-D) in October 2020, important additional data was presented at Digestive Disease Week (DDW) in May 2021. The DDW 2021 posters can be accessed via the Posters & Publications page of our website at https://www.4dpharmaplc.com/en/newsroom/posters-and-publications . A key finding from sub-group analyses was an unusually high placebo response rate in patients in the UK and Ireland which negatively impacted the topline results. Conversely, we saw an enhanced effect in the US population in both IBS-C and IBS-D.

In agreement with regulatory guidelines and key opinion leader feedback, the positive Phase II data provides a clear path forward for the development of Blautix as a novel treatment for IBS with the potential to be a single, safe, effective therapeutic able to address multiple subtypes of IBS. We have engaged with the US FDA regarding plans for pivotal development, and discussions are ongoing with multiple potential partners for the program.

MRx-4DP0004 – Systemic immune activity via the gut

MRx-4DP0004 is in an ongoing Phase I/II first-in-human clinical trial in patients with partly controlled asthma, as an add-on therapy to their long-term maintenance asthma medication.

In June we announced the completion of target enrolment of 30 patients in Part A of our Phase I/II randomized, placebo-controlled study of asthma candidate MRx-4DP0004. Part A of the trial primarily assesses the safety and tolerability of MRx-4DP0004, as well as biomarker signals of activity relevant to asthma. We expect to announce top line results later in 2021.

Leveraging the gut-brain axis

As accumulating evidence points towards the gut-brain axis and the role of the microbiome in conditions of the central nervous system (CNS), we are excited to continue to push forward in this field. In April, the company announced our collaboration with Parkinson's UK, to establish a Patient Advisory Board (PAB) of people living with Parkinson's disease. The PAB provides valuable patient perspectives as we continue to advance candidates MRx0029 and MRx0005 towards a first-in-man study in patients with Parkinson's disease expected to begin in 2022.

Corporate activity

The NASDAQ is the premier exchange for biotechnology companies worldwide, giving companies global reach and visibility within the healthcare investment ecosystem. Achieving a listing on NASDAQ has been a strategic objective for 4D pharma's continued growth and success moving forward.

In March 2021 we met this transformational milestone, as we listed 4D pharma American Depository Shares (ADSs) on the NASDAQ exchange in the United States following the completion of our merger with special purpose acquisition company (SPAC) Longevity Acquisition Corporation.

In conjunction with the SPAC merger and NASDAQ listing we conducted a fundraise which together provided the company with approximately $42 million of additional capital. In doing so we began to strengthen our international investor base and put 4D pharma in a strong financial position to execute across our pipeline.

Further, after the period end in July, we also announced a credit facility with Oxford Finance LLC, that provides 4D pharma with up to $30 million of capital across three tranches, of which the first tranche of $12.5 million was received upon closing. The facility diversifies and strengthens the company's capital structure with a well-respected specialty finance firm in the life sciences field. The additional funds further extend our cash runway beyond additional potentially transformative development milestones.

In addition to strengthening our financial position, we also strengthened our leadership team. In March we welcomed Paul Maier as a Non-Executive Director who will also serve as a financial expert under SEC and NASDAQ rules. Paul brings over 25 years of operational and financial management experience in the life sciences industry, and his experience has been a valuable addition to our Board of Directors.

It was with great sadness that we announced the passing of John Beck in July of this year, who had served as Chief Financial Officer with the company since March. John was greatly respected within the life sciences industry and brought 30 years of finance experience to our team. His significant contributions to the company during his time with us have been highly valuable, and we hope to carry his legacy forward by building upon the strong foundations he helped to lay as 4D pharma entered a new era as a US-listed entity.

Conclusion

The first half of 2021 has been a significant period for 4D pharma. Our dual listing on NASDAQ raised our international profile and, using this as a platform along with new funds at our disposal, we look ahead to a period rich in clinical catalysts across our pipeline of Live Biotherapeutic Products taking the microbiome beyond the gut, including clinical readouts and the commencement of new studies across multiple programs. Highs and lows in the broader microbiome space have created mixed feelings towards microbiome therapeutic approaches – we are confident 4D pharma's differentiated, mechanism-driven approach is poised to deliver.

Axel Glasmacher
Non-Executive Chairperson

Duncan Peyton
Chief Executive Officer
30 September 2021

Development Pipeline
As of 30 June 2021

Program	Indication	Development Stage	Status
Blautix® (MRx1234)	IBS	Phase II	Completed successful Phase II
MRx0518	First-line maintenance therapy for urothelial carcinoma, combination with Bavencio®	Phase II	Expect to initiate Q4 2021
MRx0518	Solid tumors refractory to immune checkpoint inhibitors, combination with Keytruda®	Phase I/II	Ongoing; Part A safety stage complete, Part B enrolling
MRx0518	Solid tumors, neoadjuvant monotherapy	Phase Ib	Ongoing; Part A complete
MRx0518	Pancreatic cancer, combination with pre-operative radiotherapy	Phase I	Ongoing; initial data expected 2021
MRx-4DP0004	Asthma	Phase I/II	Ongoing; Part A topline data expected 2H 2021
MRx-4DP0004	COVID-19	Phase II	Discontinued
MRx0005	Neurodegeneration	Pre-clinical	First-in-human study initiation expected 2022
MRx0029	Neurodegeneration	Pre-clinical	First-in-human study initiation expected 2022
MRx1299	Solid tumors	Pre-clinical	Demonstrated *in vivo* efficacy
Various	Immune-inflammatory disease	Pre-clinical	Demonstrated *in vivo* efficacy
Vaccines research collaboration	Vaccines	Pre-clinical	Ongoing; research collaboration and option to license agreement with MSD

