Filed Pursuant to Rule 424(b)(3)
Registration No. 333-255474

PROSPECTUS SUPPLEMENT
(To Prospectus dated May 24, 2021)

PROSPECTUS

4D PHARMA PLC

Neither the SEC nor any state securities commission has determined whether this prospectus supplement or the prospectus to which it relates is truthful or complete. Any representation to the contrary is a criminal offense.

Please pay particular attention to the "Risk Factors" section beginning on page 6 of the prospectus to which this prospectus supplement relates.

Neither this prospectus supplement nor the prospectus to which it relates is a prospectus made under the Prospectus Regulation (EU) 2017/1129 or Part VI of the United Kingdom Financial Services and Markets Act 2000 (as amended).

This prospectus supplement is dated September 30, 2021.

SUPPLEMENT TO PROSPECTUS

This supplement to the prospectus filed on September 30, 2021 (the "**Prospectus**") by 4D pharma plc ("**4D Pharma**," "**we**" or "**us**") is being filed to supplement the Prospectus as described pursuant to the Explanatory Note below.

EXPLANATORY NOTE

The purpose of this prospectus supplement is to provide six-month interim financial statements of 4D Pharma.

The supplemental disclosures contained below should be read in conjunction with the prospectus, which is available on the Internet site maintained by the SEC at http://www.sec.gov, along with periodic reports and other information we file with the SEC. To the extent that the information set forth herein differs from or updates information contained in the prospectus, the information set forth herein shall supersede or supplement the information in the prospectus. All page references are to pages in the prospectus, and terms used herein, unless otherwise defined, have the meanings set forth in the prospectus.

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)

5th Floor, 9 Bond Court
Leeds
LS1 2JZ
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): ____

CONTENTS

This Report on Form 6-K consists of (i) 4d pharma plc's, or the Registrant's, Unaudited Condensed Consolidated Interim Financial Statements as of June 30, 2021 and December 31, 2020 and for the six-months ended June 30, 2021 and 2020, which is attached hereto as Exhibit 99.1; and (ii) the Registrant's Management's Discussion and Analysis of Financial Condition and Results of Operations for the six months ended June 30, 2021, which is attached hereto as Exhibit 99.2.

EXHIBITS INDEX

Exhibit No.	Document Description
99.1	Unaudited Condensed Consolidated Interim Financial Statements as of June 30, 2021 and December 31, 2020 and for the six-months ended June 30, 2021 and 2020
99.2	Management's Discussion and Analysis of Financial Condition and Results of Operations for the six months ended June 30, 2021
101.INS	Inline XBRL Instance Document.
101.SCH	Inline XBRL Taxonomy Extension Schema.
101.CAL	Inline XBRL Taxonomy Extension Schema Calculation Linkbase.
101.DEF	Inline XBRL Taxonomy Extension Schema Definition Linkbase.
101.LAB	Inline XBRL Taxonomy Extension Schema Label Linkbase.
101.PRE	Inline XBRL Taxonomy Extension Schema Presentation Linkbase.
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

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

Exhibit 99.1

4D PHARMA PLC
UNAUDITED CONDENSED CONSOLIDATED

INTERIM FINANCIAL STATEMENTS
AS OF JUNE 30, 2021 AND DECEMBER 31, 2020 AND
FOR THE SIX-MONTHS ENDED
JUNE 30, 2021 AND 2020

4D PHARMA PLC

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4D PHARMA PLC
UNAUDITED CONDENSED CONSOLIDATED BALANCE SHEETS
(In thousands, except share and per share amounts)

	June 30, 2021	December 31, 2020
ASSETS		
Current assets:		
Cash and cash equivalents	$ 28,632	$ 11,990
Research and development tax credits receivable	6,948	4,799
Prepayments and other current assets	5,418	4,055
Total current assets	40,998	20,844
Property and equipment, net	4,533	5,082
Right-of-use assets (operating leases)	1,026	1,129
Intangible assets, net	6,264	6,303
Goodwill	13,389	13,489
Deferred recapitalization costs	-	2,010
Research and development tax credits receivable, net	248	242
Total assets	$ 66,458	$ 49,099
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 2,544	$ 4,540
Accrued expenses and other current liabilities	5,740	2,557
Current portion of operating lease liabilities	102	94
Current portion of deferred revenues	1,141	1,318
Total current liabilities	9,527	8,509
Operating lease liabilities, net of current portion	983	1,092
Deferred revenues, net of current portion	180	306
Deferred tax	17	18
Warrant liability	10,109	-
Other liabilities	221	203
Total liabilities	21,037	10,128
Commitments and Contingencies (Note 10)		
Stockholders' equity:		
Common Stock, $0.003 par value, 318,791,438 authorized; 180,300,967 and 131,467,935 shares outstanding at June 30, 2021 and December 31, 2020, respectively	646	479
Additional paid in capital	235,638	210,876
Accumulated other comprehensive loss	(23,499)	(24,149)
Accumulated deficit	(167,364)	(148,235)
Total stockholders' equity	$ 45,421	$ 38,971
Total liabilities and stockholders' equity	$ 66,458	$ 49,099

The accompanying notes are an integral part of these condensed consolidated financial statements.

4D PHARMA PLC
UNAUDITED CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
(In thousands, except share and per share amounts)

	For the Six Months Ended June 30,	
	2021	**2020**
Revenues	$ 321	$ 239
Operating expenses:		
Research and development	11,131	13,493
General and administrative expenses	7,438	5,509
Foreign currency losses (gains)	660	(1,491)
Total operating expenses	19,229	17,511
Loss from operations	(18,908)	(17,272)
Other income (expense), net:		
Interest income	3	6
Interest expense	(1)	(1)
Other income	2,162	2,502
Loss on issuance of securities in recapitalization transaction	(6,905)	-
Change in fair value of warrant liability	4,531	-
Total other income, net	(210)	2,507
Net loss before income taxes	(19,118)	(14,765)
Income tax	(11)	-
Net loss	(19,129)	(14,765)
Other comprehensive income (loss)		
Foreign currency translation adjustment	650	(2,081)
Comprehensive loss	$ (18,479)	$ (16,846)
Net loss per common share, basic and diluted	$ (0.12)	$ (0.15)
Weighted-average number of common shares used in computing basic and diluted net loss per common share	158,566,442	97,647,688

The accompanying notes are an integral part of these condensed consolidated financial statements.

4D PHARMA PLC
UNAUDITED CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(In thousands, except share and per share amounts)

	Common stock		Additional Paid-In	Accumulated Other Comprehensive	Accumulated	Total Stockholders'
	Shares	Amount	Capital	Loss	Deficit	Equity
Balance, January 1, 2021	131,467,935	$ 479	$ 210,876	$ (24,149)	$ (148,235)	$ 38,971
Common stock issued in recapitalization transaction	31,048,192	106	(106)	-	-	-
Issuance of common stock, net	17,685,012	61	24,739	-	-	24,800
Warrants exercised	31,859	-	44	-	-	44
Options exercised	67,969	-	-	-	-	-
Currency translation adjustment	-	-	-	650	-	650
Net loss	-	-	-	-	(19,129)	(19,129)
Share-based compensation	-	-	85	-	-	85
Balance, June 30, 2021	180,300,967	$ 646	$ 235,638	$ (23,499)	$ (167,364)	$ 45,421

	Common stock		Additional Paid-In	Accumulated Other Comprehensive	Accumulated	Total Stockholders'
	Shares	Amount	Capital	Loss	Deficit	Equity
Balance, January 1, 2020	65,493,842	$ 266	$ 174,376	$ (25,715)	$ (117,740)	$ 31,187
Issuance of common stock, net	44,000,000	139	22,990	-	-	23,129
Issuance of warrants	-	-	3,270	-	-	3,270
Currency translation adjustment	-	-	-	(2,081)	-	(2,081)
Net loss	-	-	-	-	(14,765)	(14,765)
Share-based compensation	-	-	139	-	-	139
Balance, June 30, 2020	109,493,842	$ 405	$ 200,775	$ (27,796)	$ (132,505)	$ 40,879

The accompanying notes are an integral part of these condensed consolidated financial statements.

4D PHARMA PLC
UNAUDITED CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands, except share and per share amounts)

	For the Six Months Ended June 30,	
	2021	**2020**
Cash Flows from Operating Activities:		
Net loss	$ (19,129)	$ (14,765)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	727	784
Stock based compensation	85	139
Loss on issuance of securities in recapitalization transaction	6,905	-
Change in fair value of warrant liability	(4,531)	-
Other non-cash expenses	73	15
Changes in assets and liabilities:		
Prepayments and other current assets	(1,331)	(1,685)
Research and development tax credits receivable	(2,116)	(2,392)
Accounts payable	(2,052)	2,509
Deferred revenues	(322)	(240)
Operating lease obligations	(100)	(91)
Other liabilities and accrued expenses	1,356	(1,871)
Net cash used in operating activities	(20,435)	(17,597)
Cash Flows from Investing Activities:		
Purchase of software	-	(19)
Purchase of property and equipment	(161)	(202)
Net cash used in investing activities	(161)	(221)
Cash Flows from Financing Activities:		
Net proceeds from recapitalization transaction	11,543	-
Net proceeds from issuance of common stock	24,800	23,129
Net proceeds from issuance of warrants	-	3,270
Net proceeds from warrant exercises	44	-
Lease liability payments	(6)	(8)
Net cash provided by financing activities	36,381	26,391
Effect of exchange rate changes on cash and cash equivalents	857	(1,191)
Change in cash and cash equivalents	16,642	7,382
Cash and cash equivalents at beginning of year	11,990	5,031
Cash and cash equivalents at end of year	$ 28,632	$ 12,413
Supplemental disclosures of non-cash investing and financing activities		
Cash paid for interest	$ 115	$ 110

The accompanying notes are an integral part of these condensed consolidated financial statements.

