



4Bio Ventures II LP

Quarterly Report

Quarter ending September 30, 2021

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1. SUMMARY

Fund address	4Bio Ventures II LP. 78 Pall Mall London SW1Y 5ES
First closing	June 7, 2019
Final closing	June 7, 2021
Vintage	2019
Total commitment	\$ 116.78 million
Term	Ten years after the final closing
Investment period	Five years from the first closing
Domicile	United Kingdom
Legal form	Limited Partnership
Structure	General Partner and fifty-seven Limited Partners Founder Partner Management Company: 4BIO Partners LLP
Investment focus	Advanced Therapies
Geography	Developed Markets (EEA, North America, Japan etc.)

2. EXECUTIVE SUMMARY

2.1 Fund update

The Fund was expanding its portfolio, further investing in new companies and supporting existing ones.

In the most recent quarter of the Fund's operation, we continued to see many investment opportunities. Over 75 new opportunities were received and reviewed by the team across the period compared to 79 opportunities reviewed in Q2 2021.

Portfolio construction and maturation are well underway. The Fund has made one new investment - a \$3 million Seed round in a US-based gene-therapy company Ray Therapeutics. In addition to that, the Fund has executed a follow-up investment in Redpin Therapeutics in the form of a \$2.888 million convertible loan.

In the quarter, \$8.533 million was drawn down, bringing the total contributions to date to \$35.012 million, or 30% of the total commitments to the Fund. The operating loss of the Fund for the quarter was \$0.748 million totalling \$6.527 million. The operating loss represents a typical J-Curve of PE/VC funds and consists of management fees and regular expenses. There were no revaluations in the portfolio, and all investments are accounted for at cost. The Fund has not yet returned any distributions to LPs and has a current portfolio value of \$28.720 million.

2.2 Portfolio Summary

Our investments have progressed well over the quarter, with some of our initial investments now beginning to explore financing and partnering opportunities. Both Locki and SparingVision have executed term sheets: Locki for a \$75 million Series A financing and SparingVision for collaboration with Intellia Therapeutics for gene editing in the eye. Both companies have consequently closed these deals in the post-reporting period, Q4 2021. These deals are not reflected in the current financial report.

Code Bio, Araris and Hornet have continued to build their data sets, strengthen their teams and are also attracting interest from pharma collaborators and potential investors.

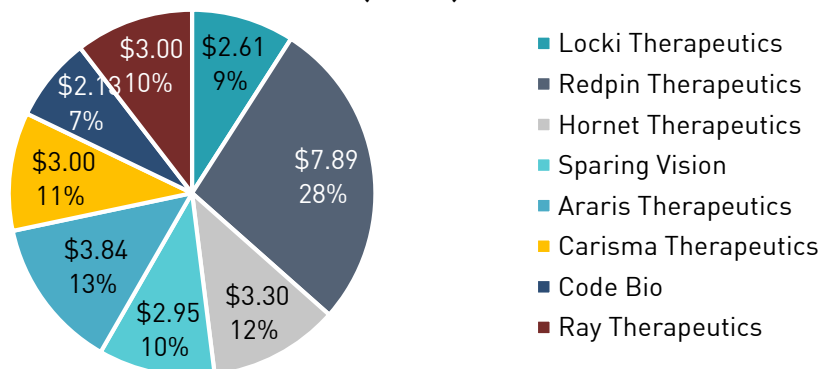
Carisma Therapeutics experienced some delays in patient recruitment, but emerging initial data looks promising, and they were accepted to present this at a major academic conference later in the year.

Redpin extended its runway to broaden its pipeline as we continue to explore applications for their technology beyond pain, something both investors and partners are keen to see. CEO search was ongoing. The fundraising campaign is ongoing, with several potential leads in the pipeline. Despite fundraising efforts, Redpin was not yet successful in securing a term sheet for the required Round B of financing. Given the cash runway to February 2022, this issue needs to be addressed in Q4 2022.

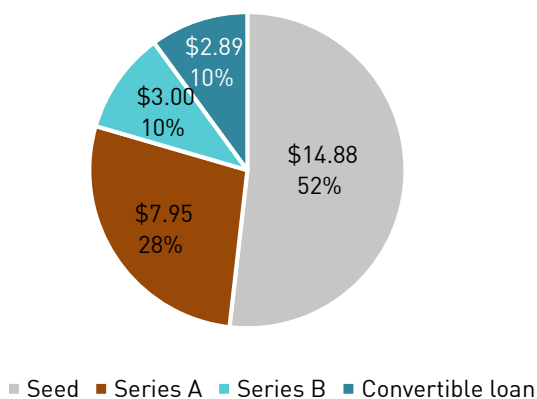
Ray Therapeutics, a new investment made in the past quarter, represents our final seed investment for this Fund. Ray is an optogenetic company launched by the same core team involved with Retrosense, acquired by Allergan. We are the only institutional investor in the company and actively working on an ambitious plan to develop a leading programme in the space.

2.3 Portfolio composition

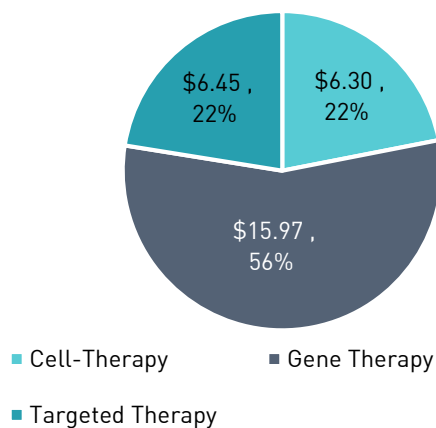
Graph1. Portfolio companies
(USD M)



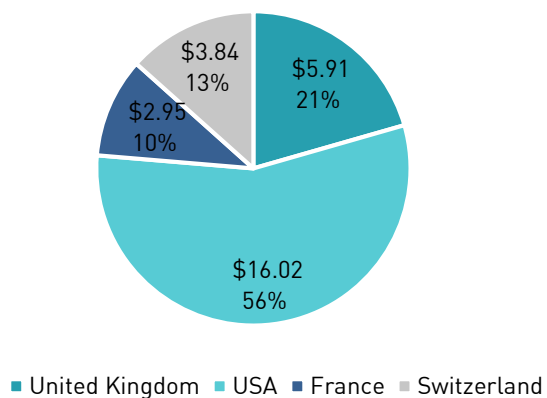
Graph 2. Rounds
(USD M)



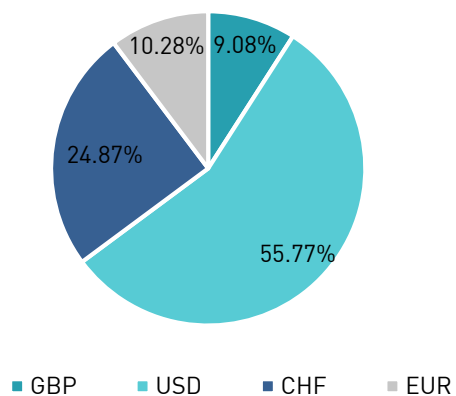
Graph 3. Pillars
(USD M)