Group Statement of Total Comprehensive Income
For the six months to 30 June 2021

	Notes	**Unaudited six months ended 30 June 2021 £000**	Unaudited six months ended 30 June 2020 £000	Audited year to 31 December 2020 £000
Revenue		**231**	275	534
Research and development costs		**(9,873)**	(12,418)	(22,041)
Administrative expenses		**(3,346)**	(3,839)	(5,969)
Foreign currency gains		**229**	920	363
Other operating income		**18**	21	45
Operating loss before non-recurring costs		**(12,741)**	(15,041)	(27,068)
Non-recurring costs		**(44,160)**	(565)	(3,110)
Operating loss after non-recurring costs		**(56,901)**	(15,606)	(30,178)
Finance income		**2**	5	5
Finance expense		**(83)**	(88)	(173)
Loss before taxation		**(56,982)**	(15,689)	(30,346)
Taxation	3	**1,532**	1,963	4,383
Loss for the period		**(55,450)**	(13,726)	(25,963)
Other comprehensive income:				
Exchange differences on translating foreign operations		**(665)**	165	110
Loss and total comprehensive income for the period		**(56,115)**	(13,561)	(25,853)
Loss per share				
Basic and diluted for the period	4	**(34.97)p**	(14.06)p	(22.80)p

Group Statement of Financial Position
At 30 June 2021

	Notes	**At 30 June 2021 £000**	At 30 June 2020 £000	At 31 December 2020 £000
Assets				
Non-current assets				
Property, plant and equipment:				
– Owned assets		**3,229**	4,150	3,659
– Right-of-use assets		**752**	911	835
Intangible assets		**13,780**	14,181	14,025
Taxation receivables		**180**	191	177
		17,941	19,433	18,696
Current assets				
Inventories		**305**	212	291
Trade and other receivables		**2,980**	2,046	3,223
Taxation receivables		**5,675**	8,228	4,436
Cash and cash equivalents		**20,746**	10,027	8,775
		29,706	20,513	16,725
Total assets		**47,647**	39,946	35,421
Liabilities				
Current liabilities				
Trade and other payables		**6,962**	6,423	6,379
Lease liabilities		**74**	73	73
		7,036	6,496	6,452
Non-current liabilities				
Lease liabilities		**936**	1,027	986
Deferred tax		**12**	966	13
		948	1,993	999
Total liabilities		**7,984**	8,489	7,451
Net assets		**39,663**	31,457	27,970
Capital and reserves				
Share capital	5	**451**	274	329
Share premium	5	**159,937**	130,186	136,278
Merger reserve		**958**	958	958
Translation reserve		**(110)**	611	555
Other reserve		**(864)**	(864)	(864)
Share-based payment reserve		**47,488**	1,010	3,497
Retained earnings		**(168,197)**	(100,718)	(112,783)
Total equity		**39,663**	31,457	27,970

Approved by the Board and authorized for issue on 30 September 2021.

Duncan Peyton
Director
30 September 2021

Group Statement of Changes in Equity
For the six months to 30 June 2021

	Share capital £000	Share premium £000	Merger reserve £000	Translation reserve £000	Other reserve £000	Share-based payment reserve £000	Retained earnings £000	Total £000
At 1 January 2020	164	108,296	958	446	(864)	367	(87,024)	22,343
Issue of share capital	110	21,890	—	—	—	—	—	22,000
Issue of warrants	—	—	—	—	—	565	—	565
Total transactions with owners recognized in equity for the period	110	21,890	—	—	—	565	—	22,565
Loss and total comprehensive income for the period	—	—	—	165	—	—	(13,726)	(13,561)
Issue of share-based compensation	—	—	—	—	—	110	—	110
Lapsed options	—	—	—	—	—	(32)	32	—
At 30 June 2020	274	130,186	958	611	(864)	1,010	(100,718)	31,457
Expenses and warrants on issue of share capital	—	(1,065)	—	—	—	2,545	—	1,480
Issue of share capital (net of expenses)	55	7,081	—	—	—	—	—	7,136
Exercise of warrants	—	76	—	—	—	(11)	—	65
Total transactions with owners recognized in equity for the period	55	6,092	—	—		2,534	—	8,681
Loss and total comprehensive income for the period	—	—	—	(56)	—	—	(12,237)	(12,293)
Issue of share-based compensation	—	—	—	—	—	125	—	125
Lapsed options	—	—	—	—	—	(172)	172	—
At 31 December 2020	329	136,278	958	555	(864)	3,497	(112,783)	27,970
Issue of share capital on acquisition of Longevity Acquisition Corp. (net of expenses)	78	5,536	—	—	—	—	—	5,614
Issue of share capital in placing (net of expenses)	41	16,551	—	—	—	—	—	16,592
Directors' subscription (net of expenses)	3	1,446	—	—	—	—	—	1,449
Equity adjustment relating to a share-based payment charge on acquisition of Longevity	—	—	—	—	—	25,734	—	25,734
Issue of warrants on acquisition of Longevity Acquisition Corp.	—	—	—	—	—	18,430	—	18,430
Exercise of warrants	—	32	—	—	—	(5)	—	27
Exercise of share options	—	94	—	—	—	(223)	—	(129)
Total transactions with owners recognized in equity for the period	122	23,659	—	—	—	43,936	—	67,717
Loss and total comprehensive income for the period	—	—	—	(665)	—	—	(55,450)	(56,115)
Issue of other share-based compensation included in equity	—	—	—	—	—	91	—	91
Non-vesting share-based compensation	—	—	—	—	—	(36)	36	—
At 30 June 2021	**451**	**159,937**	**958**	**(110)**	**(864)**	**47,488**	**(168,197)**	**39,663**

