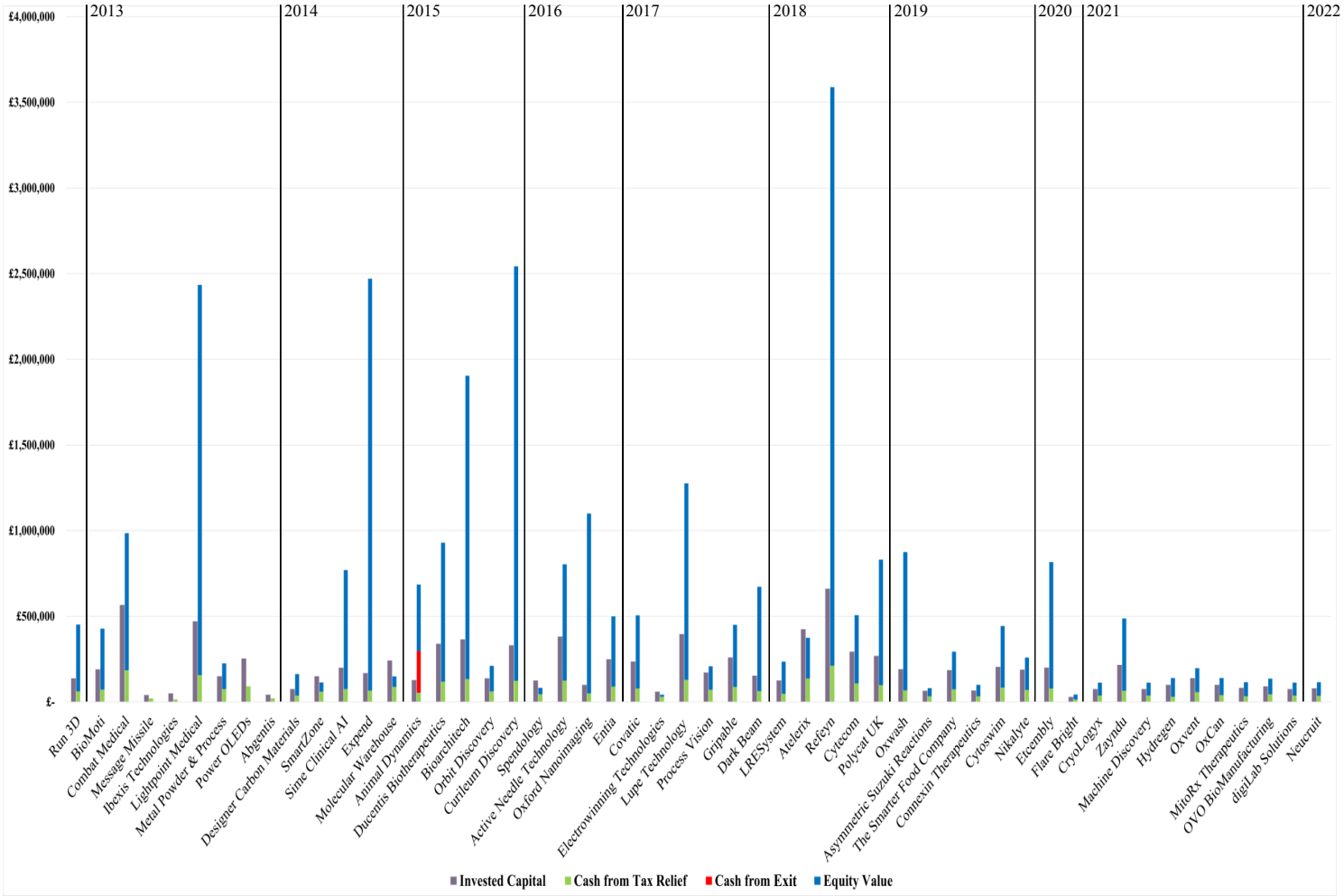
OT(S)EIS Full Portfolio - Q2 2022

Investment Objective

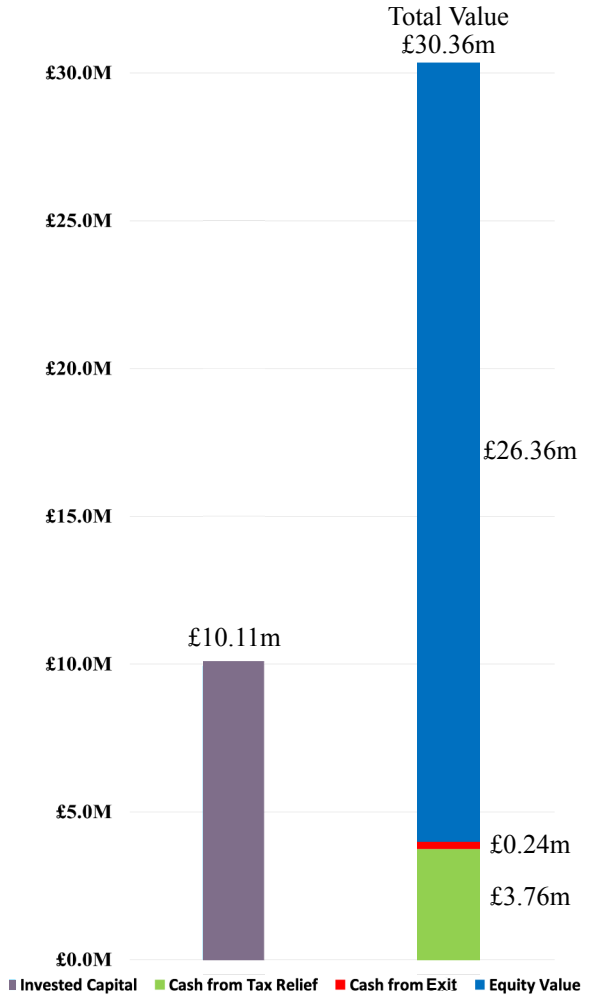
1. OT(S)EIS invests in life, physical, and data science start-ups based in and around Oxford and London, at the pre-seed and seed stage. Our investment horizon is patient and long-term.
2. We are active investors, using our expertise to help portfolio companies develop scalable business models, robust pricing strategies, and effective R&D programmes.
3. We use the SEIS and EIS tax relief schemes to de-risk investments whilst offering our investors significant (and tax-free) capital growth potential.

Managers	Lucius Cary and Andrea Mica
Fund Value	£30.36m
Portfolio	52 Companies
Contact	otseis@oxfordtechnology.com

Portfolio Holding Valuations



Overall Fund Value



Introduction

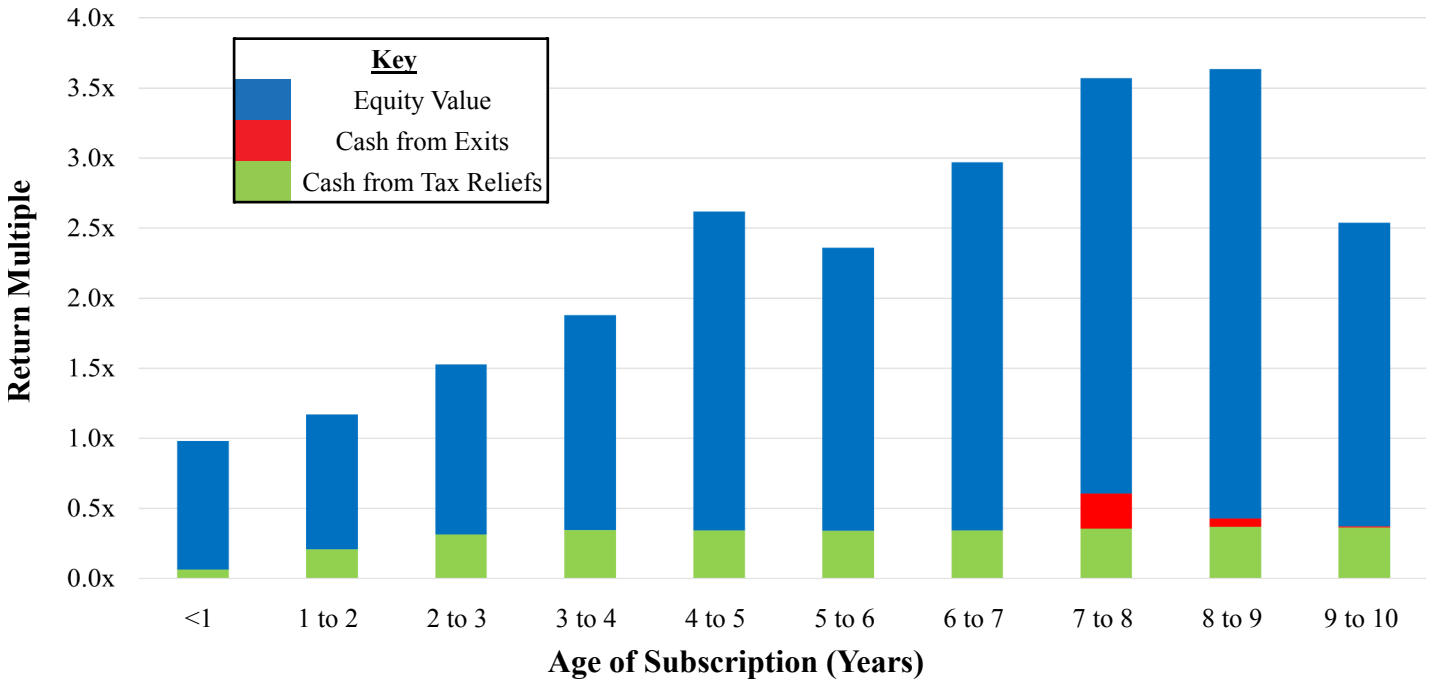
Portfolio by Tax Year

Oxford Technology Q2 2022 Portfolio Report

Summary

By the 30th June 2022, OT(S)EIS had completed 189 investments in 52 companies.

The current return multiple of subscriptions into the fund, when averaged by age, and after all fees, can be seen in the below chart:



For example, the average subscription between 7 and 8 years old would, on a £100k investment, so far have realised cash back of over £60k (as a mixture of tax reliefs and share sales), and would own shares valued at over £295k after all fees. Valuations are all made according to the most recent price paid by investors in the company. If, following an investment, things have gone wrong, then the valuation is reduced. But if things have gone well, the valuation is not increased unless there is another funding round. To this extent the valuations are conservative, but obviously nothing really counts until the gains are realised through exits.

The figures assume that the investor in question has claimed the full amount of tax relief available from the SEIS and EIS investments. The cash back from tax reliefs can take some time to arrive, but it comes in the end. Firstly, the investee company has to meet certain HMRC requirements (e.g. trade for 4 months). Then they inform HMRC, who must authorise the issuance of certificates which will enable investors to claim their tax relief.

Exits are typically expected on a 10 year timescale: investments in OT(S)EIS are illiquid and long term. Nevertheless, the return multiples when exits occur can be considerable. For instance, in 2015, OT(S)EIS made an SEIS investment in Animal Dynamics at 14p per share, so effectively 7p per share after tax relief. In 2019, investors were given the opportunity to sell at 97p per share – a 13.8x return. But many opted to keep their shares: the company continues to flourish.

New Investments

No new investments were made this quarter.

Portfolio Progress and Highlights

Run 3D had another good quarter and the number of clinics paying the monthly subscription now exceeds 30.

Lightpoint's SENSEI probe was used in prostate cancer surgery in the US for the first time.

Ducentis has good news on the way.

Covatic had a good quarter and is now being rolled out to 20m Sky customers in the US. It will receive a share of the advertising revenue generated.

Lupe sold £1.3m of its award-winning cordless vacuum cleaners in 2021, and sold £1m in the first six months of 2022 and believes it is on target to sell £3m in 2022.

OxWash had another record quarter with sales reaching new heights. It also successfully completed its series A fundraising.

The Smarter Food Company has started sales. A bowl of its special broccoli (high in GR) soup per week at £20 per month, is intended to reduce blood sugar levels and so to prevent or delay the onset of diabetes. Please contact them if you would like to join.

Nikalyte has closed a very large order for one of its metal powder production machines from a household name industrial company.

Cryologyx is negotiating a deal with the world's largest supplier of cells to supply its cells in Cryologyx format. This means that the cells survive freezing better and perform better after thawing. The proposed deal comes with funding to enable production to be scaled up.

At the end of the quarter, **Zayndu** shipped its first machine, for a trial at a vertical farm in California. If the trial is successful, an initial batch of four machines will be required. Machines will be supplied on a monthly rental model.

Shareholders in **Refeyn** are likely to achieve a partial exit in Q3. This is because **Refeyn**'s recent fundraising, valuing the business at ~£4.35/share, was heavily oversubscribed.

Our Funds

Oxford Technology manages two funds:

1. OT(S)EIS - The Start-up Fund: Investors' money is invested over 3 years - Approx. 1/3 (less fees) in SEIS investments in year 1, 1/3 in EIS investments in year 2 in those of the earlier SEIS investees which are doing well, and the same again in year 3. SEIS investments are very high risk and some failures are to be expected, although there have been very few so far which is why the track record is so good. So it takes 3-4 years before all the tax reliefs are obtained, which does not suit everybody.

2. OTEIS - The Development Fund: Investors have all their money invested within one year in EIS investments, mainly in earlier OT(S)EIS investments which are developing well. So this fund has a lower risk profile than OT(S)EIS and investors can claim their tax reliefs more quickly.

Information Memorandums and Application forms are available at www.oxfordtechnology.com/invest

OT(S)EIS Fees

Type	Details
Initial Fee	1%
Management Fee	2% (Years 1-3) 1.5% (Years 4-7) – deferred and to be paid only from proceeds of exits 0% (Year 8 and onwards)
Custodian Fee	0.15% + VAT annually (NB – reduced from 0.35% in 2017). There is also a receiving agent fee of up to £25 + VAT for each subscription, and a £15 fee will apply for any transfers of holdings. Distributions may also incur a small administrative charge. These fees will be paid from the investor's cash pool.
Performance Incentive	Once a typical investor, defined as a 40% taxpayer with no capital gains tax to shelter, has received a return of £1.20 (including tax benefits) for each £1.00 invested then 20% of all further payments to all investors who invested at the same time will be paid to OTM as a performance incentive.

SEIS and EIS Tax Reliefs - Overview

Please consult HMRC or your financial advisor for full details and conditions.

Type of Tax	SEIS	EIS
Income Tax	Reduced by 50% of investment Reduced further by up to 22.5% if the business fails Income tax relief can be applied to tax bill year prior to investment	Reduced by 30% of investment Reduced further by up to 31.5% if the business fails Income tax relief can be applied to tax bill year prior to investment
Capital Gains	50% relief against capital gains tax bill, which is not merely deferred but cancelled No capital gains tax to pay on exits	Deferral relief on capital gains tax bill arising 3 years before, or 1 year after investment No capital gains tax to pay on exits
Inheritance Tax	No inheritance tax (after 2 years)	No inheritance tax (after 2 years)

Example SEIS investment

An individual investor with income tax of £25,000 to pay, and capital gains of £100,000 in the 2020/2021 tax year on which tax of £20,000 at the 20% rate is due to be paid, invests £10,000 in an SEIS qualifying company in 2020/2021:

Initial Investment	£10,000
Income Tax Bill Relief (50%)	-£5,000
Capital Gains Tax Relief	-£1,000
Net Cost of Investment	£4,000

If the above investor had had the same tax status in 2019/2020, they could also choose to treat their 2020/2021 investment as if having been made in 2019/2020, and claim relief for that year instead.

If the investee company fails, the remaining part of the investment on which income tax relief has not been claimed (£5,000 in this example), may be set against the investor's income tax liability. For a 45% taxpayer, for example, this relief is worth £2,250. If they also have capital gains tax to pay, then the total loss on the investment of £10,000 would be reduced to £2,750 if the investment was made in 2020/2021 and not carried back to the previous year - in other words, a downside of 27.5%. There is also the further possibility of capital gains tax loss offsets.

If the investments succeeds, and the shares are sold for, say, £20,000 (twice the purchase price), the £20,000 would be tax free, a multiple of more than 5 times the net cost, or an upside of 400%.

International Team

China Office - chenjie@oxfordtechnology.com

Oxford Technology has an office in Shanghai, China, run by Chenjie Ma, who read engineering at Oxford. She worked for us here in the UK before going to run the office in China. It is naturally a great help to our investee companies to have a Chinese speaker on their side if/when they are seeking to make their first sales in China.

California Office - bijan@oxfordtechnology.com

Oxford Technology also has an office in Menlo Park, just outside San Francisco in California, run by Bijan Kiani. Oxford Technology invested in his first start-up business, INCA, in the 1980s, which was ultimately acquired by a company in California. Bijan then helped to grow Synopsys from 300 to 13,000 people: it is now the No 1 player in Electronic Design Automation. In 2019, Bijan contacted OTM, saying that while he had loved building Synopsys, what he had enjoyed most was the early days of his first business, working with OTM to get it all going and getting the first sales contracts in the US etc. He offered to help our investees in the UK get going in the US. The CEOs of our investees who have worked with Bijan all say how helpful and useful he has been. Bijan recently become the CEO of Machine Discovery, in which he is also a shareholder.

Presentations

At 10am on the first Thursday of every month, Oxford Technology hosts a Zoom meeting at which existing investee companies who are raising additional capital can make presentations to investors. After the presentations and before questions, there is a live performance by pianist Anita D'Attellis. The next meetings are on:

Thursday 7 July	Bach Goldberg Variations
Thursday 4 August	Bach Goldberg Variations
Thursday 1 September	Bach Goldberg Variations

If you would like to attend and don't already receive the link, please email otseis@oxfordtechnology.com

Invest in OT(S)EIS

While it is very good to make direct investments into presenting companies, please do also consider making an additional investment into OT(S)EIS as well. The reasons are:

1. OT(S)EIS can get you access to significantly better valuations. Presenting companies are those in which we have already made SEIS/EIS investments, typically at lower share prices. For example, in Q1 2020 we made an SEIS investment into Etcembly at 40p per share (so 20p after SEIS tax relief). In Q4 2020, Etcembly gave a presentation and raised £1.6m of EIS investment at £1.58 per share (so £1.10 after EIS tax relief — more than 5x the after tax share price of the earlier SEIS investment). This could make an enormous difference to returns when it comes to exits, and SEIS offers better tax reliefs.

2. With OT(S)EIS, you make a single investment and we do all the work. We handpick about 5-6 SEIS investments from the ~1000 approaches we receive each year, diversifying risk, and then invest in a similar number of follow-on EIS investments. We send you all the forms necessary to claim your tax reliefs, a report with a valuation each quarter, and we actively help the investees.

3. Companies at presentations are almost always only EIS, whereas OT(S)EIS gets you SEIS exposure and hence better tax reliefs.

4. Unless we raise capital for OT(S)EIS, we're not able to make the initial SEIS investments in start-ups, so there won't be any companies to present down the line!

OT Growth Fund

We continue to believe that there is a good opportunity to create a larger fund, maybe £50m, which would invest in those of the earlier investments in the portfolio which are doing well. The concept is very simple. Since we invest in companies at the very earliest stage, we get to know the founders very well. And we know the things which the founders might prefer that we didn't know - problems with personnel and patents, for example. This puts us in a very good position to be able to judge which investee companies are worth backing with significantly larger investments of several £m. A particular aim would be to use Bijan (who helped build Synopsys in California from 300 to 13,000 people) to help these companies get started in the US. The valuations of technology companies are generally significantly higher in the US than in the UK, so this should benefit the initial UK investors.

Investors who might be interested in such a fund should contact us.

Run3D.co.uk

Company Valuation	Valuation Share Price	Fund Holding
£1.49m	£0.45	26.1%

Run 3D Investment History

Date	Amount	Share Price	Type
Dec 2012	£100,000	£0.15	SEIS
Oct 2013	£15,000	£0.15	SEIS
Oct 2013	£10,000	£0.15	N/A
Nov 2017	£3,000	£0.30	EIS
Mar 2019	£10,206	£0.45	EIS

Description of Business

Run3D is the brainchild of Dr Jessica Leitch, who is an International runner herself (representing Wales) and who has a D.Phil from Oxford in the biomechanics of running. Runners have reflective balls attached to their various joints (hips, knees, ankles) and also at various other points on their legs and then run on a treadmill. Special cameras capture the image of the balls at 200 frames/sec. This data is then fed into a computer programme which then outputs a complete gait analysis, giving every detail of the gait, the angle of heel-strike, the rotation and rate of rotation of each joint etc. The analysis can be used to modify the gait for two purposes; to reduce the likelihood of injury and to increase speed.

