

OT(S)EIS Full Portfolio - Q4 2023

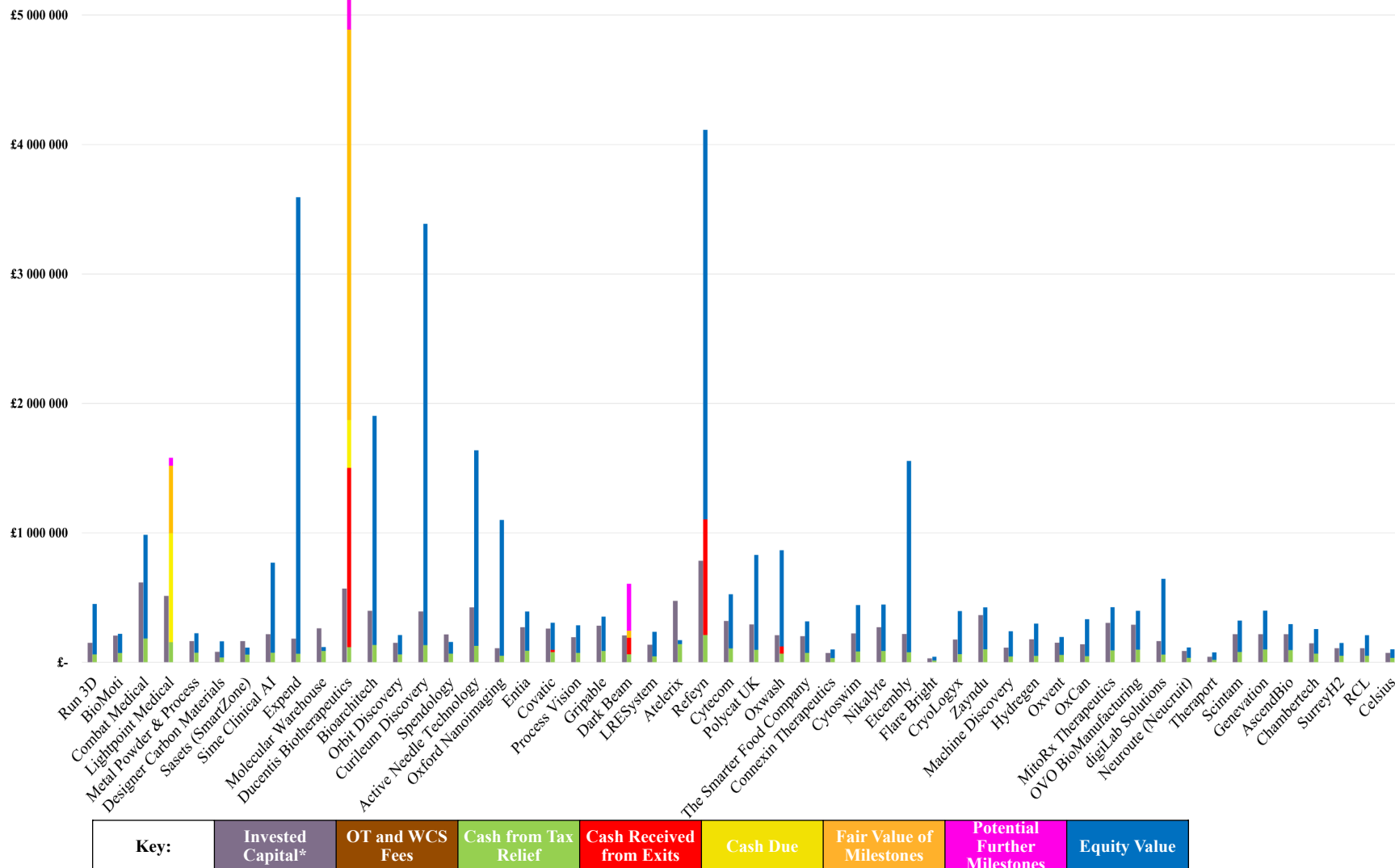
Investment Objective

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	£38.71m*
Portfolio	52 Active Companies
Contact	otseis@oxfordtechnology.com

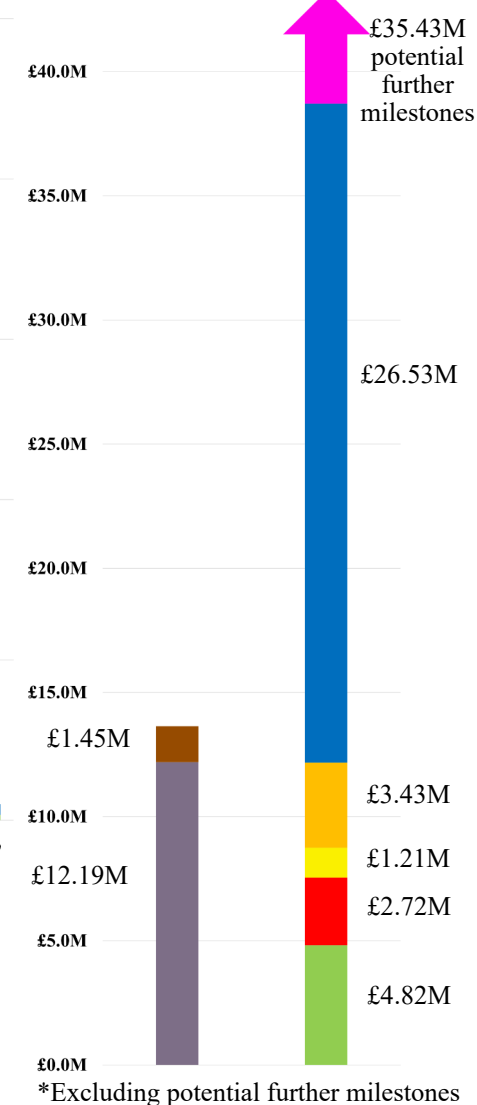
£35.01M potential
further milestones

Portfolio Holding Valuations



*On the Portfolio Holding Valuations graph, OTM & WCS fees are included in the Invested Capital bars.

Overall Fund Value



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Oxford Technology Q4 2023 Portfolio Report

Summary

This report summarises the progress made by portfolio companies in the latest quarter. By the 30th September 2023, OT(S)EIS had completed 229 investments in 60 companies. It also details useful information about the fund, including how we invest, opportunities for co-investment at presentations, and the intricacies of SEIS/EIS tax reliefs.

The investment figures for the fund as a whole are as follows:

Invested Capital: £12.19m

Total OTM and WCS fees: £1.45m

Cash from Tax Reliefs: £4.82m

Cash from Exits: £2.72m

Cash due from Exits: £1.21m

Fair Value of Post-Exit Milestone Payments: £3.43m

Remaining Equity Value: £26.53m

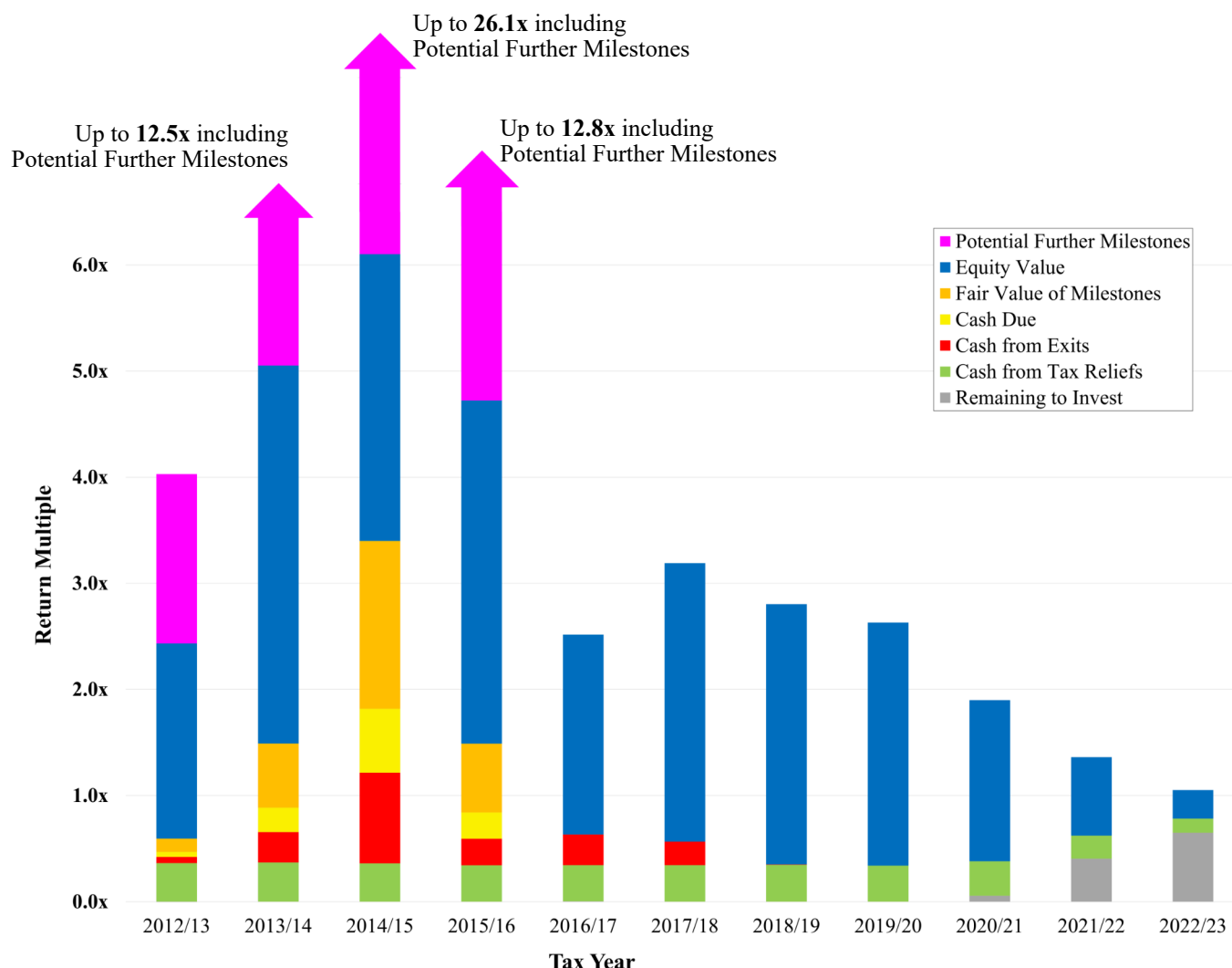
In addition, there is a potential for further £35.01m in milestones from the Ducentis exit.

Valuations are all made according to the most recent price paid by investors in a 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 income tax relief available from the SEIS and EIS investments (investors who also get relief against capital gain tax have an additional benefit). 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, the Ducentis exit could have a return multiple of up to 127x.

Returns to investors in OT(S)EIS over the last ten years



The above figure refers to the past and the past performance is not a reliable indicator of future results.

The above data represents the portfolio performance as in Q2 2023

The graph above shows the returns which have been made so far by those who invested in OT(S)EIS in each of the tax years over the last ten years. So, for example, those who invested £100,000 (to make the sums simple, although some investors did invest this amount) in the 2014/15 tax year have so far been able to claim about £36,000 in income tax reliefs and received back about £85,500 in cash from exits (all tax-free). In addition they had about another £60,500 of escrow cash (also tax-free) paid out in Jan 2024. In addition, they have another £158,000 which is what we regard as the 'fair value' of the exit milestones from one investment. The fair value of the remaining investments, which have not yet exited is a further £270,500. So the total return, adding all these together is £610,500, a multiple of just over 6x of the initial amount invested. And in addition to this, there is the potential to receive up to a further £2m if all the milestones from one of the exits are met. All these returns will be tax free.

We believe that an investment in OT(S)EIS has been one of the best investments that it has been possible to make in the UK over the last ten years. We believe the reasons are clear. It is not luck. We are all scientists. We focus on the science. We receive a large deal flow and pick carefully (about 5/1,000 each year) and we get actively involved with the founders, especially in the early years to help establish the business model and pricing. We thought that it would work and so far it has. So please consider making an investment in OT(S)EIS. Min £15k.

New Investments

We made one new investment in Q4, in [Celsius Innovations Ltd](#), which is hoping to introduce a product in Q2 which will enable menopausal women to avoid or reduce the severity of hot flushes. All being well, the product, which looks a bit like a watch, but which delivers a cooling pulse to the wrist on the press of a button, which has been shown to eliminate or reduce the severity of hot flushes in volunteers, will be available for pre-orders in Q2. See [page 60](#) for more details.

News in Brief

WOTAN - Wider Oxford Technology Angel Network

For the last 50 years there has always been a tension between the need to see more investment going into high risk high potential reward start-ups and the desire to stop investors from taking too much financial risk by investing in start ups.

So, on the one hand, we have the SEIS scheme, created by the govt in 2012, precisely to encourage people to take the risk of investing in startups by offering extremely generous tax reliefs. 50% of the investment back in year one, by way of a reduction in income tax, and all gains tax free. And further tax reliefs in the event that the business fails. All investors should be taking advantage of this and making at least some SEIS investments each year. On the other hand, there is a desire to stop people who cannot afford to lose any money at all on an investment from making this kind of investment, even if they are taking advantage of the SEIS tax reliefs.

There has been much chopping and changing over the last 50 years trying to find a workable compromise between these conflicting objectives.

The latest news is that the goalposts have been moved again, this time making it more difficult to invest in a high risk start-up. Specifically, one of the ways of being allowed to invest in a high risk start-up is to self-declare as a high net worth individual, or as a sophisticated investor. The threshold to be a 'high net worth' individual has been raised and an annual income of £170,000 or more is now required or £430,000 of non-house, non-pension fund assets.

And in order to declare as a sophisticated investor, it is no longer possible to point at having made at least one investment in an unlisted company in the last two years. But one legitimate way of qualifying as a sophisticated investor is to show that you have been a member of a business angels network for at least six months.

Oxford Technology has operated a business angels network for at least 25 years. In the past we held physical meetings in London at which entrepreneurs seeking capital to start or to expand could pitch to investors. Since Covid we have done the same thing (10am on the first Thursday of every month) via Zoom. It has worked very well and almost all those who have presented have raised some or all of the capital they sought, and investors have found interesting opportunities to invest in.