Group Cash Flow Statement
For the six months to 30 June 2021

	Notes	**Unaudited six months ended 30 June 2021 £000**	Unaudited six months ended 30 June 2020 £000	Audited year to 31 December 2020 £000
Loss after taxation		**(55,450)**	(13,726)	(25,963)
Adjustments for:				
Depreciation of property, plant and equipment		**446**	508	1,003
Amortization of intangible assets		**74**	110	203
Loss on disposal of property, plant and equipment		**40**	—	—
Lease liabilities included in the Income Statement		**—**	68	135
Finance income		**(2)**	(5)	(5)
Finance expense		**83**	88	173
Expense on issue of shares		**—**	1,498	—
Share-based compensation		**44,121**	675	3,334
Cash flows from operations before movements in working capital		**(10,688)**	(10,784)	(21,120)
Changes in working capital:				
Increase in inventories		**(14)**	(14)	(93)
Decrease/(increase) in trade and other receivables		**243**	(1,037)	(2,106)
(Increase)/decrease in taxation receivables		**(1,238)**	(2,111)	1,697
Increase/(decrease) in trade and other payables		**216**	19	(1,052)
Cash outflow from operating activities		**(11,481)**	(13,927)	(22,674)
Cash flows from investing activities				
Purchases of property, plant and equipment		**(117)**	(160)	(163)
Purchase of software and other intangibles		**—**	(15)	(15)
Net cash outflow from investing activities		**(117)**	(175)	(178)
Cash flows from financing activities				
Proceeds from issues of ordinary share capital	5	**27,904**	22,000	29,741
Expenses on issue of shares	5	**(4,217)**	(1,498)	(1,594)
Lease liability payments		**(37)**	(126)	(188)
Interest received		**2**	5	5
Interest paid		**(83)**	(88)	(173)
Net cash inflow from financing activities		**23,569**	20,293	27,791
Increase in cash and cash equivalents		**11,971**	6,191	4,939
Cash and cash equivalents at the start of the year		**8,775**	3,836	3,836
Cash and cash equivalents at the end of the year		**20,746**	10,027	8,775

Notes to the Interim Financial Report
For the six months to 30 June 2021

1. Basis of preparation

The Group's half-yearly financial information, which is unaudited, consolidates the results of 4D pharma plc and its subsidiary undertakings up to 30 June 2021. The Group's accounting reference date is 31 December. 4D pharma plc's shares are quoted on the AIM market of the London Stock Exchange (AIM) as DDDD and as American Depositary Shares (ADSs) on NASDAQ as LBPS with each ADS representing 8 Ordinary shares.

The Company is a public limited liability company incorporated, registered and domiciled in the UK. The consolidated financial information is presented in round thousands of Pounds Sterling (£000).

The financial information for the six months ended 30 June 2021 and 30 June 2020 is unaudited.

Full audited financial statements of the Group in respect of the period ended 31 December 2020, which received an unqualified audit opinion and did not contain a statement under sections 498(2) or (3) of the Companies Act 2006, have been delivered to the Registrar of Companies.

The accounting policies used in the preparation of the financial information for the six months ended 30 June 2021 are in accordance with the recognition and measurement criteria of International Financial Reporting Standards as adopted by the UK (UK IFRS) and are consistent with those which will be adopted in the annual financial statements for the year ending 31 December 2021.Whilst the financial information included has been prepared in accordance with the recognition and measurement criteria of IFRS, the financial information does not contain sufficient information to comply with IFRS.

4D pharma plc has not applied IAS 34 'Interim Financial Reporting', which is not mandatory for UK AIM listed groups, in the preparation of this interim financial report.

2. Going concern

The Group and parent company are subject to a number of risks similar to those of other development stage pharmaceutical companies. These risks include, amongst others, generation of revenues in due course from the development portfolio and risks associated with research, development and obtaining regulatory approvals of its products. Ultimately, the attainment of profitable operations is dependent on future uncertain events which include obtaining adequate financing to fulfil the Group's commercial and development activities and generating a level of revenue to support the Group's cost structure.

The Directors have prepared detailed financial forecasts and cash flows looking beyond 12 months from the date of the approval of these results. In developing these forecasts, the Directors have made assumptions based upon their view of the current and future economic conditions that are expected to prevail over the forecast period. The Directors estimate that the cash held by the Group together with known receivables and the income of $12.5 million from the first tranche of the loan (issued by Oxford Finance SARL) in July 2021 will be sufficient to support the current level of activities into Q4 2022; accordingly, the accounts have been prepared on a going concern basis.

3. Taxation

The tax credit is made up as follows:

	Unaudited six months ended 30 June 2021 £000	Unaudited six months ended 30 June 2020 £000	Audited year to 31 December 2020 £000
Current income tax			
Total current income tax	**1,523**	2,010	3,473
Adjustment in respect of prior years	**8**	(47)	(42)
Total income tax credit recognized in the year	**1,531**	1,963	3,431
Previously recognized deferred tax gain offset against losses	**—**	—	940
Current year charge	**1**	—	12
Total deferred tax	**1**	—	952
Total income tax credit recognized in the year	**1,532**	1,963	4,383

4. Loss per share

(a) Basic and diluted

	Unaudited six months ended 30 June 2021 £000	Unaudited six months ended 30 June 2020 £000	Audited year to 31 December 2020 £000
Loss for the year attributable to equity shareholders	**(55,450)**	(13,726)	(25,963)
Weighted average number of shares:			
Ordinary shares in issue	**158,560,346**	97,647,688	113,851,960
Basic loss per share (pence)	**(34.97)p**	(14.06)p	(22.80)p

The basic and diluted loss per share are the same as the effect of share options is anti-dilutive.