Progress since Investment

Initial progress was quite good. The company opened its own Run3D centre in Oxford, and also opened five franchises. But it then became clear that improvements in the software were needed, so Run3D then spent the next two years, in collaboration with a company in Amsterdam and with the help of a grant, rewriting the software from scratch. The new software was used for the first time in summer 2016, and was a big step forward - easier to use and with many new features. In Q1 21, all the data (at last!) went into the cloud so that every time a Run3D gait was done anywhere in the world, the (anonymised) data went into the cloud, enabling Run3D to quickly compile databases of different types of runners, eg Elite Female Marathon Runners, Male runners over 60 etc. Also in Q1 21 Run3D's AI went live to interpret the results. One of the difficulties that Run3D has faced is that it produces a vast amount of data (the movement of every joint and element at 200 frames per second). While an experienced podiatrist can interpret this data, some younger physiotherapists have found it daunting. The new add-on software automatically interprets a gait report, and makes suggestions as to what the issues might be, making Run3D less complicated to use and more appealing to a wider market of less-experienced clinicians.

Year	UK and Ireland	USA	Holland	RoW	Mobile	Total
2017	7		1			8
2018	8		1	2		11
2019	10	1	1	2	1	15
2020	13	0	4	2	1	20
2021	19	1	4	3	1	28
H1 2022	23	1	4	3	1	32

Recent Developments

Run 3D continues to make steady progress. The existing clinics are getting ever busier and better at promoting the service, with the best clinics passing on their marketing knowledge to the less successful clinics via the user group meeting.

Most clinics are on 3 year contracts and the renewal rates have been close to 100%. Deposits have been paid on two more clinics, including the first in the Middle East, to be installed in the next quarter.

Biomoti.com

Company Valuation	Valuation Share Price	Fund Holding
£2.21m	£0.12	16.1%

Biomoti Investment History

Date	Amount	Share Price	Type
Jan 2013	£74,998	£0.05	SEIS
May 2014	£40,000	£0.05	EIS
Mar 2021	£74,661	£0.12	EIS

Description of Business

BioMoti is based on technology from Queen Mary University of London. Its founders are Dr. Davidson Ateh and Prof. Jo Martin who was appointed as Head of Pathology for the NHS in 2013.

Tumour cells including those from ovarian, breast, pancreatic, colon, prostate, and bladder cancer overexpress a particular ligand, CD95L on their surfaces. CD95L helps tumours to avoid the immune system by killing off certain classes of immune cells and is also associated with triggering cancer metastasis. The scientists have discovered that if a small particle is coated with CD95R (which binds to CD95L), the cancer cell will engulf the particle and draw it inside. By loading a chemotherapeutic drug into a biodegradable particle coated with the receptor molecule, it is possible to deliver high concentrations of chemotherapy drug into the cancer cells.

Preclinical tests have shown remarkably good results, with 65-fold reductions in tumour burden, doubling of median survival and significant decreases in toxicity seen in an ovarian cancer model when the technology is applied and compared with the current clinical standard-of-care.

Progress since Investment

BioMoti has carried out many successful preclinical experiments. They have experimented with different production techniques, in part due to the fact that the original technique they had used became unavailable. The experiments show that their technology, Oncojans, deliver on the promise of higher activity and lower toxicity than the standard of care delivery for paclitaxel. The Oncojan formulation enables the drug to give performance similar to cisplatin, a much more powerful drug which has limitations which the Oncojans would not have. Although only observed (as there was quite a lot of variation and relatively few samples) the Oncojans also seem to encourage the penetration of Cytotoxic T cells into the tumour environment.

The original manufacturing technique is now available again in two different versions and Biomoti has also tested new technologies which give very high loading of drug in the particles.

Recent Developments

John Beadle, previously at GSK, PsiOxus and PowderMed has joined BioMoti as Chairman as it is preparing for a series A fundraising. BioMoti signed an agreement with a global pharmaceutical company to collaborate on the development of its lead ovarian cancer candidate, BMT101, to clinical phase 2a proof-of-concept. The collaboration agreement provides access to the partner company's expertise including its proprietary commercial manufacturing technology and an option for the global pharmaceutical company to license BMT101 in specific territories.

CombatCancer.com

Company Valuation	Valuation Share Price	Fund Holding
£30.12m	£11.28	2.7%

Combat Investment History

Date	Amount	Share Price	Type
Apr 2013	£74,999	£4.31	SEIS
Dec 2013	£74,998	£4.74	EIS
Oct 2014	£10,002	£4.98	EIS
Dec 2014	£34,271	£4.98	
Mar 2016	£74,998	£14.10	EIS
Oct 2016	£64,995	£11.28	EIS
Mar 2017	£129,212	£14.10	EIS
Mar 2018	£27,058	£14.10	EIS
Mar 2021	£54,223	£11.28	EIS
Apr 2022	£21,218	£11.28	EIS

Description of Business

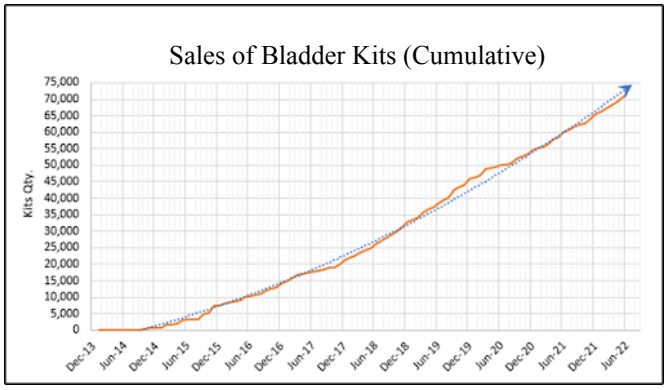
Combat Medical develops and manufactures devices for the treatment of bladder and peritoneal cancers. The bladder cancer device consists of a control unit and a disposable heat exchanger and catheter. These are used to deliver a treatment consisting of heating a chemotherapy liquid and circulating this through the bladder. The standard treatment for bladder cancer involves cutting out the tumours in the bladder and results in up to 78% recurrence of tumours which then require increasingly drastic surgery. Combat's treatment, called HIVEC (hyperthermic intra-vesical chemotherapy), reduces recurrence rates by up to 4 times. The peritoneal cancer device works according to a similar principle, with the addition of CO2 agitation.

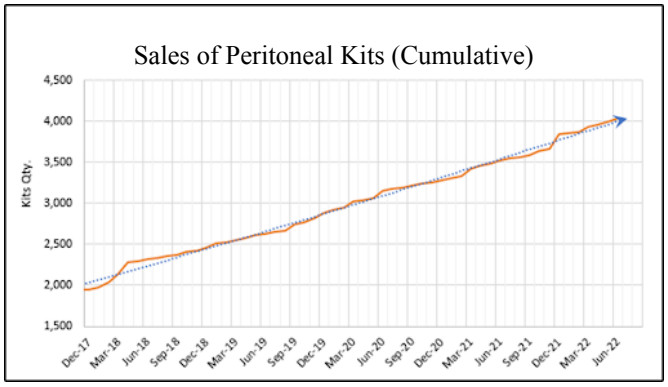
Sales are growing well, and the core business is profitable. The devices are CE marked and in use with doctors. Thus far they have been used in combination with surgery, but they are also being investigated as standalone treatments. This would reduce costs for medical providers, as repeated surgeries are extremely expensive. Combat is now undertaking further clinical trials in order to make the treatment a standard of care. Success here should further accelerate sales of the device and dramatically increase the value of the company.

Recent Developments

Combat has had positive advice from the FDA regarding the clinical trial that will be required for US certification. We were disappointed to be told we would require a separate meeting to qualify for breakthrough status, but Combat can now move forward positively. Combat is developing a treatment device to be able to provide treatment similar to bladder but for the colon. This should extend treatment options for patients to earlier stage cancer.

Sales continued well as can be seen in the graphs below.





Summary

To date Combat has provided over 72,000 bladder cancer and 4000 peritoneal cancer treatment units. Good fundraising has put it in a good position to push onwards towards US certification trials and growth.

LightpointMedical.com

Company Valuation	Valuation Share Price	Fund Holding
£36.45m	£0.79	6.2%

Lightpoint Investment History

Date	Amount	Share Price	Type
Jun 2013	£74,999	£0.047	SEIS
Mar 2014	£75,000	£0.19	EIS
Nov 2014	£9,991	£0.238	EIS
Dec 2014	£124,895	£0.238	EIS
Mar 2016	£100,000	£0.509	EIS
Mar 2016	£20,000	£0.509	EIS
Mar 2019	£26,941	£0.65	EIS
Mar 2020	£38,825	£0.65	EIS

Description of Business

In cancer surgery, a surgeon cannot see whether the entirety of a tumour has been removed. In prostate cancer surgery, for example, roughly one quarter of surgeries will leave some cancerous tissue behind after surgery. Lightpoint has developed an imaging technology based on existing imaging PET and SPECT radiopharmaceuticals, to provide surgeons with a real time image of the cancer. Lightpoint is very actively engaged with surgeons to ensure that the products are best suited to their needs.

Progress since Investment

Lightpoint launched its first product in Q1 2018. The company has since adapted as the market feedback has directed it towards in-vivo applications suitable for laparoscopic and robot-assisted surgery where the benefit of limiting the removal of healthy tissue is greatest; prostate cancer surgery in particular. The company has strengthened its medical advisory board with specialists from the prostate cancer field.

Lightpoint launched its second product, SENSEI®, a robotic laparoscopic probe for prostate cancer surgery, in Q1 2021. The probe has two applications: sentinel node detection and metastatic node detection. SENSEI® has regulatory clearance in the EU, US, UK and Australia. A third product is undergoing development: a surface probe that will determine whether cancer has spread beyond the primary tumour to the nerve bundle in prostate cancer surgery.

In May 2021 Graeme Smith was appointed as CEO of Lightpoint, bringing to bear his three decades of medtech commercial, corporate finance and sales and marketing experience. Founder and former CEO, David Tuch remains Executive Chair to provide scientific, technical and strategic direction.

Recent Developments

Several clinical firsts have been achieved recently:

1. UMC Utrecht has published on EJNMMI Research the first-in-woman clinical data for SENSEI® in robot-assisted sentinel lymph node detection during cervical cancer surgery.

2. UCLA Health in California has used SENSEI® for the first robot-assisted prostate cancer surgery in the US, successfully removing a >3mm metastatic node identified on diagnostic imaging.

3. University College Hospital in London has launched a new clinical feasibility study using SENSEI® in robot-assisted colorectal cancer surgery.

4. The first lung surgery – and first use in the US – was performed at the Bethesda North Hospital, Cincinnati OH. Lightpoint is preparing clinical trials at more US medical centers.

SENSEI® was recognized as the Best New Surgical Technology Solution at the 2022 MedTech Breakthrough Awards. The technology is now being used in 11 centers worldwide and has distributors in Spain, Portugal, Australia, Italy, South Korea and Turkey. Agreements are being discussed in 21 other countries. Lightpoint is raising a £8m C2 round at a higher valuation to reflect the recent developments. The round is still open and will support the company as it continues its rapid growth.

METAL POWDER AND PROCESS

MetalPowderProcess.co.uk

Company Valuation	Valuation Share Price	Fund Holding
£1.25m	£1.25	12.0%

MPP Investment History

Date	Amount	Share Price	Type
Aug 2013	£150,000	£1.25	SEIS

Description of Business

Metal Powder & Process (MPP) was established to produce high quality metal powders by gas atomisation for the aerospace, medical, and other industries. Metal is melted at the top of the atomiser, a machine the size of a small house, poured through a nozzle and blasted by jets of supersonic argon gas, and so turned into dust. The use of powdered metals has been growing steadily over the last 50 years. It is less expensive to produce certain components, e.g. gear wheels used in cars, by metal injection moulding powdered steel, than it is to start with solid steel and then cut each tooth on a machine. Metal injection moulding also produces parts which can be stronger and more accurate. Now demand is increasing even more quickly due to the rapid growth of 3D printing of metal parts.

Due to the incorporation of some novel technology, it is hoped that the atomiser (known as Bertha) operated by MPP will produce powder of higher purity than the powders produced by existing atomisers. This, in turn, should make the powder suitable for use in the aerospace industry. In the past, the aerospace industry has been reluctant to use powdered metal since the impurities which are present in powders produced by existing designs of atomisers are potential crack-initiation sites.

Progress since Investment

Work on completing and commissioning Bertha has been continuing since the investment. The first sales were achieved in Q1 2015 for trial quantities. In Q4 2016, and after a development programme lasting about a year aimed at producing powder of a novel alloy for diamond attachment for an overseas customer, MP&P received its first significant order. This order was worth >£1m, to be delivered at steadily increasing monthly quantities. This was a great achievement and an important milestone in the development of the company, but it brought new challenges. Unfortunately, in 2020, the customer sold the product line which used the MP&P powder and MP&P lost its largest customer. In Q2 2017, Bertha produced her first titanium powder. During Q1 2021 the new fluidised bed, owned by MP&P's sister company PSI, became operational. This will be used, initially experimentally, to coat particles used in battery anodes in electric vehicles in a way which, it is hoped, will result in longer life batteries, capable of a significantly increased number of charge/discharge cycles. If this works, the potential is large. The rig will also be used to heat treat post-production metal powders to make them more suitable for repairing military aircraft in remote locations. The other use for the rig will be to recondition waste powder from AM operations. Several of these developments are grant-funded and with several parties involved.

Recent Developments

There have been some good developments during the quarter. In particular, the new 250Kg furnace, replacing the old 125Kg furnace, has been fitted and Bertha has been completing two runs per day catching up on the order for several tons of the diamond attachment powder, for the new owners of the application.

DCM Investment History

Date	Amount	Share Price	Type
Apr 2014	£75,000	£0.75	SEIS

Company Valuation	Valuation Share Price	Fund Holding
£0.85m	£1.25	14.7%

Description of Business

Professor Kyriakos Porfyrakis developed a method of producing small quantities of endohedral fullerenes, while working in the Materials Department of Oxford University. Carbon exists in many forms, including graphite and diamond. But carbon can also exist as fullerenes, hollow spheres of carbon atoms, the simplest of which is made up of 60 carbon atoms. Professor Porfyrakis developed a method of making fullerenes which contain an atom of another element inside. At the time of the investment, the elements chosen were Gadolinium, Yttrium and Nitrogen. It was believed that these novel materials will have potential uses as a better contrast agent for MRI scans, for improving the efficiency of photovoltaics, and for use in certain quantum computing applications. There had been considerable interest from researchers around the world. Production capacity at the time of investment was about 1 gram per month. This is a classic high risk, high potential reward investment.

Progress since Investment

Production of the materials and research continued in the lab. An important milestone was achieved in Q3 2014, when DCM received its first order, £22,000 for 0.2mg of a nitrogen-containing fullerene, with a purity of 1 in 1,000, so 200 micrograms of the N@C60. This is a price of more than £100m per gram, so we think this might be the most expensive material on the planet. The material is being used in a research project whose aim is to produce an extremely accurate atomic clock on a chip so that it could be used in a mobile phone. This would enable GPS to be much more accurate which would have many potential applications including controlling driverless cars. In Q1 2018, a contract was signed with LocatorX, a US company, which will be seeking to commercialize the atomic-clock-on-a-chip application. DCM agrees to supply LocatorX N@C60 exclusively for this application and they agree to buy only from DCM. DCM received 100,000 founder shares in LocatorX. LocatorX raised some capital in Q1 2019, although not as much as originally hoped.

In Q2 21, a small technical milestone was achieved in the atomic clock project in that the reference signal, which had been detected in the UK before, but which had not been detected by the US scientists engaged on the project was detected. So, all being well, the signal from the N in the N@C60 molecules will now also be detected. This, in turn, should become the basis of an atomic clock. In 2020, Professor Porfyrakis became Head of Research for the school of Engineering at the University of Greenwich. As the labs emerged from Covid, in Q4 21, orders for N@C60 were received from LocatorX, the University of Oxford and the University of Lancaster, all partners of the atomic clock project. The confirmed orders had a value of £56,500 and some N@C60 was supplied with the balance scheduled for delivery in 2022. In Q4 21, a team, including Professor Porfyrakis, was able to align N@C60 and N@C70 derivatives in a liquid crystal matrix with ordering parameter Ozz = 0.61. (Perfect alignment is 1, random is 0 and orthogonal anti-alignment -0.5) With the aligned samples, the company was able to achieve addressability of the available 4-electron spin levels in endohedral nitrogen by coherent manipulations. Furthermore, these functionalized molecules give rise to endohedral fullerene qudits: multi-level computational units which could be an alternative to the conventional 2-level qubits used in quantum computing. Qudits offer a larger state space for encoding information and thus can offer enhancement of quantum algorithm efficiency. Indeed, Kyriakos and his team were able to demonstrate the first ever geometric phase using pulsed EPR; something that was first proposed over 30 years ago!

The paper describing this finding, published in Angewandte Chemie, had already received two citations before the end of June, which is both surprising and encouraging.

SmartZone.co

Company Valuation	Valuation Share Price	Fund Holding
£0.7m	£0.06	7.6%

SmartZone Investment History

Date	Amount	Share Price	Type
Jul 2014	£75,000	£0.12	SEIS
Jan 2016	£75,000	£0.28	EIS

Description of Business

SmartZone was formerly known as Sasets and provides software for construction companies which enables them to replace paper forms with forms on mobile devices. The forms may have information such as the weather entered automatically. The net result is a jump in efficiency and a big time saving. The forms are transmitted instantly to the department where they are needed, a huge improvement on the old methods of sending forms in triplicate by post to departments which then had to re-enter the data. Time stamped, geotagged photographs may be added to the forms, a great advantage in many situations.

Progress since Investment

As so often, things went more slowly than hoped and new issues emerged when the product began to be used in the field. But technical development continued and the number of users began to increase. Users pay a monthly subscription to use the software. Among the corporate users are some very large companies. Some of these companies are bidding for contracts (eg. on HS2) and stating in their bids that they will use SmartZone for reporting. They do this because the government departments placing the contracts then know that they will receive accurate and up to the minute progress reports and will be able to keep better tabs on progress and take timely corrective action if required. SmartZone was badly affected by Covid with many construction sites being closed and some companies failing or merging.

Year	Users
2015	102
2016	200
2017	310
2018	422
2019	493
2020	437
2021	409
H1 2022	433

Recent Developments

Q2 has been a relatively quiet quarter for Smart Zone with enquiries and referrals from existing users slowing down which is normal for this time of year. But there was a small increase in the number of users in the quarter, and over the year there has been an uplift of about 100 users. Some of the pipeline opportunities have started to engage in trials which could see an uplift in users in Q3. Although at a very early stage, SmartZone has also had one of its partners connect directly with National Highways who have expressed an interest in the platform. If National Highways adopted SmartZone, this would be transformational.

SimeDX.com

Company Valuation	Valuation Share Price	Fund Holding
£13.22m	£8.36	5.3%

SIME Investment History

Date	Amount	Share Price	Type
Sep 2014	£75,000	£2.11	SEIS
Apr 2016	£100,000	£2.35	EIS
Nov 2018	£25,040	£5.00	EIS

Description of Business

Sime Diagnostics makes use of mathematical techniques to extract information from spectrometric readings of medical samples. The first application is in determining whether premature babies (and possibly babies born by Caesarean) need an application of lung surfactant to protect their lungs. Respiratory Distress Syndrome (RDS), a breathing disorder caused by surfactant deficiency, affects 1 in 4 premature babies.