But, to comply with the new regulations, we are going to make everything a bit more formal. So we will christen our network WOTAN (Wider Oxford Technology Angel Network) and ask people to complete a form (available [here](#)) in order to formally register as a member. The new rules state that one cannot make a high risk investment as a 'sophisticated investor' unless one has been a member of a business angels network for 6 months. But during those six months you can listen to pitches and get a feel for how the process works and see the variety of businesses pitching. So our suggestion is that everyone who is already a member of WOTAN by virtue of the fact that you sometimes come to presentations (there are probably 500 people in this category) completes the form anyway. It costs nothing and there is no annual fee. And we will ask new potential angels to complete the form too. This will start the clock on the six months, and, at the end of six months, you will then have the right to make an investment as a 'sophisticated investor' by virtue of the fact that you have been a member of a business angels network for six months.

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. The aim is to maximise long-term returns, not tax reliefs.

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	Relief against capital gains equal to 50% of investment (max £100k of the relief per tax year), which is not merely deferred but cancelled. No capital gains tax to pay on exits	Deferral relief on capital gains 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 investment succeeds, and the shares are sold for, say, £20,000 (twice the purchase price), the £20,000 would be tax free, a multiple of 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 has also 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 8 February	Chopin Preludes
Thursday 7 March	Chopin Preludes
Thursday 4 April	Chopin Preludes

In order to invest, you have to certify that you are a sophisticated investor or a HNW and understand the risks associated with investing in start-ups. If you would like to attend and don't already have 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). Etcembly has since raised £5.2m at £6 per share.
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!

Lucius Cary has himself invested in OT(S)EIS 9 times, so he has shares in every investee company, bar one — an administrative error on our part!

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.



Run3D.co.uk

Company Valuation	Valuation Share Price	Fund Holding
£1.50m	£0.45	25.9%

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. But after a few years, it became clear that improvements in the software were needed, so Run3D then spent the next two years, in collaboration with a company in Amsterdam, rewriting the software. 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 Run3D's AI went live to interpret the results. The AI 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.

Date	UK & Ireland	US	Europe	Rest of World	Mobile	Total
Dec 2017	7		1			8
Dec 2018	8		1	2		11
Dec 2019	10	1	1	2	1	15
Dec 2020	13	0	4	2	1	20
Dec 2021	19	1	4	3	1	28
Dec 2022	27	1	2	3	1	34
Dec 2023	29	0	2	3	1	35

Recent Developments

Run3D had a disappointing quarter with a slight fall in the number of active clinics. What has become very noticeable is the large difference between the best and worst clinics. So when an injured runner arrives (and most runners don't seek help until they are injured) the best clinics devise a programme, maybe lasting six months, which will start with a gait analysis to properly understand the problem and then a rehabilitation programme, almost certainly involving exercise to strengthen the particular muscles which are causing the problem and possibly also gait retraining, in which a runner will learn a new gait, less likely to lead to injury in future. The runners are pleased to pay for this service and feel that they are taken seriously. The clinics who operate in this way do very well and are very profitable. But others are not able to market their service in this way and struggle financially as a result. So, although new clinics have been added, some have also been lost and the growth rate has slowed. Run3D is actively trying to help the struggling clinics to do better. A particular disappointment has been the loss of the clinic in the US. This should be a good market for Run3D, but a successful clinic is needed to show the way.



Biomoti.com

Company Valuation	Valuation Share Price	Fund Holding
£0.98m	£0.05	15.2%

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

No update this quarter from BioMoti.



CombatCancer.com

Company Valuation	Valuation Share Price	Fund Holding
£30.19m	£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	EIS
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.

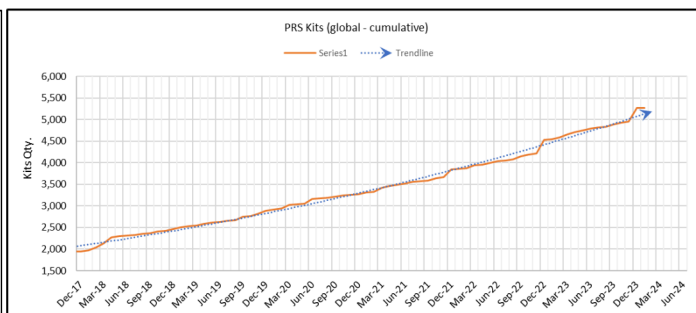
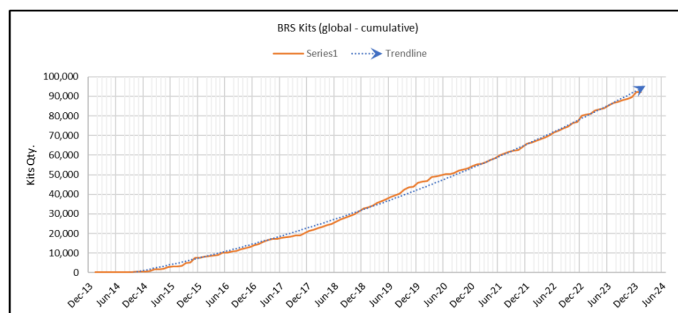
Sales are growing well, and the core business is profitable. The devices are CE marked and in use with doctors. Thus far they have been used in combination with surgery, but they are also being investigated as standalone treatments. This would reduce costs for medical providers, as repeated surgeries 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 sales continue to grow, gradually. The team has resolved some of the technical problems which had appeared and this is allowing the sales team to focus on new sales rather than support.

Good clinical results have been published, not least by a Ukrainian group.

Tumour recurrence was reported in 23 out of 54 patients receiving intravesical BCG therapy and in 10 patients out of 53 receiving Combat's intravesical hyperthermic chemotherapy (42.6% versus 18.9%, $p=0.008$). Tumour progression was recorded in 11 patients receiving intravesical BCG therapy and in 4 patients receiving Combat's intravesical hyperthermic chemotherapy (20.4% versus 7.5%, $p=0.046$).



Summary

A good period of progress for Combat.

The company previously named
Lightpoint.

LightpointMedical.com

Exit Value	Exit Share Price	Multiple
Up to \$38m	Up to £0.48	1x - 19x*

*Depending on the investment round, assuming full options conversion and that all milestones are met. The multiple is calculated based on the share price of £0.48 and in respect to the net cost of investment, i.e. includes tax reliefs.

The Company's 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. The company is very actively engaged with surgeons to ensure that the products are best suited to their needs.

Sale of the company

OT(S)EIS was the initial investor in the company when we invested £75k in 2013 to get it started.

In June 2023, the company announced that it had been acquired by Telix, a radiopharmaceutical company which is quoted on the Australian Stock market. The acquisition will be completed once certain conditions precedent have been met, such as security related permission to transfer image analysis AI technology overseas. The deal comes with an initial allocation of \$20m of Telix shares to be held in escrow with a further \$15m to follow against milestones over the next two years. The milestones are in line with the company's development plans and, unforeseen circumstances aside, should be achieved.

Those investors who invested in OT(S)EIS at the start do very well with a return of about 19x the net cost of the investment if all the milestones are met. Those who invested directly more recently do much less well.

The company was in a difficult position since semiconductor chip shortages that started during Covid meant that the chips used in its product suddenly became unavailable. This meant that the company could make no more sales despite having orders. It could have redesigned the product using different chips, but this would have meant applying for a CE mark all over again, an expensive process which might take several years to achieve with uncertainty about availability of slots with the notified bodies.

Under these circumstances the company sought a sale and it is much to its credit that the deal with Telix has been concluded.

We hope that with Telix backing, the technology will be able to go on to fulfil its potential, to save lives and reduce morbidity associated with cancer surgery.

The company is now a holding company that will distribute the returns through a liquidation. The amount that is distributed will depend to some degree on how Telix performs. You can follow Telix and the company's product progress here: <https://telixpharma.com/investor-centre/>

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 was 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, MPP 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 MPP powder and MPP lost its largest customer. In Q2 2017, Bertha produced her first titanium powder. During Q1 2021 the new fluidised bed, owned by MPP'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

It has been a busy quarter for MPP and its sister company PSI. MPP has been producing as much of its powdered alloy for rocket nozzles as it can, but has not been able to keep up with demand. Efforts are being made to increase the production capacity. PSI won a significant order for a large atomiser and is now busy preparing for manufacture. Delivery is scheduled for late summer. PSI has also won a >£1m grant to develop its powdered titanium programme. The UK needs a reliable source of Ti powder on UK soil for the next generation of fighter aircraft.



DCM Investment History

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

Company Valuation	Valuation Share Price	Fund Holding
£0.9m	£1.25	13.9%

Description of Business

While working in the Materials Department of Oxford University, Professor Kyriakos Porfyrakis developed a method of producing small quantities of endohedral fullerenes, spheres of Carbon atoms containing an atom of another species inside. At the time of the investment, no end use had been found, but they have interesting properties. This was 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. In Q1 2018, a contract was signed with LocatorX, a US company, which will be seeking to commercialise 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.

In 2020, Professor Porfyrakis became Head of Research for the school of Engineering at the University of Greenwich. Work of the atomic clock continues and DCM manufactures and supplies the N@C60 for this work. 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 $O_{zz} = 0.61$. (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 functionalised molecules give rise to endohedral fullerene qubits: multi-level computational units which could be an alternative to the conventional 2-level qubits used in quantum computing. Qubits offer a larger state space for encoding information and thus can offer enhancement of quantum algorithm efficiency. The paper published by Professor Porfyrakis and his collaborators in one of the most prestigious chemistry journals: Angewandte Chemie, has now received 9 citations. A substantial research proposal/grant application is being prepared. In 2022 Professor Porfyrakis was chosen to lead the newly-formed Centre for Advanced Manufacturing and Materials (CAMP) at the University of Greenwich, leading a team of approximately 30 academics. In Q3 23, DCM secured orders for N@C60 from 3 new customers, namely the University of Nottingham, University College London and the University of Leeds. Researchers at University of Nottingham will be using N@C60 as a probe for the spin activity of other spin bearing molecules. The narrow ESR lines of N@C60 make it an excellent probe for this application. Researchers at UCL will be using N@C60 as a calibrating standard for their ESR spectrometers for accurate calculations of linewidths and spin concentrations. Researchers at the University of Leeds will also be using N@C60 as a spin probe for other molecules. DCM has already delivered materials to these Institutions and will continue to do so throughout Q1 2024.

Recent Developments

It is hoped that the grant application for the quantum computing implementation will be submitted in Q1. Several academic institutions are involved.



Sasets Investment History

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

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

Description of Business

Sasets 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 started to increase. Users pay a monthly subscription to use the software. Sasets grew to a peak of 493 users. Then two bad things happened. First, Keir acquired A1, which had about 150 Sasets users. Despite the protests of the users who liked the Sasets platform a lot, the contract with Sasets was cancelled. Then Covid struck, many construction sites were closed, and some construction companies went out of business.

Date	Paying users
Dec 2015	102
Dec 2016	200
Dec 2017	310
Dec 2018	422
Dec 2019	493
Dec 2020	437
Dec 2021	409
Dec 2022	453
Dec 2023	518

Recent Developments

Sasets is an innovator and first mover in a market place that has proven slow to adopt new technology. Despite this, an upward trend continues, with the number of current users of 518. There are currently 19 corporate customers, the smallest of which has 2 users and the largest 150. The platform works very well and the users are very complimentary about Sasets saying how useful they find it, and indeed how they could not now operate without it.

A next generation Sasets is under consideration, incorporating a substantial element of AI, the business plan for this continues to be developed. Additional capital will be needed to finance this development, so Sasets may do a fundraising at some point in the next few months.



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

Company Valuation	Valuation Share Price	Fund Holding
£15.76m	£8.36	4.4%

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.

In Q4 22, Sime achieved its CE mark that enabled its device to be sold for clinical use.

Recent Developments

Sime has raised over £1m, enabling it to keep progressing towards its markets. An FDA application for Breakthrough designation has been submitted. If granted it will enable more rapid review.

A deal has been signed with a major US hospital chain, which should help penetrate the US market.

The costs and risks of moving patients over large distances is substantial. Being able to determine whether a baby or other patient needs to be moved from a minor hospital to main treatment hospital is one of the benefits SIME can bring in geographically dispersed areas such as the US. As is usually the case with SIME making the decision correctly is important in both directions. Moving a patient who doesn't need moving is very expensive and can be harmful. Not moving a patient who needs urgent high quality care can be very bad for the patient and the overall costs could be greater again.



Expend.com

Company Valuation	Valuation Share Price	Fund Holding
£31.03m	£0.22	11.4%

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 is designed to simplify expense management for SMEs and larger organisations. Expend's vision is to offer a "zero-touch" experience via a fully autonomous expense and spend management platform for businesses. Through an innovative mobile app and web platform, Expend provides optional contactless payment cards, receipt & invoice management, mileage tracking, spending approvals and expense reimbursements, and integrations with common accounting platforms, all in one platform. Expend supports all transaction types, regardless of the source, and is developing partnerships with financial institutions, including banks, to provide turnkey solutions for their business customers.

Progress since Investment

Growth has been steady over the last few years and accelerated further in 2023. October 2023 saw a 15% monthly revenue growth increase which takes the company beyond the milestone of £1.2m ARR.

An increasing number of companies across various sectors now trust Expend as their expense and spend management platform. The platform works well for SMEs and also for larger companies. Notable customers include Amazon, Cote Restaurants, AgeUK and Mind. Overall, feedback has been excellent, as can be seen from customer reviews. Recent gains have also been made in the film and TV logistics sector, as well in the care homes sector.

Expend has developed its commercial offering and now benefits from a hybrid, multi-revenue model. Like a typical SaaS business, Expend enjoys monthly recurring revenue from subscriptions and 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). Expend also receives revenue from its partnerships with financial institutions.

Expend should continue to grow well and see notable growth acceleration through 2024. Development has continued at pace, and many new features are scheduled for release in 2024, including Apple & Google Pay integration, along with a new Expend Inbox now in the hands of beta customers. The company uniquely offers a new real-time Visa transaction support "Card Connect" feature, allowing users to "Bring their own card", and has attracted good PR. Expend believes it is the first company to bring this innovation to market. This allows companies to pull their transaction data from Visa automatically into Expend, which is then used to automate the expenses and spending management process. Expend believes this will drive growth as it opens up the platform to many new users, including financial institutions and, ultimately, its "non-Expend card" customers.

The company completed a widely-publicised partnership with Virgin Money Bank in 2022 and is in talks with other sizeable UK financial institutions to provide Expend's services to their customers.

Recent Developments

During 2023, Expend raised £300,000 at 22p per share from investors, including some new investors. Conversations in the commercial partnerships space progress, along with investor conversations, and there are a number of potentially large deals in negotiation, and the company is looking forward to developments in the next quarter. The company will be attending a number of trade events in 2024 including 3 events in the charity, and banking spaces in April and May. It's going to be a busy spring!