NOTE 1 – NATURE OF THE BUSINESS

4D Pharma plc (the "Company") and its subsidiary undertakings were established with the mission of leveraging the deep and varied interactions between the human body and the gut microbiome – the trillions of bacteria that colonize the human gastrointestinal tract – to develop an entirely novel class of drug: Live Biotherapeutics. The Company is focused on understanding how individual strains of bacteria function and how their interactions with the human host can be exploited to treat particular diseases, from cancer to asthma to conditions of the central nervous system.

The Company is incorporated in England and Wales and its operations are largely undertaken in Europe. The Company's common stock are listed on the Alternative Investment Market of the London Stock Exchange ("AIM") as "DDDD". As of March 22, 2021, the Company's common stock and warrants are also listed on Nasdaq ("LBPS" and "LBPSW") through American Depositary Shares ("ADSs") with each ADS representing 8 shares of common stock.

On March 22, 2021 the Company completed a recapitalization with Longevity Acquisition Corporation (NASDAQ: LOAC) a publicly-traded special purpose acquisition company ("SPAC"). Shareholders of LOAC received ADSs of the Company, and LOAC became a wholly-owned subsidiary of the Company. See Note 3 for further information.

Liquidity and capital resources

Since inception, the Company has incurred net losses and negative cash flows from operations. During the six months ended June 30, 2021, the Company incurred a net loss of $19.1 million and used $20.4 million of cash in operations. As of June 30, 2021, the Company had an accumulated deficit of $167.4 million. Management expects to incur additional operating losses in the future as the Company continues to further develop, seek regulatory approval for and, if approved, commence commercialization of its product candidates.

As of June 30, 2021, the Company's cash and cash equivalents were $28.6 million. The Company expects that its existing cash and cash equivalents, including the cash received from the credit facility in July 2021 (see Note 13 for further information) will be sufficient to satisfy its working capital needs, capital asset purchases, outstanding commitments and other liquidity requirements associated with our existing operations through the next 12 months following the date of the issuance of these consolidated financial statements.

The Company has historically financed its operations primarily through the sale of common stock. The Company intends to raise additional capital through sales of common stock, but there can be no assurance that these funds will be available or that they are readily available at terms acceptable to the Company or in an amount sufficient to enable the Company to continue its development and commercialization of its products or sustain operations in the future.

NOTE 2 – SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

(a) Basis of presentation

Principals of Consolidation

The condensed consolidated financial statements include the accounts of the Company and its wholly owned subsidiaries. All material intercompany accounts and transactions have been eliminated during the consolidation process.

Unaudited Interim Condensed Consolidated Financial Statements

The accompanying unaudited interim condensed consolidated financial statements have been prepared pursuant to the rules and regulations of the United States Securities and Exchange Commission ("SEC") for interim financial reporting. These condensed consolidated statements are unaudited and, in the opinion of management, include all adjustments (consisting of normal recurring adjustments and accruals) necessary to fairly present the results of the interim periods. The condensed consolidated balance sheet at December 31, 2020, has been derived from the audited consolidated financial statements at that date. Operating results and cash flows for the six months ended June 30, 2021 are not necessarily indicative of the results that may be expected for the fiscal year ending December 31, 2021 or any other future period. Certain information and footnote disclosures normally included in annual financial statements prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP") have been omitted in accordance with the rules and regulations for interim reporting of the SEC. These interim condensed consolidated financial statements should be read in conjunction with the consolidated financial statements and notes thereto included in our report for the year ended December 31, 2020.

Significant Accounting Policies

The significant accounting policies used in preparation of these condensed consolidated financial statements are disclosed in our annual financial statements for the year ended December 31, 2020. There have been no changes to the Company's significant accounting policies during the six months ended June 30, 2021.

(b) Functional and Reporting Currency

The functional currency of the Company and its' subsidiaries (other than the foreign subsidiaries mentioned below) is the Great Britain Pound Sterling ("GBP"). The operations of the two foreign subsidiaries are conducted in EUROs. Balances denominated in, or linked to, foreign currencies are stated on the basis of the exchange rates prevailing at the balance sheet date. 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. Assets and liabilities of the two subsidiaries are translated from their functional currency to GBP at the balance sheet date exchange rates. Income and expense items are translated at the average rates of exchange prevailing during the year. Translation adjustments are reflected in the consolidated balance sheets as a component of accumulated other comprehensive income or loss.

The reporting currency for the Company and its' subsidiaries is the United States dollar ("USD") and these consolidated financial statements are presented in USD. Dollar amounts included herein are in thousands, except per share data. Stockholders' equity is translated into USD from GBP at historical exchange rates. Assets and liabilities are translated at the exchange rates as of the balance sheet date. Income and expenses are translated at the average exchange rates prevailing during the reporting period. Adjustments resulting from translating the financial statements into USD are recorded as a separate component of accumulated other comprehensive loss in stockholders' equity.

(c) Use of estimates

The preparation of financial statements in conformity with U. S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting periods. Actual results could differ from those estimates and be based on events different from those assumptions. As part of these consolidated financial statements, the Company's significant estimates include (1) goodwill impairment; (2) the estimated useful lives of intangible assets; (3) revenue recognition, in regards to the deferred revenues; (4) the inputs used in determining the fair value of equity-based awards; (5) the inputs used in determining the fair value of warrants; and (6) valuation allowance relating to the Company's deferred tax assets.

(d) JOBS Act Accounting Election

The Company is an "emerging growth company" or "EGC", as defined in the Jumpstart Our Business Startups Act of 2012 (the "JOBS Act"). Under the JOBS Act, an EGC can delay adopting new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies. The Company has elected to use the extended transition period for complying with any new or revised financial accounting standards.

(In thousands, except share and per share amounts)

(e) Fair value of financial instruments

The Company measures and discloses fair value in accordance with ASC 820, *"Fair Value,"* which defines fair value, establishes a framework and gives guidance regarding the methods used for measuring fair value, and expands disclosures about fair value measurements. Fair value is an exit price, representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability. As a basis for considering such assumptions there exists a three-tier fair-value hierarchy, which prioritizes the inputs used in measuring fair value as follows:

Level 1 - unadjusted quoted prices are available in active markets for identical assets or liabilities that the Company has the ability to access as of the measurement date.

Level 2 - pricing inputs are other than quoted prices in active markets that are directly observable for the asset or liability or indirectly observable through corroboration with observable market data.

Level 3 - pricing inputs are unobservable for the non-financial asset or liability and only used when there is little, if any, market activity for the non-financial asset or liability at the measurement date. The inputs into the determination of fair value require significant management judgment or estimation. Fair value is determined using comparable market transactions and other valuation methodologies, adjusted as appropriate for liquidity, credit, market and/or other risk factors.

This hierarchy requires the Company to use observable market data, when available, and to minimize the use of unobservable inputs when determining fair value.

The Company's financial instruments primarily consist of cash and cash equivalents, trade and other payables with initial maturity of up to 12 months. The estimated fair values of these financial instruments approximate their carrying values as presented, due to their short maturities.

The Company's recurring fair value measurements at June 30, 2021 are as follows:

	Fair Value as of June 30, 2021	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Liabilities:				
Warrant liability (Note 9)	$ 10,109	$ -	$ -	$ 10,109

The Company had no recurring fair value measurements at December 31, 2020.

(f) Deferred Recapitalization Costs

Specific incremental legal, accounting and other fees and costs directly attributable to a proposed or actual offering of securities may properly be deferred and charged against the gross proceeds of such an offering. As of December 31, 2020, there were $2,010 of recapitalization costs, primarily consisting of legal, accounting and printing fees, that were capitalized in assets on the consolidated balance sheet. Upon completion of the merger, these costs were charged against the gross proceeds recorded in stockholders' equity. See Note 3 for further information on the recapitalization.

(In thousands, except share and per share amounts)

(g) Loss per share

Basic loss per share is computed by dividing income (loss) available to common stockholders by the weighted-average number of common shares outstanding during the period. Diluted loss per common share is computed similar to basic loss per share, except that the denominator is increased to include the number of additional potential common shares that would have been outstanding if the potential common shares had been issued and if the additional common shares were dilutive. Potential common shares are excluded from the computation for a period in which a net loss is reported or if their effect is anti-dilutive. Basic and diluted loss per common share is the same for all periods presented because all outstanding stock options and warrants are anti-dilutive.

At June 30, 2021 and 2020, the Company excluded the outstanding securities summarized below (shown as common stock equivalents), which entitle the holders thereof to acquire shares of common stock, from its calculation of loss per share, as their effect would have been anti-dilutive.

	June 30,	
	2021	2020
Common stock warrants	45,690,488	22,000,000
Common stock units	384,000	-
Common stock options	417,088	925,589
Total	46,491,576	22,925,589

(h) Recent issued accounting pronouncements not yet adopted

In August 2020, the FASB issued ASU 2020-06, Debt with Conversion and Other Options (Subtopic 470-20) and Derivative and Hedging – Contracts in Entity's Own Equity (Subtopic 815-40); Accounting for Convertible Instruments and Contracts in an Entity's own Equity. The pronouncement simplifies the accounting for certain financial instruments with characteristics of liabilities and equity, including convertible instruments and contracts on an entity's own equity. Specifically, the ASU "simplifies accounting for convertible instruments by removing major separation models required under current U.S. GAAP." In addition, the ASU "removes certain settlement conditions that are required for equity contracts to qualify for it" and "simplifies the diluted earnings per share (EPS) calculations in certain areas." The guidance is effective beginning after December 15, 2023 and early adoption is permitted. The Company does not currently engage in contracts covered by this guidance and does not believe it will have a material effect on the Company's condensed consolidated financial statements, but could in the future.

(i) Subsequent Events

Management has evaluated subsequent events that have occurred through the date these financial statements were issued. There were no events that require adjustment to or disclosure in the Company's financial statements, except as disclosed. See Note 14 for further information on subsequent events.