Babies with RDS require mechanical ventilation, oxygen therapy and longer hospitalisation - all at significant cost. RDS can be prevented with surfactant treatment at birth. Prophylactic surfactant treatment harms healthy babies so neonatologists have to wait for RDS symptoms to develop before starting treatment. Sime's new test should give results within 10 minutes of birth. Sime's technology was used successfully for the first time on a premature baby in China in Q4 2018.

Sime's work has now been published and shows the Lung Maturity test has a very high sensitivity of 91% (accurately identifies 91% of babies that have a deficiency) and a specificity of 79% (accurately identifies 79% of those who don't).

Progress since Investment

Using the data generated from SIME's Lung Maturity Test to predict RDS at birth, SIME's propriety AI was able to successfully predict another lung disease at birth, BPD (Bronchopulmonary Dysplasia, more commonly known as chronic lung disease), a life-threatening disease that can have serious complications and large economic costs.

In parallel SIME's unique data and positioning in the respiratory diagnostic space has enabled SIME to rapidly develop a respiratory test for adults in intensive care with Acute Respiratory Distress Syndrome(ARDS), including Covid-19 patients. Insufficient surfactant in the lungs is a major contributor to ARDS, and treatment requires high-cost invasive ventilation. Early scientific validation of the test achieved positive results and IP has been filed.

Recent Developments

SIME has completed its first demonstrator device and its at the final stage of CE mark accreditation. The company has also published two new clinical papers, further strengthening the product pipeline. Commercially Sime has signed an MOU with a global supplier of medical technology for critical care with expertise in respiratory and neonatology as its UK and EU distributor. By achieving these key milestones Sime is currently at a very good position raising a further amount at the same valuation. Sime will hold a presentation on the 21st July to speak more about the launch of its product and the company, please get in touch with us if you are interested in participating.

Expend.com

Company Valuation	Valuation Share Price	Fund Holding
£20.95m	£0.15	11.5%

Expend Investment History

Date	Amount	Share Price	Type
Dec 2014	£75,000	£0.005	SEIS
Feb 2017	£17,338	£0.06	EIS
Dec 2017	£3,000	£0.16	EIS
Aug 2018	£13,000	£0.10	EIS
Mar 2019	£30,719	£0.10	EIS
Mar 2020	£29,300	£0.10	EIS

Description of Business

Expend makes expenses management easier for both SMEs and larger organisations, by offering prepaid cards, mobile/web portals, and integrations with common accounting platforms.

Managers can customise spending policies for employee cards and easily track spending across their entire organisation. The value for employees is clear too: Expend removes the need to fill out endless forms or retain paper receipts and tickets.

Progress since Investment

Since the initial investment, Expend has worked hard to develop its software and business model and has developed a strong customer following, won awards for its technology, and built a solid reputation in the accounting and fintech space in the UK.

Growth has been steady over the last couple of years and has accelerated significantly since 2020. Expend is now trusted by an increasing number of companies across various sectors. The platform supports companies of many sizes, from one to 500+ employees. Feedback from customers has been very good.

Expend has developed its commercial offering since launch and now benefits from a hybrid, multi-revenue model. Like a typical SaaS business, Expend enjoys monthly recurring revenue from subscriptions and also generates income when people use its payment products and cards (for example through payment interchange when a card is used, and fees for items like foreign exchange transactions).

Recent Developments

Craig Dewar, the co-founder and CIO of Global Payment Systems, which was sold for £300m, and who had previously invested £1m in Expend, joined the Board in March and has been actively involved to help. Sales have been rising steadily and the first stage of integration with Virgin Money, for which VM paid £50k, should come on stream during the next quarter, when Expend will be offered as a service to Virgin's customers. It is hoped that this will lead to an increased number of users.

MolecularWarehouse.com

Company Valuation	Valuation Share Price	Fund Holding
£1.24m	£0.20	5.0%

MW Investment History

Date	Amount	Share Price	Type
Apr 2015	£75,000	£0.60	SEIS
Feb 2016	£75,000	£0.80	EIS
Mar 2016	£20,000	£0.80	EIS
Sep 2016	£52,005	£0.97	EIS
Sep 2027	£20,000	£2.00	EIS

Description of Business

Molecular Warehouse (MW) has technology to rapidly develop and test new proteins for diagnostic and therapeutic uses. MW has developed a new type of sensor for diagnostics which yields new quantitative devices. The devices take a small drop of fluid and give a numeric readout in seconds without any additional operations (like a blood glucose sensor but for almost any physiological analyte).

The key technology is an enzyme with a hinge which we call a biosensor. When the hinge is open the enzyme doesn't work and no signal is produced. When the molecule of interest is present, the enzyme is pulled into shape and the enzyme can function happily and produces a signal that is easily read.

These biosensors can be used for many applications where it is useful to know how much of a molecule is present. One area is therapeutic drug monitoring. There are several drugs where it is important that a patient has neither too little nor too much drug in their system, so patients need to be monitored until the dosing is accurately determined. MW will allow patients to measure this themselves with high accuracy and communicate back to the doctors. Its first products are aimed at the transplant market and will allow accurate monitoring of drug levels outside a hospital environment.

For the development of new sensors, MW makes use of the services of the Queensland University of Technology Brisbane where a large number of proprietary and commercial tools are brought together in one location allowing very rapid development of new products or leads.

Progress since Investment

The company has developed a sensor for calcium which may have applications in monitoring kidney disease and hyperparathyroidism. The sensor demonstrates the functionality of the whole system of biosensor, reader and software. However, it is not a sensor which is likely to be commercially successful.

MW had also been developing enzyme cascade based sensors for Theophylline (used in therapy for respiratory diseases) and Lithium (for treating bipolar disorder). MW divided into two entities in May 2020: Luas Diagnostics has licensed IP from MW and will develop the enzyme cascade based sensors. MW has a minority stake in Luas, which has now also become the distributor of a 20 minute Covid antibody test and a Covid antigen test. The lab in Guildford was closed and Andrea has taken on the role of caretaker, while Kirill Alexandrov is developing new technology for MW in the lab in Brisbane.

Recent Developments

Molecular Warehouse has had some interest in its technology in a new diagnostic modality, however it is still very early in discussions.

Animal-Dynamics.com

Company Valuation	Valuation Share Price	Fund Holding
£41.72m	£0.97	0.9%

Animal Dynamics Investment History

Date	Amount	Share Price	Type
Jun 2015	£75,000	£0.14	SEIS
Nov 2017	£35,220	£0.36	EIS
Jul 2018	£3,001	£0.97	EIS
Mar 2020	£14,391	£0.97	EIS

Description of Business

Animal Dynamics is a spin-out company from Oxford University. It was founded by Dr Adrian Thomas, Professor of Biomechanics in the Animal Flight research group in Zoology, and Alex Caccia, an entrepreneur with start-up experience in media, technology and manufacturing and a background in finance. Adrian is an expert on how animals - birds, fish and insects - move through water and air and on land. Unsurprisingly, over millions of years, they have evolved very efficient means of doing this. Animal Dynamics aims to adapt the techniques and structures used by animals to create more efficient and effective means of flying and moving through water and over land.

Progress since Investment

Animal Dynamics has three vehicle development programmes:

1 . Stork: A system for delivering packages autonomously. In Q4 2017, Animal Dynamics won a contract against 100 bidders to develop this system, and has subsequently delivered the first production units. This is now the company's lead product with full-scale production of the STM (135 kg payload, 180 km range, autonomous) planned for 2023.

2. Skeeter: A micro drone like a dragonfly. . The Company successfully delivered the Skeeter project to Dstl in April, and achieved the target flight time and wind tolerance. This is a world class technical achievement, and has built unique skills in air vehicle control systems. The Skeeter nano-UAS project is on hold whilst the company focuses on Stork. During the year, the Skeeter R&D team also explored a larger propeller aircraft, after winning a DASA grant to build a highly gust tolerant mid-sized UAS called Shearwater. This project was also delivered successfully, and is on hold while focus shifts to Stork.

3. Malolo: Two underwater R&D projects were successfully completed in 2019, exploring the potential of underwater autonomous systems using flapping propulsion. The first was a navigation system using the Earth's magnetic field to aid navigation, and achieved useful resolution on both latitude and longitude; the second is RayDrive, which is an underwater vehicle based on the configuration of manta rays. The prototype vehicle delivers high efficiency, low noise signature and moves well. But this programme too, is on hold.

In March 2019, Animal Dynamics raised £6m at 97p per share. The round was very oversubscribed and 50% of the SEIS shareholders took the opportunity to exit at this price (14x the initial after tax share price.) The others opted to stay for the ride.

Recent Developments

AD has started field-testing the X1 vehicle, which is a fully instrumented test rig version of the eventual STM vehicle. The purpose of X1 is to validate the vehicle modelling and overall design so that performance can be optimised and the validity of the engineering decisions can be demonstrated to the aviation regulators both in the UK and US. The X1 flies very well, and testing is progressing, and the results informing the design decisions on the next version, the A1 vehicle. In the meantime AD is preparing for field tests in the US in Q2 2023 where STM has been now accelerated through the DoD's assessment programme.

Ducentis
BioTherapeutics

DucentisBio.com

Company Valuation	Valuation Share Price	Fund Holding
£4.73m	£0.70	17.1%

Ducentis Investment History

Date	Amount	Share Price	Type
Jul 2015	£50,000	£0.14	SEIS
Dec 2015	£30,000	£0.18	SEIS
Mar 2017	£160,275	£0.36	EIS
Mar 2018	£45,314	£0.40	EIS
Mar 2019	£53,820	£0.70	EIS

Description of Business

CD200 is a protein that modulates the activity of mature immune cells. It protects certain tissues in the body such as muscles and nerve tissue from the immune cells. People who have low levels of the CD200 receptor on their immune cells are at higher risk of autoimmune diseases. The herpes virus is able to survive in the human body by producing a protein very similar to CD200 – a viral homologue.

CD200 acts on both the innate and adaptive arms of the immune system but does not impair the function of immature immune cells so response to infections is not affected, making it an attractive target. Other groups have carried out research on naturally occurring CD200 and its homologues. They are effective but not practical, because they would require very frequent injections. By modifying CD200, Ducentis is seeking to turn it into a practical treatment. There are many autoimmune diseases that might benefit from such a treatment, including arthritis.

Progress since Investment

Ducentis has made excellent progress since the investment. It first designed and then made a modified CD200 protein which requires between 1/100 and 1/1000 of the wild type CD200 to produce the same binding effect. Ducentis has applied for a patent on this molecule. An injection of this molecule might then be a treatment for Rheumatoid Arthritis and other autoimmune diseases. In 2019 Ducentis raised a round of >£1.5m to continue its development programme. The cornerstone investor was LifeArc. One major pharma company, Eli Lilly, has announced a programme in CD200: we see this as a positive development as it shows it is a target of interest, while the applications are broad enough that there will be room for several winners.

Recent Developments

It looks likely that very good news will be coming very soon, but we can't say anything more at this time.

Bioarchitech.com

Company Valuation	Valuation Share Price	Fund Holding
£7.91m	£6.00	22.4%

Bioarchitech Investment History

Date	Amount	Share Price	Type
Aug 2015	£79,560	£0.60	SEIS
Mar 2016	£40,000	£1.00	SEIS
Jul 2017	£16,200	£1.00	EIS
Oct 2017	£29,000	£1.20	EIS
Mar 2019	£89,674	£1.80	EIS
Dec 2019	£4,637	£2.80	EIS
Mar 2020	£36,758	£2.80	EIS
Mar 2021	£69,804	£4.00	EIS

Description of Business

Bioarchitech aims to improve cancer treatment by creating a drug that attracts, activates and redirects a patient's immune system to destroy their tumours. Known as immunotherapy this technique has shown the potential to cure patients. The drug which Bioarchitech is developing will be able to be administered to many more types of cancer than is currently possible. Bioarchitech is also developing an improvement for RNA therapeutics by producing a form of RNA that can self-amplify inside cells, self-amplification may be required to achieve efficacy in diseases such as cancer using RNA.

The CEO is Dr Geoff Hale who has an international reputation in therapeutic immunology. As a scientist, he has published over 300 articles on the mechanisms of action of antibodies. He was formerly head of the Therapeutic Antibody Centre at Oxford University, and was the founder and CEO of BioAnaLab Ltd, a successful spin-out from Oxford which grew from nothing to c.50 people. Kevin Maskell is the principal researcher and developed the idea together with LiLi Wang and Hannah Chen. From 2002 -2009, Kevin was a research assistant in the department of clinical pharmacology at Oxford University, then principal scientific director of DDS, a subsidiary of Merck Millipore. Before starting Bioarchitech, he was a senior scientist at Oxford Cancer Biomarkers.

Progress since Investment

Bioarchitech has recruited an extra scientist to set up scaling up vaccinia manufacturing. A contract with a service provider to perform some of the in vivo experiments has been agreed and these experiments are underway. Bioarchitech's collaboration with RNA therapeutic company eTheRNA is progressing well with positive data being generated. Bioarchitech expects the first technical milestone to be completed in the next few months. Bioarchitech has also finalised a second collaboration with the NASDAQ listed company SIGA Technologies, inc. The research and development project using the FDA and EMA approved small molecule tecovirimat has been initiated and the work is progressing well. Bioarchitech is working on generating in vivo model proof of concept data which will take up most of its research time over the next 12 months.

Recent Developments

Bioarchitech has set up agreements with the University of Oxford for key services to support its research. Bioarchitech has initiated a discovery project with an overseas contract research organisation. Bioarchitech has also sourced some key equipment on the second-hand market to support scaling up vaccinia virus manufacturing.

ORBIT DISCOVERY

OrbitDiscovery.com

Orbit Investment History			
Date	**Amount**	**Share Price**	**Type**
Nov 2015	£100,000	£0.73	SEIS
Jul 2017	£38,245	£0.81	EIS

Company Valuation	Valuation Share Price	Fund Holding
£17.96m	£0.81	0.8%

Description of Business

Peptides are short chains of amino acids (the building blocks of proteins). They are an increasingly popular class of pharmaceuticals, sitting in between conventional small molecules and biologics such as antibodies and proteins. They can be made chemically like small molecules, but confer significant enhancements is specificity akin to other biologics, such as antibodies.

The founders are Prof Graham Ogg and Prof Terence Rabbitts FRS. The technology behind Orbit comes from Oxford University's Weatherall Institute of Molecular Medicine. It enables the rapid selection of peptides that bind onto potential drug targets using a process that minimises unintended or non-specific binding. In the identification of therapeutic candidates, this attribute can reduce unwanted side-effects in patients. The underlying technology consists of creating millions of micron-sized beads each with a unique peptide attached and mixing them with a target molecule that may be associated with a disease state. The beads that bind can then be identified and larger quantities produced for further experimentation as therapeutic candidates. If necessary, iterative steps can be made where the technology is used to further enhance properties of the therapeutic candidates, by, for example, making the easier to manufacture, or to be more stable in the human body. A particular strong capability in Orbit is to be able to screen against cells for function. This enables the technology to be used for screening agonist peptides, or peptides that switch specific functions on within a cell, at very high throughput. These agonists are more difficult to find than peptides that block activity (antagonists), but have high utility in preventing disease.

The company will partner with biotechnology companies and large pharmaceutical companies wishing to develop new peptide drugs but will also develop its own portfolio. It is hoped the technology works rapidly enough to enable tens of drug discovery programmes to be run each year.

Progress since Investment

Orbit has now developed a way to select peptides that bind to targets in solution, and on the surfaces of cells. Furthermore, the company has its first customers. Orbit completed a funding round of £5.25m in May 2018. Now at the Oxford Science Park, the team expanded to 29 employees. Due to different interests among the major shareholders Orbit split into two companies. One company will focus on T Cells , and is called T-Cypher. Shareholders of Orbit will have the beneficial ownership of 1/9th of a share in T-Cypher for every share they currently hold in Orbit. T-Cypher currently has 12,401,540 fully diluted shares. In 2021 Orbit raised £5.8m and Neil Butt joined Orbit as CEO.

Recent Developments

Orbit was awarded an Innovate UK grant to expand its high throughput cell-based functional screening platform capabilities in peptide drug discovery. This comes at a great time as Orbit's market exposure increases following a concerted effort to raise the company exposure through direct marketing and meetings such as BIO. The effort and results led to a second strategic partnership being signed.

Summary

Orbit has signed a second strategic partnership and it is making excellent progress with its technology. As part of the platform development, it continues to investigate targets with potential as future drug candidates.

curileum discovery

Curileum.com

Company Valuation	Valuation Share Price	Fund Holding
£12.39m	£3.00	19.5%

Curileum Investment History

Date	Amount	Share Price	Type
Mar 2016	£75,000	£0.63	SEIS
May 2016	£25,950	£0.63	SEIS
Jul 2016	£20,000	£0.63	SEIS
Jul 2016	£20,000	£0.63	EIS
Oct 2016	£19,997	£0.31	EIS
Nov 2016	£20,002	£0.31	EIS
May 2017	£30,000	£0.31	EIS
Mar 2019	£102,020	£0.31	EIS

Description of Business

Dr Jeff Moore established Curileum Discovery in labs adjacent to St Mark's Hospital in London, one of the few hospitals in the world that specialises entirely in treating serious gastrointestinal diseases. The company has six employees: two managing operations and business development and four stem cell scientists – two of whom are completing company-sponsored PhD programmes at UCL. Curileum aims to discover drugs to intervene early with treatments to reduce disease progression in colorectal cancer and inflammatory bowel disease. The company generates "mini-gut" organoids from patient and healthy gut mucosa to discover and characterise drug candidates before testing in preclinical in vivo models. These gut organoids are microscopic three-dimensional cellular structures that mimic the structural and functional properties of the mucosal layer of the gut. From these studies, two novel drug candidates that the company discovered are in preclinical development for licensing to pharmaceutical companies.

Progress since Investment

Curileum has continued to make excellent progress with its preclinical candidates

1 ULI-015: ULI, which means powerful in Chinese, is the active small molecule compound that Curileum isolated from a plant extract component (PLE015) of a traditional Chinese medicine. In Q3 2021, an in vivo study confirmed that the plant extract (PLE015) and the isolated small molecule compound (ULI-015) reduced the formation of intestinal polyps by up to 10-fold in a mouse bowel cancer model. Polyps are the first visual sign of the potential for cancer development. In Q4 2021, an additional in vivo study showed that the plant extract (PLE015) and the isolated small molecule compound (ULI-015) reduced established polyps by up to 5-fold in the mouse bowel cancer model. The findings of these in vivo studies significantly expand the potential use of ULI-015 for individuals identified as high risk for developing bowel cancer. ULI-015 might therefore become a drug to be taken daily by millions worldwide to reduce the development of bowel cancer.

2 Stem cell therapy candidate for healing fistulas: Perianal fistulas are an incurable and debilitating condition that affects up to 40% of all patients with Crohn's disease and has a frequency of 1:10,000 in the general population. Currently, no treatments effectively heal a cleaned fistula. A cell therapy to reduce inflammation that Takeda Pharmaceutical acquired for $600m only extends periods between periodic fistula cleanings. Curileum has discovered an adult stem cell that can produce a wide range of cell types in the culture dish. The company has tested the regenerative capacity of these stem cells in an in vivo preclinical fistula model. Three months after treatment, the fistula tract was remodelled and filled in with healthy cells. Curileum has filed a patent application for this promising therapy. A second in vivo fistula study is underway to test if Curileum’s stem cells can more effectively heal fistulas when combined with a clinically approved paste in preparation for human clinical studies.

Recent Developments

The company met with prospective pharmaceutical co-development partners and investors at four conferences over Q1 and Q2. The company has also been preparing to test PLE-015, the plant extract, in an in vivo large animal model for bowel cancer that will allow frequent monitoring of polyps over several months of daily treatments. Alongside these and other studies, Curileum scientists are developing methods to detect in vivo drug-induced changes in polyps at the cellular level in preparation for testing the drug candidate in humans.