MolecularWarehouse.com

Company Valuation	Valuation Share Price	Fund Holding
£0.62m	£0.10	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 2017	£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

Kirill Alexandrov's group has published a paper that discloses the new design that increases sensitivity and specificity of the sensors. The enzymes now have two switches that have to be triggered to engage the enzyme. This reduces the unintended activity of the enzyme - the background noise - thereby increasing the dynamic range that can be measured up to 9000 fold.

Not much news to report from last quarter.

Exit Value	Exit Date	Multiple
Up to \$400m	12/09/22	Up to 127x*

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

*Calculated based on the data received at the time of the deal, i.e. Sep 2022

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 had 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 sought 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 made excellent progress after 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 applied for a patent on this family of molecules and it has since been granted. In 2019 Ducentis raised a round of >£1.5m to continue its development programme. The cornerstone investor was LifeArc. Eli Lilly, a major pharma company, also announced a programme in CD200, using antibodies. They completed a successful clinical trial in Atopic Dermatitis. This encouraged Arcutis, <https://www.arcutis.com/> a Nasdaq listed dermatology company, who then acquired Ducentis in Sept 2022.

The deal was quite complicated but definitely very good for OT(S)EIS shareholders and for those who invested directly as a result of a presentation. It consisted of an upfront payment of \$15m in cash and \$15m in Arcutis shares with up to \$400m of milestone payments and mid single digit royalties for sales surpassing a high (but not impossible) annual threshold. The deal is summarised below. Return to someone for whom we invested a total of £5k in Ducentis following an £25k investment in OT(S)EIS:

Date	Invested	Tax Return	Capital Return
2015 14p/share	£1,250	£625	
2016 18p/share	£1,250	£625	
2017 36p/share	£2,500	£750	
2022			£21,669
2023			*£35,000
Potential Future Milestones			**£800,000
Total	£5,000	£2,000	£856,669

*In Arcutis shares + escrow cash

**In steps over the next 10 years, and NOT guaranteed.

Note: The above calculations are based on the data from the time of the deal (Sep 2022).

Small update: The escrow payment has now been received and distributed. There is no news yet on further progress of the Ducentis molecule ARQ-234. The Arcutis share price hit a low of \$2.00 but has now risen back up to \$5.96 at the end of January and was at \$3.23 on the last trading day of 2023. Lilly who have a competing CD200 molecule, continue with clinical trials in Atopic Dermatitis.



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 drugs which Bioarchitech is developing will be able to be administered to many more types of cancer than is currently possible. Bioarchitech is developing drugs for two stages of cancer. The first type of drug, based on a virus, will be used to treat patients who are at a late stage where the cancer has already spread. The second type of drug is for patients at a very early stage where only a primary tumour has been identified and is designed to shrink that tumour and prevent relapse, this is an RNA-based drug.

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 developed a number of candidate drugs in its lab that work well in a dish. With the investment, Bioarchitech is currently working on in vivo models to generate proof of concept data. These in vivo models, based on mouse models of cancer, will generate the data to determine Bioarchitech's best-performing therapy to take into first in human studies. There is sufficient cash in the bank to cover the planned in vivo studies, further fundraising from venture capital or pharmaceutical companies will be required to do the first in human studies.

Recent Developments

Bioarchitech is continuing to produce in vivo data for its proof-of-concept studies. The dosing regimens are being established and most of the current experiments are focusing on the therapeutic efficacy. As the therapeutics developed by Bioarchitech are designed for humans it has taken considerable effort to adapt these to mouse models of cancer. Animal models are a requirement of larger venture funds, pharmaceutical companies and medicine regulatory agencies to demonstrate efficacy and safety. Both the virus-based therapies and RNA-based therapies developed at Bioarchitech are currently generating in vivo data which will continue over the next 6 months. The best-performing will then become the lead candidate for further development and trials.



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
£18.99m	£0.81	0.8%

Description of Business

Peptides 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 in specificity akin to other biologics, such as antibodies.

The founders are Prof Graham Ogg and Prof Terence Rabbitts FRS from Oxford University's Weatherall Institute of Molecular Medicine. The technology enables the rapid selection of peptides that bind onto drug targets using a process that minimises unintended or non-specific binding. 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. 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 on specific functions 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.

Progress since Investment

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. T-Cypher currently shows 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

At the end of November, Orbit signed two more development deals. They are large deals and demonstrate a growing recognition of the benefits the Orbit platform brings. Earlier deals have been executed successfully with customers receiving the peptide leads they were looking for.

Summary

Orbit is making good progress both technically and commercially.



Curileum.com

Company Valuation	Valuation Share Price	Fund Holding
£17.04m	£4.00	19.1%

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	£106,349	£0.31	EIS
Mar 2020	£13,791	£1.00	EIS
Dec 2022	£29,656	£4.00	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 since the investment in Q4 2021:

1. **ULI-015** (ULI means powerful in Chinese) is the active small molecule compound that Curileum isolated from a plant extract component (PLE015) of a traditional Chinese medicine. The company is developing ULI-015 to intervene early in the development of bowel cancer.

2. Stem cell therapy candidate for healing fistulas.

Curileum has discovered an adult stem cell in the lower region of the gastrointestinal tract 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. In two studies, these stem cells filled the fistula tract with healthy cells, effectively healing a fistula for the first time.

Curileum received wonderful data during Q1, 2023 from a trial on pigs with the FAP gene (meaning that they develop bowel cancer). One pig was fed with a daily dose of PLE015 for three months, while the control pig was fed a normal diet. In the treated pig, 255 polyps became necrotic (meaning that they had become dead skin and there was only one 'progressive' polyp remaining. So this might become a pill to be taken daily by millions, to prevent or slow the development of bowel cancer.

Curileum raised more than £500k, mainly from its existing shareholders in Q1 23, but would now like to find a pharma partner or a large funder to take this forward. The possibility is that ULI could be the active ingredient in a pill (ULI has already been shown to be safe and works when taken orally) to be taken by millions of people worldwide to prevent and or slow the development of bowel cancer.

Recent Developments

Curileum is continuing discussions with venture capital firms and pharmaceutical companies as it focuses on completing two key preclinical milestones for investment/licensing in 2024: synthesis of ULI-015 for pharmaceutical development and identifying its cellular binding target.



Company Valuation	Valuation Share Price	Fund Holding
£1.57m	£0.15	5.8%

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
Mar 2023	£65,329	£0.15	EIS
Dec 2023	£7,331	£0.15	EIS

Description of Business

Spendology was founded by three entrepreneurs from software, foreign exchange and personal finance backgrounds. The business provides SaaS system to enable tour operators and others to deliver foreign currency to customers by post before they go on holiday. This remains a big global need despite the use of cards. Many people like to have foreign currency in their wallets when they arrive in a foreign country. Maybe the taxi driver doesn't take a card? Maybe the cash machine will not be working?

Progress since Investment

Spendology was just getting going when Covid struck and global travel ceased. This could hardly have been worse for Spendology, which then became loss-making and had to raise more capital to survive.

Recent Developments

In Q2 22 the £23bn international travel conglomerate Internova signed a franchise deal with Spendology for the US market. However, there were numerous delays in getting this deal live. In particular various licences were required for regulatory reasons. Then just before the launch, scheduled for 31 Oct 23, the launch was halted due to an audit by the state of California. At the start of Q1 24, it transpired that Internova had decided to use another company entirely (actually a company that was introduced to Internova by Spendology to help with the regulatory issues) and have cancelled the deal with Spendology. Spendology believes this is in breach of their agreement with Internova, but Spendology is too small to contemplate taking legal action against such a huge conglomerate. But they do hope and expect to be reimbursed by Internova for the costs to date, which were incurred in good faith and in the expectation of the deal proceeding as agreed.

As a result, the Spendology board have taken action to re-shape the business based on current workloads and reduce the monthly runrate from £68k to £43k from April onwards.

Meanwhile in the UK, Spendology is ready to sign contracts for a 5 year direct distribution deal with Travelex, which offers reduced wholesale costs, improved lead times and improved cashflow. This deal alone will double the profits made on existing turnover from May 2024, delivering £125k+ of revenue in the next 12 months. Spendology remains in advanced discussions with three major travel companies interested in taking on a white label solution in the UK.

Even more importantly, Travelex is about to appoint Spendology as a global software partner. This framework agreement sets out the products, costs and terms available to all regions of the Travelex business for their use Spendology Cloud. The Business Case is set to receive its final approval in Q1 24 before moving to contract, which will include a pilot in Germany worth at least £125k in the next year. Spendology has already quoted for four projects – one in Germany and three in the UK – and is in the frame for further opportunities in France, Australia and Japan – which together would generate £1.5m of revenue in 2024/25 against a very small cost base.

However, before this deal can go live, Spendology will probably need to raise additional capital. And this may prove difficult.



[ActiveNeedle.com](https://www.ActiveNeedle.com)

Company Valuation	Valuation Share Price	Fund Holding
£12.79m	£0.93	11.8%

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
Apr 2023	£7,728	£0.93	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.

Possible applications include:

- Biopsies - enabling surgeons to take biopsies (small samples of tissue) from tumours deep inside the body with much greater ease and with much greater accuracy.
- Injecting a chemotherapy drug directly into a solid tumour much more effectively. The ultrasound signal used with a needle with holes in the side enable the drug to be dispersed throughout the tumour. One Professor of oncology said he has been "looking for this needle for 25 years". Active Needle is gaining wide interest on this application and is collaborating with a UK pharma company.
- Tattooing - Active Needle has developed a prototype tattooing system (branded as Tranquill) using the same ultrasound technology. A trial in volunteers has shown greatly reduced pain and skin trauma.

Recent Developments

The Tranquill deal was signed in October with MT Derm, a leading tattoo product company that spans artistic and medical tattooing. This is a link to their main product line - <https://cheyennetattoo.com/en>. Active Needle's technology significantly reduces both pain and trauma during tattooing. The deal provides both upfront milestone payments and future royalties. Discussions regarding further licensing of the technology are ongoing.

Active Needle continues to develop its technology beyond tattooing, in biopsies, drug delivery and also microneedling.

Active Needle also won the Technology Innovator of the year awards 2023 and recently expanded their team with the addition of Abdul Hadi Chibli, a PhD in mechanical design whose PhD covered ultrasonic surgical instruments for robotic-assisted surgery.

The company will shortly open their 93p round for crowdfunding platforms and of course existing investors can participate now in this raise, however, should new licensing deals be signed the round will likely close early as the potential valuation of the company will have increased.



[ONI.bio](https://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
£129.11m	£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. In Q1 22, ONI closed a fundraising of \$75m at £0.21 per share, (a price after a 1,000:1 shares split, so equivalent to £210).

In Q123 Paul Scagnetti joined as CEO. He was previously Vice President of Corporate and Business Development at Illumina and worked at FEI and Intel.

You can see some of the fantastic images captured by ONI's microscopes here <https://oni.bio/applications/gallery/>.

Recent Developments

From the ONI website we see that ONI Announced that Alex Aravanis, one of the founders of cancer diagnostic company GRAIL, has joined the board. ONI also launched a new kit enabling researchers to more easily use their own antibodies in the super resolution microscopy work. ONI is now headquartered in California, and we hear very little from the company. From Companies House we see:

Year to 31 Dec	Sales £000	Profit £000	Cash balance £000
2021	5,582	(10,908)	55,032
2022	5,678	(12,238)	47,103



[Entia.co](https://entia.co)

Company Valuation	Valuation Share Price	Fund Holding
£24.23m	£26.38	1.3%

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 can 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 now employs 28 people. To date, the company has raised over £35m 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, but discontinued the programme to focus on Oncology.

Recent Developments

Entia has become the first company in the world to obtain regulatory approval for home blood counting of neutrophils, haemoglobin, platelets and total white blood cells. They have had approval from the UKCA. Work to obtain approval in other jurisdictions will continue.

This has meant that the partnership with Pfizer has now gone live and clinical centres are being prepped to take this on.

Toby said the company is doing very well with staff very engaged in their mission.

Summary

Entia is making good progress.



Covatic.com

Company Valuation	Valuation Share Price	Fund Holding
£9.69m	£9.19	2.2%

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 the client's 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.

In Q1 2023, Covatic completed a fundraising of \$3m at a disappointingly low share price of £9.19. But the fact that Comcast, one of the largest broadcasting companies in the world, invested \$1.5m and is an active user of Covatic should be helpful in bringing other customers on board.

Recent Developments

Nick Pinks, co-founder and CEO of Covatic sent an update saying that revenue was approximately £980k in the year to Dec 23, up from £150k the previous year. In the next quarter, 8 new broadcasters will move to the Covatic platform including Sky Sports, Sky News and NBC. And another piece of good news is that those who are already on the Covatic platform are using it ever more heavily.

So an encouraging quarter, with actual results beginning to match up to the projections.



ProcessVision.com

Company Valuation	Valuation Share Price	Fund Holding
£10.91m	£3.00	1.9%

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
Dec 2023	£6,858	£3.00	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. Gas pipelines should transport clean, dry gas, but PV's initial product, LineVu, reveals that there are often liquids present in the gas.

Progress Since Investment

It took a long time to get started - like other industries, the gas industry is conservative - but over the last couple of years, things have started to accelerate. There are currently 5 Line Vu systems in use.

Recent Developments

Interest in the US is now rising rapidly with the introduction of the portable "Discovery" system. This is used to perform studies for customers who evaluate both the technology for permanent installations and see how bad the liquid carryover problem is. The first study system in the USA will go live in Feb 24, with a large midstream customer who are eager to see what the technology can do to help reduce liquid carryover problems.

The appointment of a US general manager has had a very positive effect. Where it had taken several years for UK users to place an order, one US customer recently placed an order (for a survey- i.e. the use of the system for one month @ \$10,000 plus a mobilisation fee) in a fortnight.

Another US customer has a 'liquid-in-the-pipes' problem, which it estimates is costing it \$800k per month. In Q1 24 it placed an order for a survey so that it can identify where the problem is coming from.

Named customers in the US with which PV is now in discussion are indicating a need for more than 100 systems over the next 1-2 years.

PV had previously approved fundraising, seeking to raise up to £3m at £5 per share. It raised £1.2m at this price. The higher interest rates caused a halt in fund raising so the Board decided to reduce the price to £3 per share and has successfully raised a further £1.7m so far which should take the company to cash flow breakeven.



[Gripable.co](https://gripable.co)

Company Valuation	Valuation Share Price	Fund Holding
£17.42m	£4.00	1.5%

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

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 closed a distribution deal with Medline who is the US's largest privately held manufacturer and distributor of medical supplies.