NOTE 3 – RECAPITALIZATION

On March 22, 2021, Longevity Acquisition Corporation ("LOAC") merged with and into 4D Pharma (BVI) Limited ("Merger Sub"), a new wholly owned subsidiary of the Company, with Merger Sub continuing as the surviving company. Each of LOAC's common shares issued and outstanding prior to the effective time of the merger (excluding shares held by the Company and LOAC and dissenting shares, if any) were automatically converted into the right to receive certain per share merger consideration (as defined below), and each warrant to purchase LOAC's ordinary shares and right to receive LOAC's ordinary shares that were outstanding immediately prior to the effective time of the merger was assumed by the Company and automatically converted into a warrant to purchase common stock of the Company and a right to receive common stock of the Company, payable in Company ADSs, respectively. The per share merger consideration consisted of 7.5315 common shares of the Company, payable in Company ADSs (each ADS representing 8 ordinary shares), for each issued and outstanding ordinary shares of LOAC. LOAC had cash and cash equivalents of $11.5 million at the time of the merger after paying all of its debtors.

Management concluded the Merger is a recapitalization through an asset acquisition and not a business combination as LOAC does not meet the definition of a business pursuant to ASC 805. According to the guidance in ASC 805, the Company obtained control as a result of the transaction. Specifically, Company obtained control as: (i) it owns 100% of the issued and outstanding shares of LOAC; (ii) LOAC merged with and into a wholly-owned subsidiary of the Company, the separate existence of LOAC ceased, and the wholly-owned subsidiary of the Company is the surviving company; and (iii) the Company's board of directors and officers prior to the effective time are the initial board of directors and officers of the Company following the effective time. The Company was the accounting acquirer and issued equity in exchange for the net assets of LOAC. No goodwill or intangible assets will be recorded in this transaction.

The Company received gross net assets of $11,543 before issuance costs of $16,683, including the fair value of the Backstop Warrants issued. See below for further discussion on the Backstop Warrants. The recapitalization included several securities as follows:

- 31,048,192 shares to LOAC shareholders and associated investors.
- 4,000,000 Public warrants, with a 5-year term, exercisable into 15,063,000 common shares of the Company at $1.53 per share
- 320,000 private warrants, with a 5-year term, exercisable into 1,205,040 common shares of the Company at $1.53 per share
- 240,000 representative (LOAC advisor) units, which are exercisable until August 28, 2023, exercisable at $11.50 per unit or $1.39 per common shares of the Company. Each unit can be exercised for both 8.28465 common shares, exercising into 1,988,316 common shares of the Company and a warrant to purchase 3.76575 common shares at an exercise price of $1.53 per common share into 903,870 common shares of the Company. Each warrant granted on exercise of the representative unit would convert to a public warrant and would carry the same rights and remaining term as the issued Public warrants.

The accounting for concurrent securities offerings is highly complex and required significant analysis and judgment in the application of the appropriate accounting guidance. The Company evaluated the public and private warrants as well as the warrants embedded in the representative units and determined if each security should be equity-classified or liability-classified instruments. Both the public warrants and the warrants embedded in the representative warrants need the criteria to be classified in stockholders' equity. The private warrants contain provisions that are not an input to the fair value of an options, thus they are not indexed to the Company's own stock. The Company determined that the private warrants should be classified as non-current warrant liabilities recognized at their inception date fair value The resulting aggregate issuance date fair value on the private warrants' issuance date was determined to be $1,698. See note 9 for further information on the liability warrants.

Concurrent with the merger, the Company issued 7,530,000 warrants to certain investors as part of the Backstop agreement ("Backstop Warrants"). These warrants are exercisable into 7,530,000 common shares of the Company at $0.0034 per share. These warrants are only exercisable, on a ratable basis, for a 60-day period after the number of warrants exercised in the preceding month has been confirmed. The Backstop Warrants were not part of the consideration transferred in the recapitalization, rather they were a direct and incremental cost incurred by the Company, as such, the value of the backstop warrants is included in the transaction costs.

The Company evaluated the Backstop Warrants to determine if they should be equity-classified or liability-classified instruments and determined that the Backstop Warrants contain a contingency which could result in the modification of the exercise price, thus they are not eligible for an exception from derivative accounting. The Company determined that the Backstop Warrants should be classified as non-current warrant liabilities recognized at their inception date fair value. The resulting aggregate issuance date fair value on the Backstop Warrants issuance date was determined to be $12,854.

(In thousands, except share and per share amounts)

The proceeds of the recapitalization were first allocated to the private liability warrants based on their full fair value. The remaining proceeds from recapitalization were less than the total transaction costs, including the fair value of the Backstop Warrants, so a loss on the recapitalization transaction was recorded to other income (expense) in the Company's consolidated statement of operations and comprehensive loss for the six months ended June 30, 2021 of $6,905. No allocation of residual recapitalization proceeds remained to be allocated to the common shares, public equity warrants and representative units issued in the recapitalization.

NOTE 4 – PREPAYMENTS AND OTHER CURRENT ASSETS

Prepayments and other current assets consisted of the following:

	June 30, 2021	December 31, 2020
Vendor prepayments	$ 614	$ 4
Prepaid insurance	1,672	58
Prepaid patent expense	676	529
Prepaid research	785	1,443
Other prepayments	366	360
VAT receivables	885	1,263
Other assets – goods to be consumed in R&D activities	420	398
	$ 5,418	$ 4,055

NOTE 5 – PROPERTY AND EQUIPMENT

Property and equipment, net, consisted of the following:

	June 30, 2021	December 31, 2020
Property and machinery	$ 8,266	$ 8,728
Fixtures, fittings and office equipment	292	294
Land and buildings	1,680	1,674
Total cost	10,238	10,696
Accumulated depreciation	(5,705)	(5,614)
Total property and equipment, net	$ 4,533	$ 5,082

Depreciation and related amortization expense was $625 and $645 for the six months ended June 30, 2021 and 2020, respectively. During the six months ended June 30, 2021, the Company disposed of gross property and equipment of $426, net of accumulated depreciation of $370, for a net loss of $56.

NOTE 6 – GOODWILL AND INTANGIBLE ASSETS

Goodwill:	
Balance at January 1, 2020	$ 12,651
Translation differences	838
Balance at December 31, 2020	13,489
Translation differences	(100)
Balance at June 30, 2021	$ 13,389

(In thousands, except share and per share amounts)

Intangible assets, net, consisted of the following:

	June 30, 2021			
	Software	Patents	Intellectual Property	Total
Gross amount beginning of period	$ 400	$ 1,477	$ 6,158	$ 8,035
Additions	-	-	-	-
Translation differences	5	15	62	82
Gross amount end of period	405	1,492	6,220	8,117
Disposals	(1)	-	-	(1)
Accumulated amortization	(360)	(1,492)	-	(1,852)
Net book value	$ 44	$ -	$ 6,220	$ 6,264

	December 31, 2020			
	Software	Patents	Intellectual Property	Total
Gross amount beginning of period	$ 365	$ 1,418	$ 5,910	$ 7,693
Additions	18	-	-	18
Translation differences	16	59	248	323
Gross amount end of period	400	1,477	6,158	8,035
Accumulated amortization	(339)	(1,393)	-	(1,732)
Net book value	$ 61	$ 84	$ 6,158	$ 6,303

Estimated amortization expense for each of the next five years is:

Year	
Remaining 2021	$ 18
2022	22
2023	2
2024	1
2025	1
Total	$ 44

Amortization expense was $103 and $139 for the six months ended June 30, 2021 and 2020, respectively.

At the acquisition dates goodwill amounted to $13.3 million, intellectual property amounted to $6.1 million and patent rights amounted to $1.5 million for the acquisitions of 4D Pharma Research Limited (2015), 4D Pharma Leon S.L.U. (2016) and 4D Pharma Cork Limited (formerly Tucana Health Limited) (2016) and The Microbiota Company Limited (2014). These entities together provide the necessary facilities and resources to enable the Company to successfully research, manufacture, gain approval for and commercialise Live Biotherapeutic products.

(In thousands, except share and per share amounts)

NOTE 7 – RESEARCH AND DEVELOPMENT TAX CREDIT RECIEVABLES

For companies with research and development expenses, the UK government provides a notifiable state aid in the form of an enhanced research and development deduction to Corporation tax, The Company has elected to take the enhanced deduction as a cash payment rather than carry the costs as a deduction against future taxable income. The Irish government has a similar program for qualifying research and development expenses. Under the Irish program, the Company is entitled to receive a rebate up to a maximum of the employment taxes paid, which is reimbursed over a period of three years from the balance sheet date. Research and development tax credit receivables consisted of the following:

	June 30, 2021	December 31, 2020
UK research and development tax credits	$ 6,723	$ 4,315
Irish research and development tax credits	485	453
Translation differences	(12)	273
Total	7,196	5,041
Less: current portion	(6,948)	(4,799)
Research and development tax credits receivable, net	$ 248	$ 242

For the six months ended June 30, 2021 and 2020, the Company has recorded other income of $2,126 and $2,478, respectively for the research and development tax credits.