Spendology.com

Company Valuation	Valuation Share Price	Fund Holding
£1.84m	£0.30	2.0%

Spendology Investment History

Date	Amount	Share Price	Type
Apr 2016	£37,500	£1.00	SEIS
Oct 2016	£62,500	£1.00	EIS
Sep 2017	£25,000	£1.00	EIS

Description of Business

Spendology was founded by three entrepreneurs from software, foreign exchange and personal finance backgrounds. The business provides a white label solution for the travel industry which allows tour operators, airlines and travel agents to offer a mail order or click & collect travel cash add-on service to their holiday customers. Spendology Cloud allows the travel industry to increase turnover, boost profits and enhance customer retention. In 2021, Spendology launched a franchise solution, offering any business anywhere in the world the opportunity to use the Spendology Cloud platform to provide an ecommerce front-end to their foreign currency distribution business. In February 2022, the $23bn international travel conglomerate, Internova Travel Group, signed a multi-million dollar franchise deal with Spendology for the US market. New integrations with Internova's designated inventory management system, card payment gateway and courier – coupled with implementation of an English (US) language pack – sees the platform ready to launch this Summer through their Altour and The Travel Authority brands, with further brands to follow later this year, before launching on the open market in the new year.

Post-pandemic predictions

Travel chaos caused by staff shortages has marred what was beginning to look like a dramatic recovery for the travel industry in Summer 2022 – and virtually no country is unaffected. So while international travel is definitely back, it looks like 2022 will fall short of the 2019 peak. It's not just airlines and baggage handlers who are impacted – the vast majority of travel companies either cut back on staff numbers during the pandemic or are currently suffering with staff retention issues. So while passenger numbers are up, turnover is up and profits are up – there is little management or IT capacity to do anything except respond and adapt to the current crises. We predict this situation will improve as the Summer draws to an end, although rising utility bills and interest rates may stifle demand while households watch-and-see whether the UK falls into recession. The story is similar across Europe and in the US, where recovery is slower and travel chaos is having a more significant impact on demand. Expectations are for Summer 2023 to break all travel records.

Recent Developments

Spendology (UK) has secured new contracts with Mercury Holidays and the newly resurrected Co-op Travel – both due to go live in July 2022. The sales pipeline is slowly growing, old prospects are returning to the negotiating table, and Spendology (UK) expects to secure several new contracts before the year is out. Turnover is showing sustained growth with the monthly run rate this Summer expected to exceed £3.5m from a low of £0.5m in 2021. Spendology is also responding to a new franchise enquiry from Scandinavia, with the prospect of a tie-in with a major European-wide wholesale notes provider very much on the cards.

Spendology successfully raised £450k of private equity in April 2022 from a combination of new and existing HNW investors, and is currently looking to raise another £400k at £0.30 to provide a combination of working capital and investment in further franchise development. Please contact investors@spendology.com for an application pack.

ActiveNeedle
Precision Targeting

ActiveNeedle.com

Company Valuation	Valuation Share Price	Fund Holding
£5.44m	£0.42	12.5%

Active Needle Investment History

Date	Amount	Share Price	Type
Apr 2016	£50,000	£0.12	SEIS
Aug 2016	£65,000	£0.19	EIS
Mar 2017	£19,000	£0.19	EIS
Mar 2017	£30,000	£0.19	EIS
Jan 2018	£28,000	£0.26	EIS
Mar 2019	£101,781	£0.35	EIS
Mar 2020	£32,122	£0.35	EIS
Mar 2021	£55,653	£0.42	EIS

Description of Business

Doctors make use of long needles for taking biopsies or making deep injections, but the needles are difficult to see on ultrasound, and long thin needles often deflect and do not end up exactly where intended. Active Needle Technology provides minute longitudinal ultrasound movement to the needle. This results in the needle being very bright on the ultrasound (from all directions) and much less deflection. The ultrasound drive also has an additional benefit in that the force required to insert the needle is much reduced. In early studies, this has been shown to result in less pain upon insertion and less risk of overshoot.

The technology was originally invented and initially developed by Dr Muhammad Sadiq at Dundee University. The company is being led by Ian Quirk who has been a design, regulatory and clinical development specialist in medical devices for over 25 years, most recently at Lightpoint Medical.

ANT has identified biopsy needles as a market where all the advantages of the Active Needle come to bear, while the extra cost of the ultrasound driver will only have a small impact on the gross margin. The alternative products (without ANT's advantages) cost ~$200.

Additional applications have emerged for ANT. One is a low pain, low trauma ultrasonic tattoo system (Trademarked as TranQuill), which has a $3bn a year addressable market. The second is pre-clinical injection system (PRECIS), aimed at blue chip pharma companies drug and vaccine safety screening studies. ANT is working with Astra Zeneca and GlaxoSmithKline in the design and commercialisation of these specialised, high precision needles. Importantly, this project was proposed by AZ and GSK – so that they are set to become the first customers.

In Q2 21, the company reached a significant milestone with the award of a CE mark for its initial medical product: the high visibility biopsy device. This landmark achievement allows Active Needle to market the device in the EU, EEA, and with minor registration, the UK. The company will require additional funds to progress this phase of scale up, a process which is ongoing.

Recent Developments

Active Needle has had excellent results investigating how its technology can improve the rapid distribution of drugs in tumors. The Active Needle can easily be tracked to an accurate location and then provides rapid spread of the drug throughout a tumor. The next stage will be to see how well the specific drug destroys tumors in preclinical trials. The first production batch of active needles is now being manufactured, and sales should start in the summer, probably in Q3. Partnership discussion for Tranquill the tattooing system are progressing well. The team at Active Needle has grown with a new design engineer and a person in charge of the precision dosing of pharmaceuticals for pre-clinical research.

ONI.bio

ONI Investment History			
Date	**Amount**	**Share Price**	**Type**
Apr 2016	£100,000	£0.02*	SEIS

*Adjusted for 1000:1 share split. EIS certificates remain valid.

Company Valuation	Valuation Share Price	Fund Holding
£128.39m	£0.21	0.8%

Description of Business

Oxford Nanoimaging is a spin out from the biological physics lab of Prof Achillefs Kapanidis at Oxford University. It specialises in super resolution microscopy, which refers to being able to resolve dimensions smaller than the wavelength of light. Prof Kapanidis, Robert Crawford and Bo Jing have invented an optical assembly which allows a microscope to be shrunk from the size of a small car to the footprint of a tablet (with a PC sized box under the bench). This not only gives a big advantage in crowded and expensive laboratories, it also does away with many of the adjustments and control requirements of other super resolution microscopes, making it suitable for beginners and experts. With the microscope, it has been possible to image the processes of DNA repair in a cell. The expertise in the company is not only in the device, but also in the molecular biology techniques and the image processing. A bit like a smart phone, we expect there will be advances both in the hardware and in the applications that can run on it. The company is aiming for rapid expansion, with a distribution network being developed around the world. The company also has the backing of Oxford University Innovation and Oxford Science Innovation.

Progress since Investment

Good initial progress was made with sales of nanoimagers exceeding expectations. In March 2017, the company raised £3m at £62.50 per share compared to the initial price of £20 per share to accelerate the rate of growth. In Q2 2018, the company raised $25m at £173.40 per share. The money came from existing shareholders, and from new shareholders from New York, China, Singapore and London.

ONI moved its headquarters to San Diego.

Recent Developments

The recent funding round ended up in Q2 at $75m at an effective share price of about £215 per share.

ONI is being used widely in academia and industrial research and has given rise to 123 publications. The most commonly cited technique cited is dSTORM, a method which enables tracking of individual molecules with a resolution of 20nm. You can see some of the fantastic images captured by ONI's microscopes here https://oni.bio/applications/gallery/ .

We have received no recent news from the company.

entia

Entia.co

Company Valuation	Valuation Share Price	Fund Holding
£22.41m	£35.64	1.8%

Entia Investment History

Date	Amount	Share Price	Type
May 2016	£75,000	£14.78	SEIS
Oct 2016	£9,504	£14.78	EIS
Nov 2017	£48,554	£21.96	EIS
Feb 2019	£89,934	£31.79	EIS
Mar 2021	£26,017	£35.64	EIS

Description of Business

Entia was founded by Dr Toby Basey-Fisher in 2015. Entia is empowering cancer patients with greater freedom whilst also equipping healthcare professionals with the insights to make more informed and personalised clinical decisions regarding treatment toxicity. At the heart of Entia's approach is a novel and easy-to-use blood analyser that allows patients to perform a suite of blood tests in their own home. It is launching in 2022 with the capability to monitor haematological toxicity of cancer treatment via a patient's full blood count. Results are seamlessly shared with healthcare professionals via Entia's cloud network and integration tools. This approach creates new insights into how individuals are responding to care and subsequently may enable more personalised decisions to mitigate life-threatening complications.

Entia has also launched a home monitoring solution for anaemia of chronic kidney disease under its Luma brand (www.lumahealth.uk). The product and service, which is similar to the upcoming Liberty solution, has been very well received with 100% patient preference over previous care pathways.

Progress Since Investment

Home monitoring has become the main focus for Entia, with multiple large pharma companies partnering with Entia to deliver the company's virtual solutions as part of blockbuster therapies. Entia's main focus is currently to bring its virtual oncology solution, Liberty, to market. The name reflects the freedom given to patients to be at home or at work rather than travelling to hospital for routine blood tests required to monitor the toxic side effects of cancer treatment.

The company employs 52 people. To date, the company has raised over £14m through equity financing and £5m from government grants. This has allowed the company to develop a multi-award winning team, establish world-leading clinical and pharmaceutical partnerships and positively change patients lives with its innovative products. The company's management systems have achieved accreditation against ISO 13485 and ISO 27001. The company also CE marked and launched Luma in 2020 for managing anaemia of chronic kidney disease.

Recent Developments

Pfizer announced its partnership with Entia in September 2021. The collaboration with Pfizer continues to go well.

Liberty, which is the product for monitoring chemotherapy patients will be tested with 60 patients in the Autumn. The patient will be on a variety of chemotherapies

Discussions with other pharma companies continue and Entia is now focussing on research and partnerships and looking not only into how Entia can replace standard laboratory tests and reduce the number of hospital visits , but also how it can enhance the care of patients and the safety and effectiveness of chemotherapy by conducting more frequent testing at home than the patient might otherwise have done.

Summary

Entia has a publicly announced partnership with Pfizer and is continuing its growth trajectory, with patient trials of Liberty due to start in the autumn.

Covatic.com

Company Valuation	Valuation Share Price	Fund Holding
£10.68m	£18.00	4.0%

Covatic Investment History

Date	Amount	Share Price	Type
Feb 2017	£39,776	£8.00	SEIS
Feb 2017	£60,224	£8.00	EIS
Feb 2018	£30,000	£16.00	EIS
Mar 2021	£67,997	£9.41	EIS
Apr 2022	£37,926	£18.00	EIS

Description of Business

For the past 20 years, Google and Apple and other tech companies have gathered and sold data about their users browsing habits, via cookies, and sold this data to advertisers. This has now become unacceptable and Apple have given people the ability to opt out. 85 % have done so, and advertising revenues have slumped.

Covatic has developed a set of tools, now branded 'A-Type' which sits on a user's phone (within out clients apps) and gathers data about a user and can then categorise the user into one of 1,000 types. So a particular user might be female, aged 30-35, with two young children, a car and a weekly shopping bill of £50-£75. The app might be able to offer 105,000 of this category to an advertiser who could then advertise nappies. But the user's data never leaves her phone and is unknown to the advertiser.

'A type' is now being deployed by an increasing number of the world's largest broadcasting organisations.

Recent Developments

Covatic has had a very good H1 with several major broadcasters including Comcast (the largest broadcaster in the world) and Sky beginning their roll-out of Covatic to millions of households in the US. Comcast has now said that it wishes to invest.

EW-Technologies.com

Company Valuation	Valuation Share Price	Fund Holding
£0.03m	£0.04	39.0%

Electrowinning Investment History

Date	Amount	Share Price	Type
Feb 2017	£25,000	£0.10	SEIS
Sep 2017	£35,000	£0.50	SEIS

Description of Business

Duncan Grant is an electrical engineer and spent his life in academia, at Bristol University developing novel methods of controlling minute currents and voltages to minimise power consumption and also controlling very high currents. At one time he developed a radio which used 1/10 of the power of the next lowest powered radio, and which had been intended for use in low income economies. The purpose of the investment in Electrowinning Technologies was to improve the quality and quantity of copper produced in electrowinning and electro refining plants by controlling the huge currents used in these plants with greater precision than had ever been done before.

Progress since Investment

The business started well when a contract was obtained to install the system in a single cell in a large European electrorefining plant. The hope was that this would have demonstrated the economics of the business , both the improved quality output and the reduction in power used. However, just before the system was due to be installed, and for reasons which remain unclear but which were believed to be political/internal management issues at the client customer, the contract was cancelled at the last moment.

So since then Electrowinning Technologies has been in mothballs.

The company continues to inform the mining industry of our existence and our hopes for the technology.

Recent Developments

There has been little progress in the last quarter and the company remains in mothballs. The renewal fees on the patents have been paid and there are no paid employees. Unless a way forward can be found, it is likely that the company will be wound up at the end of the year, in which case investors will be able to obtain loss relief on the investment.

LupeTechnology.com

Company Valuation	Valuation Share Price	Fund Holding
£10.32m	£4.50	11.1%

Lupe Investment History

Date	Amount	Share Price	Type
Feb 2017	£51,000	£0.68	SEIS
Feb 2017	£30,000	£0.68	EIS
Mar 2018	£51,000	£1.50	EIS
Mar 2018	£37,001	£1.50	EIS
Mar 2018	£9,999	£1.50	EIS
Mar 2020	£138,719	£2.78	EIS
Mar 2021	£50,243	£3.50	EIS
Apr 2022	£27,864	£4.50	EIS

Description of Business

Lupe was formed to design and launch a better vacuum cleaner. One that would work well and last a long time, with all parts designed to be maintained and replaceable, unlike today's throw-away vacuums. The two founders were previously on the engineering design team at Dyson.

Progress since Investment

Lupe has made excellent progress. The production prototype was completed in Sept 2018 and rapturously received at a huge trade fair in Germany. In 2018 Lupe did a kickstarter campaign hoping to raise £75k by asking people to pay 9 months in advance of delivery, to help fund production, but raised £650k. In summer 2020 the first production units arrived. Lupe received rave reviews with over 250 media articles, and was judged to be by far the best cordless vacuum cleaner in the world by Vacuum Wars, which, in its own words, is strictly for nerds. They test everything (eg putting 100g of sand on a deep pile carpet and weighing the amount collected by each brand). You can see this video at shorturl.at/aoKU1.

Partly as a result of these excellent reviews and the associated comments on social media, Lupe achieved steadily rising sales direct from its website with almost 90% of the sales being in the US, a market which Lupe hadn't expected to target initially. This is excellent, given that it's one of the largest markets for vacuum cleaners in the world.

In Q4 21, Lupe became a victim of its own success when it completely sold out of stock. However, it transpired that people were prepared to order and pay in advance for delivery up to five months later.

Date	Sales (units)	Comments
Q3 21	586	
Q4 21	1,471	Sold out
Q1 22	1,034	(Out of stock, all sales pre-orders with payment up front)

Recent Developments.

During Q1 22, Lupe established a warehouse and subsidiary company in the US, in order to better serve this market. Now with much higher operating margins Lupe is almost at break-even despite still being very early stage.

Lupe really needs to raise a larger sum on capital, say £5m, so that it can operate in a less hand-to-mouth manner, and take decisions with a longer time perspective. However, its sales track record is so short that it believes that it would struggle to raise this amount at a reasonable valuation. So it has been continuing to raise capital at £4.50 per share (valuing the company at £10m, and which compares to the original SEIS investment at 68p) and raised £260k in the first half of 2022 by this means.

ProcessVision.com

Company Valuation	Valuation Share Price	Fund Holding
£4.87m	£2.00	2.8%

Process Vision Investment History

Date	Amount	Share Price	Type
Mar 2017	£99,999	£3.00	SEIS
Jun 2018	£3,000	£3.00	EIS
Mar 2021	£68,494	£2.00	EIS

Description of Business

Process Vision Ltd has developed an inspection system for gas pipelines. Paul Stockwell, the founder, worked for many years in the field of sensors for the gas and oil industry and became acutely aware of the requirement for detecting and measuring liquids in gas pipelines. There is a legal requirement that gas pipelines do not have liquids in them but sometimes do. The liquids can be condensation from the gas or liquids carried over from the treatment plants – which are put in place to remove water, carbon dioxide or hydrogen sulphide from the gas.

Liquids are pushed along as either mist flow or liquid flow at the bottom of the pipe, reaching gas compressors or gas turbine power plants and wreaking havoc. Less dramatically, but possibly worse financially, the presence of liquids in the flow meters can affect the measurement and lead to over or undercharging.

Process Vision has found a way to install optical inspection and measurement cameras in the pipelines safely.

Progress since Investment

Process Vision spent the initial months after the investment obtaining ATEX approval. ATEX is a standard for devices operating in an explosive atmosphere, and obtaining approval is non-trivial. At the same time, Process Vision was in contact with potential customers. The first system was installed for National Grid in January 2019. In Q4 2019, this system recorded an 'event' of the build-up of liquid in the pipe, and Process Vision was able to report this to NG before they were aware of the problem themselves. NG said that they were "impressed" with the results. In one case, the PV system began operating in September, and the costs of contamination Recovery disposal were as follows:

Month	Costs
Sep 2021	£405k
Oct 2021	£245k
Nov 2021	£254k
Dec 2021 (to 13th)	£18k

PV estimates that Covid cost approximately 2 years of delay to their development.

Recent Developments

There are now three Line Vu systems in use and orders for an additional 3. In total Paul Stockwell believes that there will be over 1,300 Line Vu systems in use within 5 years. The data now exists to show the substantial savings that can be achieved if operators are able to spot the presence of liquids in their pipes and do something about it before damage occurs. LineVu is sold for an upfront fee followed by an annual maintenance/license/software update fee.

GRIPABLE

Gripable.co

Company Valuation	Valuation Share Price	Fund Holding
£9.28m	£5.47	3.9%

Gripable Investment History

Date	Amount	Share Price	Type
Sep 2017	£49,999	£2.27*	SEIS
Feb 2019	£106,934	£4.21*	EIS
Dec 2020	£33,219	£5.47	EIS
Mar 2022	£69,682	£5.47	EIS

*Adjusted for 100:1 share split. EIS certificates remain valid.

Description of Business

Worldwide some 430m people suffer with hand and arm disabilities. The current treatment for people who have lost the use of a hand following a stroke is to squeeze a ball, repeatedly maybe for up to 8 hours. This is extremely boring.

Dr Paul Rinne, a doctor who had been doing research at Imperial College on the rehabilitation of stroke patients, and Mike Mace, a robotics engineer at Imperial, developed an intelligent variable strength grip, which incorporates accelerometers and wi-fi. This means that a patient is able to play computer games which makes life much more interesting and with the result that patients enjoy their therapy and recover much more quickly. The founders have developed a range of games whose difficulty can be increased to match the returning dexterity of the patient. The brain is extremely plastic, and although a stroke may have destroyed the areas previously responsible for hand operation, given the right feedback the brain is able to relearn how to control hands, using entirely new areas.

Progress since Investment

Mike has manufactured and supplied 3D printed prototypes to hospitals, physiotherapists and patients. ISO 9001 and 13485 have been awarded.

The team has expanded and is working on the software which is not just standalone games, but also a framework which tracks the patient's progress. One of the key features of Gripable is the possibility to interact at a distance with other patients or relatives. It can also distinguish between situations where activities are limited by physical capability and those where mental abilities are holding back progress. The trainers who make use of Gripable particularly like the ease with which Gripable can be set up and used. A study at Imperial showed a vast increase in exercise among patients given the opportunity to use the device. An example of the benefits of Gripable can be seen in a case study of a stroke patient. His grip strength rose from 0.8kg to 12kg. This was achieved by the patient spending 160hrs over 30 weeks with the device. With a normal therapist that might have cost £15,000 and in normal unassisted care, a patient might only average 200 reps rather than the 10,000 reps the patient achieved. In 2022 Gripable raised £8.3m investment in order to push forward the US and promptly closed a deal with Medline.