**Graph 4. Geography
(USD M)**



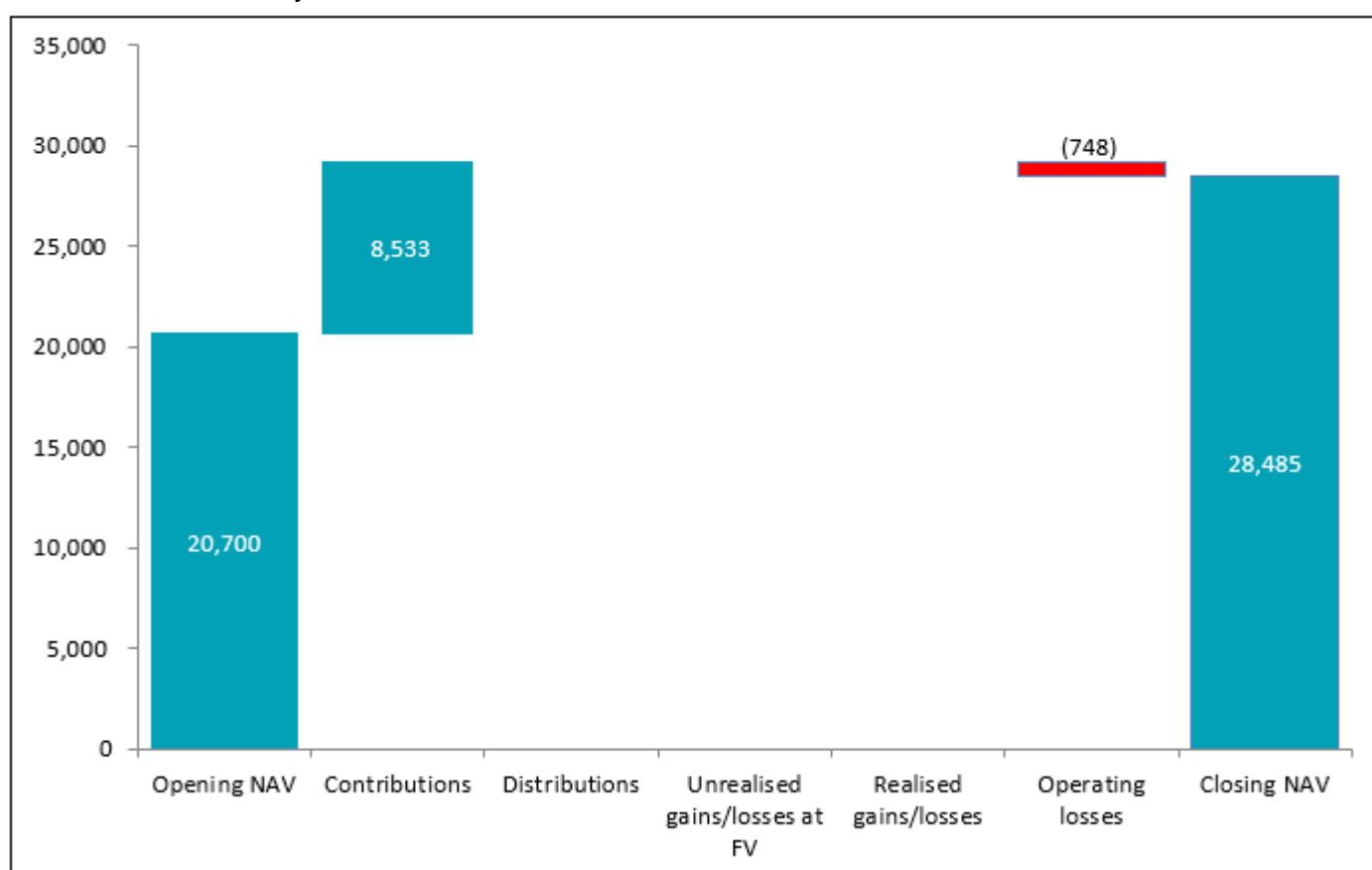
Graph 5. Currency of investment



3. INVESTMENT SUMMARY

	30 September 2021	30 September 2021	30 June 2021	30 June 2021
	\$ '000s	% Committed capital	\$ '000s	% Committed capital
CAPITAL COMMITTED	116,780		116,780	
Capital contributed	35,012	30%	26,479	23%
Less capital distributed	-	0%	-	0%
Operating loss	(6,527)		(5,779)	
Realised gains/losses	-		-	
Gain/loss on revaluation at FV	-		-	
Fund Value (Fair Value)	28,485		20,700	
Represented by value of current portfolio	28,720		22,832	
Current assets	(112)		(38)	
Current liabilities	(123)		(2,094)	
Total	28,485		20,700	
Available for drawdown	81,768	70%	90,301	77%

4Bio Ventures II LP Quarter Ending September 30, 2021 Investment Summary (\$ '000s)



4. REALISATIONS/PORTFOLIO SUMMARY

	Disposal Date	Fund's holding sold	Cost	Proceeds/Valuation	Realised and Unrealised Gain/Loss	Multiple to cost	Gross IRR	Exit Route
Since inception to 30 September 2021		(%)	(\$'000)	(\$'000)	(\$'000)	(X)	(%)	
Subtotal Realisations			-	-	-			
Current Portfolio Summary								
Current Portfolio			28,720	28,720	-	N/A	N/A	
Grand Total Realised and Current Portfolio			28,720	28,720	-	N/A	N/A	

5. CASH FLOW AND IRR CALCULATIONS

Date of Cash Flow	Contributions	Mgmt Fee	Other Expenses	Unrealised Gain / Loss	Realisations	Distributions	Estimated NAV at FV	Estimated NET IRR	Total Value/Funded
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	%	(x)
Opening Balance	26,479	(4,728)	(1,051)	-	-	-	20,700	N/A	0.78
07/2021	5,533	-	(63)	-	-	-			
08/2021	3,000	-	35	-	-	-			
09/2021	-	588	(61)	-	-	-			
Ending Balance	35,012	(5,316)	(1,211)	-	-	-	28,485	N/A	0.81

6. CURRENT PORTFOLIO SUMMARY

\$'000	Date of initial investment	Geography	Sector	Stage	% Equity Holding	Cost as of 30/09/2021	FV as of 30/09/2021	FV as of 30/06/2021	(x)FV/Cost as of 30/09/2021	% Gross IRR
UNQUOTED										
Locki Therapeutics Limited	25/10/2019	UK	Targeted Therapy	Seed Round	41.00%	2,608	2,608	2,608	N/A	N/A
Redpin Therapeutics Inc	27/02/2020	USA	Gene Therapy	Series A investment	12.64%	7,887	7,887	5,000	N/A	N/A
Hornet Therapeutics Limited	08/09/2020	UK	Cell-Therapy	Seed Round	59.41%	3,297	3,297	3,297	N/A	N/A
SparingVision	18/09/2020	France	Gene Therapy	Round A	5.73%	2,954	2,954	2,953	N/A	N/A
Araris Biotech AG	21/10/2020	Switzerland	Targeted Therapy	Seed Round	14.00%	3,844	3,844	3,844	N/A	N/A
CARISMA Therapeutics Inc.	19/02/2021	USA	Gene Therapy	Series B	1.49%	3,000	3,000	3,000	N/A	N/A
Code Biotherapeutics, Inc.	02/03/2021	USA	Cell-Therapy	Seed Round	9.68%	2,130	2,130	2,130	N/A	N/A
Ray Therapeutics, Inc.	16/08/2021	USA	Gene Therapy	Seed Round	20.59%	3,000	3,000	0	N/A	N/A
TOTAL						28,720	28,720	22,832	N/A	N/A