NOTE 8 – ACCRUED EXPENSES AND OTHER CURRENT LIABLITIES

Accrued expenses and other current liabilities consisted of the following:

	June 30, 2021	December 31, 2020
Clinical trials accrued expenses	$ 3,936	$ 231
Patents and other research accruals	83	302
Payroll expenses	196	149
Building and office expenses	373	337
Professional and consultants' expenses	455	839
Tax expenses	291	305
Deferred grant income	57	82
Short-term finance lease	-	5
Other accrued expenses	349	307
	$ 5,740	$ 2,557

NOTE 9 – WARRANTS

The Company evaluated the public and private warrants as well as the Backstop Warrants and warrants embedded in the representative units as either equity-classified or liability-classified instruments based on an assessment of the warrants' specific terms and applicable authoritative guidance in Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") 480, Distinguishing Liabilities from Equity ("ASC 480") and ASC 815, Derivatives and Hedging ("ASC 815"). The assessment considers whether the warrants are freestanding financial instruments pursuant to ASC 480, meet the definition of a liability pursuant to ASC 480, and whether the warrants meet all of the requirements for equity classification under ASC 815, including whether the warrants are indexed to the Company's own common stock, among other conditions for equity classification. Pursuant to such evaluation, the Company further evaluated the public and private warrants, the backstop warrants and the warrants embedded in the representative units under *ASC 815-40, Derivatives and Hedging — Contracts in Entity's Own Equity*, and concluded that the private warrants and backstop warrants do not meet the criteria to be classified in stockholders' equity. Both the public warrants and the warrants embedded in the representative units meet the criteria to be classified in stockholders' equity.

(In thousands, except share and per share amounts)

The Backstop Warrants issued as a result of the merger transaction include provisions such that the exercisability of the warrants is contingent on the exercise of the public warrants assumed in the merger transaction. Since this contingency could result in the modification of the exercise price, thus the warrants are not eligible for an exception from derivative accounting. Accordingly, the Company has recorded the Backstop Warrants as a liability at fair value, with subsequent changes in their fair values recognized in the statements of operations and comprehensive loss at each reporting date. The Company measured the fair value of these Backstop Warrants as of June 30, 2021, and recorded other income of $3,919 resulting from the decrease of the liability associated with the fair value of the Backstop Warrants for the six months ended June 30, 2021. The Company computed the value of the Backstop Warrants using the Monte Carlo method.

A summary of quantitative information with respect to the valuation methodology and significant unobservable inputs used for the Company's Backstop Warrant liabilities that are categorized within Level 3 of the fair value hierarchy as of June 30, 2021 and March 22, 2021 is as follows:

	June 30, 2021	March 22, 2021
Number of shares underlying the warrants	7,530,000	7,530,000
Stock price	$ 1.36	$ 1.93
Volatility	85.0%	85.0%
Risk-free interest rate	0.87%	0.87%
Expected dividend yield	0%	0%
Expected warrant life	4.73 years	5 years

The private warrants assumed in the merger transaction include provisions that provide for potential changes to the settlement amounts dependent upon the characteristics of the holder of the warrant. Since the holder is not an input to the fair value of an option under ASC 815, and thus the warrants are not indexed to the Company's own stock and not eligible for an exception from derivative accounting. Accordingly, the Company has recorded the private warrants as a liability at fair value, with subsequent changes in their fair values recognized in the statements of operations and comprehensive loss at each reporting date. The Company measured the fair value of these assumed private warrants as of June 30, 2021, and recorded other income of $612 resulting from the decrease of the liability associated with the fair value of the warrants for the six months ended June 30, 2021. The Company computed the value of the assumed private warrants using the Black-Scholes method.

A summary of quantitative information with respect to the valuation methodology and significant unobservable inputs used for the Company's assumed private warrant liability that are categorized within Level 3 of the fair value hierarchy as of June 30, 2021 and March 22, 2021 is as follows:

	June 30, 2021	March 22, 2021
Number of shares underlying the warrants	1,205,040	1,205,040
Stock price	$ 1.36	$ 1.93
Volatility	92.2%	90.2%
Risk-free interest rate	0.82%	0.86%
Expected dividend yield	0%	0%
Expected warrant life	4.73 years	5 years

Recurring Level 3 Activity and Reconciliation

The table below provides a reconciliation of the beginning and ending balances for the liability measured at fair value using significant unobservable inputs (Level 3). The table reflects gains and losses for the six months ended June 30, 2021, for all financial liabilities categorized as Level 3 as of June 30, 2021.

(In thousands, except share and per share amounts)

Fair Value Measurements Using Significant Unobservable Inputs (Level 3):

Warrants	December 31, 2020	Initial Measurements	Decrease in Fair Value	Translation differences	June 30, 2021
Backstop Warrants	$ -	$ 12,854	$ (3,919)	$ 77	$ 9,012
Private warrants	-	1,698	(612)	11	1,097
Total	$ -	$ 14,552	$ (4,531)	$ 88	$ 10,109

NOTE 10 – COMMITMENTS AND CONTINGENCIES

Operating Lease obligations

Effective January 1, 2019, the Company adopted new guidance for the accounting and reporting of leases. The Company has two real estate leases classified as operating leases (one on Spain and one in the UK). No additional leases were entered into during the periods.

The UK lease was for our head office in Leeds, England. The premises comprise office space and parking and are for a ten-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 has been included in other liabilities of $181 at June 30, 2021 and $165 at December 31, 2020.

The Spanish lease relates to our manufacturing premises in Leon, Spain. The agreement is for a ten-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 has been included in other liabilities at $40 at June 30, 2021 and $38 at December 31, 2020.

Operating lease cost, with a weighted average discount rate of 13.6%, was $168 and $34 for the six months ended June 30, 2021 and 2020, respectively. Cash paid for amounts included in the measurement of operating lease liabilities was $160 and $146 for the six months ended June 30, 2021 and 2020, respectively. The weighted average remaining lease term is 5.5 years as of June 30, 2021. Short term lease cost was $91 and $86 for the six months ended June 30, 2021 and 2020, respectively. Cash paid for short term leases was $122 and $47 for the six months ended June 30, 2021 and 2020, respectively.

The following table summarizes the Company's operating lease maturities as of June 30, 2021:

	Amount
Remaining 2021	$ 159
2022	319
2022	335
2024	337
2025	339
2026	240
Thereafter	24
Total remaining lease payments	1,753
Less: Imputed interest	(668)
Total lease liabilities	$ 1,085

Other commitments

We enter into contracts in the normal course of business with Contract Research Organizations, Contract Manufacturing Organizations, universities, and other third parties for preclinical research studies, clinical trials and testing and manufacturing services. These contracts generally do not contain minimum purchase commitments and are cancellable by us upon prior written notice although, purchase orders for clinical materials are generally non-cancellable. Payments due upon cancellation consist only of payments for services provided or expenses incurred, including noncancellable obligations of our service providers, up to the date of cancellation or upon completion of a manufacturing run. These payments where these costs are material they have been included based on assumptions regarding those that are reasonably likely to be incurred.

COVID-19

In 2020, the global COVID-19 pandemic hit the United States and UK affecting almost all aspects of the global economy, the pharmaceutical industry and the Company included. The Company's operations and financial results have already been adversely impacted by the COVID-19 pandemic in the United Kingdom, United States and the rest of the world. Enrolment of patients in the clinical trials and maintaining patients in the ongoing clinical trials were delayed or limited to lesser or greater extent as the Company's clinical trial sites limited their onsite staff, temporarily closed or adjusted the way they worked during the COVID-19 pandemic. As a result of measures imposed by the governments in affected regions, many commercial activities, businesses and schools have been suspended as part of quarantines and other measures intended to contain this pandemic. These factors resulting from COVID-19 remain ongoing and other unforeseen pandemics could have similar or worse consequences, delaying the anticipated readouts from our clinical trials and our regulatory submissions. Additionally, certain third parties with whom we engage, including our collaborators, contract organizations, third-party manufacturers, suppliers, clinical trial sites, regulators and other third parties with whom we conduct business were often and can be similarly affected, adjusting their operations and assessing their capacity in light of the COVID-19 and other pandemics. While the extent of the impact of the current COVID-19 pandemic on the Company's future business and financial results continues to carry uncertainty, the effect of a continued and prolonged public health crisis from further significant mutations to COVID-19 or other pandemics could have a material negative impact on the Company's business, financial condition and operating results.

NOTE 11 – STOCKHOLDERS' EQUITY

Common stock

On July 8, 2020, the Company raised £7.7 million ($9.7 million) (£7.1 million ($9.0 million) net of transaction costs) through the issuance of 21,898,400 shares of common stock at a share price of 35 pence ($0.44) per share.

On February 18, 2020 the Company raised £22 million ($28.6 million) (£20.9 million ($27.2 million) net of transaction costs) through the issuance of 44 million common stock at a share price of 50 pence ($0.65) per share. A warrant was also issued on the basis of one share for every two common shares issued and have an exercise price of 100 pence ($1.37) per share and is exercisable for five years from the date of issuance.

On March 22, 2021 the Company completed its recapitalization with LOAC and received $11.5 million ($7.7 million net of transaction costs) through the issuance of 31 million shares of common stock at £1.10 ($1.51) per share. Additionally, the Company also issued 4.3 million warrants to purchase 16.3 million shares of common stock at £1.10 ($1.51) per common share and assumed 240,000 units to purchase the Company's common stock and warrants.

On March 22, 2021, concurrently with the merger of LOAC, the Company raised $25.0 million ($23.0 million net of transaction costs) through the issuance of 16.4 million common stock at a share price of £1.10 ($1.51) per share.

On April 15, 2021, following filing of our Annual Report on Form 20-F, the Directors who were unable to participate in the March 2021 financing, purchased 1.3 million shares of common stock, at the same terms as the March 2021 financing, for a total of approximately £1.4 million ($2.0 million).

(In thousands, except share and per share amounts)

Units

On March 22, 2021, as part of the recapitalization with LOAC, the Company issued 240,000 units. Each unit is for 8.28465 common shares and a warrant to purchase 3.76575 common share at a price of $1.39 per common share. The units are exercisable at $11.50 per unit and expire on August 28, 2023. The relative fair value of the units assumed of $418 was allocated from the total net proceeds of the merger on a relative basis to the common stock, warrants and units.