Recent Developments

Gripable has teamed up with Ipsen Pharmaceuticals to change the way upper limb spasticity is monitored and rehabilitated. The Gripable device will both provide stimulating training and track movement quality and assess if the positive effects of the drug are wearing off. The Medline agreement has started and Paul and the team are putting in many hours and air miles to ensure the product is adopted widely. This will involve both sales and clinical trial to demonstrate the effectiveness of specific protocols and treatment pathways. A new manufacturing partner has started producing devices and things are going well so far.

Summary

With the US expansion underway and the first pharmaceutical trial started, Gripable is doing very well.

Darkbeam.com

Company Valuation	Latest Share Price	Fund Holding
£8.33m	£3.00	7.3%

Darkbeam Investment History

Date	Amount	Share Price	Type
Oct 2017	£50,000	£1.00	SEIS
Feb 2018	£25,000	£1.00	SEIS
Feb 2018	£10,000	£1.00	SEIS
Mar 2018	£18,200	£1.00	EIS
Sep 2018	£50,000	£0.50	EIS

Description of Business

Lots of bad things happen on the web, which has become so large (>1bn servers) that it has become difficult for law enforcement agencies to track. Darkbeam offers services which enable companies to identify weaknesses in their online presence, and manage the cyber risk they are exposed to through their third-party relationships, like their complex supply chains.

Progress since Investment

Having had a challenging first year, which resulted in a change of managing director, Darkbeam is now positioned as a Digital Risk Protection (DRP) and Third-Party Risk Management (TPRM) Platform. There are three main planks in one simple-to-use offering:

• Cyber vulnerability mapping: this is the real time mapping, classification and prioritisation of a company's digital footprint and vulnerabilities on the open web – including the dark web. This data doesn't just include data that has accidentally leaked from a company but also private credentials.

• Cyber risk defence: assessment of a company's external facing domain security configuration.

• Threat Intelligence: the real-time monitoring of hackers and their behaviours.

Cyber Vulnerability + Threat Intelligence = Darkbeam's Cyber Score

These three variables roll up into the Darkbeam score (1 low – 999 high risk) which provides an analyst a predictive indicator as to the vulnerability of a company. This is important in insurance and supply chain circles. The Darkbeam score for any company can be obtained in seconds.

Recent Developments

Darkbeam has raised additional capital at £3 per share and has been growing the sales and software development teams. The business model is that companies sign up for a yearly contract during which Darkbeam continuously monitors the websites of the client and its supply chain, to check for vulnerabilities. This service is known as "Enterprise Attack Surface Management".

LRESystem.com

Company Valuation	Valuation Share Price	Fund Holding
£2.69m	£2.14	7.0%

LRESystem Investment History

Date	Amount	Share Price	Type
Jan 2018	£50,000	£0.95	SEIS
Jan 2019	£75,050	£2.14	EIS

Description of Business

Whilst knee and hip replacements are quite common, elbow replacements are much less so. One of the reasons is that the only surgical solution on offer had been the total elbow replacement which left the patient unable to rotate the wrist and only able to lift very modest weights. The treatment was therefore only offered to retired people. The alternative treatments were drugs and removal of part of the elbow. Mr. Joe Pooley, who is a top orthopaedic surgeon, realised that almost all elbow problems start with the outer elbow joint and developed a replacement joint that only replaces the ends of the bones.

The technology was developed in 2005 and licensed to a large medtech company. The medtech company later underwent a merger and returned the ownership of the IP to Joe Pooley. With his brother, David Laskow Pooley, he has created LRESystem to develop and commercialise the Lateral Resurfacing Elbow.

LRESystem has been developing a kit (Elbow in a Box) so that everything the surgeon needs will be in one sterile pack. With an improved surgical technique, it will be possible to carry out the surgery very quickly so the decision to have surgery rather than taking strong immunosuppressive drugs and painkillers will be quite easy. The market for replacement elbows may become much larger than it is currently.

Progress since Investment

Everything went well with production and sterilisation certification. The biggest delay was in going through the hugely bureaucratic (and expensive) process of obtaining a CE mark. LRE's Elbow-in-a-box finally obtained its CE mark on 11th March 2020.

Year	LRE Elbows Sold	Cumulative Total
2019	9	9
2020	19	28
2021	0 (COVID)	28
H1 2022	5	33

Covid meant that all elective surgery ceased all over the world and there have been no LREs installed in 2021.

Recent Developments

The good news is that elbow surgery has begun to revive and three LREs were installed in Q1 with two more in Q2. Also, discussions continue with a major orthopaedic company which has expressed a possible interest in acquiring the rights to the LRE.

Atelerix.co.uk

Company Valuation	Valuation Share Price	Fund Holding
£2.13m	£0.80	11.1%

Atelerix Investment History

Date	Amount	Share Price	Type
Jan 2018	£50,000	£0.82	SEIS
Apr 2019	£133,187	£1.70	EIS
Mar 2020	£196,851	£1.95	EIS
Jun 2021	£44,767	£0.80	EIS

Description of Business

Cell cultures are widely used in medicine. Whether it is to test stem or T-cells for new procedures or to develop new drugs, the cells need to arrive at the place of use in the best possible condition. In most cases, when cells (or assemblies of cells) need transporting, they are cryogenically frozen, shipped, then thawed and brought back to functioning status. The process has many steps, is expensive and time sensitive – you don't want the cells to thaw in transit. Some cell types can withstand this treatment without problems, but many cell types struggle, with delayed cell death rendering experiments invalid or difficult to interpret. There are some cell assemblies that cannot withstand freezing at all and are therefore impossible to ship.

Prof. Che Connon's group in Newcastle discovered that when their special gel was put on cells, the cells were just suspending their function and when the gel was removed, they resumed as if nothing had happened. The gel also protects the cells during transportation. Atelerix may play an important role in enabling the development of drugs for complex conditions, enable easier administration of stem cell therapies, and better handling of pathology samples. Its three products are BeadReady, WellReady and TissueReady. Mick McLean, founder CEO and now Non Executive Director and adviser, has led new ventures and start-up companies in drug discovery and development, pharmaceutical manufacturing, research tools and contract research.

Progress since Investment

Atelerix' first deal was signed in India with LVPEI in Q2 2018 for a stem-cell treatment for corneal blindness. Using Atelerix technology, the treatment will be available all over India. Sales of kits have now started and there are distributors around the world. Cells, tissues and organoids from all over the body are being stored and transported. Some others have particular needs which require Atelerix to run experiments.

Atelerix moved into new premises during the Summer of 2019 and expanded the team bringing on new people in the lab and growing its research and development operations. It has several Innovate UK projects underway, for research and therapeutic applications.

Recent Developments

Atelerix's new team is doing very well. The advantages of cell storage in Atelerix gel have now been demonstrated in additional classes of cells. There has also been a flurry of commercial activity from companies who have tested the product in-house and established it worked just as they hoped.

Summary

Good research results have combined with renewed interest from industry to renew confidence in Atelerix.

Refeyn.com

Company Valuation	Valuation Share Price	Fund Holding
£121.66m	£4.35	2.8%

Refeyn Investment History

Date	Amount	Share Price	Type
Jun 2018	£66,240	£0.40*	SEIS
Jun 2018	£33,760	£0.40*	EIS
Jan 2019	£121,851	£0.64*	EIS
Jul 2019	£67,468	£0.64*	EIS

*Adjusted for 100:1 share split. EIS certificates remain valid.

Description of Business

Refeyn (named for the physicist Richard Feynman) was previously called Arago Biosciences. Refeyn is a spin-out from the University of Oxford that has developed an optical technology able to determine the mass of individual molecules in the range from 40 kDa to >5 MDa (Daltons is another name for Atomic Mass Units). This range encompasses most proteins and assemblies of interest to medicine. The measurement can take place in solutions with a wide range of biologically relevant concentrations and is rapid, with only a few minutes being enough to collect high quality data. A very helpful animation has been added to the Refeyn website (www.refeyn.com) showing how the device works.

The technology has brought together experts from a range of fields; optics, image processing, software, chemistry and biology. Prof Philipp Kukura invented the interferometric scattering methodology, Prof Justin Benesch is an expert in mass measurement techniques and applications, and Daniel Cole and Gavin Young are graduate students who developed the prototype hardware, software, and experimental methodologies. The team is growing quickly and very good people have been attracted to the opportunity including Jonathan Flint, former CEO of Oxford Instruments who has joined as chairman and Anthony Fernandez, the new CEO.

Refeyn now highlights 4 key applications of its technology: determining sample composition and purity; the assembly of protein complexes; the measurement of complex biomolecules; and understanding protein-protein interactions. Refeyn is developing and manufacturing a range of devices with different capabilities, from quality-control type instruments to full-blown research tools.

Progress since Investment

In 2019 Refeyn won 3 top awards for innovation from the Royal Society of Chemistry, R&D magazine and The Scientist. In Nov 2020 Refeyn raised £18m. New CEO Anthony Fernandez joined from Teledyne e2V and Philipp Kukura has moved back to the University and remains closely involved with Refeyn as a non-executive director.

In 2021 Refeyn made its second move, to a new building in Littlemoore, Oxford to enable it to expand manufacturing and operations. Refeyn is now also able to carry out extensive demonstration and testing work with companies without having to use university labs. Manufacturing pace has increased and sales numbers have increased satisfactorily. Part way through 2021 Refeyn launched the Refeyn TwoMP which has replaced the OneMP. In 2022 they launched the SamuxMP to measure the full empty ratio of AAVs - viruses used in cell and gene therapy.

Recent Developments

Refeyn raised a round at a share price of $5.91 giving a valuation of approximately $260m post money. As the round was heavily oversubscribed and not EIS qualifying we decided to sell a portion of the holding, to realise twice our investment to date at a 10 fold increase on the initial valuation and retain the upside on the remaining 75%. This transaction is expected to complete in Q3.

64 new publications show up on Google scholar since January 2022 and a total of 398. Researchers are clearly very busy with their Refeyn OneMP TwoMP and AutoMP. The first Refeyn User Meeting was held in June 2022 showcasing many new potential uses and developments of the Refeyn technology. Refeyn is growing very quickly!

Cytecom.co.uk

Company Valuation	Valuation Share Price	Fund Holding
£1.20m	£2.23	33.2%

Cytecom Investment History

Date	Amount	Share Price	Type
Jul 2018	£100,440	£1.55	SEIS
Nov 2019	£55,000	£1.55	EIS
Dec 2020	£84,021	£1.55	EIS
Mar 2021	£53,986	£2.23	EIS

Description of Business

Many people all over the world need to test for the presence of live bacteria, for example hospitals and the water, food and brewing industries. Currently, the procedure is to place the sample in a media-containing dish and then wait for several days while a culture develops which can then be analysed.

Cytecom has developed and patented a technology in which a fluorescent dye is added to a sample, which is then placed between electrodes and a voltage shock applied. (The precise nature and timing of the shock may be varied to achieve particular results. This is part of the know-how). The electric shock alters the cell membranes so that living cells take up the fluorescent dye at an increased rate. Dead cells will not take up the fluorescent dye. Measuring the change in fluorescence over the few seconds after the shock gives a count of the living cells.

Cytecom is a spinout from the Asally Lab in the Warwick Integrative Synthetic Biology Centre at the University of Warwick. The academic research that underpins Cytecom technology has been published in the Proceedings of the National Academy of Sciences of the United States of America and can be read at https://doi.org/10.1073/pnas.1901788116. Before the initial investment, Cytecom was awarded an Innovate UK grant of £230,000 which officially started in November 2018.

Progress since Investment

The CyteCount is a stand-alone device about the size of a small shoebox. It contains its own electronics, optics and the software to count the number of live cells in a sample. So users simply have to place a sample on the special slide (which contains the electrodes for administering the shock) and the Cytecount will then carry out the procedures automatically to give the user a readout of the number of live cells in each sample. Cytecount was demonstrated publicly for the first time at Lab Innovations at the NEC in October 2019 and there was interest from a variety of industries. The first sale was achieved in Q1 21, and in that quarter the company also raised £150,000 at £2.23 per share to further develop the device and hire a distribution team.

Recent Developments

Dr. Magdalena Karlikowska, microbiologist and ex-PHE clinical scientist, joined Cytecom as CEO in April 2022 to lead the expansion into new geographies and sectors. Former CEO, James Stratford, has taken up the role of CTO to coordinate the product development.

CyteCount product development has happily progressed to a point of high reliability, increasing its commercial attractiveness, and the team has demonstrated success with multiple strains of bacteria.

Further technical advancements include new algorithms reducing the number of false positives, and a method to treat pads that both gives more accurate count and extends shelf life.

Cytecom is focusing its sales efforts on several sectors: bacteriophages, antibiotics, antimicrobial materials. Food also presents a sizeable opportunity due to the industry volumes, and Cytecom is in conversation with several players in the space.

The company raised an additional £150k in May to support its marketing efforts and growth strategy.

POLYCAT

PolyCAT.co.uk

Company Valuation	Valuation Share Price	Fund Holding
£4.02m	£0.25	18.2%

PolyCAT Investment History

Date	Amount	Share Price	Type
Oct 2018	£50,002	£0.03	SEIS
Mar 2019	£22,058	£0.13	SEIS
Mar 2020	£11,985	£0.13	SEIS
Dec 2020	£112,998	£0.19	EIS
Feb 2021	£11,784	£0.19	EIS
Apr 2022	£60,350	£0.25	EIS

*Adjusted for 1000:1 share split. EIS certificates remain valid.

Description of Business

Polycat has developed an economic, scalable process to produce metal nanoparticles on polymer substrates. This has allowed the company to develop a range of products including highly antiviral materials for use in healthcare, all the way to catalytic spill kits that can degrade extremely hazardous industrial chemicals.

Progress since Investment

PolyCAT recently closed the second tranche of a Series A round it had first opened in 2020. Using the money raised, it has invented and developed 4 core product lines. These are: -

Steri-CAT Antiviral coating - During the pandemic, Polycat developed a method of producing materials impregnated with colloidal silver and copper, both famous for their antimicrobial properties. Extensive testing has now been done by multiple independent labs worldwide, and the results have exceeded all expectations with the coating inactivating viruses within 5 minutes. Because the results are so good and the process relatively cheap to run, PolyCAT can make continuously sanitising disposable PPE items that previously were not cost effective to treat. This has led to the company building a pilot production line for a major PPE producer which has been asked to produce PPE stockpiles for various governments for use in future pandemics. The pilot production line is now built and is currently being tested, and the major customer is due to make a final decision on the next steps by Q4 2022. This would be a major turning point for PolyCAT and the team are very focused on winning this business.

Fresh-CAT - PolyCAT has previously demonstrated a catalyst that destroys ethylene, which is the gas that triggers fruit to ripen and is responsible for significant losses during transport. PolyCAT has now restarted work on this and proved that their catalyst works continuously compared to the single use "ethylene sausages" used in shipping containers that it is hoping to replace. The company has now engaged the market leading manufacturer of the specialised shipping containers used to transport fresh produce and has started a trial to prove the technology works in the real world. It is hoped that the customer will fund the later parts of the trial, with roll out later in 2022.

Spill-CAT - PolyCAT has developed a range of catalysts that can degrade chemical warfare agents discovered in the field. A joint project run with the UK MoD and US DoD showed some good preliminary results, winning a competition for the best solution. PolyCAT has now started a follow on project entirely funded by DSTL Porton Down that aims to get the product ready for deployment. After attending several demonstrations to various military specialist units, the company now has firm sales interest that it should be able to monetise before the end of 2022.

Air-CAT - PolyCAT has developed effective antiviral filters to retrofit into air conditioning units. It has become clear that Covid-19 outbreaks are particularly likely in facilities where air is recirculated for energy efficiency, such as in food preparation factories and office blocks. Polycat now has good results from a prototype product and is rapidly developing the technology but has slowed development on this product to concentrate on building out the Steri-CAT production line.

Overall, the company has made excellent progress and its underlying technology continues to outperform expectations. The challenge through most of 2022 will be getting over the final hurdles of product development with each of the main sales leads before commercial sales can start. This is expected to happen by the end of 2022, with Spill-CAT becoming the first product to reach the market.

AsymmetricSuzuki.co.uk

Company Valuation	Valuation Share Price	Fund Holding
£0.1m	£4.00	37.5%

ASR Investment History

Date	Amount	Share Price	Type
Mar 2019	£65,040	£5.42	SEIS

Description of Business

The ability to synthesise complex chiral molecules is of increasing importance across the chemical industries. Challenges with asymmetric catalytic processes have limited the ability of drug development and agrochemical screening programmes to access new chemicals. Stephen Fletcher, Professor of Chemistry at University of Oxford, has developed efficient and low-cost solutions to some of the most difficult problems in asymmetric catalysis. Together with Dr Sarah Morrow, Stephen has formed Asymmetric Suzuki Reactions (ASR) to provide better access to existing complex targets and new chemical space. ASR will provide:

1. A digital compound library for screening

2. Custom compound libraries

3. Process design for chemical manufacturing

4. Custom synthesis of complex chiral molecules

5. New active molecules and discovery of new targets

In order to develop the opportunity, Oxford Technology invested £65,000 in March 2019. The initial market scoping and business development phase sought to de-risk the project for a more substantial seed investment. ASR has the capacity to provide small amounts (<1g) of compounds of interest to potential partners. These can be synthesised in an ad hoc fashion to avoid the need for long term rental of laboratory space.

Progress since Investment

Asymmetric Suzuki Reactions developed its website and marketing materials for circulation to > 30 potential customers and collaborators, with contacts generated by attending conferences and by word-of-mouth. Initial interest led to conversations with approximately half of this group, and ASR was invited to present at the Agrochemical company Syngenta. However, although one pharma company expressed interest in using ASR's technology, no contract with suitable payment was forthcoming and ASR was therefore put into hibernation at the end of Q1 2020.

In Q3 a new PhD began work on improving the efficiency of one of the patented reactions. And a commercial partner in Switzerland is involved who would like to use the reaction if it can be made more efficient and also to use less Rhodium. Rhodium is expensive - $20,000 per ounce which, in turn, has made this reaction expensive.

Recent Developments

Over Q2 2022, work continued on the £450,000 Innovate grant in the research group in Oxford under Professor Stephen Fetcher, but there were no major breakthroughs.

OXWASH

OxWash.com

Company Valuation	Valuation Share Price	Fund Holding
£20.15m	£6.69	4.0%

OxWash Investment History

Date	Amount	Share Price	Type
Mar 2019	£50,000	£1.13	SEIS
Mar 2019	£50,000	£1.13	EIS
Nov 2019	£54,679	£2.45	EIS
May 2021	£36,069	£3.58	EIS

Description of Business

Kyle Grant, an ex-NASA scientist and Tom de Wilton an Oxford Engineer, aim to transform the laundry and washing market. They spent the 18 months before the investment designing and iterating the process while also developing and implementing the sales and logistics mechanisms.

The idea is to have a commercial and hyper-sustainable laundry in a shipping container style box or disused commercial unit. The laundry may be placed anywhere and can be operational within hours. The laundry will be primarily for contracted regular B2B customers such as organisations who run multiple Airbnb units. They need to wash tablecloths, sheets and towels in volume and on short notice. These modules may be bolted together to make a larger unit.

The Oxwash system is super energy efficient. Using special technology, washing is close to room temperature. The main oxidising (deodourising and disinfectant) agent is Ozone, generated on site. Solar panels on the roof collect energy, which is stored in a large battery or fed into the grid. Water is filtered and recirculated, so microfibres or damaging chemicals will not be discharged to the environment. A sludge tank will need to be emptied periodically. A state-of-the-art automated ironing and folding machine has also been incorporated. Delivery and collection are performed exclusively by electric cargo bike.

Progress since Investment

The first unit, in Oxford, became operational in Q3 2019 as planned. The laundry is arguably the most energy efficient and the most environmentally friendly laundry on the planet. The plan is now to open more units, starting the UK but expanding globally. The revenue has recovered since Covid and Oxwash had three operating units by summer 2021, in Oxford, Cambridge and London. The London branch has now become the administrative and technological headquarters.

Oxwash has produced a chart comparing the environmental cost of washing at home compared to using Oxwash. Unsurprisingly, Oxwash is better by a large margin in all categories. (CO2 emissions 1.48 v 2.26, Chemical toxicity <1 v 96, Water use 15 v 50, Energy .89 v 7.17 , Microfibres released 68 v 700).