7. CURRENT PORTFOLIO - EXISTING INVESTMENTS IN QUARTER

7.1 Locki Therapeutics

Legal and trading name (including any changes)	Locki Therapeutics
Description of the Business	New therapeutic modality in the protein degradation space
Pillar	Targeted Therapies
Location of Head Office or Management	London, UK
Development Stage	Discovery
Fund's role in the initial investment	Lead Investor (Seed Round)
Percentage Ownership and Board Representation	41% (FD), Board Member and Executive Chairman
Company fair value as of the end of the quarter	£ 4,878,048
Type of Holding	Preference Shares
Significant Events	Series A financing underway with heads of terms signed in the quarter for a \$75m Series A financing

Date	Investment cost (£ '000s)	Fair value (£ '000s)	Valuation at time of investment (post-money) (£ '000s)	Outstanding Commitments and Contingent Liabilities	Fund Hold, % (fully diluted)	Gross IRR
17/11/2019	500	500	1,219		10.25%	
30/10/2020	1,500	1,500	4,878		30.75%	
Total	2,000	2,000			41.00%	

Realised	Date	Book Value (£ '000s)	Realised value (£ '000s)	Type of Realisation	Liquidity Restrictions	Fund Hold%	Gross IRR
n.a							

Trading Record (£ '000s, cumulative, rounded)	F.Y. to Dec 2020	3 months 2021 (A)	6 months 2021 (A)	9 months 2021 (A)	12 months 2021 (F)	Dec 2021 budget (F)
Cash balance	3,309	2,712	2,361	2,284	n/a	48,268
Cash burn	(807)	(597)	(351)	(292)	n/a	(5,848)
Net income (loss)	n/a	n/a	n/a	215*	n/a	n/a
Sales/ licensing	0	0	0	0	0	0

Company Description

Locki aims to develop Therapeutics in which a target protein with a central role in disease prevention could be protected from degradation.

Locki's new platform technology goal is to develop molecules dubbed SURTAC's (SURvival TARgeting Chimeras). The concept aims to bring a specific deubiquitinase enzyme and a target protein together by an artificially designed small molecule. This SURTAC will remove markers on the protein, which signals its destruction by the cell's degradation machinery. Removing these markers, a polyubiquitin chain, could protect proteins from degradation.

Investment Thesis

This seed investment goal is twofold; identify the building blocks for SURTAC's and confirm their ability to deubiquitinate proteins of interest. If successful, there may be an opportunity to follow a similar corporate model to companies like Arvinas and C4 Therapeutics, which develop conceptually similar molecules designed to destroy a protein of interest called PROTAC's. These companies have combined licensing and collaboration with third parties to accelerate their technology development in larger diseases whilst developing in-house programmes in smaller indications. Given the substantial market interest in PROTAC's, Locki differentiated orthogonal platform may facilitate an early trade sale of the company to a strategic buyer.

News and milestones achieved in the quarter

Switch of focus to financing discussions and aiming to raise a Series A of c£50m before the end of the year. The company engaged with a select number of UK and US investors and continues to broaden the dataset in CF working with CFF in the USA and additional collaborators. The figures below represent Locki's balance sheet at the end of the quarter (September 30 2021).

Post reporting material events

After the quarter ended, in early November, the company has closed a \$75million financings based on a business plan written to take one programme into the clinic and another to in vivo proof of concept. The company now has >\$30m on account following the first close of Series A. There has been a valuation uplift on our Seed investment and a change in our shareholding, which will be incorporated into the Q4 update.

Roadmap & Milestones (by Quarter)

Roadmap & Milestones (by Quarter)		
Last quarter milestones		
Clear phenotypic effects and composition of matter IP in 2 key diseases	Q3 2021	✓
Full package for Series A	Q3 2021	✓
Future milestones		
Closer Series A financing	Q4 2022	✓
Hire CEO, and establish presence	Q1 2022	
IP strategy finalised	Q1 2022	
Cash runway	Q1 2022	

Current ownership

Current ownership	
Founders	8.5%
4BIO Fund	41%
Other Investors	41%
ESOP / EMI	9.5%

7.2 RedPin Therapeutics

Legal and trading name (including any changes)	Redpin Therapeutics Inc.
Description of the Business	Chemogenetic platform to treat diseases of neuronal dysfunction
Pillar	Gene Therapy
Location of Head Office or Management	New York, USA
Development Stage	Pre-clinical
Fund's role in the initial investment	Series A investor
Percentage Ownership and Board Representation	12.64% (FD), two Board Directors
Company fair value as of the end of the quarter	\$39,551,420
Type of Holding	A Preference Shares
Significant Events	Convertible loan of \$6 million received

Date	Investment cost (\$ '000s)	Fair value (\$ '000s)	Valuation at time of investment (post-money) (\$ '000s)	Outstanding Commitments and Contingent Liabilities	Fund Hold, % (fully diluted)	Gross IRR
27/02/2020	2,500	2,500	30,400		8.22%	
28/01/2021	2,500	2,500	39,551		6.32%	
30/07/2021	1,444	1,444	Convertible loan		n/a	
27/09/2021	1,444	1,444	Convertible loan		n/a	
Total	7,888	7,888			12.64%*	

*without potential adjustment for conversion of the loan

Realised	Date	Book Value (\$ '000s)	Realised value (\$ '000s)	Type of Realisation	Liquidity Restrictions	Fund Hold%	Gross IRR
n.a							

Trading Record (\$ '000s, cumulative, rounded)	FY to Dec 2020 (A)	3 months 2021 (A)	6 months 2021 (A)*	9 months 2021 (A)	12 months 2021 (F)	Dec 2021 budget (F)
Cash balance	3,239	8,357	8,804	6,887	(4,953)	(4,953)
Cash burn	5,386	2,562	5,222	10,120	15,943	15,943
Net income (loss)	5,381		(6,144)	(13,334)		
Sales/ licensing	-	-	-	-	-	-

Company Description

Redpin Therapeutics is a pioneering chemogenetics company working to commercialise the research from the laboratories of Prof. Scott Sternson (Howard Hughes Medical Institute) and Prof. Jeffrey Friedman (Rockefeller University). The company utilises PSAM/PSEM platform: the proprietary approach which combines a mutated receptor and its on/off switch. In particular, a chimeric ligand-gated ion channel receptor (comprising an extracellular domain of the $\alpha 7$ nicotinic acetylcholine) was mutated to respond to the FDA-approved drug varenicline instead of its natural ligands. The combination of the engineered chimeric channel with varenicline allows the first system where the level of activity of gene therapy can be controlled after the injection. AAV-delivered therapy will be used to trigeminal neuralgia (TGN) as a lead indication. At the same time, the company is developing several earlier pre-clinical applications, including epilepsy, Parkinson's disease, and obesity.

