

# Making life science **life changing**







LifeArc is a self-financing medical research charity.

As the early-stage translation specialists, we bridge the gaps between the lab and the patient: advancing new discoveries in basic science to help drive the next generation of diagnostics, treatments, and cures; integrating emerging digital, data and device technologies into potential solutions.

Simply put, translating science is a long, expensive, and unpredictable journey but at LifeArc we are committed to providing the expertise and funding to help researchers harness the power of their discoveries - and transform lives.

This document summarises LifeArc's strategic direction and sets out our ambition to accelerate the transformation of promising life science ideas into life-changing medical breakthroughs for patients.

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Cover image L. Schedl

# Making life science life changing – our vision for the future

Scientists have the imagination, determination, and knowledge to transform healthcare but translating science is a long, expensive, and risky process. Spotting opportunities and knowing what to do with them requires specialised knowledge. Too few ideas ever make it out of the lab.

That's where LifeArc comes in. From the funding that will turn an interesting idea into one that will attract venture capital, to advice on licensing, collaborations and spin-outs, we can help. We have been bridging gaps between the lab and the patient for more than 25 years. We provide the scientific know-how, technology transfer expertise, and most recently funding, to help turn promising early-stage science into medical breakthroughs that transform lives.

Our work to date has resulted in a wide array of innovative approaches being progressed further through translation towards patients. This currently includes four licensed medicines, with a further eight potential medicines in clinical trials, and another 20 in different stages of discovery and pre-clinical development by a range of partners.

Scientific understanding is constantly evolving and the latest advances in technology have the power to revolutionise healthcare. Our 2030 ambitions embrace and connect these, as we approach finding new solutions using the four Ds: drugs, diagnostics, devices, digital solutions. These are all underpinned by data, which will make significant improvements to the diagnosis, prevention and treatment of disease as well as providing supportive information and life-enhancing products for patients and their carers.

Today we are ambitious on an entirely new scale. We don't want to be conservative with our spend. We want to invest significant and unprecedented resource – over £1 billion by 2030 – so that patient-focused life science innovations in the UK can truly flourish.

Our new strategy – *Making life science life changing* – will see us make significant investments to address areas of high patient need, working across three strategic pillars:

**1 Impact with partners**  
Working as a trusted partner to advance the innovative science and ideas being explored by academia, charities and patient groups.

**2 Translational challenges**  
Mobilising our scientific expertise and resources with that of others to solve complex healthcare problems in novel ways.

**3 Early ventures funding**  
Investing in innovative early life sciences translational research at the seed and early ventures stage, focusing on bridging the gap in venture funding for academic innovation.



“Life sciences research adds new insights into human biology every day. Our purpose is to unlock this potential, accelerating the power of science to create life-changing breakthroughs in the prevention, diagnosis, and treatment of diseases.”

**Dr Melanie Lee, CBE**  
Chief Executive Officer – LifeArc

Our strategic direction shares the bold ambition in the UK government's Life Sciences Vision to seek out scientific excellence and collaboration across the sector. From the repurposing of medicines and our work on rare diseases, to investment in research and development and the championing of collaborations, we are committed to fully playing our part in building the UK into a global life sciences superpower. The Covid-19 pandemic has demonstrated the value of an integrated effort between basic research, translation skills and regulatory and manufacturing collaboration to rapidly bring products to the market. It has also highlighted how critical diagnostic capability is to identify and understand the impact of disease.

We are aware that in bringing our ambition to life, the insights, expertise and contribution of many partners will be critical.

Whether you are from academic research, a charity, an early-stage company, an investor, or industry, we are looking forward to working together to create, develop and evolve ideas that can ultimately improve patients' lives. Please get in touch if you'd like to be involved.

We hope you will support our ambition, and we look forward to working in close collaboration with the UK life science community to benefit patients and transform the way diseases are identified, treated and where possible, prevented.

Photographs kindly provided by Sarah Sharples, Anabhi Shapit, Kapil Shapit, Bhawana Manandhar and the Myotubular Trust. LifeArc employees



# 2030 ambition

## Key Headlines

Our new strategic direction – *Making life science life changing* – sets out how we will be investing much of our resources so that life sciences innovation can flourish and benefit patients.