Recent Developments

Oxwash has had another good quarter with revenue performance higher than expected (£1.015m ARR) and anticipates a ~10% MoM growth in industry demand from now to Q4 due to the recovery in the hospitality sector.

The company also launched its nationwide service beta trial. Items from all over the country are processed in the Battersea lagoon and delivered through a zero-emission return platform operated by DPD.

Oxwash has been asked by NASA to come up with an ultra low resource laundry system to be used on the forthcoming manned Artemis missions to the moon and into deep space.

The company raised additional £10m in equity and debt at an increased share price, bringing on board strategic investors that will support their expansion in the US.

THE SMARTER FOOD COMPANY

SmarterNaturally.com

Smarter Food Investment History			
Date	**Amount**	**Share Price**	**Type**
Apr 2019	£89,998	£1.97	SEIS
Mar 2021	£96,058	£2.70	EIS

Company Valuation	Valuation Share Price	Fund Holding
£2.03m	£2.70	10.8%

Description of Business

The Smarter Food Company (TSFC) aims to produce a food to reduce blood glucose (FBG) levels in people who are defined as being 'pre-diabetic'. This could have a significant impact on the incidence of type-II diabetes (T2D), which is a major and growing problem throughout the world. Globally, there are over 1bn pre-diabetics and 370m diabetics. In the UK alone, diabetes costs the NHS £10bn per year, equivalent to 10% of its annual budget. So a preventative measure is a massive opportunity. TSFC's initial product is soup manufactured from a unique and proprietary variety of broccoli that has been naturally bred to contain very high concentrations of glucoraphanin (VHG). The science for this comes from the Quadram Institute.

Initial data from a two-year intervention study showed that individuals receiving the highest glucoraphanin levels had a reduction in their higher-than-normal blood glucose to levels associated with good health, and remained at this lower level for the duration of the trial. This effect was achieved by consuming just one 300ml portion of high VHG soup per week, with no other changes to diet or lifestyle.

Progress since Investment

Following significant delays due to COVID-19, the human study designed to confirm the existing data has been completed and most of the data points are now available for analysis. The levels of glycated haemoglobin have fallen significantly for some of the participants. Glycated haemoglobin is a more stable indicator of high blood glucose levels than fasting glucose measurements. Further cleaning and segmentation of the data remains to be done.

Two crops of the unique VHG broccoli were harvested last Autumn, enough to make 150,000 cups of soup. The company will not be able to make a health claim until after its programme of human studies has taken place (cost c £2m), but the pack will be able to say that this is a VHG soup and refer to the published research regarding the potential health benefits of glucoraphanin. From a commercial perspective, it is a good idea to get on with selling. This involves: developing an online store which will operate on a subscription basis; creating a marketing strategy; and building an inventory and logistics solution. Aran Shaunak has come on board as a consultant to help accelerate these aims. To support early commercialisation the company raised £400k+ in a round which closed at the start of the year.

Recent Developments

Smarter Food has now begun pilot sales, and the Oxford Technology team have already received their orders. Feedback has been very positive. You can sign-up to the waiting list at: https://smarternaturally.com

A single article in the Times ("Can a new soup cut the risk of type 2 diabetes") drove a significant number of sign-ups. You can read the article here: shorturl.at/hlpqD

The current offering is a month's supply for £25 on subscription, a small price to pay, both for individuals and health services, to avoid full-blown diabetes (the cost of a diabetes patient to the NHS alone is about £2,000 per year). In response to demand, the company has already started growing another batch of broccoli. In the meantime, they are focusing on converting existing leads, and also on expanding their pipeline by gaining more coverage in the press, on social media, and with early adopter groups (e.g. diabetes networks).

In all, the progress from TSMC is very encouraging.

ConnexinTX.co.uk

Company Valuation	Valuation Share Price	Fund Holding
£0.8m	£7.00	7.8%

Connexin Investment History

Date	Amount	Share Price	Type
Apr 2019	£66,325	£7.00	SEIS

Description of Business

There are over 60 million glaucoma cases globally and up to 40% of the patients will be severely visually impaired in one eye. Existing drugs can slow the disease progression, but are not protective. There are no drugs in development with any demonstrated ability to protect retinal cells and prevent vision loss in patients with glaucoma. Connexin Therapeutics is developing novel drugs to protect vision and prevent blindness.

In glaucoma, increased intraocular pressure causes cell death, which by "Bystander Effect" causes death of the neighbouring cells, so cell death proliferates, which leads to vision loss. By blocking the correct connexins (an ion channel) in the retina, it is possible to block the Bystander Effect and preserve vision. Connexin 36 (Cx36) is a protein found in the retina. By blocking Cx36, the Bystander Effect is prevented, thereby preserving neighbouring retinal cells and preserving vision in glaucoma. It is known that there are some molecules that have some effect but safer, more specific Cx36 inhibitors are needed. Connexin Therapeutics wants to create patentable drug candidates which are highly selective for Cx36. The international team will create, screen, and test Cx36 inhibitors to find novel, patentable compounds. Within 24 months from investment, it will hopefully have enough data to start filing provisional patents on compounds.

This should interest pharmaceutical partners and/or the investment community. Roche has stated, "In Glaucoma we are particularly interested in therapies that have demonstrated the ability to protect retinal neurons compared to intraocular pressure lowering therapies." and Bayer has stated, "[We] are focused on identifying innovative partnering opportunities for retinal disorders to help improve or prevent loss of vision".

Progress since investment

The research programme has started and the first experiments are complete. The new compounds are based on a molecule which has already demonstrated efficacy in mouse models of glaucoma. They are being synthesized and tested as novel small molecules in animal models of glaucoma. Chemical modification enhances specificity, makes administration and delivery easier, and will allow Connexin Tx to get composition of matter patents.

Working with Cambridge-based o2h Discovery, Connexin Tx designed and tested three novel derivatives of meclofenamic acid. Some blocked gap junctions in a dose-dependent manner and others didn't, so Connexin learned a great deal about the structural requirements for blocking retinal connexins. This helps direct further chemical development work. Covid slowed work down, but it has all restarted

Recent Developments

Connexin is focused on fundraising. The stock market downturn has meant Connexin has stepped back from a potential IPO and is progressing with private fundraising.

Cytoswim.com

Company Valuation	Valuation Share Price	Fund Holding
£1.71m	£6.18	21.0%

Cytoswim Investment History

Date	Amount	Share Price	Type
Apr 2019	£100,274	£2.44	SEIS
Sep 2021	£11,489	£6.18	SEIS
Sep 2021	£59,038	£6.18	EIS
Apr 2022	£34,194	£6.18	EIS

Description of Business

In vitro fertilisation (IVF) is a large and growing market for humans and animals. One of the key steps in IVF is the selection of healthy sperm cells, characterised by swimming fast and straight. Cytoswim has developed a new, easy-to-use chip which separates the healthy cells from the unhealthy ones.

The current techniques for selecting healthy cells are not particularly effective. The most commonly used process is centrifugation, which takes up to an hour, requires expertise and causes damage to sperm DNA. The current preparation techniques cost the patient from £100 to £300. In Europe, there are 800,000 IVF procedures per year and in Japan and the US combined roughly 650,000. Territories such as China and India do not report IVF cycles with the same accuracy, but are estimated to carry out an additional 1,000,000 IVF cycles in total. Altogether the global accessible market is approximately £250m-£500m.

There is also a large market in animal husbandry and breeding. There are problems in animal fertilisation from cattle to laboratory mice, and famously pandas. One attraction of the animal market is that it does not generally require any regulatory approval and could therefore be much quicker to make revenue.

Progress since Investment

Work at Sheffield University testing the prototype devices with sub-standard human sperm showed the DNA fragmentation index (an indicator of unhealthy sperm and future miscarriage) was 10x lower for samples that had been through the CytoSwim devices than other separation techniques.

The company has moved all the prototyping work into its own lab in the Warwick University Venture Centre and continues to use labs in the Warwick University Physics Department only for biological work.

Recent Developments

CytoSwim is currently testing the technology with several of the world's largest and most innovative bovine IVF providers such as Boviteq and ABvets. The company is currently in sales talks with some key early adopters and is carrying out the key experimental studies these early adopters need in order to purchase the product for their practices.

CytoSwim has also completed its journey in the CDL programme operated by Oxford Said Business School. Through this the company has built relationships with IVF clinics and leading embryologists.

The device will not be able to be used commercially for human fertilisation until a CE mark is obtained and it is hoped that this will be obtained in Q4 2022. CytoSwim has largely finalised the manufacturing, processing, and sterilisation methods. Over 1100 devices for the testing batch have now been manufactured and certification experiments that include chemical safety, sterility and shelf life, and sperm toxicology are due to start in Q3 2022.

The company has a good cash position. Cytoswim accepted a £250,000 investment from Logixx Pharma to fund the next stage of certification, accelerate USA deployment and continue collaborations with industry partners. OTM invested a further £34,000 in April 2022.

Nikalyte.com

Company Valuation	Valuation Share Price	Fund Holding
£0.77m	£0.95	24.5%

Nikalyte Investment History

Date	Amount	Share Price	Type
Aug 2019	£49,738	£0.95	SEIS
Feb 2020	£16,152	£0.95	SEIS
Oct 2020	£77,886	£0.95	EIS
Dec 2021	£44,987	£0.95	EIS

Description of Business

Nikalyte was founded by Dr Alistair Kean, Dave Mason and Srinivasa Saranu who have spent years working in the specialised coatings industry, particularly in methods for producing metal nanoparticles. They provided the IP for a company, Mantis Deposition Ltd, which developed a range of instruments for producing nanoparticles and laying these down on a substrate. But although this company was a technical success, its instruments were expensive (many >£200,000) and mostly one-off designs for particular applications, and the company ultimately failed. The objective of Nikalyte is to develop a nanoparticle generator, which will be less than £100,000 and enable researchers to produce nanoparticles of almost any metal or alloy on almost any substrate via a user-friendly interface.

Metal nanoparticles are being ever more widely used, in a growing number of applications, including cancer therapies/diagnostics, catalysis, metamaterials, photonics, electrochemistry and batteries. Nanoparticles are of huge interest to the life science research community in areas such as cell binding and drug delivery. Presently there is no clean, non-chemical method of depositing pure, non-agglomerated nanoparticles onto a substrate such as an agar plate.

Progress since Investment

The first benchtop nanoparticle system, known as the NL50, became operational in Q2 2020. A demonstration of the machine in action can be seen at shorturl.at/qsHRT.

Nikalyte has expanded its product portfolio to include the NL-UHV nanoparticle source, and also has the capability to build custom systems based on Nikalyte's proprietary technology.

Nikalyte also operates its own fully functional nanoparticle deposition system. By changing the operating parameters of the instrument, primarily the voltages and currents used, it is possible to change and measure the mean particle size and the shape of the nanoparticle size distribution curve. Nikalyte uses this machine to provide consultancy and samples of nanoparticles on suitable substrates. In partnership with Wasatch Photonics, it is now also producing state of the art SERS substrates, which can be purchased directly from the company's website: nikalyte.com

Recent Developments

Nikalyte continues to pursue an outreach strategy by forming partnerships with companies which use or distribute nanoparticle solutions. It is building presence via online marketing as well as offering live demos at trade fairs and pursuing direct leads with academia and industry.

The company is currently recruiting a salesperson, and is investing recently raised funds in the expansion of the SERS business and promotion of all products.

In Q2, Nikalyte completed its first commercial NL-UHV sale, and can begin to build case studies around it. They also closed a six-figure order for a bespoke system from a blue-chip FTSE customer, and aim to close another similar deal this month. The order pipeline for SERS continues to grow, with SEO efforts to make their substrates appear high in online rankings clearly paying off.

Overall, a very positive quarter for Nikalyte.

Etcembly.com

Company Valuation	Valuation Share Price	Fund Holding
£8.76m	£3.00	8.4%

Etcembly Investment History

Date	Amount	Share Price	Type
Jan 2020	£70,588	£0.40	SEIS
Nov 2020	£20,587	£1.58	SEIS
Nov 2020	£49,411	£1.58	EIS
Feb 2021	£17,677	£1.58	EIS
Apr 2022	£42,444	£3.00	EIS

Description of Business

The immune system is very complex and has long been an inspiration for pharmaceutical development. Curing diseases using biologic agents derived from components of the immune system has saved countless lives and is a multi-billion dollar success story.

Etcembly uses informatics from its machine learning platform EMLy to understand and exploit the immune system by observing the TCR (T Cell Receptor) repertoire as it responds to health and disease. It is these differences in the immune systems which may explain why people react so differently to viral infection and cancer. Some people throw off the infection and develop immunity with no symptoms at all; others die.

Just as computers are now able to play chess better than humans, so Etcembly aims to bring its machine learning platform, EMLy, (Etcembly Machine Learning) to bear on the immune system. Etcembly has created a massive database of TCR sequences (in order of hundreds millions) and uses machine learning to understand the rules of target engagement and specificity.

Through exploiting this, the team hopes to bring significant benefit in healthcare by shorter drug development life cycles, lower drug development costs and potentially a new class of TCR based biomarkers which will define immunological health.

Progress since Investment

Etcembly got off to an excellent start and signed a £50k contract with National Cancer Centre Singapore (NCCS)/Tessa therapeutics in Singapore who had completed a phase 3 trial evaluating chemotherapy and T cell immunotherapy for advanced nasopharyngeal carcinoma patients. Larger contracts (~£500k) based around neo-antigen trials and another start-up in stealth mode have also been signed. The database of TCRs within Etcembly had increased to more than 400m sequences by the end of Q4 2020.

Etcembly set out to raise up to £500,000 in Q4 2020, at £1.58 per share, but ended up by accepting just over £1.6m with the investment completing in Q1 2021. Staff had increased from 2 at the start to 14 by Q1 22. Also in Q1 22, Etcembly raised £2m at £3 per share to fund further experiments and to increase staff.

Recent Developments

Etcembly continues to make good progress, but both the founders caught Covid during Q2. One of them had mild symptoms, the other was quite badly affected. One of the outcomes of Etcembly's work should be a better understanding of exactly why people are affected so differently and what can be done about it.

FlareBright.com

FlareBright Investment History			
Date	**Amount**	**Share Price**	**Type**
Sep 2020	£29,000	£100.00	SEIS

Company Valuation	Valuation Share Price	Fund Holding
£2.30m	£100.00	1.3%

Description of Business

Flare Bright is developing systems to enable drones to fly autonomously, without any contact with a flight controller or GPS. Until such systems are fully developed and safe, there is unlikely to be any major use of drones in urban areas. Radio signals can be jammed and a drone without such a system which loses its GPS and/or radio connection will fly out of control and crash. FlareBright's first product is a tiny unpowered drone, Snapshot, launched up to 100m into the air with a compressed air launcher, and which then has a glide time of 10 - 20 seconds along a programmable path taking it back to the launch point during which time it streams video back to base. It can then be recharged from a USB for another flight in about 1 minute. Its potential uses are legion - defence, emergency services, anti poaching and disaster relief to name a few. The founders of FlareBright are Kelvin Hamilton, Conrad Rider and Chris Daniels. Dr Kelvin Hamilton has a PhD in autonomous systems and co-founded SeeByte, which developed autonomous systems for subsea robotic platforms and which had a successful trade sale in 2014. Dr Conrad Rider was the lead engineer at SeeByte. Chris Daniels, CCO of FlareBright, was on the exec team at Hybrid Air Vehicles, which grew from 13 - 120 people. Dominic Keen, non-exec Chairman, founded the software company mPorium which IPO'ed for £50m.

Progress since Investment

FlareBright won four defence contracts worth £1.1m together to develop its systems, and has been working hard on delivering these contracts, Staff numbers had increased to from 3 at the time of the initial investment to 15 by Q4 2021. FB also developed a Machine-Learning enabled wind-sensing capability. So Snapshot is able to calculate the windspeed and direction at each point along its flight path. This will important when drones fly between two tall buildings, for example, and where there are eddies. This capability has proved extremely popular, and may become a standard component of drone flight control in future.

Recent developments:

Flarebright has now successfully completed its two UKRI Future Flight grants (and been paid!). It is now commencing the next phase of these projects. (FB did very well to secure both of these projects - at least 50% of the phase 2 projects were rejected). FB is also just about to come onto contract with both the RAF (wind measurement drones project) and the US DoD (GPS-free capability). The latter are visiting in a few weeks time. FB also has other interest from UK MOD, which should lead to other projects later in the year. Technically, FB is just completing the DASA project (DPAD) and has the final test event with DSTL later in July, which is the current company focus. FB was invited to speak at the GEOBusiness conference, and also exhibited at the US Special Forces conference in Tampa, and will be announcing the patented wind measurement technology at the main academic conference related to this in Sweden in September. Cashflow is looking good and will see FB through to the end of the year, even if no more projects commence.

Cryologyx Investment History			
Date	**Amount**	**Share Price**	**Type**
Mar 2021	£75,000	£3.34	SEIS

Cryologyx.com

Company Valuation	Valuation Share Price	Fund Holding
£0.72m	£3.34	10.5%

Description of Business

Prof. Matt Gibson's group at Warwick University is a cross-disciplinary group that works on glycosciences and biomaterials. In particular, they have been studying the freezing and thawing of biological materials. Having discovered a material that improves the ability of cells to survive freezing and thawing, Cryologyx was created. Tom Congdon who worked in this group, did an ICURe programme which involves a lot of interaction with industry and helped focus their plan. He is joined by an experienced Chairman, Paul Garman.

Cells are normally frozen using a material called DMSO, which stops big ice crystals from forming and destroying cells, but which is also toxic to cells in the concentrations required. By using the Cryologyx materials, it is possible to reduce the concentration of DMSO used to levels which are not toxic to cells. This opens up many opportunities.

One of the pharma industry problems Cryologyx is addressing is that of having to re-culture cells after freezing before being able to use them in experiments. This typically takes up to three days. With Cryologyx technology it is possible to prepare the cells for experiments, typically in Multi Well Plates, then freeze them. At this point they can be shipped, stored almost indefinitely at - 80 degrees and then taken out of the freezer and be ready to use within a few hours - with no additional culturing required.

Cryologyx is running an Innovate UK project to develop ready-to-use liver cells in multiwell plates for toxicity testing. The work is going very well with recovery yields of over 100% being achieved. This means that 24 hours after thawing there are more viable cells than were present before freezing. This is possible because cells can divide during the 24 hours. By comparison conventional techniques and materials would yield less than 10% recovery.

The company is also working on the cryopreservation of blood and tissues in a project funded by a partner in the defence sector.

Recent Developments

Cryologyx has had an excellent quarter on many fronts. In particular it has reached an agreement in principle with one of the world's largest suppliers of cells for research by which Cryologyx will now supply these same cells in 96 and 24-well plates and frozen using its proprietary technology. The cell company will invest £1.4m in equipment and labs to enable Cryologyx to supply its cells at scale. In due course, it would like Cryologyx to open a production facility in the US to be better able to supply the US market. This means that users will be able to use the cells immediately after thawing and that there will be a much greater number of viable cells than was the case before. All seems to be well, but the agreeemnt has not yet been signed.

Zayndu

Zayndu.com

Zayndu Investment History

Date	Amount	Share Price	Type
Mar 2021	£133,505	£61.98	EIS
Apr 2022	£83,029	£157.55	EIS

Company Valuation	Valuation Share Price	Fund Holding
£2.89m	£157.55	14.6%

Description of Business

Agricultural seeds are very expensive - some more than £100,000/kg. It is important that the highest possible yield is achieved. One of the steps in preparing them for sale is to sterilise the seeds, so no bacteria or fungi can damage their growth prospects. Most agricultural seeds were treated with chemicals, but due to their damaging nature they have been banned. Zayndu has developed a method of sterilising seeds using a plasma generated in a chamber which does no damage at all to the environment or the seeds. It also is a faster and easier process with no drying or washing steps required. For some types of seeds, for example basil or chia which have seed coats that swell immediately on contact with water, dry disinfection is the only possibility. Furthermore, the treatment actually results in a higher % of the seeds germinating and germinating in a tighter time window, which translates to higher yield.