(b) Adjusted

Adjusted loss per share is calculated after adjusting for the effects of non-recurring costs arising on the inclusion of the fair value adjustment from the issue of warrants, options and shares as part of fundraising activities.

Reconciliation of adjusted loss after tax:

	Unaudited six months ended 30 June 2021 £000	Unaudited six months ended 30 June 2020 £000	Audited year to 31 December 2020 £000
Reported loss for the year after tax	**(55,450)**	(13,726)	(25,963)
Non-recurring costs	**44,160**	565	3,110
Adjusted loss after tax	**(11,290)**	(13,161)	(22,583)
Basic loss per share (pence)	**(7.12)p**	(13.48)p	(20.07)p

5. Share capital

	Number	Share capital £000	Share premium £000	Total £000
Allotted, called up and fully paid ordinary shares of 0.25p				
At 1 January 2020	65,493,842	164	108,296	108,460
Placing and issue on 18 February 2020	44,000,000	110	21,890	22,000
At 30 June 2020	109,493,842	274	130,186	130,460
Expenses of placing on 18 February 2020	—	—	(1,065)	(1,065)
Placing and issue on 8 July 2020	21,898,400	55	7,610	7,665
Expenses of placing	—	—	(529)	(529)
Warrants exercised	75,693	—	76	76
At 31 December 2020	131,467,935	329	136,278	136,607
Warrants exercised	31,859	—	32	32
Share options exercised	67,968	—	94	94
Issued as part of merger on 22 March 2021	31,048,192	78	8,264	8,342
Expenses of merger	—	—	(2,728)	(2,728)
Placing and issue on 22 March 2021	16,367,332	41	17,963	18,004
Expenses of placing	—	—	(1,412)	(1,412)
Directors' subscription on 16 April 2021	1,317,680	3	1,446	1,449
At 30 June 2021	**180,300,966**	**451**	**159,937**	**160,388**

The balances classified as share capital and share premium include the total gross proceeds (nominal value and share premium respectively) on issue of the Company's equity share capital, comprising 0.25 pence ordinary shares.

On 22 March 2021 the Company completed the merger with Longevity Acquisition Corporation and listed on NASDAQ. Since Longevity is a cash shell with no future trade or income it did not qualify as a business and is not subject to the treatment for business combination under IFRS 3; as such the transaction has been treated as the issue of shares for cash.

In connection with the merger, and in addition to the shares issued above, the Company also issued New Warrants convertible into ordinary shares. These were comprised of: 4,320,000 outstanding warrants that were previously issued by Longevity to holders of Longevity shares at the time of the Longevity IPO and which will be converted into warrants to purchase up to 16,268,040 ordinary shares, payable in ADSs; warrants to be issued to the backstop investors to acquire up to 7,530,000 ordinary shares following completion in connection with the backstop arrangements; and, an option to acquire up to 2,892,096 ordinary shares for Cantor Fitzgerald, in its capacity as underwriter to Longevity at the time of the Longevity IPO. If all the New Warrants are exercised, the Company would receive approximately $29 million of capital.

6. Subsequent events

Loan finance

On 29 July 2021 the Group entered into a loan agreement with Oxford Finance SARL for up to $30 million maturing on 1 July 2026, with the first tranche of the loan extending the Group's cash runway until Q4 of 2022 if fully utilized.

The loan is payable in three tranches; the first $12.5 million was received on signature with further tranches of $7.5 million on achieving certain milestones and a further $10 million available at the discretion of the lenders.

Interest will be charged on the loan at 8.15% plus the greater of the 30-day US Dollar LIBOR rate and 0.1% throughout the term of the loan. Interest only monthly payments will be made until either 1 September 2023 or 1 September 2024 if certain milestones are met.

A 6.0% or 6.5% final payment fee will be charged, the latter being dependent on the extension of the interest only period with discounts to this fee to 3%, 2% or 1% if the loan is repaid before the maturity date depending on certain criteria.

In addition to the interest and final payment fee, warrants were issued for 212,568 shares at an exercise price of $1.18. Further warrants become available on drawdown of loan tranches at a rate of 2% of the loan value with an exercise price based on the lower of the preceding day's share price and the 10-day average share price prior to the further loan. All warrants have a five-year exercise period from the date of issuance.

The loan includes various customary covenants limiting the Group's ability to perform certain functions that may affect the recoverability of the loan, as well as providing penalties and repayment provisions in the event of a default. A copy of the loan agreement and further details can be found as an exhibit to our recent F-1 filings with the SEC, a link to which is provided on our website.

7. Principal risks and uncertainties

The Company operates within a complex regulatory environment, which is subject to change. The nature of LBP development exposes the Company to a number of additional risks and uncertainties which could affect its ability to meet its strategic goals, its business model and its operating environment.