# £1.3bn

We will commit up to £1.3bn in spend by 2030 to make a meaningful difference to patients.

# 3 Strategic pillars

Our three strategic pillars will deliver our vision of making life science life changing. Each pillar has a clear focus of delivery but also support each other.

# 6 Translational challenges

Six translational challenges to rapidly advance innovation in complex areas of healthcare need, via multi-partner collaborations.

# >10 Early venture investments

10 to 15 new early venture investments by the end of 2026 into companies with the potential to generate positive impact for patients and financial returns for LifeArc.



### Pillar one



## Impact with partners

Working as a trusted strategic partner to academics, medical charities and patient groups accelerating translation of their innovation, to help them to achieve their aims and improve patient outcomes.

### Pillar two



## Translational challenges

Mobilising our scientific expertise and resources with that of partners to create collaborations that can accelerate innovation and solve complex healthcare challenges.

### Pillar three



## Early ventures funding

Aims to make a positive impact on patients and financial returns for LifeArc by investing in innovative life sciences translational research at the seed and early ventures stage, with the ability to follow on with funding for exceptional companies.



We will commit up to £1.3 billion, an unprecedented amount for us to spend, between 2022 and 2030, to unlock the potential of early-stage innovation and help create significant new options to improve patients' lives. We will do this by forming new partnerships and providing our unique mix of translational advice, science and funding.



Pillar one

Impact with partners

Working as a trusted, strategic partner to support academics and medical charities to achieve their aim and improve patient outcomes is integral to our success. Our ambition is to evolve and expand our activities to create a meaningful shift in how life science innovators can access state-of-the-art translational pathways, technology transfer expertise and funding.

Building on our role as a trusted partner to the life science community

Supporting the translational needs of our partners – helping them to move research discoveries in laboratories towards interventions that improve health – is fundamental to our approach.

Our translational expertise dates back to our initial work with the Medical Research Council (MRC), advancing and commercialising the research of many scientists reaching all the way back to 1986.

Today, we offer our expertise to support charities and academics including the UK Dementia Research Institute and the MRC Laboratory of Molecular Biology (LMB). This long-standing partnership with the MRC LMB has helped progress discoveries through every stage of the technology transfer and commercialisation process, resulting in proof-of-concept packages, new patents, licensing agreements, collaborations and spin-out companies that have created significant new solutions to patients’ needs.

Over the past eight years, we have helped more than 100 medical research charities increase the potential of their work to benefit patients. We offer advice and expertise on the potential innovations and development opportunities around the research they support and seek to make connections to help progress their work.

Our partners benefit from access to our technology transfer expertise and tailored, strategic advice on how best to advance translation through different stages and situations. We also offer industrial know-how: the understanding and experience of taking early-stage innovation successfully through to development in industry and towards patients.

Photograph kindly provided by DEBRA Austria



Epidermolysis bullosa

Epidermolysis bullosa (EB) is a group of genetic conditions that causes the skin and mucous membranes to blister and tear in response to very minor injury or pressure – even just the friction of clothing or swallowing food. There are no effective treatments for the condition and in severe forms it is often fatal.

LifeArc successfully forged a relationship between its EB charity partners and Constant Therapeutics. These talks led to the company’s agreement to progress the development of an oral formulation of its stroke compound TXA127 for a trial in EB patients unable to tolerate the multiple subcutaneous treatments for their condition. The oral formulation has since been developed and is heading into phase II trials.



We have helped more than 100 medical research charities increase the potential of their work to benefit patients.

In recent years, we have successfully expanded into new areas. These include support for rare disease and data-driven research and we have established creative new initiatives such as:

- the **Philanthropic Fund for Rare Diseases**: since 2017 our LifeArc Philanthropic Fund has awarded over £9m to 30 projects in rare diseases
- the **Innovation Hubs for Gene Therapy**, which will unlock development pathways for novel genetic medicines being developed by academics
- the **Francis Crick Translational Fund**, where we have created a dedicated fund to help Crick researchers advance their early research through translation, moving it closer to providing benefits to patients and researchers.

Accelerating impact for our partners

We are developing new initiatives that will see us commit £200m to supporting our partners in new ways and enhancing the UK translational ecosystem.