Recent Developments

Paul Rinne has now moved to the US, in order to support the development of the world's biggest market from up close. The company has added health monitoring to the product line. The application is for patients who have been released from hospital with conditions that may relapse. Being able to tell early on whether a patient is relapsing can help reduce the extent of deterioration and the costs of readmission to hospital. Grip strength is a major indicator of frailty and that combined with other measurements which can be made with Gripable can serve as an early and reliable indicator of condition.

Gripable raised £4.59m in November 2023 at a share price of £4, with a further £1.5m coming in January.



[Darkbeam.com](https://darkbeam.com)

Exit Value **Exit Share Price** **Multiple**
Up to \$11m £0.90* Up to 3.5x**

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

*90p is the fair value of the shares we judge, including probability-adjusted milestone payments. With tax reliefs accounted for, the value is approx. £1.10

**Depending on the investment round, assuming full options conversion and that all milestones are met. The multiple is calculated in respect to the net cost of investment, i.e. includes tax reliefs.

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 has developed a suite of cyber security technologies that deliver clients real time supply chain situational awareness. This involves the integration of supplier vulnerability detection and real time cyber threat intelligence through darkweb monitoring abilities and to take action to prevent their data and IP from being stolen.

Progress since Investment

Having had a challenging first year, which resulted in a change of managing director, Darkbeam is now positioned as a supply chain cyber risk management system. There are three main planks in one simple-to-use offering:

- Cyber Vulnerability Intelligence: 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.
- Cyber Threat Intelligence: the real-time monitoring of hackers and their behaviours.
- Cyber Vulnerability + Threat Intelligence = Darkbeam's Cyber Score

These 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.

During 2023 Darkbeam has seen a material increase in hostile activity in supply chains. Darkbeam has enabled clients to respond to a growing number of threats at a speed and scale they would not have been able to do using traditional approaches. The most recent being the MOVEit vulnerability which has seen some of the largest companies in the UK announce ransoms. Darkbeam developed a scan for this vulnerability in a matter of a day which was deployed across all its clients, providing them immediate visibility of those suppliers that may be vulnerable. They were able to engage them and ensure that gaps were instantly closed.

Recent Developments

DarkBeam has been sold to US company Apex Analytics, a leading supplier of supply chain risk management, data software and services. Apex Analytics is majority owned by investment company KKR. In Q4 23, shareholders received an initial payment of approx. 63p per share. There are possible future milestone payments which are larger. Through the acquisition DarkBeam's technology is available to customers of Apex under the name CyberPro (<https://www.apexanalytix.com/portal/cyberpro/>).



LRESystem Investment History

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

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

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
2022	16	42
2023	9	51

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

Recent Developments

LRE had their BSI audit and it went OK though some things need filling in quite soon. LRE is in discussion about a deal to bring in new management. We are helping to make it happen. Surgeons like the device and sales are happening without any active marketing. If we conclude the deal to bring in new management there will be an investment round of approximately £600k.



Atelerix.co.uk

Company Valuation	Valuation Share Price	Fund Holding
£0.81m	£0.10	3.8%

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
Nov 2022	£11,099	£0.90	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.

Recent Developments

Atelerix had an offer from two VCs. The deal was due to be signed at the end of November, but during the last week of November one of the VCs decided that the company had too little money and so they wouldn't invest. They had had all the financial data since June and at the beginning of the week had said they were looking forward to closing the deal. The other VC had relied on the presence of the first so they pulled out too.

Therefore Atelerix had to do a rights issue and a group of shareholders came forward to support the company. £500k has been raised albeit at a lower valuation. A new CEO has been hired. Alastair Carrington has had an excellent career in sales in biotech tools and seems very well suited to the opportunity. He was introduced by one of the shareholders. Debra Leeves, who had been part time CEO was phenomenally helpful throughout and Mick McLean continues to help the company, now in the role of Chairman.

Sales had been picking up with a greater number of repeat sales and some companies that had been experimenting with the Atelerix products have decided to move forward.

In particular Atelerix has been obtaining good traction in the field of organoids and with tissue samples.

Summary

After a very animated December, Atelerix is setting off with a new lease of life and growing sales.



[Refeyn.com](https://www.refeyn.com)

Company Valuation	Valuation Share Price	Fund Holding
£205.05m	£5.00	1.5%

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.

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. Philipp Kukura moved back to the university and remains closely involved with Refeyn as a non-executive director. 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. These have now been joined by the TwoMP Auto which as the name suggests allows automation of certain functions and allows the user to walk away from the instrument and then return to a set of results. In 2021 Refeyn made its second move, to a new building in Littlemore, 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. Refeyn now has offices in the UK, US and Japan.

Recent Developments

The 263 papers using Refeyn devices that were published in 2023 brought the total to 749.

Refeyn now distinguishes between Mass Photometry for proteins and Macro Mass Photometry for things like viruses. Macro Mass Photometry is able to collect additional size information by moving the optics vertically and seeing the height at which there is most light scattered. By measuring mass and size it is possible to tell whether viruses are full or empty.

Another innovation has enabled the measurement of molecules at much higher concentrations. This is useful to find binding events that are too unstable to occur at lower concentrations. The method works by very rapidly and controllably diluting the mixture so it can be measured before proteins have time to re-separate.

Gerry Mackay has now started as CEO.

Summary

Refeyn continues to grow and has brought out new instruments and refinements.



Cytecom.co.uk

Company Valuation	Valuation Share Price	Fund Holding
£2.11m	£2.34	19.9%

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, diluted by a suitable factor, in a media-containing dish and then wait for several days while cultures develop which can then be counted and 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 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 Warwick University. Before the initial investment, Cytecom was awarded an Innovate UK grant of £230,000 which officially started in November 2018.

Progress since Investment

CyteCount is a stand-alone device about the size of a small shoebox. It contains proprietary electronics, optics and software to count the number of live cells in a sample. Users simply have to place a sample on the special slide (which contains the electrodes for administering the shock), and 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, where there was interest from various industries. The first sale was achieved in Q1 21. In that quarter, the company also raised £150,000 at £2.23 per share to further develop the device and hire a distribution team. 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.

Recent Developments

In Q4, the award of £1.5m was confirmed. For many weeks, Cytecom could not give any details about this which made fundraising difficult, but finally around Christmas, Cytecom could announce that the award comes directly from the UK Government (The Department of Health and Social Care) and the reason for the award is that the government appreciates the growing problem of antimicrobial resistance and wants to see Cytecom's technology developed into a practical solution which could be deployed in the NHS to help tackle the problem.

This is all very good news. Congratulations to Magda and the team for having won this award.

At the end of Q4, Cytecom was seeking to raise a minimum of £100k, which it has now done and up to £500k to support the £1.5m of the award, which will be spent over the next three years.



PolyCAT.co.uk

Company Valuation	Valuation Share Price	Fund Holding
£5.14m	£0.25	14.3%

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 across diverse applications, from highly antiviral materials for use in healthcare, to catalytic spill kits that can degrade extremely hazardous chemicals. The following are in commercial development:

Spill-CAT - PolyCAT has developed a range of catalysts that can degrade chemical warfare agents discovered in old munitions dumps or during counter terrorism operations. This has now been demonstrated against all the main classes of agents (Mustards, Tabun, Sarin, and VX) and are now in end-user testing with prospective military customers.

React-CAT - Earlier in the year the EU passed legislation cutting the allowed release limits of formaldehyde from industrial processes. Formaldehyde can be destroyed at room temperature by Platinum catalysts, but these are too expensive for large scale use. PolyCAT has developed a low-cost alternative that can be used in existing industrial filters without needing to make any changes in the size or format of the filtration plant. PolyCAT has also been approached by a US company looking to apply the same technology to domestic air filters. This work is expected to conclude at the end of Q1 2024.

Recent Developments

The company formally launched the first versions of Spill-CAT in December 2023. There has been much interest, and demonstrations are being arranged to German, Japanese, Dutch, Belgian, French, US, and UK end users from February onwards.

US - Bulk agent verification in the US involving litre quantities of mustard gas, sarin, and VX, is expected to start in Jan/Feb. If this works out as expected, it will lead to orders from across the US and other allied military and civil defence users. PolyCAT is currently vetting potential distributors in the US and has two potential candidates.

UK - PolyCAT received a small order from DSTL/MoD in Dec to finalise testing of Spill-CAT and check its effectiveness against non-traditional agents. This work is ongoing. PolyCAT is planning a demonstration day with DSTL in Q2 to showcase Spill-CAT to all UK end users in one go. PolyCAT expects that at least one end user in the UK will place orders in 2024.

Germany/Japan/Belgium/Netherlands/France & North & Baltic Seas – A huge new find of old munitions in Germany is about to be dismantled and PolyCAT has been asked to demonstrate its solution to the national authority (GEKA) charged with clean-up of the site. This is snowballing into a much larger event, as GEKA work closely with the Japanese government which has >100,000 munitions still to clean up in China. This is a wonderful opportunity for PolyCAT as Spill-CAT is particularly suited to the types of problem that GEKA and Japan deal with and could save huge amounts of time and money for both countries. PolyCAT has also produced a prototype of a maritized delivery system for Spill-CAT to deal with finds at sea as this is an increasing problem encountered by wind farm constructors, pipeline builders, and port operators in the North and Baltic Seas. Demonstrations of this should start in Q2 2024.

During Q4, PolyCAT had a rights issue at 25p per share to raise capital to support Spill-CAT marketing and sales. This was oversubscribed and closed with approx. £412k having been raised.



OxWash.com

Company Valuation	Valuation Share Price	Fund Holding
£27.33m	£6.69	2.7%

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, aims to transform the laundry and washing market. With a co-founder who is no longer with the business, he spent the 18 months before the investment designing and iterating the process while also developing and implementing the sales and logistics mechanisms.

The idea was to have a commercial and hyper-sustainable laundry in a shipping container style box or disused commercial unit. The laundry could be placed anywhere and could be operational within hours. The laundry would 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 could 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 was to open more units, starting in the UK but expanding globally. The first units were in Oxford, Cambridge and London. Covid was damaging to Oxwash, with universities closed.

During 2022 Oxwash changed strategy and has begun to implement it in 2023. The strategy is to create the most efficient, automated and environmentally friendly laundry in the UK. Known as 'Big Blue' this is now beginning to come into operation in Swindon. The existing small laundries are being closed and will instead become collection hubs. Laundry will be transported daily by electric vehicles to and from Big Blue which now has the capability of taking on much larger contracts. Oxwash currently has expressions of interest for contracts that would total £40m per year. It cannot yet accept such contracts but hopes to begin taking on the first of these larger contracts as the capacity becomes available at Big Blue.

Recent Developments

During Q4 Oxwash steadily increased the capacity of Big Blue which was able to process .25 tonnes of laundry/hour at the time of writing (Jan 24). The new bespoke automated cleaning line will come on stream during the next two quarters which should increase capacity to 1.25 tonnes/hr. In Q4 Oxwash began processing laundry for two large future customers, the NHS and the MoD, with full item tracking using its proprietary RFID scanning and software layer. The client is impressed and has signed an Letter of Intent to place significantly larger orders in future.

In summary, Oxwash is growing rapidly and making good progress.



**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
£2.76m	£3.00	8.8%

Description of Business

The Smarter Food Company (TSFC) was established to produce a food to reduce blood glucose levels in people who are defined as being ‘pre-diabetic’ as well as being beneficial for a range of other age-related chronic conditions. Its technology is in the form of a traditionally bred broccoli that contains a very high quantity of a naturally occurring compound, Glucoraphanin (GR). The science for this came from the Quadram Institute and it took about 20 years to develop the High GR broccoli. It has incorporated its unique broccoli into an instant soup and is currently selling this direct to the consumer, via its website SmarterNaturally.com.

Research indicates that you only need to consume just one portion of this soup per week to obtain the beneficial effects. The soup is a convenient instant product that you simply add boiling water to and costs £20 for a packet of 4, one month's supply. The company's commercial task is to build the number of subscribers. Breakeven is achieved with about 4000 annualised subscribers.

Progress Since Investment

Following some good newspaper articles, the number of subscribers increased to a peak of 2,000+ in Q3 23. However many people do not renew their subscriptions, and allow them to lapse after an initial period with average customer lifetime being 6 months. So the main challenge for The Smarter Food company is how to increase the ‘stickiness’ of the product, as well as attracting new subscribers. To support existing customers it has launched a range of recipes using the soup and has a programme of regular customer communication. Following customer feedback it has also re-formulated its soup product to be cleaner label (i.e. have fewer processed ingredients) and contain more fibre, with minimal effect on taste.

On the plus side, the company has a growing number of wonderful case studies which show that the science really does work. Many of these include feedback from diabetic nurses, who regularly monitor the blood sugar levels of their patients saying “Goodness what has happened to you? Your blood sugar levels have been rising steadily for years and have reached levels where we were about to have to recommend medical intervention (often associated with negative side-effects), but suddenly your blood sugar levels are way down to healthy levels. Have you finally started to take exercise or changed your diet?” Answer; “Well I have changed my diet in that I now take a weekly bowl of Smarter Naturally soup but I have made no other changes to either my diet or lifestyle.”

Despite this evidence from diabetic nurses, NHS healthcare professionals are prohibited from recommending commercial products unless they have a health-claim and there is no commercial benefit to the health-care provider. At present SmarterNaturally cannot make any direct health claims until it has undertaken further clinical trials to secure the evidence required to secure such a claim. Currently the company isn't in a position to undertake this research as the trials will cost £ms and take several years to complete. Some case studies can be read on the SmarterNaturally website.

In summary, there is still much optimism regarding the company's potential and 2024 will be a year of trialling different approaches to unlock the door to sustainable revenue growth. The company is in early stage discussions with large food manufacturers about supplying the broccoli material as an ingredient and trialling working with a distributor for the Gulf states which has a very high incidence of T2 Diabetes and a UK agent to start selling through UK independent health food stores.



ConnexinTX.co.uk

Connexin Investment History

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

Company Valuation	Valuation Share Price	Fund Holding
£1.42m	£7.00	4.7%

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

The partnership with Leeds University has now been formally announced (<https://biologicalsciences.leeds.ac.uk/biological-sciences/news/article/413/new-business-partnership-to-kickstart-innovative-alternative-to-corneal-transplants>) and helps progress Connexin’s corneal work and may provide a template for the retinal work too.



[Cytoswim.com](https://www.cytoswim.com)

Company Valuation	Valuation Share Price	Fund Holding
£1.92m	£6.18	18.7%

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, essentially an obstacle course, which separates the healthy from unhealthy cells.

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 1m cycles in total. Altogether the global accessible market is approximately £500m-£1bn.