Warrants

On February 18, 2020, the Company issued 22 million warrants as part of the issuance of common stock. The warrants have an exercise price of 100 pence ($1.37) per share and are immediately exercisable for five years from the date of issuance. The warrants were evaluated under ASC Topic 480, *"Distinguishing Liabilities from Equity" and ASC Topic 815, "Derivatives and Hedging"*, and the Company determined that equity classification was appropriate. The relative fair value of the warrants issued of $3,270 was allocated from the total net proceeds of the common stock issuance on a relative basis to the common stock and warrants.

On March 22, 2021, the Company issued 4.0 million public warrants to purchase 15.1 million common shares as part of the LOAC recapitalization. The warrants have an exercise price of £1.10 ($1.53) per common share and are immediately exercisable for five years from the date of issuance. The warrants were evaluated under ASC Topic 480, *"Distinguishing Liabilities from Equity" and ASC Topic 815, "Derivatives and Hedging"*, and the Company determined that equity classification was appropriate. The relative fair value of the warrants assumed of $1,037 was allocated from the total net proceeds of the merger on a relative basis to the common stock, warrants and units.

The following table summarizes the common stock warrant activity for the six months ended June 30, 2021:

Balance at January 1, 2021	21,924,307
Issuances	11,850,000
Exercises	(31,859)
Balance at June 30, 2021	33,742,448

Options

The Company has a long-term incentive plan, the 4D Pharma plc 2015 Long Term Incentive Plan (the "Plan") which was established in 2015, and expires in ten years. The Plan limits the number of shares issued under the scheme on a cumulative basis to no more than 10% of the issued common stock of the Company. The number of shares available for issuance as of June 30, 2021 was 17,613,009. As of June 30, 2021, the Company had options to purchase 417,088 shares of common stock outstanding with a weighted-average exercise price of $0.0034. As of June 30, 2021, options to purchase 166,667 shares are vested and exercisable.

Stock-based compensation expense for the six months ended June 30, 2021 and 2020 was $85 and $139, respectively. As of June 30, 2021, total unrecognized stock-based compensation expense relating to unvested stock options was $67. This amount is expected to be recognized over a weighted-average period of 0.95 years.

NOTE 12 – REVENUE

In October 2019, the Company entered into a research collaboration and option agreement with MSD (Merck Sharp & Dohme Corp.) ("the MSD Agreement"). The MSD Agreement is for the use of the Company's MicroRx discovery platform to discover, design and develop mucosal vaccines candidates derived from selected 4D Live Biotherapeutics ("LBP"), when used in conjunction with selected antigens from MSD in up to three indications. The MSD Agreement covers the grant of a non-exclusive, non-transferable, sublicensable license under Company patent rights and know-how to perform MSD's activities under the research program and work plan. The MSD Agreement also specifies the Company's obligation to conduct research and development activities during the three-year research program term. A joint research committee will direct the research program and its activities are indistinguishable from the research services being provided.

The non-exclusive license is considered of limited value without the Company's development activities during the research term. As such, the license is not capable of being distinct until after successful identification of candidates, grant of an exclusive license, clinical development and regulatory approval and alone do not have standalone functionality to MSD. On analyses of market deal terms, Management determined that analyzed collectively, the option payments for exclusive licenses are at market for a development and commercialization license on a pre-clinical mucosal vaccine candidate and do not represent options that provide a material right to MSD and therefore do not give rise to a performance obligation in the contract.

Under the MSD Agreement, the Company received a non-refundable, upfront payment, of $2.5 million, a $5 million equity investment, and is eligible to receive up to $347.5 million per indication in option exercise fees and in development, regulatory and sales milestone payments, ranging from low seven figures to high eight figures, plus royalties on sales of any licensed product deriving from the collaboration. Such royalty rates range from low- to high-single digit royalties. The option payments for exclusive license and achievement and timing of the milestones depend on the success of identifying candidates, development, approval and sales progress, if any, of vaccines in the future.

The Company has initially estimated a total transaction price of $2.5 million, consisting of the fixed upfront payment determined to be the single bundled performance obligation consisting of the non-exclusive license, research and development services and governance activities. Upon execution of the MSD Agreement and as of June 30, 2021, variable consideration consisting of exclusive option license payments and milestone payments has been constrained and excluded from the transaction price given the significant uncertainty of achievement of the development and regulatory milestones.

The Company has allocated the transaction price entirely to the single bundled performance obligation and recorded the $2.5 million initially as deferred revenue and will recognize revenue over the period the research and development services are provided using an input method as a measure of progress towards completion of the performance obligation according to actual research and development costs and labor effort incurred compared to the estimated total research and development costs and labor effort, to estimate progress toward satisfaction of the performance obligation, and will remeasure its progress towards completion of the performance obligation at the end of each reporting period. For the six months ended June 30, 2021 and 2020, the Company recognized $321 and $239, respectively, in collaboration revenues. Associated development costs and labor effort of $848 and $278 are included within research and development costs in the consolidated statements of operations and comprehensive loss for the six months ended June 30, 2021 and 2020, respectively.

Amounts expected to be recognized as revenue within the 12 months following the balance sheet date are classified as a current portion of deferred revenue in the accompanying consolidated balance sheets. Amounts not expected to be recognized as revenue within the 12 months following the balance sheet date are classified as deferred revenue, net of current portion. As of June 30, 2021, the Company has $1,141 as current deferred revenues and $180 as long-term deferred revenues. As of December 31, 2020, the Company had $1,318 as current deferred revenues and $306 as long term deferred revenues.

NOTE 13 – RELATED PARTY TRANSACTIONS

One of the Company's directors, Antonio Fernandez is also a director of Biomar Microbial Technologies ("Biomar"), which charged rent and building service costs to the Company of $72 and $67 for the six months ended June 30, 2021 and 2020, respectively. The Company charged Biomar $25 and $16 for services for the six months ended June 30, 2021 and 2020, respectively. As of June 30, 2021 the Company owed Biomar $44 and $17 was due to the Company from Biomar for outstanding invoices and $354 was due to Biomar for the remaining lease payments on the premises. There were no balances owed to Biomar or due from Biomar as of June 30, 2020 and the remaining lease liabilities for the premises were $367.

MSD purchased 7,661,000 shares of the Company's common stock in February 2020 and 654,023 shares of the Company's common stock in March 2021 and currently holds 4.6% of the Company's total outstanding common stock. The Company entered into the MSD Agreement with MSD in October 2019, the MSD Agreement. See Note 10 for further information regarding this agreement. Additionally, the Company also an ongoing trail evaluating the combination of KEYTRUDA (pembrolizumab) in combination with MRx-0518 in patients with solid tumours who progresses on prior PD-1 inhibitor therapy. Under the terms of the agreement MSD will provide KEYTRUDA free of charge to the trial.

NOTE 14 – SUBSEQUENT EVENTS

On July 29, 2021, the Company entered into a Loan and Security Agreement (the "Loan Agreement"), by and between the Company, as borrower, the subsidiaries of the Company party thereto as co-borrowers, the lenders party thereto (the "Lenders") and Oxford Finance Luxembourg S.À R.L, as collateral agent for the Lenders (the "Collateral Agent"). The Loan Agreement provides for a term loan facility maturing on July 1, 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.

The term loans accrue interest at a per annum rate equal to the sum of (i) the greater of (A) the 30 day U.S. Dollar LIBOR reported in The Wall Street Journal on the last business day of the month that immediately precedes the month in which the interest will accrue and (B) 0.10% and (ii) 8.15%. From the closing date through July 31, 2021, the interest rate was set at 8.25%. The term loans are interest only through September 1, 2023 or, subject to the achievement of certain milestones, September 1, 2024.

The Company will be required to make a final payment fee of 6.00% or, if the interest only period is extended following the achievement of certain milestones, 6.50%, of the amount of the term loan drawn. The final payment fee is payable on the earlier of (i) the prepayment of the term loan, (ii) the acceleration of the term loan, or (iii) the maturity date. At the Company's option, the Company may elect to prepay the loans subject to a prepayment fee equal to the following percentage of the principal amount being prepaid: 3% if a term loan is prepaid during the first 12 months following the date of borrowing, 2% if a term loan is prepaid after 12 months but prior to 24 months following the date of borrowing, and 1% if a term loan is prepaid any time after 24 months following the borrowing date but prior to the maturity date.

The Company's obligations under the Loan Agreement are secured by substantially all of the assets of the Company and certain of its subsidiaries formed in Scotland, Ireland and the State of Delaware, United States.

The Loan Agreement contains customary affirmative and negative covenants, including covenants limiting the ability of the Company and its subsidiaries to, among other things, incur debt, grant liens, make acquisitions, undertake changes in control, make investments, make certain dividends or distributions, repurchase stock, dispose of assets, and enter into transactions with affiliates, in each case, subject to limitations and exceptions set forth in the Loan Agreement. Subject to the satisfaction of certain equity raise conditions, the Company is also required to maintain compliance with a minimum liquidity covenant.

The Loan Agreement also contains customary events of default that include, among other things, certain payment defaults, covenant defaults, a material adverse change default, insolvency and bankruptcy defaults, cross defaults to other agreements, inaccuracy of representations and warranties defaults, a delisting default and government approvals defaults. If an event of default exists, the Lender may require immediate payment of all obligations under the Loan Agreement and may exercise certain other rights and remedies provided for under the Loan Agreement, the other loan documents and applicable law. Under certain circumstances, a default interest rate will apply on all obligations during the existence of an event of default under the Loan Agreement at a per annum rate equal to 5.00% above the applicable interest rate.