The founders of Zayndu are Ralph Weir and Dr Felipe Iza. The technology was developed at Loughborough University, which is also a shareholder in the business.

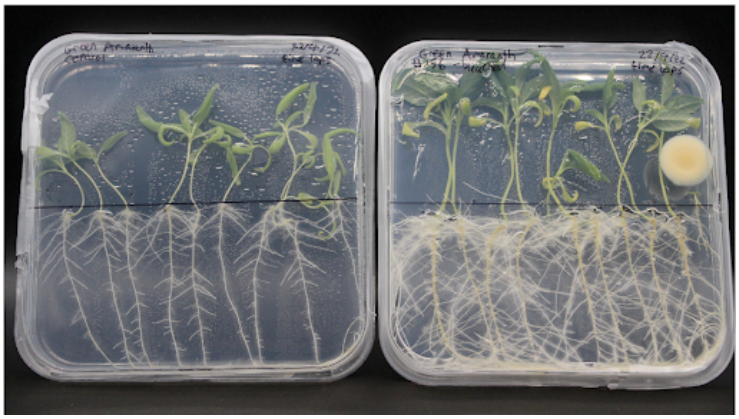
Zayndu has interest from several large seed companies. The purpose of the investment which also secured the release of a £700,000 Innovate Loan, was to enable the company to produce the first commercial version of its technology and to make the first sales to seed companies. The business model will be a pay per use or monthly rental model.

Recent Developments

Zayndu has made significant enhancements to the first generation machines, improving the overall usability for customers. Further research has confirmed the increase in germination rate and a reduction in rates of infection, sometimes giving a bigger advantage on one aspect than the other, but so far there has always been a significant benefit. The first data presentations have resulted in urgent requests for its machines, with global interest - the first machine for the US has been shipped on the 4th July. The interest - particularly from the vertical farm market - grows all the time, especially when the results of the tests are seen.

In early July, Zayndu shipped a machine to a large vertical farm in California for a paid trial. If the trial goes well, there is an initial order for three machines on a monthly subscription basis.

Below is a comparison of untreated v plasma treated 20 days old Amaranth:



HydregenOxford.com

Company Valuation	Valuation Share Price	Fund Holding
£2.38m	£16.43	4.6%

Hydregen Investment History

Date	Amount	Share Price	Type
Mar 2021	£100,005	£15.00	EIS

Description of Business

One of the most common reactions in organic chemistry is hydrogenation which represents 14% of all organic chemistry reactions. 20% of drugs, for example, have chiral alcohol groups in them which are frequently created by hydrogenation of aldehydes or ketones. To date, there were two main methods of hydrogenation: high temperature catalysis using metals - which had disadvantages of non specific reactions, high energy use and expense of the metals, and enzymatic biocatalysis typically using glucose as the fuel to drive the reaction - which has the downside of large amounts of waste and not being suited to flow reactors. HydRegen has developed a third method, which consists of combining separate enzymes on a carbon particle, and using gaseous hydrogen as the source of hydrogen and energy so that at the end of the reaction there is no waste to dispose of. The HydRegen method is fast, clean and accurate. Furthermore it is easy to integrate into flow chemistry and should scale very well from lab to large scale.

The three key people in HydRegen are CEO Holly Reeve, scientific founder Kylie Vincent and Sarah Cleary, with the support of experienced chairman Will Barton.

HydRegen was set up with £200k in funding of which half came from OTSEIS, to support an Innovate grant to help develop and market test small flow reactors packed with their proprietary enzyme beads to which customers will be able to add their enzyme of choice and their reagents.

Recent Developments

Co-founder and CEO, Dr Holly Reeve, received the 2022 Royal Society of Chemistry, Felix Franks Biotechnology Medal for her contributions to chemical biotechnology. This will certainly have helped to ensure the HydRegen name is becoming increasingly well known. Work with partners is progressing well and HydRegen continues to develop its basic technology with progress being made against all the key technological requirements.

MACHINE DISCOVERY

Machine-Discovery.com

Company Valuation	Valuation Share Price	Fund Holding
£3.70m	£4.77	2.0%

MD Investment History

Date	Amount	Share Price	Type
Mar 2021	£74,999	£4.77	SEIS

Description of Business

Machine Discovery (MD) is an ambitious early-stage software company developing machine learning technology to simplify, automate and accelerate simulation tasks. The company is a spin-out from the University of Oxford. Its founders are highly regarded in their respective fields. Prof. Gianluca Gregori, Prof. Sam Vinko, Dr. Muhammad Kasim, and Dr. Brett Larder are experts in laser and plasma physics and ML. They co-invented the concepts behind the company's software technology during their academic research at the University. As an example, the team was able to predict how the smoke from the fires in Australia would disperse over the Pacific over the next fortnight. They reached the same conclusions as NASA using the same publicly available datasets with 99.9% accuracy but achieved the result with 1 billionth of computing power.

In Q1 2020, Bijan Kiani, an executive who has spent over 30 years in the enterprise software and simulation business and runs Oxford Technology's office in San Francisco, joined Machine Discovery as CEO. Bijan previously led the product marketing team at Synopsys, an industry-leading Electronic Design Automation ("EDA") software company, and previously founded and successfully exited his electronics design start-up in which Oxford Technology had invested. Several large investors have become involved in Machine Discovery and the initial capital raised was £1.6m. But because OTM initiated the investment, and introduced Bijan, etc, all our £75,000 was an SEIS investment. The company had already secured its first trial contracts with several groups working on Fusion technology.

Progress since Investment

Following the initial investment, MD has been actively hiring additional research, software development, and business expertise as part of its expansion plan. The company will initially target markets where the co-founders have strong domain knowledge such as Clean Energy (Fusion) and simulation acceleration for compute-intensive applications.

Recent Developments

Good progress continues to be made, with more and more people within its first customer (a fusion company) using its platform in earnest. MD is still operating in stealth mode and plans a formal launch event in the autumn. A second customer, this time in the US, was also secured.

OxVent.org

Company Valuation	Valuation Share Price	Fund Holding
£1.20m	£0.002	6.6%

OxVent Investment History

Date	Amount	Share Price	Type
Apr 2021	£79,124	£0.002	SEIS
Apr 2022	£60,000	£0.002	EIS

Description of Business

OxVent was created to exploit the ventilator designs developed at the beginning of the Covid crisis by Kings College and Oxford. It was founded by Profs Mark Thompson, Federico Formenti, Sebastien Ourselin Andrew Farmery together with CEO Peter Phillips. The UK govt placed an order for 3,000 ventilators and agreed to purchase the parts. In the event the order was cancelled, but the purchased parts were given to Oxvent and are now in the new OxVent factory near Oxford, piled up to the ceiling. It will take about 3 hours to assemble each one and it is believed that they will command a price of £2000 to £2500 each - so £6-7million if all of them were sold. (The most expensive ventilators can cost $50,000). The next steps with this ventilator are to gain regulatory approval and to build distribution partnerships.

To accelerate the commercial side of the Company, Oxvent has recently closed a contract with The Ventilator Partnership in Boston and acquired all rights to its AIRA ventilator. It is a more sophisticated device with a higher price-point and a wider range of features than the Oxvent device. Importantly, it already has Emergency Use Authorisation from the FDA which means it can be sold in a number of countries with minimal additional regulatory barriers. A Letter of Intent is in place with a distributor who supplies a number of countries in North Africa and the Middle East so that sales will be able to start as soon manufacturing is under way at OxVent and all the paperwork has been completed. Serious interest has also been received from Brazil and other Latin American countries. AIRA is demonstrating its appeal and will be the first commercially launched product from OxVent.

OxVent has been certified to the ISO 13485 quality standard for design, manufacture and distribution of ventilators and this qualification allows the AIRA ventilator to be manufactured by OxVent in compliance with FDA requirements.

The OxVent was designed at breakneck speed in Spring 2020 when the pandemic was accelerating and there was a fear that the NHS would be overwhelmed. But in the following months the academics at Oxford, having thought more about ventilators, have since come up with what is believed to be an altogether better and simpler design, the OxVent P: Patents have been drafted.

OxVent has also received a UK-CPI Healthtech Programme grant to fund regulatory approval work which is now under-way in the USA.

So the plan is to start commercialisation of the AIRA ventilator in the next few months and to build revenue and market exposure. The OxVent ventilator will gain regulatory approval and be put to good work, particularly in low–resource countries which are seen as a complimentary market. This would then use the stock of paid-for parts to sell up to £6-7m of OxVents. It is possible that part of the stock of parts might be sold to companies who would then do local assembly in Africa, Middle East and India. The Company will then begin producing and selling the new, OxVent P design.

While the commercialisation gets under way, the company has only three dedicated part-time employees, to keep costs as low as possible.

OXcan
Oxford Cancer Analytics

OxCan.org

Company Valuation	Valuation Share Price	Fund Holding
£4.0m	£40.00	2.5%

OxCan Investment History

Date	Amount	Share Price	Type
Jun 2021	£50,000	£40.00	SEIS
Jul 2021	£50,000	£40.00	EIS

Description of Business

A company founded by Peter Liu and Andreas Halner, two Oxford DPhil researchers with medical training. They have developed machine learning algorithms to detect early stage lung cancer with 85% sensitivity and specificity over 99%. They are focusing on recurrent lung cancer as the first niche. Lung cancer is usually detected quite late and while it is often curable by surgery in stage 1, once it has reached stage 3 or 4 the prognosis is much worse.

When we first met them they had recently completed a study comparing the performance of their algorithms with those published by John Hopkins University. With the same specificity they were able to detect double the number of early (stage 1) lung cancers. The test is based on a liquid biopsy, where a blood sample is taken and genetic, protein and epigenetic information is collected.

We participated in a £1.2m investment round led by Chinese lab robotics company MegaRobo.

Progress since Investment

Since our investment, OxCan has rapidly scaled to a team of 12, adding expertise in Machine Learning, Liquid Biopsy, Business Development, and Regulatory Affairs. They have also taken on three employees via the Government Kickstart scheme, helping to get disadvantaged young people into work during these challenging times.

Recent Updates

OxCan is making good progress with its £5m fundraising round. It is also continuing to make excellent progress with its scientific and mathematical developments. A large study of lung cancer recurrence is about to start in Oxford and the interaction with Toronto has progressed as a result of the excellent results achieved with the first set of samples. New mathematical approaches have further increased the robustness of the test.

One area they have been working on is reducing the number of proteins that need to be measured in order to get a high reliability result. The results have been good so far, but everything will have to be recalculated once the specific protein tests have been conducted.

Progress here continues to be positive, and once the fundraising completes, should accelerate.

MitoRxTherapeutics.com

Company Valuation	Valuation Share Price	Fund Holding
£3.80m	£75.00	2.2%

MitoRx Investment History

Date	Amount	Share Price	Type
Nov 2021	£60,000	£75.00	SEIS
Nov 2021	£12,450	£75.00	EIS
Jan 2022	£9,750	£75.00	EIS

Description of Business

When bacteria developed in the early earth, several billion years ago, there was no oxygen in the atmosphere and bacteria developed using chemistry based on sulphur. Later, when cells developed, they hijacked the sulphur-based energy-producing bacteria and incorporated this into the mitochondria, the part of all our cells where energy is produced to drive all the thousands of processes which go on inside cells. Sulphur is still required for the mitochondria to work, and if anything goes wrong with the sulphur-based chemistry, then the cells cannot function properly. MitoRx believes that this is the fundamental cause of many diseases, and that by fixing this fundamental problem, lasting cures can be found.

MitoRx was founded by Prof Matt Whiteman (CSO), Jon Rees (CEO), Norman Law (CTO / Head of IP). Oxford technology invested £75,000

The list of diseases which may be treated by targeted sulphide delivery (it has worked in nematode and mouse models) is very long, including inflammatory diseases, genetic diseases and neurodegenerative diseases. The initial focus will be on Duchenes Muscular Dystrophy and Huntington's disease, but it could also help in Alzheimer's disease, Parkinson's disease, sarcopenia, cancer cachexia, COPD, and IPF.

Progress since Investment

MitoRx completed its seed round investment in late April 2022. It announced that Glyn Edwards MBE has joined as chairman of the company. The science has been going well so far and there has already been interest in the company and its programmes from both pharma and investors. MitoRx's most advanced programme will enter preclinical stage in August 2022.

OVO BIOMANUFACTURING

OVOBiomanufacturing.com

Company Valuation	Valuation Share Price	Fund Holding
£1.30m	£10.99	7.0%

OVO Investment History

Date	Amount	Share Price	Type
Nov 2021	£90,799	£10.99	SEIS

Description of Business

Viruses create lots of of imperfect copies. (It is this quality of viruses that enable them to mutate and create variants.) As well as particles with minor deficiencies, the vaccines also produce much smaller particles maybe with only 20% of the mass of the original vaccine. But if these smaller particles, known as DIPs (Defective Interfering Particles) also have the correct starting and ending codons, they will also take over the replication mechanism of the cell and replicate. As they are much shorter, they will replicate faster than the original virus. OVO Biomanufacturing is a spin-out from Warwick and Coventry University aiming to control/exploit DIP production. There are two strands to OVOs technology:

1. Vaccine Optimisation Platform: Manufacturers of virus-based vaccines culture the vaccine in eggs. The vaccine enters the cells in the eggs and there takes over the reproduction mechanism, so that each infected cell then produces 1000's of copies of the vaccine. But manufacturing efficiency may be hampered by the production of DIPs at the same time. OVO's software platform can estimate what will happen to the rate of future vaccine production given the mix of Vaccine and the various DIPs at an early stage of the production process. The aim here is to maximise the output of vaccine. OVO believes that it can approximately halve the annual $1bn cost of vaccine production.

2. Novel Antiviral Therapies: OVO aims to create therapeutics using DIPs to outcompete and inhibit the reproduction of the real virus.

Progress since Investment

On the Vaccine Platform side, OVO felt that they could provide some form of benefit for vaccine manufacturers at the technology's initial stage of development. So OVO approached three major vaccine manufacturers (3 out of the top 4 influenza vaccine manufacturers). Of these, all three showed initial interest (the third only approached in April 2022). Two were interested in organising pilot studies, so OVO is organising and beginning these pilot studies to show how its technology can improve yield on a small scale. Conversations with these manufacturers have both shown that there is an appetite for process improvements and that DIPs are not being actively dealt with at the moment. These conversations have also helped OVO to refine its revenue model to best fit the manufacturers' standard practices.

On the antiviral side, OVO secured and started an Innovate UK biomedical catalyst grant for development of its therapeutic platform. This will allow OVO to increase headcount and increase the speed of development.

Recent Developments

In Q2, OVO attended the BioTrinity conference and built good links with larger investors for follow-on rounds. The company has also identified another potential source of business: helping companies creating therapeutic DIPs of their own to optimize their manufacturing process.

In terms of product development, the UI for the vaccine platform has been developed, and the backend is being fully fleshed-out. Progress continues to be made in optimising golden conditions for DIPs.

On the antiviral side, early in vitro tests have already demonstrated promising reductions in virus concentration, but the company is confident that greater decreases can be achieved through further optimisation of conditions.

digiLab Solutions

Digilab.co.uk

Company Valuation	Valuation Share Price	Fund Holding
£0.90m	£75.00	8.3%

digiLab Investment History

Date	Amount	Share Price	Type
Dec 2021	£75,000	£75.00	SEIS

Description of Business

digiLab is a spinout building on the work of Prof Tim Dodwell (CTO), who leads the Data Centric Engineering Group at Exeter University and holds a prestigious Turing AI Fellowship. Heading up the company as CEO is one of Prof Dodwell's former PhD students, Anhad Sandhu; supporting them on the board are two experienced directors in Paul Garman (Chairman) and Dan Hatfield, both of whom we know from Cryologyx. OT helped to seed DigiLab with a 75k investment.

Many companies generate lots of data about their systems, but don't know what to do with it. Companies in sectors with difficult operating environments also suffer from highly variable data quality, with the result that existing ML/AI solutions would suffer from the "Garbage In, Garbage Out" phenomenon. digilab is harnessing these big, but variable quality, data sets to improve decision intelligence. Their algorithmic models can learn from the time series data produced by real world sensors, in order to build a virtual system; this virtual system can then predict what those sensors will say in the future, or even what they would say if certain conditions were to occur.

Progress since Investment

digiLab has already landed significant revenue-generating contracts. They have been working with the UK Atomic Energy Authority, Jacobs Engineering, and South West Water, as well as other unnamed clients. Delivering on the above contracts should validate their industry-agnostic approach.

One of digiLab's key tasks has been to figure out how to distill their academic knowledge into scalable, widely deployable software tools. The company has identified the need for three core, interoperable modules: a data cleaning tool, an emulator tool to accelerate existing simulators, and an easy-to-use intelligence tool on the front-end, for controlling workflows and understanding data.

Recent Developments

Alan Prior, ex-Dassault Systemes and previously the GM of ABAQUS, has been brought in as an advisor with previous experience in scaling up industry software solutions. In order to accelerate the hiring of software and machine learning talent, digiLab is preparing to raise a seed round in Q3.

Neucruit.com

Company Valuation	Valuation Share Price	Fund Holding
£3.20m	£1.89	2.5%

Neucruit Investment History

Date	Amount	Share Price	Type
Jan 2022	£55,813	£1.89	SEIS
Jan 2022	£24,185	£1.89	EIS

Description of Business

Neucruit provides software to accelerate clinical trial recruitment and planning, by aggregating real-time data from over 25 million health-related conversations initiated online everyday. This helps sponsors and investigators pick the best trial locations, optimise their recruitment process, and access hard-to-reach demographics.

Founder Livia Ng introduced the company with the following question: “Could you imagine being locked down for 12 years?” That's how long it takes, on average, for a life-changing therapy to reach vulnerable patients. Clinical trials take up the majority of those 12 years, and over 86% of them are delayed by at least 6 months, costing the pharmaceutical industry more than $500bn a year. Finding the right patients in the right places is tough. Our hope with Neucruit is for synergies across the portfolio: many of our companies have been hit by difficulties and delays with trials.

Progress since Investment

Neucruit has successfully hit its internal revenue targets for Q2, and financials are healthy. The company has onboarded an experienced project manager in Ed Roberts, as well as a wider business development team in order to start expanding its order pipeline. A return to office is helping to grow team cohesion.

Contract values are increasing, so in the coming months the company hopes to further refine its pricing and sales strategies as the value proposition from case studies becomes increasingly clear. Part of this will involve improving how knowledge is shared amongst the team, as people learn more about exactly what customers want and need.

Investee companies no longer in the portfolio

Name of Company	Description of Business	Date of initial investment	Initial investment	Follow-on investment	Total investment	Date of closure	Net loss after tax relief (1)
Message Missile	Mobile phone app	May 2013	£16,000	£25,000	£41,000	Jan 2016	£12,300
Ibexis	Remote data loggers	May 2013	£50,000		£50,000	Feb 2017	£21,000
Abgentis	Improved antibiotics	March 2014	£42,000		£42,000	July 2019	£12,600 (2)
Power OLEDs	Improved OLED Technology	December 2013	£75,000	£178,397	£253,397	Dec 2020	£97,427 (2)

(1) Assuming 40% taxpayer and ignoring any reliefs on capital gains tax which will have applied to investors with capital gains tax to pay.

(2) Investors in Abgentis and Power OLEDs have received emails about how they can claim loss relief.