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 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. In April 22, 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. The founder of Logixx Pharma distributes products to IVF clinics globally and has a very good understanding of the market and of the potential for Cytoswim. He has become a director and provides invaluable input at board meetings. OT(S)EIS invested a further £34,000 at the same time.

The device will not be able to be used commercially for human fertilisation until a CE mark or FDA approval is obtained.

The device is being tested by leading IVF clinics in the UK, India, and South Africa.

Recent Developments

Cytoswim went to an Indian fertility conference and had a very good response. It is looking likely that India will be the first country in which there will be some sales. US and Europe are still awaiting approval and the company is currently right in the middle of completing those approvals. The regulatory file was submitted to the FDA in October 2023 and it is hoped that the regulatory approval may be obtained by 31 March 2024. The FDA has only asked for one additional test on review of the file and that is being processed.



Nikalyte.com

Company Valuation	Valuation Share Price	Fund Holding
£1.38m	£1.50	26.0%

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
Feb 2023	£60,000	£1.50	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 priced at 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 20. 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 delivered its second bespoke nanoparticle system in Q4 to a Scottish University and will be commissioning the system for use in medical nanotechnology research in Q1 of 2024. In Q4, Nikalyte also received orders for an NL-UHV nanoparticle source from Diamond Light Source in Harwell and for an upgrade to Oxford University's existing nanoparticle source.

Nikalyte built on the success of the summer conference and events with a return to Boston in November for the Materials Research Society (MRS) fall conference. Nikalyte's technology was very well received at MRS and the team has had interest from leading US labs including Caltech, Harvard and MIT. Whilst in Boston the team met with several distributors and has now signed contracts with agents to sell Nikalyte's products in North America and Singapore. During Q1 of 2024, Nikalyte will be focusing on expanding this global network in Europe and Asia.

The SERS business saw a growth in both new and repeat orders in Q4 following a quiet summer. The second SERS product was launched in Q4 and the first orders for the new product have already been dispatched. The publication of a white paper by Agilent Technologies in Q4 has caused interest in Nikalyte's SERS substrates for the detection of narcotics and as a result of this work the team have embarked on a field study of the SERS substrates with Agilent's largest customer in Australia.

Date	SERS Sales
Q3 22	£471.80
Q4 22	£1,182.04
Q1 23	£2,274.04
Q2 23	£4,781.00
Q3 23	£859.88
Q4 23	£2,800.08



[Etcembly.com](https://etcembly.com)

Company Valuation	Valuation Share Price	Fund Holding
£23.76m	£6.00	6.2%

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

Etcembly uses its own AI platform to analyse and understand how TCRs (T Cell Receptors), an important component of the immune system's function. 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 is a true 21st Century drug discovery company. It 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 TCR repertoire of individuals 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.

The aim is to shorten drug development timescales cycles, lower drug development costs and potentially to create a new TCRs.

Progress since Investment

£5.2m was raised in the last round at £6.00 a share in Q4 22. A larger round to progress the TCR based therapeutic assets is being raised.

Etcembly continues to make excellent progress.

Etcembly's milestone achievement in Q2 23 was the in silico engineering of low picomolar affinity of the lead TCR candidate, ETC-101, focus is now on testing and optimising the bispecific therapeutic, ETCer (Etcembly's T cell engaging receptors). This lays the groundwork to develop a best-in-class therapy which will be able to treat a wide range of cancer types and has a very well-supported business case.

Etcembly has had a very positive response to the August press release on ETC-101, highlights include reporting in Forbes Breakthrough In Cancer Treatment: The Role Of Generative AI In Drug Development (forbes.com).

Effective target identification for TCRs is a challenge for the whole field. To meet this Etcembly is developing a new program with academic collaborators looking in the blood and tumours of patients who survive cancer and do well. This new program may reveal the next generation of targets and TCRs.

Recent Developments

Michelle, CEO, says that Etcembly had a very successful time at JPM in San Francisco in January, getting lots of interest from investors joining in with a larger fundraise, probably \$60m, at some point in the near future.



FlareBright.com

Flare Bright Investment History

Date	Amount	Share Price	Type
Sep 2020	£29,000	£1.00*	SEIS

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

Company Valuation	Valuation Share Price	Fund Holding
£2.30m	£1.00	1.3%

Description of Business

Flare Bright is developing systems to enable drones to fly safely even if they lose radio contact with their controller or lose GPS signal. At the moment, a drone which loses contact could fly out of control and crash, which is hampering obtaining full regulatory approval, particularly in Beyond Visual Line of Sight operations.

The founders of Flare Bright are Kelvin Hamilton, Conrad Rider and Chris Daniels, all seasoned technical entrepreneurs.

Progress since investment

Flare Bright has now won eight defence contracts worth over £2m together as well as four UKRI grants to develop its systems, and has been working hard on delivering these contracts. Staff numbers have increased to from 3 to 18. Flare Bright is becoming a recognised “go to” name in the defence and UAV sector and is now regularly asked to speak at conferences and has a decent amount of name recognition within the industry.

At the start, Flare Bright built its own small drone, Snapshot, but the business model has evolved increasingly. The model is for Flare Bright to install its software on drones made by other manufacturers, supplemented with a 50gm communications/sensor package if required.

Flare Bright has made excellent progress and has now achieved revenue of more than £1m delivering contracts on time and on budget for customers (mainly the US DoD and the UK MoD). During 2023, Flare Bright exhibited at multiple events including SOF week in Florida, Paris Air Show, and DSEI (London). Needing a London base, Flare Bright has opened an office in Imperial College’s new iHub in White City. A number of other relevant organisations are also there, including NATO’s Defence Innovation Accelerator, MOD’s Defence and Security Accelerator, Stratcom (US Strategic Command), the US Army DEVCOM and others.

Recent developments

During 2023, Flare Bright carried out two major demonstrations and conducted multiple trials. The first major demo was in September, where Flare Bright displayed its Software Enhanced Navigation System (SENS) and Wind estimation capabilities to the UK MOD and other departments.

The second was in Barcelona for the US Department of Defense, in which Flare Bright carried out several 1-hour GPS-Free flights over mountainous terrain and demonstrated its SENS capability in a 10-mile flight over the Mediterranean Sea without the ability to carry out any ground-truthing (comparing the measured data against directly observed data).

All in all Flare Bright is making excellent progress.



[Cryologyx.com](https://cryologyx.com)

Cryologyx Investment History

Date	Amount	Share Price	Type
Mar 2021	£75,000	£3.34	SEIS
Mar 2023	£86,336	£8.00	EIS

Company Valuation	Valuation Share Price	Fund Holding
£2.93m	£10.00	11.3%

Description of Business

CryoLogyx provides cryopreserved biological cell based products and services to the Life Sciences, Healthcare and related industries. Its proprietary and patented cryoprotectant, CryoShield, combines with deep expertise in cryopreservation to provide unique and valuable protocols for freezing and thawing cells, attracting commercial interest from major organisations such as Astra Zeneca, MOD, Charles River and ATCC. The company is co-founded by Dr Tom Congdon, CEO, and Professor Matthew Gibson based on globally leading research into Macromolecular cryoprotectants.

The company is commercialising three main offerings:

Assay Ready Cells - a growing catalogue of mammalian cells are being developed in frozen plated format to 'thaw-and-go'. The offering is targeted at large Pharma, biotech, CROs and formulation companies who use cells in plated format for early stage research and high throughput screening. The global assay ready market is growing 10%+ CAGR and CryoShield plates can reduce cell culturing times by up to 90%, with an 80%+ reduction in single use plastic and accelerated research outcomes. Four cell lines have been developed for production in the UK lab with more in the pipeline.

CustomReady Research - changes in FDA regulations and a shift away from animal testing is putting increasing emphasis on early stage in-vitro cell experimentation and testing. CustomReady is a service based offering leveraging the unique IP and expertise from decades of cryopreservation research to solve complex problems in the preparation of cell-assays. Through this offering CryoLogyx engages industry leaders to provide cryopreservation solutions for a variety of cell lines, in varied plate formats, such as 384 well and increasingly into growth areas such as transwell plates and 3D models with spheroids and organoids.

CryoShieldRed - CryoLogyx has DASA funding sponsored by the MOD to freeze bags of blood for flexible storage and transportation to near the front line, for rapid thaw and use within 15 minutes. As the war in Ukraine has highlighted, around 50% of deaths on the front line are caused by hemorrhage. The MOD is putting together a funding programme for 'blood-on-tap' in response to medical lessons learned from Ukraine. CryoLogyx has been funded with £450k by dstl so far with a significant increase expected in mid 2024 based on strong results achieved to date in the lab.

Recent Developments

The company made strong progress in Q4, harnessing its newly established lab to achieve important research milestones with the MOD for blood, AZ for THP-1 cells and increasing from 2 to 4 assay ready cell lines. Leads have been generated through marketing campaigns targeting customers at ELRIG Drug Discovery, Academia and Formulation companies with a pipeline of over £1m of opportunities. The team is being increased in 2024 to drive market traction and to develop distributor agreements for access into European and US markets.

The company is currently fundraising at £15.55 per share, with approx. £48k committed from the current shareholders and £150k from new investors so far.



Zayndu.com

Company Valuation	Valuation Share Price	Fund Holding
£6.10m	£0.106**	5.3%**

Zayndu Investment History

Date	Amount	Share Price	Type
Mar 2021	£133,505	£0.062*	EIS
Apr 2022	£83,029	£0.158*	EIS
Sep 2022	£51,548	£0.30	EIS
Feb 2023	£66,562	£0.33	EIS

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

**While the latest investment price is 19p/share, we reduce our share price and our fund's holding to take into account the unfavourable participating preference rights of the incoming investors' shares.

Description of Business

Zayndu uses plasma to treat seeds before planting. The benefits are far-reaching; more seeds germinate, fewer seedlings are lost to fungus or disease, and typically many crops see yields increased by 15-25%. The process is entirely dry, using only a very small amount of electricity and air.

Summary

The founders of Zayndu are Ralph Weir and Dr Felipe Iza. Felipe developed the technology at Loughborough University, which is also a shareholder in the business. In Q3 22, Andrew Neil who had previously been in charge of a 150 strong engineering team at Jaguar Landrover joined and the engineering function has since become much more robust. Zayndu has attracted much interest from indoor growers, particularly in the IUS where the culture is more open to trying new ideas. The original investment (which also secured a £700,000 Innovate Loan), enabled the company to produce the first commercial product and to make first sales. The business model is that customers pay a monthly fee for the service. The service includes the use of the machine and also the recipes for each seed type. The treatment required to produce the best results for watercress is different to the treatment required for spinach. The machine is run online and obtains the protocols it needs for each run from Zayndu's database in the cloud.

Meanwhile the ongoing practical research in the biology lab (lead by Dr Alberto Campanaro) is steadily building a database of optimised protocols for each individual seed variety, building a treatment library which will be a core part of Zayndu's IP. Protocols from this library can be downloaded/upgraded to an individual machine using the company's SeedCloud management system. Work on human pathogen elimination has also continued, delivering two orders of magnitude reduction in enterobacteria – the pathogens which cause human food poisoning. This is a significant result with far-reaching consequences for the food supply chain.

Recent Developments

Having closed an investment round of £1.7m in Q4, albeit at a disappointingly low share price, Zayndu is now in a position to undertake improvements on many fronts, including on manufacturing and on marketing.

Just as we went to press, Zayndu had the good news that one of the largest vertical farms in the US who had been trialling a system, confirmed that they would now move from research to production and sign the monthly fee contract. It is hoped that they will want multiple systems.





[Machine-Discovery.com](https://machine-discovery.com)

MD Investment History

Date	Amount	Share Price	Type
Mar 2021	£74,999	£4.77	SEIS
Jul 2023	£28,996	£10.54	EIS

Company Valuation	Valuation Share Price	Fund Holding
£12.72m	£10.54	1.5%

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 of 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.

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 seed capital raised was £1.6m. But because OTM initiated the investment, and introduced Bijan, etc, all our £75,000 was a 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 hired additional research, software development, and business expertise as part of its expansion plan. The company won its first contract in Clean Energy (Fusion) with additional customers in Q2 and Q3 2021. Machine Discovery operated in stealth mode until Q4 2022 when it launched its website. In 2022 the company expanded its offering into the chip design market, a field in which Bijan knows all the key people.

In May 2023 the company announced First Light Fusion, the University of Oxford, the University of York, Imperial College London, and Machine Discovery will collaborate under a £12 million grant award from UK Research and Innovation's Prosperity Partnership program (details <https://machine-discovery.com/resource-grant.html>). Machine Discovery's solution is being selected to support the above consortium.

Q3 23 the company closed a funding of £4.5m at a higher valuation to accelerate the delivery of AI tools for the semiconductor designs. The first core application is in analog semiconductor design, delivering instant prediction capability for integrated circuit design as a companion to existing tools and simulators. The investment round was led by BGF, one of the UK's largest investors, and East Innovate, alongside Foresight WAE Technology Funds, UK Innovation and Science Seed Fund (UKI2S), independently managed by Future Planet Capital (Ventures) Ltd and Oxford Technology. This latest round of funding will allow the company to grow its engineering and business development teams in the UK and the USA, driving commercial adoption of its technology across the semiconductor design space and in other markets, (details <https://machine-discovery.com/resource-semiconductor>)



HydregenOxford.com

Hydregen Investment History

Date	Amount	Share Price	Type
Mar 2021	£100,005	£15.00	EIS
Mar 2023	£63,000	£27.98	EIS

Company Valuation	Valuation Share Price	Fund Holding
£6.61m	£27.98	3.8%

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 at the start were CEO Holly Reeve, scientific founder Kylie Vincent and CSO Sarah Cleary, with the support of experienced chairman Will Barton.

Hydregen was set up with £200k in funding of which half came from OT(S)EIS, to support an Innovate UK 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.

In March 2023 Hydregen raised £2.6m.

Recent Developments

In December Hydregen welcomed Joe de Sousa to the board. Joe has lots of commercial experience of how Hydregen's key customers work and has started contributing right from the off.

In Q4 2023 Hydregen made its first recurring sale and its partnerships are starting to accrue. The existing projects are progressing well. They recently demonstrated the nitro-reduction of a compound for a customer and reported that despite the customer's best efforts they were unable to hide their admiration for the results.

Summary

Hydregen is receiving more and more incoming queries, and its pipeline is filling up nicely as news of its capabilities spread.



OxVent.org

OxVent Investment History

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

Company Valuation	Valuation Share Price	Fund Holding
£1.53m	£0.002	9.1%

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. The original ventilator has not been built and to accelerate the commercial side of the company, OxVent 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 meant it could be sold in a number of countries with minimal additional regulatory barriers.