Investment Thesis

The company is in the pre-clinical stage, and it is currently working on completing the IND-enabling studies in the lead indication, TGN. At the same time, the company is developing several earlier pre-clinical applications, including epilepsy, Parkinson's disease, and obesity. First indications, TGN and epilepsy, are big population-wise and also have a big unmet need for a disease-modifying therapy. Moreover, the ability to fine-tune the activity of the gene therapy makes it safer for the patients and even more craved by the market. Redpin Tx has IP rights for the chemogenetic treatment of these broad indications and deep expertise in the field, which makes it a valuable asset for acquisition by the big pharma or for a high price on the public market.

News and milestones achieved in the quarter

- Redpin has completed clinical CMC in the reporting period
- LSR in-vivo proof-of-concept (POC) achieved
- Bridge financing of \$6 million was signed and received.
- CEO search is still ongoing

Roadmap & Milestones (by Quarter)

Roadmap & Milestones (by Quarter)		
Last quarter milestones		
Bridge Financing	Q2 2021	✓
Future milestones		
Round B financing, min USD 40M	Q4 2021	
Epilepsy program pre-IND meeting	Q1 2022	
TGN program IND	Q2 2022	
Cash runway	Q1 2022	

Current ownership

Founders	26.21%
4BIO Fund	12.64%
Other Investors	47.81%
ESOP / EMI	13.34%

7.3 Hornet Therapeutics

Legal and trading name (including any changes)	Hornet Therapeutics Ltd
Description of the Business	University spinout addressing major limitations of existing commercial assets
Pillar	Cell Therapy
Location of Head Office or Management	The UK.
Development Stage	Pre-clinical
Fund's role in the initial investment	Lead Investor (Seed)
Percentage Ownership and Board Representation	60%, Executive Chairman and Board Director
Company fair value as the end of the quarter	CHF 5,050,000
Type of Holding	Preference Shares
Significant Events	Proof of concept achieved on the HTX-ME3 program, license discussions initiated with the University of Basel. Achieved first-in-category in vivo proof of concept in EBV.

Date	Investment cost (CHF '000s)	Fair value (CHF '000s)	Valuation at time of investment (post-money) (CHF '000s)	Outstanding Commitments and Contingent Liabilities	Fund Hold, % (fully diluted)	Gross IRR
08/02/2020	1,500	1,500	3,335		30%	
22/12/2020	1,500	1,500	5,050		30%	
Total	3,000	3,000			60%	

Realised	Date	Book Value (CHF '000s)	Realised value (CHF '000s)	Type of Realisation	Liquidity Restrictions	Fund Hold%	Gross IRR
n.a							

Trading Record (€'000s, cumulative, rounded)	FY to Dec 2020 (A)	3 months 2021 (A)	6 months 2021 (A)	9 months 2021 (A)	12 months 2021 (F)	Dec 2021 budget (F)
Cash balance	280	258	239	214	n/a	438
Cash burn	(2,163)	(2,185)	(2,204)	(2,229)	n/a	(2,452)
Net income (loss)	n/a	n/a	n/a	n/a	n/a	n/a
Sales/ licensing	-	-	-	-	-	-

Company Description

Hornet Therapeutics is a pre-clinical cell therapy company co-founded by 4BIO Capital and Professor Christoph Hess. Prof. Hess is affiliated with the University of Basel (Switzerland) and the University of Cambridge (United Kingdom). The company will be a virtual project vehicle based in London for the first 12-18 months of development.

Hornet commercialises the research of Prof Hess' lab in the impact of T-cell metabolism and its rate-limiting factors on T-cell proliferation, cytotoxicity, and exhaustion. The company will pursue three distinct approaches to the genetic engineering of T-cells to make them more potent and long-acting.

Investment Thesis

Even though the company is currently in the pre-clinical stage and is not expected to enter the clinic within the next 18 months, the research they are conducting has the potential to have a big impact on the whole CAR-T therapies industry. Lack of CAR-T cells proliferation, issues with cytotoxicity, and CAR-T cells exhaustion are shown *in vivo* for the CAR-T therapies on the market and in late clinical trials. If Hornet's technology succeeds to overcome at least some of these problems, it can become a valuable target for out-licensing or even acquisition by one of the CAR-T companies.

News and milestones achieved in the quarter

- Achieved *in vivo* proof of concept for the use of IDO-1 inhibitors in EBV-related malignancies and Post-Transplant Lymphoproliferative Disorder. This represents the first ever practical cure of EBV-related disease in an animal model
- Achieved *in vivo* proof of concept for HTX-ME3, the leading persistence enhancer
- Completed the assessment of externally available metabolic enhancements and initiated partnering discussions with the University of Texas
- Advanced pharma partnership discussions
- Experienced delays on the HTX-ME1 and HTX-ME4 programs due to vector manufacturing issues, mitigated through changing suppliers, ongoing vector optimisation

Roadmap & Milestones (by Quarter)

Roadmap & Milestones (by Quarter)		
Last quarter milestones		
Pseudo Iron deficiency studies: CAR-T + IRP1/2 <i>in vivo</i> validation	Q2 2021	X
Metabolic vulnerability of EBV infection <i>in vivo</i>	Q2 2021	✓
Future milestones		
<i>In vivo</i> validation for at least one ME program	Q1 2022	
EBV partnership transaction	Q1 2022	
Series A fundraising	Q2 2022	
Cash runway	Q1 2022	

Current ownership

Current ownership	
Founders	30%
4BIO Fund	60%
Other Investors	-
ESOP / EMI	10%

7.4 SparingVision

Legal and trading name (including any changes)	Sparing Vision SA.
Description of the Business	Ophthalmology company developing a mutation agnostic gene therapy for inherited retinal disease
Pillar	Gene Therapy
Location of Head Office or Management	France
Development Stage	Pre-clinical
Fund's role in the initial investment	Series A2 Investor (co-lead)
Percentage Ownership and Board Representation	5.73%, Board Director and Board Observer
Company fair value of the end of the quarter	€ 43,628,000
Type of Holding	Preferred Shares
Significant Events	SPVN06 pre-clinical data in new mice studies support clinical development with a second NHP study secured and scheduled. A business development agreement with Intellia was well underway, with heads of terms signed in the quarter.