In addition, in connection with the Loan Agreement, the Company issued the Lenders warrants to purchase 212,568 of the Company's ordinary shares at an exercise price of $1.18 per share (the "Initial Warrants"). The Initial Warrants will be exercisable for 5 years from the date of issuance. Additionally, on the closing date, pursuant to the terms of a letter agreement among the Company, the Collateral Agent and the Lenders, the Company agreed to issue to the Lenders, on each date the Company draws additional term loans and in accordance with each Lender's pro rata share of such additional term loans, one or more warrants (the "Additional Warrants") to purchase an aggregate number of the Company's ordinary shares that is equal to 2.00% of the aggregate amount of such additional term loans funded. The Additional Warrants will have a per share price equal to the lower of (i) the closing price for an ordinary share of the Company on the last trading day prior to the funding date of such term loan or (ii) the trailing 10-day average closing price of an ordinary share of the Company for the ten trading days immediately prior to the funding date of the additional term loan. The Additional Warrants will otherwise have terms that are substantially similar to the Initial Warrants, including being exercisable for a term of 5 years.

Exhibit 99.2

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis dated September 30, 2021 should be read in conjunction with our unaudited interim condensed consolidated financial statements and related notes as of and for the six months ended June 30, 2021, included as Exhibit 99.1 to this Report on Form 6-K. This discussion and other parts of the interim report contain forward-looking statements based upon current expectations that involve risks and uncertainties. Our actual results and the timing of selected events could differ materially from those anticipated in these forward-looking statements as a result of several factors, including those set forth under Item 3.D. "Risk Factors" in our Annual Report on Form 20-F for the year ended December 31, 2020 or the Annual Report on file with the Securities and Exchange Commission (the "SEC").

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

Certain information included herein contains or may contain "forward-looking statements" within the meaning of the Securities Exchange Act of 1933, as amended (the "**Securities Act**") and the Exchange Act. Forward looking terms such as "may," "will," "could," "should," "would," "plan," "potential," "intend," "anticipate," "project," "target," "believe," "estimate" or "expect" and other words, terms and phrases of similar nature are often intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Forward-looking statements are statements which are not historical fact and involve estimates, expectations, projections, goals, forecasts, assumptions, risks and uncertainties, and include, but are not limited to, statements regarding intent, belief or current expectations. From time to time, oral or written forward-looking statements may also be included in other materials released to the public.

Forward-looking statements are based on the current beliefs and assumptions of the management of 4D Pharma and on information currently available to such management. While the management of 4D Pharma believes that these forward-looking statements are reasonable as and when made, there can be no assurance that future developments will be as anticipated. Such statements are subject to risks and uncertainties, and actual results may differ materially from those expressed or implied in the forward-looking statements due to various factors, including, but not limited to, those identified under the section "Risk Factors" in our Annual Report on Form 20-F for the year ended December 31, 2020. These risks and uncertainties include factors relating to:

- the process of discovering, developing and commercializing drugs that are safe and effective for use as human therapeutics and operating as an early clinical stage company;
- our ability to develop, initiate or complete preclinical studies and clinical trials for, obtain approvals for and commercialize any of our therapeutic candidates;
- the timing, progress and results of preclinical studies and clinical trials for MRx0518, MRx-4DP0004, MRx0029, Blautix, Thetanix or any other of our therapeutic candidates, including statements regarding the timing of initiation and completion of studies or trials and related preparatory work and the period during which the results of the trials will become available;
- changes in our plans to develop and commercialize our therapeutic candidates;
- the potential for clinical trials of MRx0518, MRx-4DP0004, MRx0029, Blautix, Thetanix or any other of our therapeutic candidates to differ from preclinical, preliminary or expected results;
- our ability to enroll patients and volunteers in clinical trials, timely and successfully completion of those trials and receipt of necessary regulatory approvals;
- our ability to continue to manufacture sufficient quantity of our therapeutic candidates and to scale manufacturing to clinical-scale and small-to-mid-scale commercial supply;
- negative impacts of the COVID-19 pandemic on our operations, including clinical trials;

- the risk of the occurrence of any event, change or other circumstance that could give rise to the termination of the strategic collaboration agreement with the University of Texas MD Anderson Cancer Center or the research collaboration and option to license agreement with Merck Sharp & Dohme Corp.;
- our ability to raise any additional funding we will need to continue to pursue our business and product development plans;
- regulatory developments in the United Kingdom, the United States and other countries;
- our reliance on third parties, including contract research organizations;
- our ability to claim UK Research and Development tax credits;
- our ability to obtain and maintain intellectual property protection for our therapeutic candidates;
- the future composition of our management team and directors and those of our subsidiaries;
- competition in the industry in which we operate;
- other risk factors discussed under “Risk Factors” in our Annual Report on Form 20-F for the year ended December 31, 2020.

The foregoing list is not intended to be exhaustive, and there may be other key risks that are not listed above that are not presently known to us or that we currently deem immaterial. Should one or more of these or other risks or uncertainties materialize, or should any of the underlying assumptions prove incorrect, actual results may vary in material respects from those expressed or implied by the forward-looking statements made by us contained in this prospectus. As a result of the foregoing, readers should not place undue reliance on the forward-looking statements contained in this prospectus. The forward-looking statements contained in this prospectus are expressly qualified in their entirety by the foregoing cautionary statements.

Forward looking statements speak only as of the date on which they are made, and we undertake no obligation to update any forward-looking statements or other information contained in this report, whether as a result of new information, future events or otherwise. You are advised, however, to consult any additional disclosures we make in our reports on Form 6-K filed with the SEC.

Overview

4D Pharma was established with the mission of leveraging the deep and varied interactions between the human body and the gut microbiome, the trillions of bacteria that colonize the human gastrointestinal tract, to develop an entirely novel class of drug: Live Biotherapeutics. We are focused on understanding how individual strains of bacteria function and how their interactions with the human host can be exploited to treat particular diseases, from cancer, respiratory, central nervous system, immunological and gastrointestinal diseases and disorders.

To further advance our product pipeline, we have developed MicroRx, our proprietary discovery platform. MicroRx interrogates our proprietary library of bacterial isolates for therapeutic functionality and comprehensively characterizes the bacterial isolates using a range of complementary tools and technologies. By developing a thorough understanding of the functionality and mechanism of action of our therapeutic candidates, we can develop LBPs that target disease pathology rationally and effectively, and expand our robust sector-leading patent portfolio with additional patents relating to LBP functionality.

To this end, our key clinical focus areas include immuno-oncology and respiratory disease, with preclinical candidates targeting CNS and autoimmune conditions. We have completed three clinical trials and currently have four more ongoing. One of our key focus areas is immuno-oncology, and with our lead immuno-oncology therapeutic candidate, MRx0518, we delivered what we believe to be the first positive proof of-concept data with a LBP in the treatment of cancer. MRx0518 is being evaluated in three ongoing clinical trials, including a Phase I/II clinical trial in solid tumors in combination with Keytruda (supplied under a free of charge supply agreement) in patients with advance or metastatic NSCLC, RCC and UC who are refractory to prior anti-PD-1/ PD-L1 therapy. Additionally, new cohorts of 10 patients with new tumor types are to be enrolled in the study, including patients with TNBC, HNSCC and MSI-H high tumors. We successfully completed Part A of this Phase I/II clinical trial and Part B of the clinical trial is currently enrolling up to an additional 30 patients per tumor type and will assess clinical benefit in addition to safety. We also completed recruitment for Part A of an ongoing Phase I trial of MRx0518 as a monotherapy in patients undergoing surgical resection of solid tumors, which is being conducted at Imperial College London. We are currently redesigning Part B of this Phase I clinical trial after initial data from Part A expressed showed encouraging early biomarker readouts. Our third clinical trial of MRx0518 is a Phase I clinical trial of MRx0518 in patients with potentially resectable pancreatic cancer in combination with hypofractionated radiotherapy, which is part of our strategic collaboration with the University of Texas MD Anderson Cancer Center. Meanwhile, we are engaged in business development activities with the goal of expanding the development of MRx0518 into new settings and are actively exploring additional collaboration opportunities. Following the year end, in February 2021, we entered into agreement with Merck KGaA and Pfizer, who co-developed and co-commercialized Bavencio (avelumab) to supply Bavencio free of charge in a future trial.

We are also developing therapeutic candidates for our respiratory disease portfolio. MicroRx enabled the discovery of MRx-4DP0004, an immunomodulatory single strain LBP candidate that demonstrated marked effects in preclinical trials of respiratory inflammation, particularly in the lungs. A Phase I/II clinical trial of MRx-4DP0004 in partly controlled asthma is ongoing, and to our knowledge the world's first clinical trial of a LBP in the indication. We are also investigating MRx4DP0004 in a Phase II clinical trial as an oral therapeutic to prevent or reduce the hyperinflammatory response in patients hospitalized with COVID-19. The Phase II trial of MRx-4D0004 received expedited approval from the MHRA in April 2020.

We continue to utilize the MicroRx platform to discover promising new LBP candidates for major diseases with significant unmet need. As part of our CNS portfolio, we have identified novel LBP candidates that act upon multiple aspects of the pathology of neurodegenerative diseases in preclinical models, including gut-barrier function, neuroinflammation and protection of neurons critical to healthy CNS function. Accordingly, we are currently planning a first-in-human clinical study for our lead CNS therapeutic candidate, MRx0029, in Parkinson's disease patients. As part of our commitment to CNS research and drug development, in December 2020, we became an industry partner of the Parkinson's Progression Markers Initiative, 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.

In our gastro-intestinal disease portfolio, we currently have two LBP candidates that have completed early clinical evaluation, Blautix and Thetanix. Blautix is being developed as the first therapeutic to treat patients with IBS, regardless of clinical subtype. The Phase II clinical trial results for Blautix provide a strong foundation for the continued development of Blautix as the first therapeutic with the potential to treat both major subtypes of IBS, and this data will inform regulatory engagement around the design of a potential Phase III pivotal program. Thetanix is a single strain human gut commensal bacteria that has an anti-inflammatory mechanism and is currently under investigation for the treatment of IBD. Thetanix has an Orphan Drug Designation for pediatric Crohn's disease from the FDA. We have successfully completed a Phase Ib clinical trial of Thetanix in pediatric Crohn's disease patients, and we are exploring strategic options for Thetanix, including parallel development in pediatric and adult populations in both Crohn's disease and ulcerative colitis, as well as potential partners.