Looking towards 2030, we will build on our core strengths and momentum. We will evolve and expand our activities to create a meaningful shift in how life science innovators can access state-of-the-art technology transfer, translational pathways, and funding.

We will focus on supporting partners seeking to reach patients via pathways that are not yet established, partners seeking to bring solutions to rare disease patients, and partners requiring access to emerging areas of innovation such as advanced therapies, repurposing medicines, devices, digital and data. This will enable our partners to realise the full impact and potential of their innovations.

*Impact with partners* will also play a key role in the success of our other strategic pillars: *Translational challenges* by providing a forum for us to consult and explore patient needs, and networks; and *Early ventures* by providing a potential source of companies for investment.

Blueprint for delivery

2021/2022

Build on our connection with patients, their clinical community and carers to intensify our understanding of the needs of patients with rare and untreated diseases.

2022/2023

Identify and scope out the areas where we can have the greatest impact for patient benefit and the best approaches to accelerate academic and charity innovation.

2030

A well-established network of technology transfer and translational partnerships and funding initiatives helping charity and academic partners turn ideas into products.



Pillar two

# Translational challenges

We aim to work with others to connect and unlock the potential of scientific innovations to solve complex healthcare problems.

**Unlocking the potential of translational science**  
Life sciences research is full of potential – and collaboration is the key to unlock it. We have always had a strong ethos in collaboration and now more than ever we believe that bringing together the promising innovation taking place across different areas of research will deliver breakthrough solutions for patients faster.

Our translational challenges are designed to do just that – to unite our collective strengths and resources with the expertise and funding of other life sciences partners to solve urgent healthcare problems.

These will be long-term collaborative programmes that are shaped by what patients tell us they need. The programmes will consider the entire patient pathway from prevention and diagnosis through to treatment and lifestyle support.

The focus will be on complex areas of healthcare need: this could be a condition such as motor neurone disease or a broader area such as the serious intractable respiratory infections that affect people living with cystic fibrosis and bronchiectasis.

We aim to start with small projects within key themes, building upon incremental knowledge and findings to mature into a translational challenge. Ultimately, individual challenges could be enveloped in broader themes, such as neuronal health and global health.

## Starting points for building a translational challenge

**Informed by the patient need**

**Guided by the science**

**Research knowledge at a stage when it is ready for translation**

**An understanding or insight into the disease process**

Photograph: Shutterstock



Our focus will always be guided by the patient need, the science and the opportunity.

## Halting the progress of motor neurone disease

People with motor neurone disease (MND) experience increasing muscle weakness, which causes breathing problems, slurred speech and difficulty swallowing. As symptoms worsen, moving, swallowing and breathing becomes more difficult and patients may need a feeding tube and ventilation.

The changes happen because cells in the brain and nerves that control how we move (the motor neurones) gradually stop working and prevent messages reaching the muscles. Most patients die from the condition within one to five years of diagnosis.

Currently treatment options are limited and focused on addressing symptoms. There is no cure, and many patients will have had symptoms for some time before receiving a diagnosis because of the gradual nature of early symptom onset.

While there has been huge progress in understanding the pathophysiology of MND, this has not yet been translated into any effective new treatments or earlier diagnostics for patients. We believe that the earlier a disease is diagnosed, the greater the potential to alter its course with preventative measures or therapies. Advanced therapies, such as gene therapy, can offer this life-changing potential.

We are currently working with a range of external experts to understand what might be needed to change the outlook for patients with MND and whether we can help make this change.

This could include identifying new clinical or digital markers of the disease to enable earlier diagnosis; new pathways for therapeutics; quality of life interventions for patients and carers; and ways to use data to improve management and treatment of MND.



## The challenge of exacerbations in respiratory disease

People with lung conditions, such as cystic fibrosis and long-term widening of the airways (known as bronchiectasis), can experience frequent, repeated lung infections, which can cause symptoms such as coughing and sputum production.

Treatment is usually a course of antibiotics and it will be prescribed on the basis of new symptoms or worsening of existing symptoms. Because of this, the term “exacerbation” is used to refer to these repeated infections.