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

The OxVent was designed at breakneck speed in Spring 2020 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 are in application and the potential for licensing to other manufacturers as well as in house exploitation is very real.

Recent Development

OxVent is preparing to fundraise and is looking at various opportunities to progress OxVent P, while doing so. It has little money, but has a good technology and lots of goodwill so we think there will be a way forward.



OxCan.org

Company Valuation	Valuation Share Price	Fund Holding
£16.61m	£102.96	1.7%

OXcan Investment History

Date	Amount	Share Price	Type
Jun 2021	£50,000	£40.00	SEIS
Jul 2021	£50,000	£40.00	EIS
Jul 2022	£28,314	£102.96	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 Johns 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. The company has now raised over £5m. In 2023 results on a large 600 patient cohort show 86% sensitivity and 99% specificity for early stage lung cancer detection.

Recent Updates

OXcan has made very good progress with its series A funding with good interest at JPM in San Francisco.

Investors were impressed by OXcan's large and diverse biobanks and the exclusive data from the record-breaking proteomics results. OXcan recently was able to measure 5,700+ different proteins from each single sample.

Summary

Technical progress and partnering continue to be very good at OXcan and this has led to strong investor interest.



MitoRxTherapeutics.com

Company Valuation	Valuation Share Price	Fund Holding
£8.82m	£1.2411	3.8%

MitoRx Investment History

Date	Amount	Share Price	Type
Nov 2021	£60,000	£0.75*	SEIS
Nov 2021	£12,450	£0.75*	EIS
Jan 2022	£9,750	£0.75*	EIS
Dec 2022	£112,920	£1.2421	EIS
Feb 2023	£52,803	£1.2421	EIS
Oct 2023	£31,602	£1.2421	EIS

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

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 sulfur-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 sulfide 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 Duchenne Muscular Dystrophy (DMD) 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 and it has since been topped up. 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.

Recent Developments

MitoRx now has results for long term dosing of DMD in an animal model and the results are very good. The institute that was contracted to carry out the DMD trial also carried out a preclinical trial for COPD (Chronic Obstructive Pulmonary Disorder) at no cost to the Company. The results for COPD were also very good. The data shows that where the original tool compound (AP39) gave good results, the new safer compounds did the same. This is very encouraging, given how many applications for which AP39 was found to be effective. The new data was well received in meetings with pharma during JP Morgan week in San Francisco in January, noting a distinct change in tone in discussions now that MitoRx has achieved mammalian proof-of-concept for its platform.

Summary

Almost 2.5 years in, MitoRx has developed a wide variety of molecules and testing has so far given very positive results.



OVO BIOMANUFACTURING

OVOBiomufacturing.com

OVO Investment History

Date	Amount	Share Price	Type
Nov 2021	£90,799	£10.99	SEIS
Mar 2023	£176,355	£15.00	EIS

Company Valuation	Valuation Share Price	Fund Holding
£2.06m	£15.00	14.6%

Description of Business

When viruses replicate, they create lots of imperfect copies of themselves. (It is this quality of viruses that enables them to mutate and create variants). Vaccines are manufactured using viruses which have been engineered to include the genetic code of the vaccine, so that when the viruses replicate they produce the vaccine. However as well as copies of the vaccine, the viruses also produce variants which in turn go on to reproduce. So after a number of generations the mixture will contain all sorts of other material as well as the desired vaccine. 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. In this case, after a few generations, the mixture will be composed almost entirely of DIPs because of their much shorter reproduction time. OVO Biomanufacturing is a spin-out from Warwick and Coventry University aiming to control/exploit DIP production. There are two strands to OVO's 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. OVO has been in discussion with several vaccine manufacturers since the outset. The aim is to enable these manufacturers to reduce their manufacturing costs by many £m pa, by using OVO's technology.

Recent Developments

Development of the vaccine platform is progressing well. OVO believes it is on track to complete the technology by midway through 2024. The company is also showcasing the technology to one major manufacturer and beginning to showcase the technology with a second. The data generated from the first showcase pilot has been positive and OVO is now in the process of discussing next steps for testing of the technology, which will lead to its first revenue stream.

For the antiviral platform, OVO has continued to generate positive data within cell culture. OVO is now in the process of testing its treatment against SARS-CoV-2 in vitro. Should this be successful, the company will then move onto performing early stage animal trials. OVO is also exploring the viability of spinning out the technology into a separate entity due to the different risk profiles associated with each technology.



[Digilab.co.uk](https://www.digilab.co.uk)

Company Valuation	Valuation Share Price	Fund Holding
£7.01m	£0.51	8.3%

digiLab Investment History

Date	Amount	Share Price	Type
Dec 2021	£75,000	£0.075*	SEIS
Aug 2022	£75,001	£0.51	EIS

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

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 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 its industry-agnostic approach.

One of digiLab's key tasks has been to figure out how to distill its 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

Growth at digiLab continues, sales are up 3x compared to a year ago. Customers continue to come from all sectors of industry.

The Academy has now been opened up, so if you would like to learn about AI and machine learning in detail it's a great place to go. Whether you'd like to understand how Large Language Models work (ChatGPT) or what applications AI may have in sustainability, (<https://www.digilab.co.uk/posts/learning-ai-ml-to-make-a-positive-impact-on-sustainability>) there's plenty there.



[Neuroute.co](https://neuroute.co)

Neuroute Investment History

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

Company Valuation	Valuation Share Price	Fund Holding
£3.21m	£1.89	2.5%

Description of the business

Neuroute (formerly 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 Neuroute is for synergies across the portfolio: many of our companies have been hit by difficulties and delays with trials.

For instance, Neuroute can virtualise the screening process by using chatbots to select which patients are eligible. By providing a patient registry that fulfils a study's eligibility criteria, the platform has reduced some RCTs' enrolment timelines by ~90%.

Progress since Investment

Neuroute closed 14 contracts in 2022 (13 companies and one CRO) of which 60% were medical devices, 15% digital therapeutics and 25% traditional therapeutics.

Recent Developments

Neuroute closed a £1.1m funding round as an ASA (convertible at a discount of 20% to the next round) which included Swiss pharma company Debiopharm and a number of funds. The company continues to develop its AI clinical research tools.



Theraport Investment History

Date	Amount	Share Price	Type
Aug 2022	£10,004	£7.41	SEIS
Aug 2023	£30,000	£20.00	SEIS

Company Valuation	Valuation Share Price	Fund Holding
£0.24m	£20.00	23.9%

Description of the business

Theraport was set up by Anne Thomas, Travis Prescod and Anna Huhn, all still currently studying at Oxford. The founders are developing methods to increase and improve the loading of drugs into exosomes, vesicles and other small hollow targeted drug carriers.

Exosomes are one of the ways in which cells in the body communicate with each other. Proteins or other payloads are wrapped up in small bits of lipid bilayer with appropriate receptors and ligands on their surface so they are taken up by the right cells.

The possibility of directing more of a drug to the cells that need it by using exosomes is being developed, but one of the bottlenecks is the consistent and sufficient filling of the exosomes.

Although we can't say how Theraport achieves this, the first proof of concept experiments show positive results.

Theraport won an Innovate grant to help with further development of its technology.

Recent Developments

Theraport was only able to carry out a small amount of research work in the past quarter. They have had results of their method with a range of new drugs and conditions. Some worked and some didn't, which is what might be expected during the early development phases. The results they have obtained will be used to plan the next experiments (to refine different conditions for different types of drugs).

Scintam Investment History

Date	Amount	Share Price	Type
Oct 2022	£100,002	£7.00	SEIS
Dec 2023	£100,000	£10.00	EIS

Company Valuation	Valuation Share Price	Fund Holding
£1.67m	£10.00	14.5%

Description of the business

When expensive mechanical machinery has been in service for many years, often in hostile environments such as seawater or steam, it is often necessary to do repairs and maintenance and, in many cases, to replace certain parts. Often the original fixings, frequently bolts or nuts, will have become corroded so severely that they cannot be removed by conventional means. Another example is jet engines which require inspection and maintenance after 8,000 hours of flight. By effectively dissolving metallic fasteners, Scintam eliminates the need for drilling, grinding and heating processes that are hazardous for the operator and the component.

Scintam was founded by three young engineers who have developed a spark erosion machine which is designed especially for this task. The Scintam machine has a hand-held erosion head, which fits inside a purpose-made fixture, which fits snugly over the particular bolt/fixing which is to be removed. The operator can set the precise depth to which the erosion is to happen, and can then squeeze a trigger to carry out the process.

In the case of an aircraft engine, Scintam believe that using their device will reduce the time taken to separate an engine from its casing from 30 hours to 2. That would result in a saving of about £1.96m over the lifetime of the engine.

The initial target markets will be aerospace, wind turbines, remanufacturing, and nuclear decommissioning. The company filed patents in August 22. The original research was done at the University of Nottingham, sponsored by Rolls Royce, who are aware of the need.

Recent Developments

Scintam is making excellent progress. During Q4, it received its first major order worth £137,000, due to be delivered in summer 24. The order is for a system which will remove corroded bolts used in auto turbochargers so that they can be remanufactured. The machine was developed with the aid of a £450,000 Innovate grant.

Also in Q4, Scintam had a stand (one of 450) at the huge MRO Europe show in Amsterdam which was attended by over 10,000 people. This is the leading event for the commercial aviation MRO (maintenance, repair and overhaul) market. Scintam received enquiries/interest from 18 airlines, many of them household names and is now following up these leads. One company is sending some panels from a Boeing 787 to Scintam to test the system.

Finally, in Dec, Scintam sought to raise an additional £300,000 at an enhanced share price. £200,000 of this was committed by existing investors, inc £100k from OT(S)EIS. Scintam presented on the first Thursday in December and had raised £110,000 by the end of the day. The Board decided to accept the extra £10,000.





Genevation.co.uk

Genevation Investment History

Date	Amount	Share Price	Type
Jan 2023	£100,000	£0.40	SEIS
Nov 2023	£100,000	£0.80	SIES

Company Valuation	Valuation Share Price	Fund Holding
£0.90m	£0.80	33.3%

Description of the business

Genevation was founded by Dr Prasun Chakraborty, a former Research Fellow at Dana Farber Cancer Institute, Harvard University and University of Dundee, with over 10 years of experience in RNA, cancer, molecular and cell biology and biochemistry. He previously raised more than £1m for research in the role of mRNA in cancer.

Genevation aims to be able to take a sample of healthy tissue from a patient, and also a sample of a tumour, and then, in a period of weeks, to produce an mRNA vaccine which will destroy the tumour. The first step is to demonstrate that this works in mice. The investment is to enable this first step, and the hope at the time of investment, was is that this would be completed by the end of 2023.

Genevation is now based at the Stevenage Bioscience Catalyst.

Recent Developments

The sequencing of the normal vs the tumour samples from lung, colorectal and skin cancer was completed on 12th December. There was then a delay caused by a password not being supplied and the researcher in question being on holiday. But work started again in early January. The vaccines will be made using in vitro transcription technology. The efficacy of the vaccines will be tested using two arms of study- prophylactic and therapeutic. Prasun is hopeful that the results will be generated by the end of Q1.

Company Valuation	Valuation Share Price	Fund Holding
£1.3m	£0.50*	15.4%

*While the latest investment is under ASA and the share price TBD, we use £0.50/share for the current valuation.

AscendBio Investment History

Date	Amount	Share Price	Type
Mar 2023	£100,000	£0.25	SEIS
Sep 2023	£75,000	TBD	SEIS
Nov 2023	£25,000	TBD	EIS

Description of the business

AscendBio was founded by Marcus Yeo and Prof Ludovic Vallier. The company will develop cells from different organs based on induced pluripotent stem cells.

Marcus was previously CEO of Definigen, a Cambridge University company providing stem cells for research based on Prof Vallier's research.

Ludovic now serves as Professor of Stem Cells in Regenerative Therapies at the Berlin Institute of Health at Charité (BIH). His group, based at the BIH Centre for Regenerative Therapies, employs human stem cells to generate cells with a clinical interest for disease modelling and cell-based therapy. Some of his lab remain at the Cambridge Stem Cell Institute.

The first cell products that AscendBio will be developing are pancreatic cells, but there are more that 40 cell types which can be developed based on the technology and they will be used for research and also for clinical applications. The idea is to put the pancreatic cells in a matrix in the body so that they will produce insulin in response to rising blood sugar levels and in this way provide a treatment for diabetes.

OT(S)EIS invested £100k to get the company started.

AscendBio has set up in the Oxford BioEscalator which is optimally located to access Oxford Centre for Diabetes, Endocrinology and Metabolism (ODEM) expertise and University of Oxford Old Road campus platform scientific services. Human pancreatic beta cells with a physiologically relevant glucose sensitive insulin response have been generated and the company will be commencing its full seed round raise of £4.5m in July 2023 with a forecast autumn close. To accelerate commercial development the company has also engaged with corporate partners to leverage its platform technology in key areas of the fast-growing stem cell industrial sector.

Recent Developments

In Q3, Ascend Bio raised £175,000 of which £100,000 came from OT(S)EIS. This is in the form of an Advanced Subscription Agreement which will convert at a discount of 20% to the price at which the next larger round of capital is raised, with a fallback conversion price of 50p per share by 31 March 2024. This should provide a runway until Summer 24. In the Q4 period negotiations continued with multiple potential investors including Parkwalk who are conducting due diligence on the company and have requested that Ascend Bio provide an industry validation information package to provide them with confidence that the company can develop high value partnerships with global biotech and pharma companies when operations commence.



Chambertech Investment History

Date	Amount	Share Price	Type
Mar 2023	£80,000	£0.42	SEIS
Nov 2023	£55,000	£0.71	SEIS

Company Valuation	Valuation Share Price	Fund Holding
£0.90m	£0.71	21.1%

Description of the business

Richard Chambers studied exercise physiology in Oxford and has worked in industry as a specialist in the measurement of the electrical signals that cause atrial fibrillation. While assisting over 3000 cases he saw that the current methods for treating arrhythmia either required a very long and open heart operation which has risk of complications or a long and frequently unsuccessful process of cardiac ablation. He has invented a new process (and associated device) for carrying out atrial ablation that it is hoped will reduce the duration by more than half and increase the success rate. There are roughly 1m AF (Atrial Fibrillation) procedures carried out each year in the US and Europe.

Recent Developments

Design of the next iteration of the device is underway with a medical product design company. Chambertech has progressed to the next stage of a £1.5m Biomedical Catalyst grant application and we are hopeful that Chambertech will get the grant and be able to accelerate its development. If the grant is successful Chambertech will be raising money at a shareprice of £2.37. The grant is to develop a surgical method that acts with two catheters; one inside the heart and one from the outside of the heart. By combining the two it will be possible to increase the effectiveness of the operation and reduce the risk of side effects.