The Company sets out its Company and market specific risk factors on a continual basis in its Annual Reports, which supplement the risk factors set out in its original admission document (which is available on the Company's website). The Company's most recently published Annual Report is that for the year to 31 December 2020, which is also available on the Company's website: https://www.4dpharmaplc.com/en/investors/reports-presentations. A more detailed list of risk factors can be found in the Company's regulatory filings with the SEC which can be accessed through the Company website: https://www.4dpharmaplc.com/en/investors/sec-filings. The risk factors listed in these sources are not necessarily comprehensive, but represent, in the Board's view, the principal risks and areas of uncertainty that the Company currently faces. Shareholders and potential investors should take independent advice if they wish to consider the suitability of these risks with regard to their own particular circumstances and investment criteria.

Management's discussion and analysis of financial conditions and results of operations

Key performance indicators

We track a series of metrics focussed primarily on science and product development whilst ensuring that the business maintains both sufficient resources and effective allocation of those resources to achieve our strategic goals. The Board and management of 4D monitor the following metrics as an indicator of how we are progressing towards the goal of advancing our Live Biotherapeutic programs:

1. Successful clinical trials – We are a drug development company and will realize long-term value by successfully progressing its candidates through the clinic to registration and approval. For the six months ended 30 June 2021, we had completed two clinical trials through Phase I and one through Phase II. For the six months ended 30 June 2020, we had two clinical trials completed through Phase I.

2. Clinical trials initiated by phase – Clinical trials are essential in converting the productivity and potential of our MicroRx platform and early-stage research into long-term value. By the end of the six months to 30 June 2021, we had initiated seven clinical trials including three Phase I, two Phase I/II and two Phase II trails. There were six clinical trials that we had initiated by the end of the six months ended 30 June 2020 of three Phase I, two Phase I/II and one Phase II trial.

3. Strategic collaborations – Collaborations enable us to realize the potential of our platform, leveraging the complementary expertise of our partners. In December 2020 we became an industry partner of the PPMI, a longitudinal study sponsored by The Michael J. Fox Foundation for Parkinson's Research to better understand Parkinson's disease and accelerate the development of new treatments. Our representatives will join the Partner Scientific Advisory Board closely involved in the design and execution of the study, as well as a variety of PPMI Working Groups. In February 2021, we announced a clinical trial collaboration and supply agreement with Merck KGaA, Darmstadt, Germany and Pfizer Inc. for Bavencio (avelumab), under which we intend to commence a clinical trial in the second half of 2021 to evaluate Bavencio in combination with MRx0518 as a first-line maintenance therapy for patients with locally advanced or metastatic urothelial carcinoma that has not progressed with first-line platinum-containing chemotherapy. In April 2021 we announced a sixth strategic collaboration, this time with Parkinson's UK to establish a patient advisory board to raise understanding of the treatment issues associated with neurodegenerative disease from a patient-centric perspective to help inform trial design. These partnerships are in addition to: an ongoing strategic collaboration with the University of Texas MD Anderson Cancer Center, to evaluate our Live Biotherapeutic oncology pipeline across a range of cancer settings; a clinical collaboration with MSD to evaluate MRx0518 in combination with Keytruda, an anti-PD-1 ICI marketed by MSD in patients with in patients with metastatic NSCLC, RCC and UC that are refractory to prior anti-PD-1/PD-L1 therapy; and a research collaboration and option to license agreement with MSD to discover and develop vaccines derived from our proprietary gut microbiome-derived commensal bacteria selected from our culture collection for use in up to three indications, combining our MicroRx platform with MSD's world-leading expertise in vaccine development.

4. Intellectual property portfolio – Intellectual property is essential to our strategy and capturing the value of our world-leading research output. We have continued to invest significantly in expanding our IP rights, and by 30 June 2021 had initiated 68 patent families including over 1,000 granted patents providing coverage for our pipeline and clinical-stage candidates, manufacturing innovations and novel diagnostic approaches across major global markets. This is a 6.25% increase over the 64 patent families initiated as of 30 June 2020.

5. Cash and equivalents – We continue to invest capital from our shareholders and partners into supporting research and clinical development programs, to generate the critical data to advance this novel modality. See the **Liquidity and Capital Resources** section below for additional information.

6. Research and development spend – Investment in research and development (R&D) is central to our progress and returning long-term value. For the six months ended 30 June 2021 our R&D spend was £9.9 million compared to £12.4 million for the six months ended 30 June 2020. While maintaining our strategy to invest in our clinical development programs on a long term basis, the decrease is a reflection of both the action of management to reduce costs due to the effect of COVID and the change in clinical trial status due to the completion and relative reduction in associated costs of the Blautix trial in these comparable periods.

Components of operating results

Operating expenses

We recognize operating expenses as they are incurred in two general categories, general and administrative expenses and research and development expenses, and in a third more specific category for share-based payments. Our operating expenses also include non-cash components related to depreciation and amortization of property, plant and equipment and intangibles, which are allocated, as appropriate, to general and administrative expenses and research and development expenses.

General and administrative expenses consist of salaries and related expenses for executive, legal, finance and administrative personnel, as well as professional fees, insurance costs and other general corporate expenses. Management expects general and administrative expenses to increase in future periods as we add personnel and incur additional expenses related to an expansion of our research and development activities and our operation as a public company listed on two markets, including higher legal, accounting, insurance, compliance, compensation and other expenses.

Research and development expenses

Our research and development expenses consist primarily of salaries and related personnel expenses, contractual commitments, depreciation and amortization, patent costs and other expenses. We charge research and development expenses to operations as they are incurred. Costs are not directly tied to a specific product candidate until such product candidate enters the clinical trial stage. Product candidates often have more than one associated clinical trial related to different therapeutic areas or clinical indications. Once a product candidate enters a clinical trial, we track costs of such clinical trial but do not track other costs associated with specific clinical indications which are pooled.