Exacerbations can lead to progressive loss of lung function and people can die sooner. Often by the time the exacerbation is detected, the infection is advanced causing damage to the lungs. Treatment may then require hospitalisation and IV antibiotics. However, using high dose antibiotics repeatedly brings undesirable and serious side effects and eventually the antibiotic will stop working.

Patients, doctors and charities tell us that being able to detect an infection earlier could improve the situation of people living with these lung conditions. Earlier detection would enable patients to receive treatment at home and lungs would become less damaged. With the clinical and academic community, we are exploring ways to improve this detection and ultimately treatments for this population.



Photograph: Science Photo Library

### Delivering life-changing solutions

Each challenge will be organised around a specific disease area, theme or societal need and will consider interventions across the whole patient pathway from prevention through to diagnosis, treatment, and lifestyle support.

Whether it's the development of transformative new drugs, diagnostics, devices, and digital solutions, all underpinned by data, or a combination of all of these, collaboration with multiple partners will be key.

Challenges will last between five and seven years. LifeArc will provide pre-clinical translational insight, spanning across our core offerings of science, funding, and advice.

We anticipate the external network involved will expand over that time, including organisations with the industrial capabilities to deliver the final products to the patients. Our partners will contribute their expertise and capabilities, which may include technology, assets, matched funding, routes to further asset progression, delivery to patients and commercialisation.

We intend to initiate at least three translational challenges by the end of 2023, providing £50m to £100m to support each challenge and we anticipate having six challenges underway by the end of 2030. Additional funding or investments and actual contribution of skills and work will also be leveraged from other partners to ensure final product delivery.

Through the successful delivery of these challenges, we aim to accelerate the progress of scientific discoveries to create medical breakthroughs that improve patients' lives.

### LifeArc Translational Challenges

**£50m-100m**  
LifeArc contribution of £50m - £100m, with potential for further matching by partners

**5-7**  
Anticipated duration of five to seven years

**6**  
Translational challenges targeting patient benefit across the patient pathway from diagnosis to treatment and lifestyle support

## Blueprint for delivery

### By 2023

Launch at least three translational challenges. Approach and strategy will be developed from existing translational projects on serious intractable respiratory infections and motor neurone disease as we seek to expand these with new partners and co-investors.

### By 2026

Ensure six challenges are in progress.

### By 2030

Deliver a portfolio of six translational challenges of £50m to £100m LifeArc investment amplified with investment and collaboration from other partners - all aimed at driving demonstrable improvements for patients.



Pillar three

Early ventures funding

LifeArc’s seed and ventures funding will help early-stage companies fund translational science and technologies, progressing them from the academic setting to achieve the scientific and technical milestones and scale required to attract investors and raise further rounds of capital.

Early-stage scientific innovation has the potential to develop into life-changing products and therapies, but this journey is capital intensive and risky. A lack of funding at this early stage means that too many ideas do not ever make it out of the lab.

In providing this much-needed source of investment and expertise, we will enable early-stage companies to progress new products, innovative technologies, modalities and therapies in very early stages of development. This will help them achieve demonstrable progress and proof of concept, allowing them to attract venture funding and bring their cutting-edge science closer to the patient.

We anticipate investing in two to three exciting life sciences companies each year, with a limit of £5m in each from seed through to Series A. Importantly we also have the ability to continue to fund our exceptional companies, as they scale into further venture funding rounds including Series B and beyond.

We expect to screen, assess, and invest in new opportunities that arise from LifeArc’s network, including ones from our funding programmes within *Impact with partners* and our *Translational challenges*. We will also continue to invest in other external opportunities.

Our strategy is to co-invest with like-minded, long-term investors and to work collaboratively with other venture investors. We aim to be a source of investment opportunities for venture investors looking to invest in promising life sciences companies. In this way we can help our companies access and benefit from the broadest range of skills and expertise that are required as clinical trials and commercial strategies become critical to future success.



Photograph: LifeArc

Bringing science closer to the patient

LifeArc has a proven track record in seed and Series A funding, with a current portfolio of holdings in 14 early-stage companies.

Our early ventures strategy will enable us to invest more capital and further into a company’s life cycle. We are focused on areas of high patient need, and are interested in the intersection between digital, data-driven solutions, therapeutics and diagnostics.

By continuing to work with a wide network of like-minded funding partners and investors, we will create patient impact and contribute to LifeArc’s long-term financial sustainability.