In addition to our internal development programs, we are seeking to realize the value and potential of the MicroRx platform through collaborations in new areas. In 2019, we entered into a research collaboration and option to license agreement with MSD to discover and develop LBPs for vaccines. This collaboration pairs our proprietary MicroRx platform with MSD's expertise in the development and commercialization of novel vaccines, to discover and develop LBPs as vaccines in up to three undisclosed indications.

In 2020, the global COVID-19 pandemic hit the United Kingdom, United States and other regions worldwide, affecting almost all aspects of the economy including the pharmaceutical industry in which we operate. In response we have been proactive, putting the safety of staff and patients first. We have made good use of technology to minimize disruption to our operations while protecting our staff. However, as has been seen across the biopharma industry, there have been unavoidable impacts on certain activities, resulting in some potential delays to expected clinical readouts. We continue to monitor the situation closely and will provide updates as and when the expected resolution of the situation becomes clearer.

In light of this unprecedented situation, we have carefully re-evaluated our strategic priorities and near to-mid-term objectives. We have taken measures to streamline the business, including changes to management structure and reducing staffing requirements, primarily relating to manufacturing, research and administrative services. We have also prioritized allocation of capital and resources to key programs, such as oncology and are set to continue to deliver key clinical value drivers for our shareholders in the coming months.

Key Performance Indicators

We track a series of metrics focused 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 Pharma 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 June 30, 2021, we had two clinical trials completed through Phase I and one completed through Phase II. For the six months ended June 30, 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 June 30, 2021, we had initiated seven clinical trials, including three Phase I, two Phase I/II and two Phase II. There were six clinical trials that we had initiated by the end of the six months ended June 30, 2020 of three Phase I, two Phase I/II and one Phase II.

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 intellectual property rights, and by June 30, 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 the six months to June 30, 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 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 June 30, 2021, our R&D spend was $11.1 million compared to $13.5 million for the six months ended June 30, 2020. While maintaining our strategy to invest in our clinical development programs on a long-term basis, the decrease is reflective of 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.

Critical Accounting Policies

We describe our significant accounting policies more fully in Note 2 to our unaudited interim condensed consolidated financial statements included elsewhere in this report. We believe that the accounting policies described below and in Note 2 are critical in order to fully understand and evaluate our financial condition and results of operations.

We prepare our financial statements in accordance with U.S. GAAP. At the time of the preparation of the unaudited interim condensed consolidated financial statements, our management is required to use estimates, evaluations, and assumptions which affect the application of the accounting policy and the amounts reported for assets, obligations, income, and expenses. Any estimates and assumptions are continually reviewed. The changes to the accounting estimates are credited during the period in which the change to the estimate is made.

Internal Controls

In connection with the review of our unaudited interim condensed consolidated financial statements for the six-month period ended June 30, 2021, we identified a material weakness relating to the accounting for the Longevity merger and related transactions in a timely manner. As a result, significant and late revisions to the financial statements were necessary, including an adjustment identified by our auditors. Notwithstanding the identified material weakness, management believes the unaudited interim condensed consolidated financial statements included in this Form 6-K fairly represent in all material respects our financial condition, results of operations and cash flows at and for the periods presented in accordance with U.S. GAAP.

To remediate the material weakness described above and prevent similar deficiencies in the future, we are implementing new controls and procedures, including when significant, complex transactions occur, management, in the use of outside consultants, will research all accounting implications for instruments issued, including, but not limited to transaction costs and financial statement presentation in a timely manner.

Significant Contracts and Agreements Related to Research and Development Activities

Collaboration Agreement

MSD Collaboration Agreement

In October 2019, the Company entered into the MSD Collaboration Agreement. The MSD Collaboration Agreement is for the use of the Company's MicroRx discovery platform to discover and develop LBP candidates as vaccines in up to three indications. The Company is responsible for the discovery and engineering of the LBPs.

Under the MSD Collaboration Agreement, the Company received a non-refundable, upfront payment, of $2.5 million, a $5.0 million equity investment, and are eligible to receive up to $347.5 million per indication in option exercise fees and in development, regulatory and sales milestone payments, ranging from low seven figures to high eight figures, plus royalties on sales of any licensed product deriving from the collaboration. Such royalty rates range from low- to high-single digit royalties. The achievement and timing of the milestones depend on the success of development, approval and sales progress, if any, of vaccines in the future.

For the six months ended June 30, 2021 and 2020, we have recognized $0.3 million and $0.2 million in collaboration revenues, respectively. Associated costs of sale of $0.8 million and $0.3 million, respectively, are included within research and development costs in the consolidated statements of operations and comprehensive loss. Amounts expected to be recognized as revenue within the 12 months following the balance sheet date are classified as a current portion of deferred revenue in the balance sheets in our financial statements included elsewhere in this prospectus. Amounts not expected to be recognized as revenue within the 12 months following the balance sheet date are classified as deferred revenue, net of current portion. As of June 30, 2021, we have current deferred revenues of $1.1 million and long-term deferred revenues of $0.2 million, which will be recognized as the research and development costs and labor effort are incurred, which is expected to be a three-year period.

MD Anderson Collaboration Agreement

In November 2017 we established a strategic collaboration with the University of Texas MD Anderson Cancer Center, to evaluate 4D Pharma's Live Biotherapeutic oncology pipeline across a range of cancer settings. Under the agreement, we provide funding and in-kind support for pre-clinical and clinical studies in solid tumors and radiation oncology.

For each of the six months ended June 30, 2021 and 2020, we have recognized $0.7 million in costs from MD Anderson which are included within research and development costs in the consolidated statement of operations and comprehensive loss.

Results of Operations

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our consolidated financial statements and the related notes included in our Annual Report, as well as our unaudited interim condensed consolidated financial statements and the related notes thereto for the six months ended June 30, 2021, included elsewhere in this Report on Form 6-K. The discussion below contains forward-looking statements that are based upon our current expectations and are subject to uncertainty and changes in circumstances. Actual results may differ materially from these expectations due to inaccurate assumptions and known or unknown risks and uncertainties.

The following financial data in this narrative are expressed in thousands of U.S. dollars, except for share and per share data or as otherwise noted.

Revenues

We have not generated commercial revenues from product sales. To date, we have generated revenues from the collaboration agreement with MSD Collaboration Agreement.

Operating Expenses

We generally recognize operating expenses as they are incurred in two general categories, general and administrative expenses and research and development expenses. Our operating expenses also include non-cash components related to depreciation and amortization of property and equipment, intangibles, and stock-based compensation, 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 incurs additional expenses related to an expansion of our research and development activities and our operation as a public company, including higher legal, accounting, insurance, compliance, compensation and other expenses.

Our research and development expenses consist primarily of salaries and related personnel expenses, contractual commitments, depreciation and amortization 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 reaches 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:

(in thousands)	For the Six Months Ended June 30,	
	2021	2020
Contractual commitments	$ 5,110	$ 7,630
Staff costs	2,613	3,118
Depreciation and amortization	555	589
Other MRx research costs	1,034	893
Other MDx research costs	22	490
Other manufacturing research and development costs	1,797	773
Total	$ 11,131	$ 13,493

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. for BAVENCIO® (avelumab), under which 4D pharma intends 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.

After top line data in the fourth quarter of 2020, the clinical phase of the Blautix® program completed in the six months ended June 30, 2021 with additional positive data being presented during the period. Steady progress continued to be made during the six months ended June 30, 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 completed 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 hospitalised 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 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 following six months 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 June 30, 2020 had higher clinical trial activity and costs than the six months ended June 30, 2021. In addition to this reduction, the expiration of minimum terms on certain manufacturing supplier contacts for the production of products used in clinical studies meant that certain expenses incurred were no longer contractual in nature and are now recorded under the manufacturing, research and development costs. These decreases were partly offset by a modest increase in MRx-0518 costs and an increase related to the recruitment on the Asthma trial, which had been delayed in 2020 due to recruitment issues resulting from COVID-19. Overall, these factors resulted in a decrease in contractual commitments to $5.1 million for the six months ended June 30, 2021 compared to $7.6 million for the six months ended June 30, 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 the 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 June 30, 2021 to $2.6 million from $3.1 million for the six months ended June 30, 2020 and the MDx research costs also decreased $0.5 million between the same periods due to limited scope of work on the project.

Other manufacturing, research and development costs increased to $1.8 million compared to $0.8 million for the six months ended June 30, 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 ($0.4 million) for the six months ended June 30, 2021 as a result of their change in classification.

Comparison of the Six Months Ended June 30, 2021 to the Six Months Ended June 30, 2020

Results of Operations

	For the Six Months Ended June 30,	
	2021	2020
Revenues	$ 321	$ 239
Operating expenses:		
Research and development	11,131	13,493
General and administrative expenses	7,438	5,509
Foreign currency losses (gains)	660	(1,491)
Total operating expenses	19,229	17,511
Operating loss	(18,908)	(17,272)
Other income (expense), net		
Interest income	3	6
Interest expense	(1)	(1)
Other income	2,162	2,502
Loss on issuance of securities in recapitalization transaction	(6,905)	-
Change in fair value of warrant liability	4,531	-
Total other income, net	(210)	2,507
Net loss before income tax expense	(19,118)	(14,765)
Income tax expense	(11)	-
Net loss	$ (19,129)	$ (14,765)

Revenues

We have not generated commercial revenues from product sales. Our revenues from our MSD Collaboration Agreement totaled $0.3 million and $0.2 million for the six months ended June 30, 2021 and 2020, respectively. There were no other revenues for the six months ended June 30, 2021 and 2020.

Research and Development Expenses

Our research and development expenses totaled $11.1 million for the six months ended June 30, 2021, representing a decrease of $2.3 million, or 17.5%, compared to $13.5 million for the six months ended June 30, 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 we incurred lower overall costs during the six months ended June 30, 2021 when compared to the six months ended June 30, 2020. Details of other contributing factors are included above.