Date	Investment cost (€ '000s)	Fair value (€ '000s)	Valuation at time of investment (post-money) (€ '000s)	Outstanding Commitments and Contingent Liabilities (€ '000s)	Fund Hold, % (fully diluted)	Gross IRR
17/09/2020	2,500	2,500	43,628	2,500	5.73%	
Total	2,500	2,500		2,500	5.73%	

Realised	Date	Book Value (€ '000s)	Realised value (€ '000s)	Type of Realisation	Liquidity Restrictions	Fund Hold%	Gross IRR
n/a							

Trading Record (€ '000s, cumulative, rounded)	F.Y. to Dec 2020	3 months 2021 (A)	6 months 2021 (A)	9 months 2021 (A)	12 months 2021 (F)	Dec 2021 budget (F)
Cash balance	22,269	20,114	15,584	13,102	n/a	23,614
Cash burn	(9,000)	(2,155)	(4,530)	(2,482)	n/a	(19,000)
Net income (loss)						22,500*
Sales/ licensing						

*Denotes drawdown of EUR 22,500,000 from existing investors, including EUR 2,500,000 from 4BIO Capital, if the company is successfully able to call milestone payment.

Company Description

SparingVision is a biotechnology company focused on the discovery and development of gene therapy products for the treatment of hereditary retinal degenerative diseases. The company is a spinout from the Institute de la Vision, Paris, France. SparingVision is currently headquartered in France and has a growing presence in the United States.

The company's lead asset is SPVN06, a therapeutic approach that prevents the progression of the degeneration of cones for the treatment of retinitis pigmentosa (RP) patients, a disease with few treatment options and caused by mutations in more than 70 distinct genes. 4BIO co-led the EUR44.5 million Series A2 investment into this European gene therapy company with EUR5 million committed to the company, of which half has been invested in Q3 2020. The total financing is sufficient to take the company from a pre-clinical company to the end of Phase II and potentially initial proof of concept data.

Investment Thesis

The Series A financing is sufficient to take the company from a pre-clinical stage to the end of Phase II and potentially initial proof of concept data. A Genotype agnostic approach to RP would allow coverage of the disease with disease-modifying therapy. In comparison, the approved gene therapy Luxturna addresses <2% RP patients. Hence, Sparing Vision may hold an extremely valuable asset with great commercialisation potential.

News and milestones achieved

The company continued with the non-clinical development of SPVN06 and discovered the need for additional dose optimisation work that will push IND filing time to 2022. On a parallel track, the company continued business development activities and expanded the pipeline with a gene-editing or capsid company.

Post reporting material events

In October 2021, the company completed and closed a gene-editing collaboration with one of the worlds leading gene-editing companies, Intellia Therapeutics Inc. (NASDAQ: NTLA). As part of the financing, the second tranche of our investment has been made. The company now has >\$30m on account following the close of the Intellia transaction. There has been a valuation uplift on our Series A investment and a change in our shareholding, which will be incorporated into the Q4 update.

Roadmap & Milestones (by Quarter)

Future milestones		
Clinical go/no go for SPVN06	Q1 2023	
Close crossover financing	Q2 2022	
Phase 1/2 IND Submission	Q3 2022	
Cash runway of full investment	Q4 2023	

Current ownership

Founders	7.72%
4BIO Fund	5.73%
Other Investors	74.53%
ESOP / EMI	12%

7.5 Araris

Legal and trading name (including any changes)	Araris Biotech AG
Description of the Business	Company developing a high-performance molecular glue enabling next-generation ADCs.
Pillar	Targeted Therapy
Location of Head Office or Management	Switzerland
Development Stage	Pre-clinical
Fund's role in the initial investment	Lead Investor (Seed)
Percentage Ownership and Board Representation	14%, Board Director and Board Observer
Fair value as of end the of the quarter	CHF 25,001,534
Type of Holding	Preferred Shares
Significant Events	De-risking of the lead asset <i>in vivo</i> in rats

Date	Investment cost (CHF '000s)	Fair value (CHF '000s)	Valuation at time of investment (post-money) (CHF '000s)	Outstanding Commitments and Contingent Liabilities	Fund Hold, % (fully diluted)	Gross IRR
20/10/2020	3,500	3,500	25,001.53		14%	
Total	3,500	3,500			14%	

Realised	Date	Book Value (CHF '000s)	Realised value (CHF '000s)	Type of Realisation	Liquidity Restrictions	Fund Hold%	Gross IRR
n.a							

Trading Record (CHF '000s, cumulative, rounded)	F.Y. to Dec 2020	3 months 2021 (A)	6 months 2021 (A)	9 months 2021 (F)	12 months 2021 (F)	Dec 2021 budget (F)
Cash balance	13,234	12,356	11,640	n/a	n/a	4,530
Cash burn	[1,628]	[1,921]	[716]	n/a	n/a	[7,826]
Net income (loss)						
Sales/ licensing						

Company Description

Araris Biotech AG is a spin-off company from the Paul Scherrer Institute (PSI) and ETH Zurich pioneering a novel ADC-linker technology. Their linker platform enables the attachment of any payload to 'off the shelf' antibodies without the need for prior antibody engineering. Formed in 2019 through a convertible CHF2.5m loan note from Swiss investors Redalpine Venture Partners AG, Schroder Adveq and VI Partners AG.

Araris technology focuses on three key areas: (1) No need for engineering or antibody reduction as the parent antibody can be used 'off the shelf'; (2) Their linkers have greater solubility enabling any payload to be conjugated to any antibody without the need for major optimisation; (3) Their ADCs show greater stability in serum and stressful conditions which may lead to lower dosing and lower risk for side effects.

Investment Thesis

Financing will be used to nominate development candidates and carry out NHP toxicology (2021) to enable a future IND (2022). NHP toxicology is a key inflection point and can be achieved with CHF 8M.

Araris's proprietary linker technology allows for the production of cheaper, safer, and more efficient ADCs. This makes it a valuable asset for in-licensing for ADC producing companies as well as a great product for in-house commercialisation, piggy-backing on known antibodies to treat devastating diseases which weren't working due to their wrong biochemistry.

News and milestones achieved in the quarter

- Lead candidate aCD79-aralinker-ADC validated in rats
- Chief Development Officer started
- Series A preparations complete, kicked off in mid-October

Roadmap & Milestones (by Quarter)

Last quarter milestones		
aCD79-ADC program validated in rat	Q2 2021	✓
Future milestones		
Series A fundraising	Q4 2021	
aNectin-4-ADC candidate nomination	Q1 2022	
aCD79-ADC program IND filling	Q4 2022	
Cash runway	Q3 2022	

Current ownership

Founders	26%
4BIO Fund	14%
Other Investors	48%
ESOP / EMI	12%

7.6 Carisma Therapeutics

Legal and trading name (including any changes)	Carisma Therapeutics
Description of the Business	Cell therapy platform focused on engineered macrophages
Pillar	Cell Therapy
Location of Head Office or Management	Philadelphia, USA
Development Stage	Clinical
Fund's role in the initial investment	Series B Participant
Percentage Ownership and Board Representation	1.49% (FD), Information Rights
Company fair value as of the end of the quarter	\$201,444,688
Type of Holding	Preference Shares
Significant Events	The company started clinical trials with lead asset