The following table discloses the breakdown of research and development expenses:

	Unaudited six months ended 30 June 2021 £000	Unaudited six months ended 30 June 2020 £000
Contractual commitments	**3,682**	6,233
Staff costs	**1,883**	2,473
Depreciation and amortization	**400**	467
Patent costs	**1,912**	1,535
Other MRx research costs	**745**	708
Other MDx research costs	**16**	389
Other manufacturing, research and development costs	**1,235**	613
Total	**9,873**	12,418

We continue the robust progress of our proprietary development candidates into and through the clinic and to leverage the MicroRx® platform to generate value through partnerships, such as our research collaboration with MSD in the vaccines space. However, leading the way in the development of single strain Live Biotherapeutics does not come without investment, and we have sustained our commitment in the period to develop our clinical candidates, manufacturing processes and pipeline products, generating clinical data in multiple indications while launching new trials. Evidenced by our announcement to collaborate with Parkinson's UK to establish a Patient Advisory Board, we continued to progress promising new LBP candidates in exciting new areas like Parkinson's disease.

In February 2021, we announced a clinical trial collaboration and supply agreement with Merck KGaA, Darmstadt, Germany, and Pfizer Inc., under which 4D pharma intends to commence a clinical trial in the second half of 2021 to evaluate BAVENCIO® (avelumab) in combination with MRx0518 as a first-line maintenance therapy for patients with locally advanced or metastatic urothelial carcinoma that has not progressed with first-line platinum-containing chemotherapy.

After top-line data in the fourth quarter of 2020, the clinical phase of the Blautix® program completed in the six months to 30 June 2021 with additional positive data being presented during the period. Steady progress continued to be made during the period to 30 June 2021 with our three existing clinical trials of our therapeutic candidate, MRx0518, while the Phase I/II clinical trial of MRx-4DP0004 in partly controlled asthma saw us completing the enrolment of the 30 patients for Part A. However, our Phase II clinical trial of MRx-4DP0004 as an oral therapeutic to prevent or reduce the hyperinflammatory response in patients hospitalized with COVID-19 was closed due to the increase in vaccination rates and declining hospitalization rates. With the ongoing trials above, and as a result of the closure of the COVID-19 trial, but including the anticipated launch of a fourth trial in MRx0518 in 2021 in combination with BAVENCIO®, we anticipate that our research and development expenses for the second half of 2021 will result in lower research and development costs for the year than experienced in 2020.

With the Blautix® trial having produced its initial readout data in the latter stages of 2020, the six months ended 30 June2020 had higher clinical trial activity and costs than the six months ended 30 June 2021. In addition to this reduction, the expiration of minimum terms on certain manufacturing supplier contacts meant that certain expenses incurred were no longer contractual in nature and are now recorded under the manufacturing, research and development costs header. These decreases were partly offset by a modest increase in MRx0518 costs and an increase arising from recruitment on the Asthma trial, which had been delayed in 2020 due to recruitment issues resulting from COVID-19. Overall, these factors combined to see a reduction in contractual commitments from £6.2 million for the six months ended 30 June 2021 compared to £3.7 million for the six months ended 30 June 2020, a decrease of £2.5 million.

COVID-19 provided a point of inflection in 2020, with management taking swift action to scale back operations, cut costs or redirect resources, reducing baseline costs in certain areas; ultimately though, the impact was seen more towards the back end of the year ended December 31, 2020 and into 2021. Two of the main areas affected by the restructuring activities were the staff costs which decreased during the six months ended 30 June 2021 to £1.9 million from £2.5 million for the six months ended 30 June 2020. The MDx research costs also decreased £0.3 million between the same period due to limited scope of work on the project.

Other manufacturing, research and development costs increased to £1.2 million compared to £0.6 million for the six months ended 30 June 2021 and 2020, respectively. The increase was driven by two primary factors, the first of which related to the investment in manufacturing as we undertook exercises to improve commercial yields and to scale up our Parkinson's candidates for manufacture. Secondly, as noted earlier, certain minimum term contractual manufacturing related suppler contracts were still active during 2020 but the minimum term had been fulfilled come 2021, resulting in an increase of costs of £0.3 million for the six months ended 30 June 2021 as a result of their change in classification

Patent costs for the six months to 30 June 2021 have increased relative to the same period last year; this is in line with increases to the patent portfolio but also due to costs incurred defending certain patents.

Depreciation and amortization reduced in the period as certain assets reached the end of their estimated useful life without significant or necessary corresponding replacement costs being incurred.

Results of operations

Details of the Group's results are included in the Group Statement of Total Comprehensive Income.

Revenues

We have not generated commercial revenues from product sales. To date, we have generated revenues from the collaboration agreement with MSD Collaboration Agreement. Our revenues from our MSD Collaboration Agreement totalled £0.2 million for the six months to 30 June 2021 and £0.3 million for the six months to 30 June 2020. There were no other revenues for the six months ended 30 June 2021 and 2020.

Research and development expenses

Our research and development expenses totalled £9.9 million for the six months ended 30 June 2021, representing a decrease of £2.5 million, or 20%, compared to £12.4 million for the period to 30 June 2020. The decrease was primarily attributable to the relative activity on the Blautix® Phase II trial, stemming from patient recruitment completing and top line data being released in October 2020, as a result of which the final data released in March 2021 had attracted lower overall costs in the six month period to 30 June 2021 when compared to the six months ended 30 June 2020. Details of other contributing factors are included above.