SurreyH2 Investment History

Date	Amount	Share Price	Type
Mar 2023	£75,000	£1.26	SEIS
Apr 2023	£25,000	£1.26	SEIS

Company Valuation	Valuation Share Price	Fund Holding
£1.45m	£1.26	6.9%

Description of the business

SurreyH2 (legal name Clean Hydrogen Ltd) is developing a technology for very cost-effective production of green hydrogen. The patented technology was developed by Dr Bahman Horri of the University of Surrey. The CEO is Dan Somers who has a background in spinouts and chemical engineering.

The technology makes use of two parallel processes joined together with a 'chemical loop'. The first process is a standard alkaline electrolysis process (splitting water into hydrogen and oxygen). The second process is a thermochemical process whereby a cheap metal catalyst is oxidised in water to generate hydrogen, and the metal oxide solution 'loops' into the electrolyser where it is reduced back to metallic powder. This two step process allows for a very high rate of hydrogen production relative to the energy inputted.

The technology is very cost-effective for locations where hydrogen is required and where is variable availability of cheap or excess electrical energy from renewable sources such as wind or solar.

OT(S)EIS has invested £100k as an SEIS investment as part of a £175k round.

Recent Developments

SurreyH2 has been awarded a £450k Innovate UK grant to make the next step in the development of the technology and is in negotiation with a lead investor to match the grant.

RCL Investment History

Date	Amount	Share Price	Type
May 2023	£60,000	£0.34	SEIS
Dec 2023	£40,000	£0.68	SEIS

Company Valuation	Valuation Share Price	Fund Holding
£0.84m	£0.68	19.0%

Description of the business

On the date on which this investment was made, in Q2 23, gas boilers were to be outlawed in new build houses in the UK from 2025. This is no longer the case after the Govt change of policy in Q3 23, but the need for efficient heating without producing CO2 remains. Water heating can be provided by an electric boiler but one gets out only the heat one puts in, so that it is not sensible to provide space heating in this way. Will Spain has established RCL to design an improved heat pump, which should be smaller and more efficient than anything currently available.

The basic idea is to draw air in from outside the house and then to compress it whereupon it becomes hot. The hot compressed air will then have its heat extracted through a heat exchanger and the low pressure warm air, or warm water (several possibilities exist) will then be ducted as necessary to provide space heating for the house.

The now cold compressed air will then be expanded through a second turbine, on the same shaft as the original compressor and helping to drive it, and will cool as it expands, finally leaving the house at maybe -15C.

The theoretical calculations show that 3 kW of electrical energy in may provide 8 kW of space heating for the house. (The actual numbers will depend on the temperature of the external air on the day and the desired house temperature.) Unlike conventional air-source heat pumps, the RCL compressor will be a much smaller unit and will be much the same size as a conventional boiler, and able to fit in a small cupboard. Additionally, there is no requirement for external components or refrigerants which reduces installation cost and complexity.

Since the investment, Will has been working on the details of the design, and the hope was to have a working prototype, using 3D printed metal parts by the autumn. This would then be extensively tested to calculate its actual performance and efficiency.

Will Spain also has ideas for improved and more efficient designs of compressors and energy recovery expanders, and will work on this when time allows.

Recent Developments

The first prototype was completed by the end of Q4 and was tested in January. Not unexpectedly, this revealed a number of shortcomings and a V2 prototype is now being produced which should be completed and tested before the end of Q1 24,

Encouragingly, there have been very promising negotiations with a manufacturer who would like to manufacture the product for selected markets. Additionally, the recently released future homes standard details appear to contradict recent government policy updates, meaning that new homes are likely to be required to use heat pumps in the UK after all.



Mycelsius.co.uk

Celsius Investment History

Date	Amount	Share Price	Type
Oct 2023	£67,504	£4.68	SEIS

Company Valuation	Valuation Share Price	Fund Holding
£1.09m	£4.68	6.2%

Description of the business

The objective of Celsius is to provide women going through menopause with a practical and easy-to-use device which will enable them to get relief from hot and cold flushes, which, in many cases, cause women significant distress. The Celsius device is worn on the wrist, looking a bit like a large watch. When a woman feels a hot flush coming on, she presses a button and a battery activates a Peltier cooling block, giving her a cold pulse on her wrist. Preliminary tests have shown that in many cases this is sufficient to reduce the hot flush severity or interrupt it if activated early enough.

The objective of the investment is to build and test more prototypes, to further improve the device efficiency and reduce its size. Thereafter, the goal is to build interest from customers and make the device available for pre-order on the Celsius website. (Both Tesla and the Brompton Bicycle company financed their initial production runs, by precisely this means. Experience showed that customers were prepared to pay in advance and also to wait a considerable time for delivery). We are exploring whether this could also be applicable to the Celsius device.

The founders of Celsius are Maxime Kryvian, who had the initial idea and who will lead the marketing and commercial development, and Aonghus O'Donovan who is doing the engineering and design. The latest prototype has potential unique IP and further key system changes may be introduced in the next one. Celsius is considering the potential for a patent. It is hoped that the first prototypes will be ready by Q2.

Full and Partial Exits

Name of Company	Description of Business	Date of (Initial) Investment	Total Paid for Shares Sold	Tax Reliefs (1)	Net Cost of Investment (2)	Date of Exit	Payout	Gain (3)	Cash Due and Fair Value of Milestones	Multiple (4)	Potential Further Milestones
Full Exits (all figures in £000)											
Ducentis Biotherapeutics	Immune modulation therapeutics	Jul 2015	£339	£118	£221	Sep 2022	£1,385	£1,164	£3,217 (5)	20.82	£35,010
Dark Beam	Web data security	Oct 2017	£153	£63	£90	Oct 2023	£128	£38	£55 (6)	2.03	£360
Partial Exits (all figures in £000)											
Animal Dynamics	Animal-inspired drones/robots	Jun 2015	£35	£18	£17	Mar 2019	£244	£227	-	14.35	-
Refeyn	Imaging Biomolecular Interactions	Jun 2018	£128	£47	£81	Sep 2022	£893	£812	-	11.02	-
Covatic	Personalised media feed	Feb 2017	£9	£3	£6	Sep 2022	£18	£12	-	3.00	-
Oxwash	Hyper-sustainable laundry	Mar 2019	£13	£8	£5	Oct 2023	£56	£51	-	11.2	-
TOTALS			£677	£257	£420	-	£2,724	£2,304	£3,272	-	£35,370
<i>Exits in Process (all figures in £000)</i>											
Lightpoint	Real-time imaging for cancer surgery	Jun 2013	£471	£156	£315	<i>TBC (7)</i>	<i>£840</i>	<i>£525</i>	<i>£523</i>	<i>4.33</i>	<i>£60</i>

(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) Calculated as Total Paid for Shares Sold minus Tax Reliefs.

(3) Calculated as Payout minus Total Net Cost of Investments. This does not take into account fees.

(4) Calculated as total of Payout, Cash Due and Fair Value of Future Milestones divided by the Net Cost of Investment. This does not take into account fees.

(5) Cash Due in the Ducentis exit includes cash held in escrow and the value of Arcutis shares, and the Fair Value of Future Milestones we calculate, after probability-adjusting, as approx. 8% of all potential future milestone payments.

(6) We calculate the sum of Cash Due in the Dark Beam exit (money held in a retention account) and the probability-adjusted Fair Value of Future Milestones to be 13% of all potential future payments.

(7) Potential Payout (£840,445) and Future Milestone payments (£523,204) in the Lightpoint exit will be held in escrow and released once all payments have been received and the company is liquidated (approximately 3 years). The values in italics are projections.

Investee companies no longer in the portfolio

Name of Company	Description of Business	Date of initial investment	Initial investment (£000)	Follow-on Investment (£000)	Total Investment (£000)	Date of closure	Total tax relief (1) (2) (£000)	Net loss after tax relief (1) (£000)
Message Missile	Mobile phone app	May 2013	£16	£25	£41	Jan 2016	£29	£12
Ibexis	Remote data loggers	May 2013	£50		£50	Feb 2017	£29	£21
Abgentis	Improved antibiotics	Mar2014	£42		£42	Jul 2019	£29	£13
Power OLEDs	Improved OLED technology	Dec 2013	£75	£178	£253	Dec 2020	£156	£97
Animal Dynamics	Animal-inspired drones/robots	Jun 2015	£75	£53	£128	Sep 2023	£94	£34 (3)
Lupe Technology	Better vacuum cleaner	Feb 2017	£51	£345	£396	Sep 2023	£236	£160
Electrowinning Technologies	Electrical metals capture	Feb 2017	£25	£35	£60	Sep 2023	£42	£18
Asymmetric Suzuki Reactions	Synthesising chiral molecules	Mar 2019	£65		£65	Sep 2023	£45	£20
Totals			£399	£636	£1,035	-	£660	£375

(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 the closed companies have received emails about how they can claim loss relief.

(3) Animal Dynamics shareholders had the option to sell, and those who took this option made a return of just under 14x on the after-tax share price of their shares.

Brief notes on the closed companies (i)

Message Missile was founded by a pre-university student and the aim was to enable Tesco, the first customer, to be able to alert all those within 200 yards of a particular store to the fact that there was a deal on bananas. Although he went to university to read computer science, the app never worked adequately.

Ibexis - this was a small investment in remote data loggers. For example, one system was installed in the middle of a lake, powered by solar panels. It sent back real time data about the salinity of the lake. Other system, in mountains, collected real time data about snowfall. The data was returned by satellite link. But orders were insufficient to justify further investment.

Abgentis was established by a distinguished biochemist to modify a known antibiotic to increase its effectiveness. Quite early on it was discovered that there was a technical reason why the original idea could not work and the project was abandoned.

PowerOLEDs was an investment into a new class of Organic LED materials with high efficiency and durability. Despite interest from several large players no deal was struck before the founder became ill and then passed away.

Animal Dynamics was a spin-out from the Zoology Department at Oxford. The company sought to use its insights into nature to design more efficient flying and swimming machines. The company did very well from a technical viewpoint and won a number of lucrative defence contracts from both the UK and US defence departments to build various devices, including a Dragon Fly drone, a swimming device based on a ray, and an autonomous paraglider, known as Stork which could carry 135kg for 400 km. The company raised additional capital in 2019 and the early investors were offered the opportunity to sell their shares at 14x the after tax cost. About 50% opted to do this. But a major problem was that OSE had not brought in other investors and ended by owning well over 99% of the company. When a manufacturing facility was set up to manufacture Stork, the monthly costs greatly increased and OSE were unable to find other investors to come in. BAE eventually acquired the company for £1 and took over the manufacturing facility.

Lupe Technology was set up by two engineers who had previously worked on the design team at Dyson. Their aim was to design and manufacture what would be the world's best cordless vacuum, which would also be green and designed to last with replaceable parts, unlike today's throw-away products. In this aim, they succeeded brilliantly. The Lupe, which was manufactured in China by a manufacturer whose owner invested was rated as much the best cordless vacuum cleaner in the world by Vacuum Wars, who rated the top 50 brands. They do this very thoroughly, for example by putting 100 gm of sand on a deep pile carpet and weighing how much each brand picks up. Lupe was the winner by a large margin. Sadly, however, having a great product is not quite enough and although Lupe made good sales, aided by rave reviews, especially in the US, the sales were not quite enough to generate enough cash to replace the stock. Lupe sought to raise a larger sum - maybe £2m - to finance new stock and marketing to build the brand, but was not able to find an investor. One of the founders, who has invested heavily himself is still selling the remaining stock and still hopes to find a way forward.





Brief notes on the closed companies (ii)

Electrowinning Technologies was founded by Duncan Grant an expert on electric circuits both for handling high and low powers. He had designed the worlds lowest power consuming Radio which used 1/10 of the power of the next least power-hungry radio. The initial objective of EWT was to improve the quality and quantity of copper produced by companies which produce copper by controlling the very large (000s of amps) currents which these plants use more precisely. EWT was awarded a contract to install a system in one cell of such a plant, but, having spent the money to build the equipment, the contract was cancelled at the last minute without explanation so that the technology was never tried. A greatest shame, since, in theory at least, a large quantity of energy could be saved. Finally, EWT had a patent on how to inject a $\frac{1}{2}$ harmonic waveform into the National Grid, which, in theory would enable the grid to transmit about 30% more power over the existing infrastructure. With the growth of electric cars, the grid will need a major upgrade over the next ten years. This idea could help. However, nothing has happened so far and it was decided to close the company.

Asymmetric Suzuki Reactions was a small investment in a spin-out from the Chemistry department at Oxford. The founder, working with the professor while doing her DPhil, had discovered a better method of achieving Suzuki reactions, a particular class of reactions used for producing chiral chemicals and used in the pharmaceutical industry. In theory using her technology could reduce costs and improve output for pharma companies. However, although interest was shown by one pharma company in Switzerland. In the end no paying customers were found and the company was wound up. The net loss was £19,512.






OT(S)EIS Fund Portfolio

30th September 2023

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	£76,593	2.04	Latest Share Price
			£40,000	28/05/2014	EIS	£28,000	£40,850	1.46	
			£74,661	31/03/2021	EIS	£52,300	£39,571	0.76	
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	
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	£756,288	20.17	Share Price Equivalent to Exit**
			£75,000	10/03/2014	EIS	£52,500	£188,088	3.58	
			£9,991	07/11/2014	EIS	£7,000	£20,151	2.88	
			£124,895	04/12/2014	EIS	£87,400	£251,889	2.88	
			£100,000	10/03/2016	EIS	£70,000	£94,302	1.35	
			£20,000	24/03/2016	EIS	£14,000	£18,860	1.35	
			£26,941	27/03/2019	EIS	£18,900	£19,776	1.05	
			£38,825	25/03/2020	EIS	£27,200	£28,500	1.05	
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)

**Note: Lightpoint investments are valued based on the share price calculated as a fair equivalent of the exit arrangements.