Date	Investment cost (\$ '000s)	Fair value (\$ '000s)	Valuation at time of investment (post-money, F.D.) (\$ '000s)	Outstanding Commitments and Contingent Liabilities	Fund Hold, % (fully diluted)	Gross IRR
19/02/2021	3,000	3,000	201,445		1.49%	
Total	3,000	3,000	201,445		1.49%	

Realised	Date	Book Value (£ '000s)	Realised value (£ '000s)	Type of Realisation	Liquidity Restrictions	Fund Hold%	Gross IRR
n.a							

Trading Record (£ '000s, cumulative, rounded)	F.Y. to Dec 2020	3 months 2021 (A)	6 months 2021 (A)	9 months 2021(A)	12 months 2021 (F)	Dec 2021 budget (F)
Cash balance	47,000	43,500	40,000	35,000	n/a	8,000
Cash burn	(36,000)	(16,500)	(3,500)	(5,000)	n/a	(50,523)
Net income (loss)*	76,000	12,000	0	0		12,000
Sales/ licensing	0	0	0	0	0	0

*Denotes the first close of the Series B financing of \$47,000,000 and the second close of \$12,000,000.

Company Description

Carisma Therapeutics' is a pre-clinical cell therapy company pioneering the development of CAR-Macrophages (CAR-M). The technology was established at the University of Pennsylvania by Michael Klichinsky, who developed CAR -M technology during his doctoral thesis under the co-mentorship of Saar Gill and Carl June at the University of Pennsylvania. Carisma raised its first Venture financing in 2017 and went on to raise a \$53 million Series A in 2018.

Series A was led by AbbVie Ventures and HealthCap and included existing 2017 seed investors IP Group Inc, Penn Medicine and Grazia Equity along with new investors to the round Wellington Partners, TPG Biotech, MRL Ventures Fund and Agent Capital.

4BIO invested as part of a \$59 million Series B financing alongside Symbiosis II, LLC, with additional investment from Solasta Ventures, Livzon Pharmaceutical Group Co Ltd, AbbVie Ventures, HealthCap LLC, Wellington Partners, IP Group Inc, TPG Biotech, Agent Capital LLC and MRL Ventures Fund LLC.

Investment Thesis

The funding will be used to advance current pipeline and discovery programs, including the Phase I clinical trial of CARISMA's lead candidate, CT-0508, to further develop their proprietary engineered-macrophage platform, continue pipeline expansion in cancer indications and enable the platform's application to disease areas outside of cancer.

The company is financed into 2022, and this is likely the penultimate or last private round.

News and milestones achieved in the quarter

Company dosed first two patients in clinical study, started to open additional trial sites and formalised financing strategy if clinical findings warrant continued support. The company is aiming to complete a crossover financing in H1 2022 ahead of a H2 2022 IPO and is also working on a number of business development opportunities.

The slip on timelines is due to a slower than expected enrolment of patients, and we are satisfied the company has taken reasonable steps to address this.

Roadmap & Milestones (by Quarter)

Roadmap & Milestones (by Quarter)		
Last quarter milestones		
Begin Series C financing outreach	Q3 2021	✓
Future milestones		
Safety data from Phase 1 clinical study	Q4 2021	
Close Series C financing	Q4 2021	
Deal providing ≥\$20 MM in non-dilutive capital	Q4 2021	
Cash runway	Q2 2022	

Current ownership

Current ownership	
Founders	12.3%
4BIO Fund	1.5%
Other Investors	80.4%
ESOP / EMI	5.8%

7.7 Code Biotherapeutics

Legal and trading name (including any changes)	Code Biotherapeutics
Description of the Business	Next-generation non-viral gene therapy
Pillar	Gene Therapy
Location of Head Office or Management	Philadelphia, USA
Development Stage	Discovery
Fund's role in the initial investment	Lead Investor (Seed Round)
Percentage Ownership and Board Representation	10.64%, Director, Board Observer, CEO and Executive Chairman
Company fair value as of the end of the quarter	\$22,000,008,16
Type of Holding	Preference Shares
Significant Events	Attracted CBO and CDO, team buildout continuing

Date	Investment cost (\$'000s)	Fair value (\$'000s)	Valuation at time of investment (post-money) (\$'000s)	Outstanding Commitments and Contingent Liabilities	Fund Hold, % (fully diluted)	Gross IRR
02/03/2019	2,000.000	2,000	16,444		9.992%	
15/04/2021	0.130	0.130	22,000		0.649%	
Total	2,130	2,130			10.641%	

Realised	Date	Book Value (£ '000s)	Realised value (£ '000s)	Type of Realisation	Liquidity Restrictions	Fund Hold%	Gross IRR
n/a							

Trading Record (\$ '000s, cumulative, rounded)	F.Y. to Dec 2020	3 months 2021 (A)	6 months 2021(A)	9 months 2021 (A)	12 months 2021 (F)	Dec 2021 budget (F)
Cash balance	n/a	n/a	n/a	n/a	n/a	1,279
Cash burn	n/a	(1,573)	(2,300)	(2,917)	(8,721)	(8,721)
Net income (loss)		10,000				10,000
Sales/ licensing	0	0	0	0	0	0

Company Description

Code Biotherapeutics, Inc., a next-generation gene therapy company pioneering the development of targeted non-viral gene therapies for rare and prevalent genetic diseases, launched in March 2021 with a \$10 million financing, headquartered in 4BIO Capital and UPMC Enterprises co-led the Seed financing with participation from CureDuchenne Ventures, JDRF T1D Fund, New Enterprise Associates, and Takeda Ventures, Inc.

Investment Thesis

Code Bio is developing a 3DNA delivery platform that can be utilised to perform viral-free delivery of the therapeutic cargo, including (si)RNA, antibodies, gene therapy (GT) vectors, and small molecules.

This is an early-stage formation company that will be led by 4BIO venture partner Brian McVeigh, who is spinning out the 3DNA scaffold technology from Genisphere (IP estate protection through 2036). They previously were developing two product candidates to treat Niemann-Pick disease type C1 (NPC), but these programmes are not commercially attractive and will not be carried forward as part of Code Bio.

This investment will focus the company technology on gene delivery and selective expression using a targeting moiety on the surface of the 3DNA scaffold as well as a cell-specific promoter in the case of the GT vector. As a result of the development carried out by Genisphere, Code Bio have substantial *in vivo* proof of concept (PoC) experiments using the technology.