General and Administrative Expenses

Our general and administrative expenses totaled $7.4 million for the six months ended June 30, 2021, representing an increase of $1.9 million, or 35.0%, compared to $5.5 million for the six months ended June 30, 2020. The increase 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 losses of $0.7 million for the six months ended June 30, 2021, compared to foreign currency gains of $1.5 million for the six months ended June 30, 2020. The change is due to the movements in the exchange rates.

Operating Loss

As a result of the foregoing, our operating loss totaled $18.9 million for the six months ended June 30, 2021, representing an increase of $1.6 million, or 9.5%, compared to $17.3 million for the six months ended June 30, 2020.

Interest Income

Interest income consists of interest earned on our short-term investments. We recognized interest income of $3 thousand for the six months ended June 30, 2021, representing a decrease of $3 thousand, or 50%, compared to $6 thousand for the six months ended June 30, 2020.

Other Income

Other income consists of UK and Irish tax credit refunds based on a portion of our research and development expenses. This refund is treated as a governmental grant. Other income was $2.2 million for the six months ended June 30, 2021, representing a decrease of $0.3 million, or 14.0%, compared to $2.5 million for the six months ended June 30, 2020. The decrease was due to the decrease in research and development expenses over the prior year.

Loss on Issuance of securities in Recapitalization Transaction

As part of the recapitalization transaction on March 22, 2021, we issued common stock, warrants and resprentative units and received gross proceeds of $11.7 million. After allocating the proceeds received to the full fair value of warrants that were determined to be liabilities, the remaining proceeds were less than the total transaction costs, which included the full fair value of backstop warrants issued as part of the transaction costs. The excess transaction costs were recorded as a loss on the statement of operations and comprehensive loss for the six months ended June 30, 2021.

Change in Fair Value of Warrant Liability

In accordance with FASB ASC 470, "*Debt – Debt with Conversion and Other Options"* ("ASC Topic 470") and FASB ASC 820, *Fair Value Measurements and Disclosures* ("ASC Topic 820"), we measured the fair value of our warrants that were recorded at their fair value and recognized as liabilities as of June 30. 2021, and recorded $4.5 million in other income for the six months ended June 30. 2021.

Net Loss

As a result of the foregoing, our net loss was $19.1 million for the six months ended June 30, 2021, representing a decrease of $4.4 million, or 29.6%, compared to $14.8 million for the six months ended June 30, 2020.

Liquidity and Capital Resources

Overview

From our inception through June 30, 2021, we have funded our operations principally from the sales of our common shares, the MSD Collaboration Agreement and government grants. As of June 30, 2021, we had $28.6 million in cash and cash equivalents.

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

(in thousands)	For the Six Months Ended June 30,	
	2020	2019
Cash used in operating activities	$ (20,435)	$ (17,597)
Cash used in investing activities	(161)	(221)
Cash provided by financing activities	36,381	26,391
Effect of exchange rate changes on cash and cash equivalents	857	(1,191)
Net increase in cash and cash equivalents	$ 16,642	$ 7,382

Operating Activities

Net cash used in operating activities of $20.4 million during the six months ended June 30, 2021, was primarily related to $5.2 million for clinical trials and research including other third-party expenses and an aggregate of $3.5 million in salary and other staff costs, a further $3.1 million is attributable to patent spend and $4.2 million of legal, professional and insurance costs, linked to the Nasdaq listing. Net cash used in operating activities of $17.6 million during the six months ended June 30, 2020, was primarily related to $9.0 million for clinical trials and research including other third-party expenses and an aggregate of $5.0 million in salary and other staff costs, a further $2.0 million is attributable to patent spend and $1.1 million of legal professional and insurance costs which were largely related to fundraising activities.

Investing Activities

Net cash used in investing activities of $0.2 million during each of the six months ended June 30, 2021 and 2020 was due to the purchases of property and equipment and software.

Financing Activities

Net cash provided by financing activities of $36.4 million during the six months ended June 30, 2021 was primarily related to the net proceeds received in the recapitalization transaction of $11.5 million, the issuance of common stock of $24.8 million and warrant exercises of $0.1 million. Net cash provided by financing activities in the six months ended June 30, 2020 of $26.4 million was due to the net proceeds from the issuance of common stock of $23.1 million and the issuance of warrants of $3.3 million, which was partially offset by $8 thousand in lease payments.

In April 2021, following filing of our Annual Report on Form 20-F, the Directors who were unable to participate in the March 2021 financing, purchased 1.3 million shares of common stock, at the same terms as the March 2021 financing, for a total of approximately £1.4 million ($2.0 million).

In March 2021, we completed the sale of 16.4 million shares of common stock at £1.10 ($1.53) per share for a total of approximately £18.0 million ($25.0 million) or £16.6 million ($23.0 million) net of transaction costs.

Also in March 2021, we completed the 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). The Company issued 31.0 million common shares, 4.0 million public warrants, 0.3 million private warrants and 0.2 million representative units. Concurrently with the recapitalization, we issued 7.5 million warrants to backstop investors as payment on the backstop agreement. The backstop warrants are a cost of the transaction and were recorded at their inception date fair value. See Note 3 to the condensed consolidated financial statements, included elsewhere in this filing, for further information.

In July 2020, we completed the sale of 21.9 million shares of common stock at £0.35 ($0.44) per share for a total of approximately £7.7 million ($10 million) or £7.3 million ($9.5 million) net of transaction costs.

In February 2020, we completed the sale of 44 million shares of common stock at £0.50 ($0.65) per share for a total of £22 million ($28.6 million) or £20.8 million ($26.8 million) net of transaction costs. Warrants were issued on March 9, 2020 on the basis of one warrant for every two shares acquired. The warrants have an exercise price of £1.00 ($1.37) per share, are immediately exercisable and expire five years from issuance and cannot be traded on a regulated market.

Current Outlook

We have historically financed our operations primarily through the sale of common stock. We intend to continue to raise additional capital through sales of common stock, but there can be no assurance that these funds will be available or that they are readily available at terms acceptable to us or in an amount sufficient to enable us to continue its development and commercialization of its products or sustain operations in the future.

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 and access to our library of well characterized bacterial isolates with the disease-specific expertise of partners. The amounts that we actually spend for any specific purpose may vary significantly and will depend on a number of factors, including, but not limited to, our research and development activities and programs, clinical testing, regulatory approval, market conditions, and changes in or revisions to our business strategy and technology development plans. Investors will be relying on the judgment of our management regarding the application of the proceeds from the sale of our ordinary shares.

In July 2021, we entered into a Loan Agreement with Oxford Finance providing for a term loan facility maturing on July 1, 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 June 30, 2021, our cash and cash equivalents were $28.6 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 $32.2 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 approximately $14.2 million for general and administrative costs over such 18-month period, which consists primarily of expenditures for staff costs, legal professional and insurance fees, patent costs and other administrative expenses. We also estimate receiving approximately $8.5 million in cash for research and development tax credit refunds over this 18-month period.

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 therapeutic candidates that we may enter into in the future;
- the costs and timing of obtaining regulatory approval for our therapeutic candidates;
- the costs of filing, prosecuting, enforcing and defending patent claims and other intellectual property rights;
- the costs of scaling our manufacturing capabilities for production of sufficient clinical and commercial quantities of our therapeutic candidates;
- the potential costs of contracting with third parties to provide marketing and distribution services for us or for building such capacities internally; and
- 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;
- the timing of payment and changes to tax regimes relate to our research and development tax credits;
- the costs of operating as a public company; and
- Adverse trial results that would invalidate further investment in a product or products.

Until we can generate significant revenues, if ever, we expect to satisfy our future cash needs through our existing cash, cash equivalents and short-term deposits, the net proceeds from equity financings, or by out-licensing applications of our product candidates. We cannot be certain that additional funding will be available to us on acceptable terms, if at all. If funds are not available, we may be required to delay, reduce the scope of, or eliminate research or development plans for, or commercialization efforts with respect to, one or more applications of our product candidates.

Principal Commitments

Leased Facilities

We have two real estate leases classified as operating leases, one on Spain and one in the UK. No additional leases were entered into during the periods.

The UK lease was for our headquarters in Leeds, England. The premises comprise office space and parking and are for a ten-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 has been included in other liabilities of $0.2 million at June 30, 2021.

The Spanish lease relates to our manufacturing premises in Leon, Spain. The agreement is for a ten-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 cost were also 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 has been included in other liabilities at $40 thousand at June 30, 2021.

JOBS Act Accounting Election

Section 102(b)(1) of the JOBS Act exempts emerging growth companies from being required to comply with new or revised financial accounting standards until private companies (that is, those that have not had a Securities Act registration statement declared effective or do not have a class of securities registered under the Exchange Act) are required to comply with the new or revised financial accounting standards. The JOBS Act provides that an emerging growth company can elect to opt out of the extended transition period and comply with the requirements that apply to non-emerging growth companies but any such an election to opt out is irrevocable. We have elected to use the extended transition period to enable us to comply with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date we (i) are no longer an emerging growth company and (ii) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act. As a result, our financial statements may not be comparable to companies that comply with new or revised accounting pronouncements as of public company effective dates.

We will remain an emerging growth company until the earliest to occur of: (i) the last day of the fiscal year in which we have more than $1.07 billion in annual revenue; (ii) the date we qualify as a "large accelerated filer," with at least $700.0 million of equity securities held by non-affiliates; (iii) the date on which we have issued more than $1.0 billion in non-convertible debt securities during the prior three-year period; and (iv) the last day of the fiscal year following the fifth anniversary of the completion of the Merger.

This may make comparison of our financial statement with another public company that is neither an emerging growth company nor an emerging growth company that has opted out of using the extended transition period difficult or impossible because of the potential differences in accounting standards used.