Through our early venture activities, we also aim to be a strong and knowledgeable funding partner with other investors, providing early access to promising investments in translational sciences.



We aim to bridge the venture funding gap for academic innovation to advance into translational research and realise the potential to make substantial impact to the lives of patients.

Blueprint for delivery

By 2023

At least five new early venture investments.

By 2026

10 to 15 new early venture investments, as part of a full and diversified portfolio, with new strategic partnerships and co-investments.

By 2030

Measurable financial returns generated for LifeArc to use within or to invest in further promising early ventures opportunities.



# Making life science life changing – fulfilling our purpose



“LifeArc’s ambitions and commitment to spend over £1.3bn by 2030 reflects our purpose to put patients and their families front and centre of what we do, and our fundamental belief in the collective power of life science innovation and collaboration to change lives.

Through the three pillars of our strategy, we aim to unlock the vast potential of the research community to tackle some of the most complex healthcare challenges that patients face. Ultimately, our aim is to work hand-in-hand with life science innovators to make life science life changing for patients.”

**Dr John Stageman, OBE**  
Chair of the Board of Trustees – LifeArc

Our new strategic direction sets out how we will be committing much of our resources – up to £1.3 billion by 2030 – so that life sciences innovation can truly flourish. To do this, we will amplify our impact through three strategic pillars: impact with partners, translational challenges and early ventures funding, all operating in a highly networked and collaborative environment.

By 2030 we will have committed around £200m to key strategic partnerships, working with the life sciences sector to accelerate innovation in areas of high patient need. We will work to expand our reach in delivering commercial translational expertise and advice to academics, early-stage life sciences researchers and charities.

We will also create a series of translational challenges, uniting LifeArc’s collective strengths and resources with the expertise and funding of other life science partners to rapidly advance innovation and achieve life-changing solutions to complex areas of healthcare need. These areas could be in conditions such as motor neurone disease or the serious intractable respiratory infections experienced by people living with cystic fibrosis and bronchiectasis.

By 2030 we will have a portfolio of six challenges with £50m to £100m LifeArc investment to begin with, each amplified with financial commitment from others. Eventually, individual translational challenges may be enveloped in broader challenge themes such as neuronal health and global health.

Our vision in early ventures funding is to generate both patient impact and long-term financial returns from targeted investments in early-stage start-ups with ground-breaking scientific and technology approaches. We will be a source of pre-seed, seed and early venture capital to build companies that have a clear route to patients and can deliver a financial return.

Within five years we anticipate we will have made investments into 10 to 15 new companies, with the potential to provide follow-on funding for exceptional opportunities.

**A positive future for patients**  
At LifeArc our purpose is to transform the way diseases are identified, treated and ideally prevented.

From the repurposing of medicines and our work on rare diseases, to investment in R&D and the championing of collaborations, we intend to play a valuable role in initiatives designed to transform the UK into a life sciences superpower.

As a purpose-driven organisation, our people are motivated by the difference they can make to the lives of patients and their families. We believe that by committing to spend £1.3bn by 2030 in these key areas and combining that with the support of our partners, we will accelerate promising life science ideas into life-changing medical breakthroughs for patients.

Get in touch or find out more at [www.lifearc.org](http://www.lifearc.org)



## Recent highlights

4

Marketed medicines. Our scientists played a significant role in the delivery of *Keytruda*®, *Actemra*®, *Tysabri*® and *Entyvio*®

8

Potential medicines in clinical trials

20

Assets out-licensed and in different stages of discovery and preclinical development

1

New diagnostic test and monitoring tool for tuberculosis, which we have developed with the University of St Andrews, starts clinical studies in Africa in 2022

£18m

New network of innovation hubs for gene therapies created with the Medical Research Council and the Biotechnology and Biological Sciences Research Council

£27m

Provided in support of the search for new medicines and diagnostics to tackle Covid-19

30

Research projects in rare diseases fully funded by LifeArc or co-funded with partners

14

Investments in our early ventures portfolio



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**Company number**

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**Charity numbers**

LifeArc is a charity registered with the Charity Commission for England and Wales no. 1015243 and a charity registered in Scotland with the Office of the Scottish Charity Regulator no. SC037861.