News and Milestones Achieved in Quarter

- Significant inbound interest from big pharma, two partnership transactions in negotiation
- Attracted a Chief Business Officer, additional team buildout ongoing
- Initial targeting data positive, additional readout due by the end of November

Roadmap & Milestones (by Quarter)

Roadmap & Milestones (by Quarter)		
Last quarter milestones		
In vivo targeting data – initial	Q3 2021	✓
Future milestones		
In vivo targeting data – full	Q4 2021	
BD deal with Takeda	Q4 2021	
Series A fundraising	Q1 2022	
Cash runway	Q1 2022	

Current ownership

Founders	32.878%
4BIO Fund	10.641%
Other Investors	48.607%
ESOP / EMI	7.87%

8. NEW INVESTMENTS IN QUARTER

8.1. Ray Therapeutics

Legal and trading name (including any changes)	Ray Therapeutics Inc
Description of the Business	Next generation of optogenetic Therapeutics
Pillar	Gene therapy
Location of Head Office or Management	USA
Development Stage	Pre-clinical
Fund's role in the initial investment	Lead investor
Percentage Ownership and Board Representation	20.59% on an FD basis, Director Dmitry Kuzmin
Company fair value as of the end of the quarter	\$14.912 million
Type of Holding	Preference shares
Significant Events	n/a

Date	Investment cost (\$'000s)	Fair value (\$'000s)	Valuation at time of investment (post-money) (\$'000s)	Outstanding Commitments and Contingent Liabilities	Fund Hold, % (fully diluted)	Gross IRR
10/08/2021	3,000	3,000	14,912		20.59%	
Total	2,000	3,00			20.59%	

Realised	Date	Book Value (£ '000s)	Realised value (£ '000s)	Type of Realisation	Liquidity Restrictions	Fund Hold%	Gross IRR
n/a							

Trading Record (\$ '000s, cumulative, rounded)	F.Y. to Dec 2020	3 months 2021 (A)	6 months 2021(A)	9 months 2021 (A)	12 months 2021 (F)	Dec 2021 budget (F)
Cash balance				5,651		3,111
Cash burn				(350)		(2,890)
Net income (loss)				(480)		n/a
Sales/ licensing				0		0

Company Description
<p>Ray Therapeutics is a gene therapy (GT) company utilising an optogenetic approach to restore vision in a range of diseases leading to blindness. Optogenetic GT is agnostic to the cause of the photoreceptor degeneration as long as the inner retina and connections to visual cortex remain intact. A major drawback for ChR-based visual restoration is low light sensitivity. Ray Therapeutics has developed highly operational light-sensitive ChRs by optimising the kinetics of a recently reported ChR variant, Chloromonas oogama (CoChR).</p>
Investment Thesis
<p>The company will initially focus on Retinitis Pigmentosa (RP), before moving to more widespread diseases like Age-related Macular Degeneration (AMD) Geographic Atrophy (GA), and others.</p> <p>Optogenetics offers an option for patients who have no vision, and therefore would not be able to benefit from AAV gene replacement therapies such as the approved therapy Luxturna, or approaches being developed by companies like SparingVision.</p> <p>The company was seeded in early 2021 and has received \$6 million investment from 4BIO and Angel Investors. It is built on the basis of the data published in 2019 by the Zhuo-Hua Pan lab on channelrhodopsin mutants which, delivered to the retina of blind mice, can provide light sensitivity.</p> <p>Crucially for 4BIO, both Dr Pan and the Ray team have worked alongside us in an earlier investment, Retrosense Therapeutics, which was another optogenetics company acquired after phase I/II clinical data from their lead asset RST-001, by Allergan (now Abbvie) for >\$500M. Ray's Chairman, Sean Ainsworth, co-founded and led the company as CEO.</p>
News and Milestones Achieved in Quarter
<ul style="list-style-type: none"> The investment closed, the company fully launched and is operational

Roadmap & Milestones (by Quarter)			Current ownership	
Last quarter milestones			Founders	54.92%
n.a			4BIO Fund	20.59%
Future milestones			Other Investors	20.59%
CIRM grant submission	Q4 2021		ESOP / EMI	3.90%
Mouse pharmacology data	Q1 2022			
Pre-IND meeting	Q3 2022			
NHP toxicology data	Q3 2023			
Phase I/II initiation	Q4 2023			
Cash runway	Q2 2024			

9. CAPITAL ACCOUNT

4Bio Ventures II LP

Capital Account Schedule

As of September 30 2021, expressed in \$

\$			Inception through			Prior Period Bfwd	Period ended 30 September 2021					As at	
			30 September 2021									30 September 2021	
Investor reference	Commitment	% Ownership	Cumulative contributions	Undrawn commitment	Cumulative distributions	Capital Account at Cost Bfwd	Capital Contribution	Capital Distribution	Realized gains/(losses)	Profit and Loss Account	Capital Account at Cost	Unrealised gains/(losses) on investments	Capital Account at fair value
Investor 1	500,000	0.43%	150,372	349,628	-	191,906	(69,077)	-	-	7,787	130,616	-	130,616
Investor 2	19,000,000	16.27%	5,714,120	13,285,880	-	7,292,436	(2,624,936)	-	-	295,911	4,963,411	-	4,963,411
Investor 3	4,000,000	3.43%	1,202,973	2,797,027	-	1,535,251	(552,618)	-	-	62,297	1,044,930	-	1,044,930
Investor 4	250,000	0.21%	75,186	174,814	-	94,032	(34,539)	-	-	3,894	63,387	-	63,387
Investor 5	4,000,000	3.43%	1,202,973	2,797,027	-	1,126,185	(113,720)	-	-	15,941	1,028,406	-	1,028,406
Investor 6	800,000	0.69%	240,595	559,405	-	184,330	21,146	-	-	(1,478)	203,998	-	203,998
Investor 9	10,000,000	8.56%	3,007,431	6,992,569	-	3,838,124	(1,381,545)	-	-	155,743	2,612,322	-	2,612,322
Investor 10	2,000,000	1.71%	601,486	1,398,514	-	767,625	(276,309)	-	-	31,148	522,464	-	522,464
Investor 11	5,000,000	4.28%	1,503,716	3,496,284	-	1,919,062	(690,772)	-	-	77,871	1,306,161	-	1,306,161
Investor 12	1,000,000	0.86%	300,743	699,257	-	383,812	(138,154)	-	-	15,574	261,232	-	261,232
Investor 13	7,789,214	6.67%	2,342,553	5,446,661	-	1,848,628	148,063	-	-	(7,987)	1,988,704	-	1,988,704
Investor 14	10,000	0.01%	3,007	6,993	-	3,838	(1,382)	-	-	156	2,612	-	2,612
Investor 15	2,000,000	1.71%	601,486	1,398,514	-	767,625	(276,309)	-	-	31,148	522,464	-	522,464
Investor 16	1,000,000	0.86%	300,743	699,257	-	383,812	(138,154)	-	-	15,574	261,232	-	261,232
Investor 17	1,150,000	0.98%	345,855	804,145	-	441,384	(158,878)	-	-	17,910	300,416	-	300,416
Investor 18	1,000,000	0.86%	300,743	699,257	-	383,812	(138,154)	-	-	15,509	261,167	-	261,167
Investor 19	600,000	0.51%	180,446	419,554	-	207,227	(82,893)	-	-	9,319	133,653	-	133,653
Investor 20	1,000,000	0.86%	300,743	699,257	-	345,379	(138,154)	-	-	15,574	222,799	-	222,799
Investor 21	500,000	0.43%	150,372	349,628	-	172,689	(69,077)	-	-	7,787	111,399	-	111,399
Investor 22	2,000,000	1.71%	601,486	1,398,514	-	767,624	(276,309)	-	-	35,673	526,988	-	526,988
Investor 23	300,000	0.26%	90,223	209,777	-	115,143	(41,446)	-	-	4,672	78,369	-	78,369
Investor 24	350,000	0.30%	105,260	244,740	-	(15,770)	105,260	-	-	(10,774)	78,716	-	78,716
Investor 25	750,000	0.64%	225,557	524,443	-	(33,793)	225,557	-	-	(23,087)	168,678	-	168,678
Investor 26	270,000	0.23%	81,201	188,799	-	(12,166)	81,201	-	-	(8,311)	60,724	-	60,724
Investor 27	250,000	0.21%	75,186	174,814	-	(11,264)	75,186	-	-	(7,696)	56,227	-	56,227
Investor 28	250,000	0.21%	75,186	174,814	-	(11,264)	75,186	-	-	(7,716)	56,207	-	56,207