Administrative expenses

Our administrative expenses totalled £3.3 million for the six months to 30 June 2021, representing a £0.5 million reduction, or 13%, compared to £3.8 million for the six months ended 30 June 2020. Of the total, £0.8 million of the reduction expenditure related to legal fees which, at 30 June 2020, included transaction costs related to the fundraise in February 2020. Excluding these costs, there was an increase which was primarily attributable to the increase in insurance costs associated with the Nasdaq listing and increased patent costs, which were offset, in part, by reductions on staff costs and travel expenses as a result of COVID. General and administrative expenses are mainly attributed to staff costs, contractual commitments, legal and professional expenses and depreciation and amortization.

Foreign currency losses/(gains)

For foreign currency transactions included in the statement of operations and comprehensive loss, the exchange rates applicable to the relevant transaction dates are used. Transaction gains or losses arising from changes in the exchange rates used in the translation of such balances are carried to financing income or expenses. We recognized foreign currency gains of £0.2 million for the six months 30 June 2021, compared to foreign currency gains of £0.9 million for the half year to 30 June 2020. The change is due to the movement in exchange rates.

Other income

Other income consists of government grant income for a specific research project.

Operating loss before non-recurring items

As a result of the foregoing, our operating loss before non-recurring items totalled £12.7 million for the period to 30 June 2021 representing a decrease of £2.3 million when compared to £15.0 million for the period to 30 June 2020.

Non-recurring costs

Non-recurring costs relate to the costs associated with warrants and share options. The acquisition of Longevity Acquisition Corporation in March 2021 included several classes of warrants, options, and share based payment adjustments to the shares as part of the transaction, adding £44.2 million in fair value adjustments in the period to 30 June 2021. Comparably the six months to 30 June 2020 including £0.6 million relating to warrants issued as part of the February 2020 fundraise.

Operating loss after non-recurring items

As a result of the foregoing, our operating loss after non-recurring costs totalled £56.9 million for the period to 30 June 2021 representing an increase of £41.3 million when compared to £15.6 million for the period to 30 June 2020.

Finance income and expense

Finance income consists of interest earned on our short-term investments. Reductions in finance income over time have been attributable to poor interest rates. The reduction in finance expense costs relates to the repayment and subsequent reduction in underlying capital associated with the property financing arrangements.

Taxation

Taxation consists of UK and Irish research and development tax credits, deferred tax movements and US tax. Research and development tax credits are based on a proportion of our research and development expenditure and have reduced from £2.0 million for the six months ended 30 June 2020 to £1.5 million for the six months ended 30 June 2021. The decrease was due to the decrease in research and development expenses over the prior year.

Loss for the period

As a result of the foregoing, our net loss for the six months to 30 June 2021 was £55.5 million, representing an increase of £41.8 million over the £13.7 million for the six months to 30 June 2020.

Exchange differences on translating foreign operations

Exchange differences on translating foreign operations arose on consolidation with movements in exchange rates creating a loss of £0.7 million for the period to 30 June 2021 which represented a £0.9 million movement from the equivalent period in 2020 where a £0.2 million profit was reported.

Loss for the period and total comprehensive income for the period

As a result of the foregoing, our net loss totalled £56.1 million for the period ended 30 June 2021, representing an increase of £42.5 million over the £13.6 million for the period ended 30 June 2020.

Liquidity and capital resources

Overview

From our inception through to 30 June 2021, we have funded our operations principally from the sales of our ordinary shares, with some additional income from the MSD collaboration agreement and R&D tax credits. As of 30 June 2021, we had £20.7 million in cash and cash equivalents.

The table below presents our cash flows for the periods indicated:

	Unaudited six months ended 30 June 2021 £000	Unaudited six months ended 30 June 2020 £000
Cash used in operating activities	**(11,481)**	(13,927)
Cash used in investing activities	**(117)**	(175)
Cash provided by financing activities	**23,569**	20,293
Net increase in cash and cash equivalents	**11,971**	6,191

Operating activities

Net cash used in operating activities of £11.5 million during the six months ended 30 June 2021 was primarily related to £3.8 million for clinical trials and research including other third-party expenses and an aggregate £2.5 million in salary and other staff costs; a further £2.2 million is attributable to patent spend with £3.0 million of legal, professional and insurance costs which are largely linked to the US listing. Foreign currency gains reduced expenditure in the period to 30 June 2021 by £0.2 million. Net cash used in operating activities of £13.9 million during the six months ended 30 June 2020 was primarily related to £7.9 million for clinical trials and research including other third-party expenses and an aggregate £3.3 million in salary expenses and other staff costs; a further £1.5 million is attributable to patent spend with £2.1 million of legal, professional and insurance costs which were largely related to fundraising activities. Foreign currency gains reduced expenditure in the period to 30 June 2020 by £0.9 million.

Investing activities

Net cash used in investing activities of £0.1 million and £0.2 million during the six months ended 30 June 2021 and 30 June 2020 respectively arose on the purchases of property, plant, equipment and software.

Financing activities

Net cash provided by financing activities in the six months ended 30 June 2021 was £23.6 million. This represents the net proceeds from the issue of shares issued on the back of the acquisition of the Longevity Acquisition Corporation, the March 2021 placing and the Directors' fundraise which collectively contributed £23.8 million net of costs. Income from financing activities was reduced by £0.1 million on payment of lease and associated interest costs. Net cash used in financing activities in the six months ended 30 June 2020 of £20.3 million consisted of net income of £20.5 million from the issue of shares being offset by expenses of £0.2 million in lease payments.