OT(S)EIS Fund Portfolio

30th June 2022

Company	Business	Amount Invested	Date	SEIS/EIS	Net Cost	Fair Value	Multiple*	Method of Valuation
Run 3D	3D Gait Analysis for Physiotherapy	£100,000	18/12/2012	SEIS	£50,000	£300,000	6.00	Latest Share Price
		£15,000	18/10/2013	SEIS	£7,500	£45,000	6.00	
		£10,000	18/10/2013	Non SEIS/EIS	£10,000	£30,000	3.00	
		£3,000	10/11/2017	EIS	£2,100	£4,500	2.14	
		£10,206	29/03/2019	EIS	£7,100	£10,200	1.43	
BioMoti	Improved Cancer Drugs	£74,998	08/01/2013	SEIS	£37,500	£183,800	4.90	Latest Share Price
		£40,000	28/05/2014	EIS	£28,000	£98,000	3.50	
		£74,661	31/03/2021	EIS	£52,300	£74,700	1.43	
Combat Medical	Bladder Cancer Treatment	£74,999	02/04/2013	SEIS	£37,500	£196,300	5.23	Latest Share Price
		£74,998	05/12/2013	EIS	£52,500	£178,400	3.40	
		£10,002	29/10/2014	EIS	£7,000	£22,700	3.24	
		£34,271	05/12/2014	EIS	£24,000	£77,700	3.24	
		£74,998	10/03/2016	EIS	£52,500	£60,000	1.14	
		£64,995	12/10/2016	EIS	£45,500	£65,000	1.43	
		£129,212	30/03/2017	EIS	£90,400	£103,400	1.14	
		£27,058	12/03/2018	EIS	£18,900	£21,600	1.14	
		£54,223	26/03/2021	EIS	£38,000	£54,200	1.43	
		£21,218	01/04/2022	EIS	£14,900	£21,200	1.43	
Message Missile	Mobile App Geo-location Notifications	£16,000	23/05/2013	SEIS	£8,000	£3,200	0.40	Discounted to £0
		£5,000	18/10/2013	SEIS	£2,500	£1,000	0.40	
		£20,000	19/06/2014	SEIS	£10,000	£4,000	0.40	

*Note: Multiple = Fair Value/Net Cost, where Net Cost takes into account only the tax relief against income tax and Fair Value includes loss relief where applicable (and assumes a 40% taxpayer)

For those investors who also have capital gains tax to pay, there are further CGT reliefs (SEIS) or CGT deferrals (EIS) available.

Company	Business	Amount Invested	Date	SEIS/EIS	Net Cost	Fair Value	Multiple*	Method of Valuation
Ibexis Technologies	Remote Datalogging	£50,000	24/05/2013	EIS	£35,000	£14,000	0.40	Discounted to £0
Lightpoint Medical	Real-time Imaging for Cancer Surgery	£74,999	04/06/2013	SEIS	£37,500	£1,250,100	33.34	Latest Share Price
		£75,000	10/03/2014	EIS	£52,500	£310,900	5.92	
		£9,991	07/11/2014	EIS	£7,000	£33,300	4.76	
		£124,895	04/12/2014	EIS	£87,400	£416,400	4.76	
		£100,000	10/03/2016	EIS	£70,000	£155,900	2.23	
		£20,000	24/03/2016	EIS	£14,000	£31,200	2.23	
		£26,941	27/03/2019	EIS	£18,900	£32,700	1.73	
		£38,825	25/03/2020	EIS	£27,200	£47,100	1.73	
Metal Powder & Process	High Quality Metal Powder Production	£150,000	16/08/2013	SEIS	£75,000	£150,000	2.00	Latest Share Price
Power OLEDs	Improved OLED Technology	£75,000	11/12/2013	SEIS	£37,500	£15,000	0.40	Discounted to £0
		£25,000	18/07/2014	EIS	£17,500	£7,000	0.40	
		£30,000	27/04/2015	EIS	£21,000	£8,400	0.40	
		£30,000	04/09/2015	EIS	£21,000	£8,400	0.40	
		£60,065	05/04/2017	EIS	£42,000	£16,800	0.40	
		£33,332	08/03/2018	EIS	£23,300	£9,300	0.40	
Abgentis	Improved Antibiotics	£42,191	27/03/2014	SEIS	£21,100	£8,400	0.40	Discounted to £0

*Note: Multiple = Fair Value/Net Cost, where Net Cost takes into account only the tax relief against income tax and Fair Value includes loss relief where applicable (and assumes a 40% taxpayer)

For those investors who also have capital gains tax to pay, there are further CGT reliefs (SEIS) or CGT deferrals (EIS) available.

Company	Business	Amount Invested	Date	SEIS/EIS	Net Cost	Fair Value	Multiple*	Method of Valuation
Designer Carbon Materials	Endohedral Fullerene Production	£75,000	03/04/2014	SEIS	£37,500	£125,000	3.33	Latest Share Price
SmartZone	Software for Construction Industry	£75,000	30/07/2014	SEIS	£37,500	£37,500	1.00	Latest Share Price
		£75,000	22/01/2016	EIS	£52,500	£30,600	0.58	
Sime Clinical AI	Rapid Diagnostic to Protect Pre-term Baby Lungs	£75,000	04/09/2014	SEIS	£37,500	£297,200	7.92	Latest Share Price
		£100,000	07/04/2016	EIS	£70,000	£355,700	5.08	
		£25,040	12/11/2018	EIS	£17,500	£41,900	2.39	
Expend	Software to Reduce Paperwork for Expenses	£75,000	23/12/2014	SEIS	£37,500	£2,250,000	60.00	Latest Share Price
		£17,338	09/02/2017	EIS	£12,100	£42,800	3.53	
		£3,000	04/12/2017	EIS	£2,100	£2,800	1.34	
		£13,000	28/08/2018	EIS	£9,100	£19,500	2.14	
		£30,719	29/03/2019	EIS	£21,500	£46,100	2.14	
		£29,300	25/03/2020	EIS	£20,500	£44,000	2.14	
Molecular Warehouse	Proteins for Diagnostics and Therapeutics	£75,000	21/04/2015	SEIS	£37,500	£30,000	0.80	Latest Share Price
		£75,000	02/02/2016	EIS	£52,500	£32,200	0.61	
		£20,000	24/03/2016	EIS	£14,000	£8,600	0.61	
		£52,005	14/09/2016	EIS	£36,400	£21,000	0.58	
		£20,000	22/09/2017	EIS	£14,000	£6,800	0.49	
Animal Dynamics	Mechanical Engineering inspired by Animal Motion	£75,000	29/06/2015	SEIS	£37,500	£276,000	7.36	Latest Share Price
		£35,220	27/11/2017	EIS	£24,700	£94,900	3.85	
		£3,001	30/07/2018	EIS	£2,100	£3,000	1.43	
		£14,391	30/03/2020	EIS	£10,100	£14,400	1.43	

*Note: Multiple = Fair Value/Net Cost, where Net Cost takes into account only the tax relief against income tax and Fair Value includes loss relief where applicable (and assumes a 40% taxpayer)

For those investors who also have capital gains tax to pay, there are further CGT reliefs (SEIS) or CGT deferrals (EIS) available.

Company	Business	Amount Invested	Date	SEIS/EIS	Net Cost	Fair Value	Multiple*	Method of Valuation
Ducentis Biotherapeutics	Immune Modulation Therapeutics	£50,000	13/07/2015	SEIS	£25,000	£250,000	10.00	Latest Share Price
		£30,000	14/12/2015	SEIS	£15,000	£116,700	7.78	
		£160,275	30/03/2017	EIS	£112,200	£311,600	2.78	
		£45,314	29/03/2018	EIS	£31,700	£79,300	2.50	
		£53,820	13/03/2019	EIS	£37,700	£53,800	1.43	
Bioarchitech	Engineered Oncolytic Virus	£79,560	13/08/2015	SEIS	£39,800	£795,600	20.00	Latest Share Price
		£40,000	08/03/2016	SEIS	£20,000	£240,000	12.00	
		£16,200	07/07/2017	EIS	£11,300	£97,200	8.57	
		£29,000	12/10/2017	EIS	£20,300	£145,000	7.14	
		£89,674	29/03/2019	EIS	£62,800	£298,900	4.76	
		£4,637	19/12/2019	EIS	£3,200	£9,900	3.06	
		£36,758	25/03/2020	EIS	£25,700	£78,800	3.06	
		£69,804	31/03/2021	EIS	£48,900	£104,700	2.14	
Orbit Discovery	Peptide Drug Development	£100,000	27/11/2015	SEIS	£50,000	£111,200	2.22	Latest Share Price
		£38,245	07/07/2017	EIS	£26,800	£38,200	1.43	
Curileum Discovery	Intestinal Tract Therapies	£75,000	07/03/2016	SEIS	£37,500	£357,100	9.52	Latest Share Price
		£25,950	19/05/2016	SEIS	£13,000	£123,600	9.52	
		£20,000	15/07/2016	SEIS	£10,000	£95,200	9.52	
		£20,000	16/07/2016	EIS	£14,000	£95,200	6.80	
		£19,997	28/10/2016	EIS	£14,000	£193,500	13.82	
		£20,002	08/11/2016	EIS	£14,000	£193,600	13.82	
		£30,000	11/05/2017	EIS	£21,000	£290,300	13.82	
		£102,020	27/03/2019	EIS	£71,400	£987,300	13.82	
		£4,330	29/03/2019	EIS	£3,000	£41,900	13.82	
		£13,791	25/03/2020	EIS	£9,700	£41,400	4.29	

*Note: Multiple = Fair Value/Net Cost, where Net Cost takes into account only the tax relief against income tax and Fair Value includes loss relief where applicable (and assumes a 40% taxpayer)

For those investors who also have capital gains tax to pay, there are further CGT reliefs (SEIS) or CGT deferrals (EIS) available.

Company	Business	Amount Invested	Date	SEIS/EIS	Net Cost	Fair Value	Multiple*	Method of Valuation
Spendology	Online Financial Interface	£37,500	01/04/2016	SEIS	£18,800	£14,300	0.76	Latest Share Price
		£62,500	20/10/2016	EIS	£43,800	£28,800	0.66	
		£25,000	13/09/2017	EIS	£17,500	£11,500	0.66	
Active Needle Technology	Ultrasound Visible Needles	£50,000	05/04/2016	SEIS	£25,000	£169,600	6.78	Latest Share Price
		£65,000	23/08/2016	EIS	£45,500	£141,100	3.10	
		£19,000	07/03/2017	EIS	£13,300	£41,200	3.10	
		£30,000	29/03/2017	EIS	£21,000	£65,100	3.10	
		£28,000	02/01/2018	EIS	£19,600	£45,200	2.31	
		£101,781	18/03/2019	EIS	£71,200	£122,100	1.71	
		£32,122	25/03/2020	EIS	£22,500	£38,500	1.71	
		£55,653	24/03/2021	EIS	£39,000	£55,700	1.43	
Oxford Nanoimaging	Super-resolution Microscopes	£100,000	29/04/2016	SEIS	£50,000	£1,050,000	21.00	Latest Share Price
Entia	Portable Blood Analyser	£75,000	19/05/2016	SEIS	£37,500	£180,800	4.82	Latest Share Price
		£9,504	21/10/2016	EIS	£6,700	£22,900	3.44	
		£48,554	30/11/2017	EIS	£34,000	£78,800	2.32	
		£89,934	01/02/2019	EIS	£63,000	£100,800	1.60	
		£26,017	24/03/2021	EIS	£18,200	£26,000	1.43	
Covatic	Personalised Media Feed	£39,776	02/02/2017	SEIS	£19,900	£89,500	4.50	Latest Share Price
		£60,224	06/02/2017	EIS	£42,200	£135,500	3.21	
		£30,000	05/02/2018	EIS	£21,000	£33,800	1.61	
		£67,997	31/03/2021	EIS	£47,600	£130,100	2.73	
		£37,926	01/04/2022	EIS	£26,500	£37,900	1.43	

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Company	Business	Amount Invested	Date	SEIS/EIS	Net Cost	Fair Value	Multiple*	Method of Valuation
Electrowinning Technologies EWT	Electrical Metals Capture	£25,000	06/02/2017	SEIS	£12,500	£11,000	0.88	Latest Share Price
		£35,000	29/09/2017	SEIS	£17,500	£8,700	0.50	
Lupe Technology lupe®	Better Vacuum Cleaner	£51,000	20/02/2017	SEIS	£25,500	£337,500	13.24	Latest Share Price
		£30,000	22/02/2017	EIS	£21,000	£198,500	9.45	
		£51,000	12/03/2018	EIS	£35,700	£153,000	4.29	
		£37,001	12/03/2018	EIS	£25,900	£111,000	4.29	
		£9,999	27/03/2018	EIS	£7,000	£30,000	4.29	
		£138,719	25/03/2020	EIS	£97,100	£224,500	2.31	
		£50,243	12/03/2021	EIS	£35,200	£64,600	1.84	
		£27,864	01/04/2022	EIS	£19,500	£27,900	1.43	
Process Vision Process Vision	Gas Inspection Optics	£99,999	27/03/2017	SEIS	£50,000	£66,700	1.33	Latest Share Price
		£3,000	28/06/2018	EIS	£2,100	£2,000	0.97	
		£68,494	31/03/2021	EIS	£47,900	£68,500	1.43	
Gripable GRIPABLE	Mobile Rehab Technologies	£49,999	15/09/2017	SEIS	£25,000	£120,300	4.81	Latest Share Price
		£106,934	27/02/2019	EIS	£74,900	£138,900	1.86	
		£33,219	15/12/2020	EIS	£23,300	£33,200	1.43	
		£69,682	02/03/2022	EIS	£48,800	£69,700	1.43	
Dark Beam Darkbeam	Web Data Security	£50,000	06/10/2017	SEIS	£25,000	£150,000	6.00	Latest Share Price
		£25,000	05/02/2018	SEIS	£12,500	£75,000	6.00	
		£10,000	09/02/2018	SEIS	£5,000	£30,000	6.00	
		£18,200	26/03/2018	EIS	£12,700	£54,600	4.29	
		£50,000	03/09/2018	EIS	£35,000	£300,000	8.57	

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Company	Business	Amount Invested	Date	SEIS/EIS	Net Cost	Fair Value	Multiple*	Method of Valuation
LRESystem	Lateral Resurfacing Elbow Replacement	£50,000	12/01/2018	SEIS	£25,000	£112,600	4.51	Latest Share Price
		£75,050	21/01/2019	EIS	£52,500	£75,000	1.43	
Atelerix	Transport of Viable Cells	£50,000	22/01/2018	SEIS	£25,000	£48,900	1.96	Latest Share Price
		£133,186	03/04/2019	EIS	£93,200	£74,900	0.80	
		£196,851	30/03/2020	EIS	£137,800	£103,600	0.75	
		£44,767	04/06/2021	EIS	£31,300	£44,800	1.43	
Refeyn	Imaging Biomolecular Interactions	£66,240	26/06/2018	SEIS	£33,100	£720,400	21.75	Latest Share Price
		£33,760	27/06/2018	EIS	£23,600	£367,100	15.54	
		£121,851	24/01/2019	EIS	£85,300	£830,400	9.74	
		£67,468	04/07/2019	EIS	£47,200	£459,800	9.74	
Cytecom	Detection of Bacteria Viability	£100,440	31/07/2018	SEIS	£50,200	£144,500	2.88	Latest Share Price
		£55,000	27/11/2019	EIS	£38,500	£79,100	2.06	
		£84,021	04/12/2020	EIS	£58,800	£120,900	2.06	
		£53,986	31/03/2021	EIS	£37,800	£54,000	1.43	
Polycat UK	Nanoparticle Polymer Catalysts	£50,002	05/10/2018	SEIS	£25,000	£441,300	17.65	Latest Share Price
		£22,058	29/03/2019	SEIS	£11,000	£43,300	3.92	
		£11,985	23/03/2020	SEIS	£6,000	£23,500	3.92	
		£112,998	16/12/2020	EIS	£79,100	£148,700	1.88	
		£11,784	10/02/2021	EIS	£8,200	£15,500	1.88	
		£60,350	19/04/2022	EIS	£42,200	£60,400	1.43	

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Company	Business	Amount Invested	Date	SEIS/EIS	Net Cost	Fair Value	Multiple*	Method of Valuation
Asymmetric Suzuki Reactions	Synthesising Complex Chiral Molecules	£65,040	18/03/2019	SEIS	£32,500	£48,000	1.48	Latest Share Price
Oxwash	Hyper-sustainable Laundry	£50,000	15/03/2019	SEIS	£25,000	£295,500	11.82	Latest Share Price
		£50,000	22/03/2019	EIS	£35,000	£295,500	8.44	
		£54,679	07/11/2019	EIS	£38,300	£149,300	3.90	
		£36,069	12/05/2021	EIS	£25,200	£67,400	2.67	
The Smarter Food Company	Foods for Pre-diabetics	£89,998	03/04/2019	SEIS	£45,000	£123,200	2.74	Latest Share Price
		£96,058	31/03/2021	EIS	£67,200	£96,100	1.43	
Connexin Therapeutics	Glaucoma Treatment	£66,325	04/04/2019	SEIS	£33,200	£66,300	2.00	Latest Share Price
Cytoswim	Sperm Cell Separation	£100,274	04/04/2019	SEIS	£50,100	£254,000	5.07	Latest Share Price
		£11,489	16/09/2021	SEIS	£5,700	£11,500	2.00	
		£59,038	28/09/2021	EIS	£41,300	£59,000	1.43	
		£34,194	01/04/2022	EIS	£23,900	£34,200	1.43	
Nikalyte	Nanoparticle Generators	£49,738	06/08/2019	SEIS	£24,900	£49,700	2.00	Latest Share Price
		£16,152	24/02/2020	SEIS	£8,100	£16,200	2.00	
		£77,886	16/10/2020	EIS	£54,500	£77,900	1.43	
		£44,987	29/11/2021	EIS	£31,500	£45,000	1.43	

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Company	Business	Amount Invested	Date	SEIS/EIS	Net Cost	Fair Value	Multiple*	Method of Valuation
Etcembly	Immune pattern recognition system	£70,588	21/01/2020	SEIS	£35,300	£529,400	15.00	Latest Share Price
		£20,587	16/11/2020	SEIS	£10,300	£39,100	3.80	
		£49,411	18/11/2020	EIS	£34,600	£93,800	2.71	
		£17,677	23/02/2021	EIS	£12,400	£33,600	2.71	
		£42,444	19/04/2022	EIS	£29,700	£42,400	1.43	
Flare Bright	Autonomous drones	£29,000	28/09/2020	SEIS	£14,500	£29,000	2.00	Latest Share Price
CryoLogyx	Cell cryopreservation	£75,000	12/03/2021	SEIS	£37,500	£75,000	2.00	Latest Share Price
Zayndu	Seed treatment	£133,505	26/03/2021	EIS	£93,500	£339,400	3.63	Latest Share Price
		£83,029	01/04/2022	EIS	£58,100	£83,000	1.43	
Machine Discovery	Simulation Optimisation	£74,999	31/03/2021	SEIS	£37,500	£75,000	2.00	Latest Share Price
Hydregen	Biocatalysis	£100,005	31/03/2021	EIS	£70,000	£109,500	1.56	Latest Share Price
Oxvent	Low cost ventilator	£79,124	01/04/2021	SEIS	£39,600	£79,100	2.00	Latest Share Price
		£60,000	27/05/2022	EIS	£42,000	£60,000	1.43	

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For those investors who also have capital gains tax to pay, there are further CGT reliefs (SEIS) or CGT deferrals (EIS) available.

Company	Business	Amount Invested	Date	SEIS/EIS	Net Cost	Fair Value	Multiple*	Method of Valuation
OxCan	Early cancer detection	£50,000	29/06/2021	SEIS	£25,000	£50,000	2.00	Latest Share Price
		£50,000	02/07/2021	EIS	£35,000	£50,000	1.43	
MitoRx Therapeutics	Therapeutics targeting Mitochondria	£60,000	16/11/2021	SEIS	£30,000	£60,000	2.00	Latest Share Price
		£12,450	18/11/2021	Non SEIS/EIS	£12,500	£12,500	1.00	
		£9,750	24/01/2022	EIS	£6,800	£9,800	1.43	
OVO BioManufacturing	Improving vaccine manufacturing and antivirals	£90,799	19/11/2021	SEIS	£45,400	£90,800	2.00	Latest Share Price
digiLab Solutions	Next-generation machine learning	£75,000	13/12/2021	SEIS	£37,500	£75,000	2.00	Latest Share Price
Neucruit	Making clinical trials easier	£55,813	26/01/2022	SEIS	£27,900	£55,800	2.00	Latest Share Price
		£24,185	02/02/2022	EIS	£16,900	£24,200	1.43	

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