\$			Inception through			Prior Period Bfwd	Period ended 30 September 2021					As at	
			30 September 2021									30 September 2021	
Investor reference	Commitment	% Ownership	Cumulative contributions	Undrawn commitment	Cumulative distributions	Capital Account at Cost Bfwd	Capital Contribution	Capital Distribution	Realized gains/(losses)	Profit and Loss Account	Capital Account at Cost	Unrealised gains/(losses) on investments	Capital Account at fair value
Investor 29	380,000	0.33%	114,282	265,718	-	(17,122)	114,282	-	-	(11,717)	85,443	-	85,443
Investor 30	300,000	0.26%	90,223	209,777	-	(13,517)	90,223	-	-	(9,235)	67,471	-	67,471
Investor 31	895,000	0.77%	269,165	625,835	-	(40,327)	269,165	-	-	(27,570)	201,268	-	201,268
Investor 32	200,000	0.17%	60,149	139,851	-	(9,012)	60,149	-	-	(6,156)	44,981	-	44,981
Investor 33	500,000	0.43%	150,372	349,628	-	(22,529)	150,372	-	-	(15,411)	112,432	-	112,432
Investor 34	500,000	0.43%	150,372	349,628	-	(22,529)	150,372	-	-	(15,391)	112,452	-	112,452
Investor 35	3,000,000	2.57%	902,229	2,097,771	-	(135,174)	902,229	-	-	(92,346)	674,709	-	674,709
Investor 36	250,000	0.21%	75,186	174,814	-	(11,264)	75,186	-	-	(7,742)	56,180	-	56,180
Investor 37	250,000	0.21%	75,186	174,814	-	(11,264)	75,186	-	-	(7,696)	56,227	-	56,227
Investor 38	2,000,000	1.71%	601,486	1,398,514	-	(90,116)	601,486	-	-	(61,564)	449,806	-	449,806
Investor 39	1,000,000	0.86%	300,743	699,257	-	(45,058)	300,743	-	-	(30,782)	224,903	-	224,903
Investor 40	500,000	0.43%	150,372	349,628	-	(22,529)	150,372	-	-	(15,391)	112,452	-	112,452
Investor 41	500,000	0.43%	150,372	349,628	-	(22,529)	150,372	-	-	(15,391)	112,452	-	112,452
Investor 42	1,000,000	0.86%	300,743	699,257	-	(45,058)	300,743	-	-	(30,782)	224,903	-	224,903
Investor 43	350,000	0.30%	105,260	244,740	-	(15,770)	105,260	-	-	(10,834)	78,656	-	78,656
Investor 44	2,000,000	1.71%	601,486	1,398,514	-	(90,116)	601,486	-	-	(61,564)	449,806	-	449,806
Investor 45	2,500,000	2.14%	751,858	1,748,142	-	(112,645)	751,858	-	-	(77,025)	562,188	-	562,188
Investor 46	500,000	0.43%	150,372	349,628	-	(22,529)	150,372	-	-	(15,451)	112,392	-	112,392
Investor 47	300,000	0.26%	90,223	209,777	-	(13,517)	90,223	-	-	(9,235)	67,471	-	67,471
Investor 48	3,000,000	2.57%	902,229	2,097,771	-	(135,174)	902,229	-	-	(92,346)	674,709	-	674,709
Investor 49	1,000,000	0.86%	300,743	699,257	-	(45,058)	300,743	-	-	(30,782)	224,903	-	224,903
Investor 50	1,244,000	1.07%	374,124	869,876	-	(56,052)	374,124	-	-	(38,362)	279,710	-	279,710
Investor 51	280,000	0.24%	84,208	195,792	-	(12,616)	84,208	-	-	(8,679)	62,913	-	62,913
Investor 52	226,000	0.19%	67,968	158,032	-	(10,183)	67,968	-	-	(7,017)	50,768	-	50,768
Investor 53	1,000,000	0.86%	300,743	699,257	-	(45,058)	300,743	-	-	(30,782)	224,903	-	224,903
Investor 54	500,000	0.43%	150,372	349,628	-	(22,529)	150,372	-	-	(15,391)	112,452	-	112,452
Investor 55	5,000,000	4.28%	1,503,716	3,496,284	-	(225,289)	1,503,716	-	-	(153,910)	1,124,517	-	1,124,517
Investor 56	1,000,000	0.86%	300,743	699,257	-	(45,058)	300,743	-	-	(30,782)	224,903	-	224,903
Investor 57	500,000	0.43%	150,372	349,628	-	(22,529)	150,372	-	-	(15,451)	112,392	-	112,392
Investor 58	-	0.00%	256,894	256,894	-	(450,579)	256,894	-	-	(21,355)	(215,040)	-	(215,040)
Investor 59	2,000,000	1.71%	601,486	1,398,514	-	(90,116)	601,486	-	-	(61,564)	449,806	-	449,806
Investor 60	1,000,000	0.86%	300,743	699,257	-	(45,058)	300,743	-	-	(30,782)	224,903	-	224,903
Investor 61	5,000,000	4.28%	1,503,716	3,496,284	-	(225,289)	1,503,716	-	-	(153,910)	1,124,517	-	1,124,517
Investor 62	10,000,005	8.56%	2,750,539	7,249,466	-	0	2,750,539	-	-	(286,465)	2,464,074	-	2,464,074
Investor 63	292	0.00%	-	-	-	(6)	-	-	-	-	(6)	-	(6)
Founder Partner													
Investor 7 & 7e	2,335,596	2.00%	594,245	1,741,352	-	207,880	365,349	-	-	(1,590)	571,639	-	571,639
Total	116,780,107	100.00%	35,012,562	81,767,253	-	20,700,348	8,533,197	-	-	(748,011)	28,485,534	-	28,485,534

10.FEES

Quarter to 30 September 2021	
	(\$'000)
Arrangement fees	-
Director/Monitoring fees	-
Deal fees	-
Net Fees	-
Management Fees	585
Carried Interest	-