In April 2021, following the release of the Annual Report for 2020, the directors who were unable to participate in the March 2021 financing, purchased 1.3 million Ordinary shares, on the same terms as the March 2021 financing; for a total of approximately £1.4 million ($2.0 million).

In March 2021 we sold 16.4 million ordinary shares at £1.10 ($1.53) per share in a private placement generating £18.0 million ($25.0 million) in gross proceeds or £16.6 million ($23.0 million) net of transaction costs.

Also in March 2021 we completed the reverse recapitalization of Longevity Acquisition Corporation and subsequent listing on NASDAQ and received £10.7 million ($14.8 million) of cash and cash equivalents as well as payables and debts of Longevity of £2.4 million ($3.3 million) became available to the Company. Net proceeds, after transaction costs were approximately £5.6 million ($7.8 million). The purchase included the issue of 31.0 million ordinary shares and the Company assumed the existing Longevity public and private warrants, backstop warrants and representative units.

In July 2020, we completed the sale of 21.9 million ordinary shares at £0.35 per share for a total of approximately £7.1 million net of transaction costs.

In February 2020, we completed the sale of 44 million ordinary shares at £0.50 ($0.65) per share for a total of £22.0 million ($28.6 million) or £20.9 million ($27.0 million) net of transaction costs. One warrant was issued for share every two shares acquired for an exercise price of £1.00 ($1.30). The warrants are immediately exercisable and expire five years from issuance.

Current outlook

We have financed our operations to date primarily through proceeds from sales of our ordinary shares. We have incurred losses and generated negative cash flows from operations since inception. To date we have not generated significant revenue, and we do not expect to generate significant revenues from the

sale of our product candidates in the near future. In order to capture the potential of the platform and maximize value creation, we are actively pursuing additional research collaborations, pairing our expertise in LBP discovery and development along with access to our library of well characterized bacterial isolates with the disease-specific expertise of partners.

In July 2021, we entered into a Loan Agreement with Oxford Finance providing for a term loan facility maturing on 1 July 2026 in an aggregate principal amount of up to $30.0 million. $12.5 million of such term loan was available and borrowed on the closing date. $7.5 million of such term loan is available upon the achievement of certain milestones. The remaining $10 million of such term loan is uncommitted and available at the discretion of the Lenders. The proceeds of the term loans may be used for general corporate purposes.

As of 30 June 2021, our cash and cash equivalent balance was £20.7 million. We expect that our existing cash and cash equivalents, including the cash received from the loan agreement in July 2021 will be sufficient to fund our operations through the fourth quarter of 2022. For further information, see the Subsequent Events note in the interim condensed consolidated financial statements included elsewhere in this report.

We currently anticipate that we will require approximately £23.2 million for research and development activities over the course of the next 18 months based on the execution of existing programs but also dependent on exchange rates. We also anticipate that we will require around £10.2 million for general and administrative costs over such 18-month period, which consists primarily of expenditures for staff costs, and legal, professional and insurance fees, and other administrative expenses. We also estimate approximately £6.1 million in cash for research and development tax credit refunds over this 18-month period.

Assuming all costs and income are as noted, and that there are no restrictions on the availability of cash, the Company anticipates that if cash and cash equivalent balances are available it can fund its activities until the fourth quarter of 2022.

In addition, our operating plans may change as a result of many factors that may currently be unknown to us, and we may need to seek additional funds sooner than planned. Our future capital requirements will depend on many factors, including:

- the length of the COVID-19 pandemic and its impact on our planned clinical trials, operations and financial condition;
- the progress and costs of our pre-clinical studies, clinical trials and other research and development activities;
- the scope, prioritization and number of our clinical trials and other research and development programs;
- any cost that we may incur under in- and out-licensing arrangements relating to our product candidates that we may enter into in the future;
- the costs and timing of obtaining regulatory approval for our product candidates;
- the costs of filing, prosecuting, enforcing and defending patent claims and other intellectual property rights;
- the costs of, and timing for, strengthening our manufacturing agreements for production of sufficient clinical and commercial quantities of our product candidates;
- the potential costs of contracting with third parties to provide marketing and distribution services for us or for building such capacities internally;
- the costs of acquiring or undertaking the development and commercialization efforts for additional future therapeutic applications of our product candidates and the magnitude of our general and administrative expenses; and
- adverse trial results that would invalidate further investment in a product or products.

Principal commitments

Leased facilities

We have two real estate leases classified as right-of-use finance leases, one in Spain and one in the UK. No additional leases were entered into during the period. The UK lease is for our headquarters in Leeds. The premises comprise office space and parking and are for a 10-year term which commenced in May 2017. A tenant lease break clause is available in May 2022 which has not been included in the lease calculations as there is no indication that this would be executed. Lease escalation costs have been included on a fixed rate basis as a practical expedient. The lease includes a provision to return the premises to their original condition on exit; as such an asset retirement obligation of £0.3 million has been included in the valuation.

The Spanish lease relates to our manufacturing premises in Leon. The agreement is for a 10-year term which commenced in April 2016 and includes a tenant lease break clause that can be executed after providing six months' written notice at any point five years from the commencement date; again this break clause has not been included in the lease value as there is no evidence that this will be executed. Lease escalation costs have also been included on a fixed rate basis as a practical expedient. The lease includes the requirement to make certain repairs and as such an asset retirement obligation of £0.1 million has been included in the valuation.

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