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
Sasets		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	Latest Share Price
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	Latest Share Price
			£25,040	12/11/2018	EIS	£17,500	£41,900	2.39	Latest Share Price
Expend		Software to Reduce Paperwork for Expenses	£75,000	23/12/2014	SEIS	£37,500	£3,300,000	88.00	Latest Share Price
			£17,338	09/02/2017	EIS	£12,100	£62,814	5.18	Latest Share Price
			£3,000	04/12/2017	EIS	£2,100	£4,125	1.96	Latest Share Price
			£13,000	28/08/2018	EIS	£9,100	£28,600	3.14	Latest Share Price
			£30,719	29/03/2019	EIS	£21,500	£67,581	3.14	Latest Share Price
			£29,300	25/03/2020	EIS	£20,500	£64,461	3.14	Latest Share Price
Molecular Warehouse		Proteins for Diagnostics and Therapeutics	£75,000	21/04/2015	SEIS	£37,500	£22,500	0.60	Latest Share Price
			£75,000	02/02/2016	EIS	£52,500	£26,600	0.51	Latest Share Price
			£20,000	24/03/2016	EIS	£14,000	£7,100	0.51	Latest Share Price
			£52,005	14/09/2016	EIS	£36,400	£17,800	0.49	Latest Share Price
			£20,000	22/09/2017	EIS	£14,000	£6,200	0.44	Latest Share Price
Animal Dynamics		Mechanical Engineering inspired by Animal Motion	£75,000	29/06/2015	SEIS	£37,500	£243,662	6.50	Proceeds From Sale & Discounted to £0**
			£35,220	27/11/2017	EIS	£24,654	£9,861	0.40	Proceeds From Sale & Discounted to £0**
			£3,001	30/07/2018	EIS	£2,100	£840	0.40	Proceeds From Sale & Discounted to £0**
			£14,391	30/03/2020	EIS	£10,074	£4,029	0.40	Proceeds From Sale & 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)

**Note: Valuation of the first investment in Animal Dynamics is based on the proceeds from sale. The values of the remaining investments represent available loss relief.






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	£1,417,940	56.72	Proceeds From Sale & Fair Future Milestones**
			£30,000	14/12/2015	SEIS	£15,000	£661,702	44.11	
			£160,275	30/03/2017	EIS	£112,200	£1,767,682	15.75	
			£45,314	29/03/2018	EIS	£31,700	£449,763	14.18	
			£53,820	13/03/2019	EIS	£37,700	£305,255	8.10	
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	£476,200	12.70	Latest Share Price
			£25,950	19/05/2016	SEIS	£13,000	£164,800	12.70	
			£20,000	15/07/2016	SEIS	£10,000	£127,000	12.70	
			£20,000	16/07/2016	EIS	£14,000	£127,000	9.07	
			£19,997	28/10/2016	EIS	£14,000	£258,000	18.43	
			£20,002	08/11/2016	EIS	£14,000	£258,000	18.43	
			£30,000	11/05/2017	EIS	£21,000	£387,100	18.43	
			£102,020	27/03/2019	EIS	£71,400	£1,316,400	18.43	
			£4,330	29/03/2019	EIS	£3,000	£55,900	18.43	
			£13,791	25/03/2020	EIS	£9,700	£55,200	5.71	
			£29,656	19/12/2022	EIS	£20,800	£29,700	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)






**Note: Valuation of Ducentis investments is based on the proceeds from sales (after the exit) and the fair value of future milestones (approx. 10% of the max potential milestones)

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	£10,875	0.58	Latest Share Price
			£62,500	20/10/2016	EIS	£43,800	£23,125	0.53	
			£25,000	13/09/2017	EIS	£17,500	£9,250	0.53	
			£65,329	06/03/2023	EIS	£45,731	£65,329	1.43	
			£7,331	01/12/2023	EIS	£5,131	£7,331	1.43	
Active Needle Technology		Ultrasound Visible Needles	£50,000	05/04/2016	SEIS	£25,000	£375,580	15.02	Latest Share Price
			£65,000	23/08/2016	EIS	£45,500	£312,480	6.87	
			£19,000	07/03/2017	EIS	£13,300	£91,318	6.87	
			£30,000	29/03/2017	EIS	£21,000	£144,185	6.87	
			£28,000	02/01/2018	EIS	£19,600	£100,154	5.11	
			£101,781	18/03/2019	EIS	£71,200	£270,447	3.80	
			£32,122	25/03/2020	EIS	£22,500	£85,353	3.80	
			£55,653	24/03/2021	EIS	£39,000	£123,231	3.16	
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	£133,825	3.57	Latest Share Price
			£9,504	21/10/2016	EIS	£6,700	£16,962	2.55	
			£48,554	30/11/2017	EIS	£34,000	£58,326	1.72	
			£89,934	01/02/2019	EIS	£63,000	£74,629	1.19	
			£26,017	24/03/2021	EIS	£18,200	£19,257	1.06	
Covatic		Personalised Media Feed	£39,776	02/02/2017	SEIS	£19,888	£48,906	2.46	Latest Share Price
			£60,224	06/02/2017	EIS	£42,157	£73,737	1.75	
			£30,000	05/02/2018	EIS	£21,000	£19,664	0.94	
			£67,997	31/03/2021	EIS	£47,598	£66,407	1.40	
			£37,926	01/04/2022	EIS	£26,548	£22,237	0.84	

*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
Electrowinning Technologies		Electrical Metals Capture	£25,000	06/02/2017	SEIS	£12,500	£5,000	0.40	Discounted to £0
			£35,000	29/09/2017	SEIS	£17,500	£7,000	0.40	
Lupe Technology		Better Vacuum Cleaner	£51,000	20/02/2017	SEIS	£25,500	£10,200	0.40	Discounted to £0
			£30,000	22/02/2017	EIS	£21,000	£8,400	0.40	
			£51,000	12/03/2018	EIS	£35,700	£14,280	0.40	
			£37,001	12/03/2018	EIS	£25,900	£10,360	0.40	
			£9,999	27/03/2018	EIS	£6,999	£2,800	0.40	
			£138,719	25/03/2020	EIS	£97,103	£38,841	0.40	
			£50,243	12/03/2021	EIS	£35,170	£14,068	0.40	
			£27,864	01/04/2022	EIS	£19,505	£7,802	0.40	
Process Vision		Gas Inspection Optics	£99,999	27/03/2017	SEIS	£50,000	£99,999	2.00	Latest Share Price
			£3,000	28/06/2018	EIS	£2,100	£3,000	1.43	
			£68,494	31/03/2021	EIS	£47,946	£102,741	2.14	
			£6,858	01/12/2023	EIS	£4,801	£6,858	1.43	
Gripable		Mobile Rehab Technologies	£49,999	15/09/2017	SEIS	£25,000	£88,000	3.52	Latest Share Price
			£106,934	27/02/2019	EIS	£74,900	£101,600	1.36	
			£33,219	15/12/2020	EIS	£23,300	£24,292	1.04	
			£69,682	02/03/2022	EIS	£48,800	£50,956	1.04	
Dark Beam		Web Data Security	£50,000	06/10/2017	SEIS	£25,000	£45,000	1.80	Share Price Equivalent to Exit**
			£25,000	05/02/2018	SEIS	£12,500	£22,500	1.80	
			£10,000	09/02/2018	SEIS	£5,000	£9,000	1.80	
			£18,200	26/03/2018	EIS	£12,700	£16,380	1.29	
			£50,000	03/09/2018	EIS	£35,000	£90,000	2.57	

*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)

**Note: Dark Beam investments are valued based on the share price calculated as a fair equivalent of the exit arrangements.







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
LRESsystem		Lateral Resurfacing Elbow Replacement	£50,000 £75,050	12/01/2018 21/01/2019	SEIS EIS	£25,000 £52,500	£112,600 £75,000	4.51 1.43	Latest Share Price
Atelerix		Transport of Viable Cells	£50,000 £133,186 £196,851 £44,767 £11,100	22/01/2018 03/04/2019 30/03/2020 04/06/2021 29/11/2022	SEIS EIS EIS EIS EIS	£25,000 £93,200 £137,800 £31,300 £7,800	£13,669 £41,993 £61,175 £15,892 £3,848	0.55 0.45 0.44 0.51 0.50	Latest Share Price
Refeyn		Imaging Biomolecular Interactions	£66,240 £33,760 £121,851 £67,468	26/06/2018 27/06/2018 24/01/2019 04/07/2019	SEIS EIS EIS EIS	£33,100 £23,600 £85,300 £47,200	£840,300 £422,500 £955,900 £528,600	25.37 17.88 11.21 11.19	Latest Share Price & Proceeds From Sale**
Cytecom		Detection of Bacteria Viability	£100,440 £55,000 £84,021 £53,986	31/07/2018 27/11/2019 04/12/2020 31/03/2021	SEIS EIS EIS EIS	£50,200 £38,500 £58,800 £37,800	£151,632 £83,033 £126,844 £56,649	3.02 2.16 2.16 1.50	Latest Share Price
Polycat UK		Nanoparticle Polymer Catalysts	£50,002 £22,058 £11,985 £112,998 £11,784 £60,350	05/10/2018 29/03/2019 23/03/2020 16/12/2020 10/02/2021 19/04/2022	SEIS SEIS SEIS EIS EIS EIS	£25,000 £11,000 £6,000 £79,100 £8,200 £42,200	£441,300 £43,300 £23,500 £148,700 £15,500 £60,400	17.65 3.92 3.92 1.88 1.88 1.43	Latest Share Price

*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)








**Note: Multiple = Valuation of Refeyn investments is based on the proceeds from sales (after the partial exit) and the latest share price for the shares remaining in the portfolio

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
Asymmetric Suzuki Reactions		Synthesising Complex Chiral Molecules	£65,040	18/03/2019	SEIS	£32,520	£13,008	0.40	Discounted to £0
Oxwash		Hyper-sustainable Laundry	£50,000	15/03/2019	SEIS	£25,000	£291,122	11.64	Latest Share Price
			£50,000	22/03/2019	EIS	£35,000	£291,717	8.33	
			£54,679	07/11/2019	EIS	£38,300	£147,598	3.86	
			£36,069	12/05/2021	EIS	£25,200	£67,402	2.67	
The Smarter Food Company		Foods for Pre-diabetics	£89,998	03/04/2019	SEIS	£45,000	£136,900	3.04	Latest Share Price
			£96,058	31/03/2021	EIS	£67,200	£106,700	1.59	
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	3.16	Latest Share Price
			£16,152	24/02/2020	SEIS	£8,100	£16,200	3.16	
			£77,886	16/10/2020	EIS	£54,500	£77,900	2.26	
			£44,987	29/11/2021	EIS	£31,500	£45,000	2.26	
			£60,276	23/02/2023	EIS	£42,193	£60,276	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
Etcembly		Immune pattern recognition system	£70,588	21/01/2020	SEIS	£35,300	£1,058,800	30.00	Latest Share Price
			£20,587	16/11/2020	SEIS	£10,300	£78,200	7.59	
			£49,411	18/11/2020	EIS	£34,600	£187,600	5.43	
			£17,677	23/02/2021	EIS	£12,400	£67,100	5.43	
			£42,444	19/04/2022	EIS	£29,700	£84,900	2.86	
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	£224,550	5.99	Latest Share Price
			£86,336	29/03/2023	EIS	£60,435	£107,920	1.79	
Zayndu		Seed treatment	£133,505	26/03/2021	EIS	£93,453	£228,324	2.44	Latest Share Price
			£83,029	01/04/2022	EIS	£58,120	£56,765	0.98	
			£51,548	01/09/2022	EIS	£36,084	£25,362	0.70	
			£66,562	23/02/2023	EIS	£46,593	£31,466	0.68	
Machine Discovery		Simulation Optimisation	£74,999	31/03/2021	SEIS	£37,500	£165,720	4.42	Latest Share Price
			£28,996	27/07/2023	EIS	£20,297	£28,996	1.43	
Hydregen		Biocatalysis	£100,005	31/03/2021	EIS	£70,004	£186,543	2.66	Latest Share Price
			£63,151	27/03/2023	EIS	£44,206	£63,151	1.43	
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	£128,700	5.15	Latest Share Price
			£50,000	02/07/2021	EIS	£35,000	£128,700	3.68	
			£28,314	27/07/2021	EIS	£19,820	£28,300	1.43	
MitoRx Therapeutics		Therapeutics targeting Mitochondria	£60,000	16/11/2021	SEIS	£30,000	£99,288	3.31	Latest Share Price
			£12,450	18/11/2021	Non SEIS/EIS	£12,450	£20,602	1.66	
			£9,750	24/01/2022	EIS	£6,825	£16,134	2.37	
			£101,820	17/11/2022	EIS	£71,274	£101,820	1.43	
			£11,100	29/11/2022	EIS	£7,770	£11,100	1.43	
			£52,803	23/02/2022	EIS	£36,962	£52,803	1.43	
			£31,602	27/10/2023	EIS	£22,121	£31,602	1.43	
OVO BioManufacturing		Improving vaccine manufacturing and antivirals	£90,799	19/11/2021	SEIS	£45,400	£123,930	2.73	Latest Share Price
			£176,355	24/03/2023	EIS	£123,449	£176,355	1.43	
digiLab Solutions		Next-generation machine learning	£75,000	13/12/2021	SEIS	£37,500	£510,000	13.60	Latest Share Price
			£75,000	04/08/2022	EIS	£52,500	£75,000	1.43	
Neuroute		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	
Theraport		Exosome Loading Technology	£10,004	15/08/2022	SEIS	£5,002	£27,000	5.40	Latest Share Price
			£30,000	10/08/2023	SEIS	£15,000	£30,000	2.00	
Theraport		Spark erosion tooling	£100,002	07/10/2022	SEIS	£50,001	£142,860	2.86	Latest Share Price
			£100,000	01/12/2023	EIS	£70,000	£100,000	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
Genevation		Personalised mRNA cancer vaccines	£100,000 £100,000	24/08/2023 14/11/2023	SEIS SEIS	£50,000 £50,000	£200,000 £100,000	4.00 2.00	Latest Share Price
AscendBio		Cell generation from human stem cells	£100,000 £75,000 £25,000	03/03/2023 28/09/2023 09/11/2023	SEIS SEIS EIS	£50,000 £37,500 £17,500	£200,000 £75,000 £25,000	4.00 2.00 2.00	Latest Share Price
Chambertech		Improving the treatment of heart arrhythmia	£80,000 £55,000	15/08/2022 17/11/2023	SEIS SEIS	£40,000 £27,500	£135,239 £55,000	3.38 2.00	Latest Share Price
SurreyH2		Cost efficient green hydrogen	£74,999 £25,001	30/03/2023 12/04/2023	SEIS SEIS	£37,500 £12,500	£74,998 £25,001	2.00 2.00	Latest Share Price
RCL		Novel compressor heat pumps	£60,000 £40,000	12/05/2023 20/12/2023	SEIS SEIS	£30,000 £20,000	£120,000 £20,000	4.00 2.00	Latest Share Price
Celsius Innovations		Relief for menopausal hot flushes	£67,504	25/10/2023	SEIS	£33,752	£67,504	2.00	Latest Share Price

*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.