

Infection Innovation Consortium

Saving Lives By Supporting Innovation



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Director's Foreword



In March 2020, the world woke-up to Covid and a full-blown health crisis that will have lasting implications in terms of how we live and work and what we expect of our health systems. It also

placed biosecurity at the top of the agenda for governments everywhere. In February this year, a very different emergency began to present itself, with the economic fallout caused by Russia's invasion of Ukraine driving the biggest increases in inflation seen in a generation. Science-based organisations do not operate in a bubble and have come through their own set of stresses and upheavals over this period, echoing challenges in the wider economy. We know that pharma demonstrated its importance during the first of these crises. The creation, validation, manufacture and deployment of safe vaccines in a remarkably short period of time, capping the human and economic cost of Covid, will not be overlooked by the history books. Yet the fallout from the conflict in Ukraine has added to the sense of the profound interdependence in the global economy, of every action having a reaction. We are living through a rollercoaster era, where it's not just the risk of infection that crosses borders. Put yourself in the shoes of a biotech entrepreneur, experiencing sharply rising and falling investor interest, which peaked during the pandemic, before returning to below the norm, with even the norm being a tough place to be.

Cutting edge innovation is rarely an easy path, so we are very pleased to be able to evidence the impact of iiCON in our second Annual Report. The organisation, launched amid the pandemic, has quickly found its feet. The following pages detail many examples of our mission to accelerate innovation delivering results. We also highlight our ability to connect the dots between the challenges facing business with the problem solving, innovation and validation capability within our team. Our work is not restricted to drug and vaccine development. We are reaching across the very broad spectrum of infectious disease prevention and control. We are open for business.

The best headline may simply be that we have achieved many of our five year targets in the first 24 months. We have already enabled 19 products to get to market, helped secure £200 million of funding for innovation related to infection control and supported the creation of 176 jobs in the sector. These outstanding results were acknowledged in the summer, with £1.7 million of additional funding from Research England confirmed. We are now widening our development pipeline.

Our Merseyside business support programme, meanwhile, has completed projects for 24 companies with 28 in progress so has engaged over 50 local companies from sectors including engineering, chemicals, diagnostics and manufacturing. We also supported five newly established companies to evaluate their new innovations and have provided support programmes worth well in excess of £200,000.

Led by the Liverpool School of Tropical Medicine, we are very proud to be based in the Liverpool City Region and have already become one of the keystones of its innovation strategy, which was refreshed in the autumn. The knowledge-based economy is critical in achieving Levelling Up goals such as boosting productivity and creating high value jobs. In the Liverpool City Region, great strides have been made in bringing together the intellectual capital the region already has in its universities, businesses, and research institutions working towards an ambitious target of R&D making up 5% of regional GVA.

iiCON is very much part of the national Levelling Up story and the feedback from policy makers is that while our model is currently unique, it is one that can be replicated in other locations and sectors. I very much hope so. Challenges abound in our ever-changing world. By working together, and making the sum of the parts add up to a greater whole, we can draw on bright minds and clever ideas and greatly accelerate the positive outcomes everyone wants to see.

iiCON Director
Professor Janet Hemingway
 CBE

iiCON Overview

A leading global centre for infectious disease R&D, iiCON brings together industry, academia, and the NHS in a collaborative programme.



About the Programme

Decades of under-investment in new therapeutics and diagnostics means the world is ill-equipped to respond to the burgeoning challenge posed by infectious diseases, antibiotic resistance, and emerging pandemics.

In response to this challenge, iiCON bridges the gap in the infection innovation ecosystem. A leading global centre for infectious disease R&D based within the North West of England, it brings together industry, academia, and the NHS in a collaborative effort with a clear aim: to save lives globally by accelerating the discovery and development of innovative new treatments, diagnostics, and preventative products for infectious diseases.

iiCON has an exceptional skill base, an understanding of and access to the disruptive technologies needed to bolster the Infectious Disease Therapeutics pipeline, and networks with local, national, and international stakeholders.

The consortium has access to patient populations (and pathways for drug and diagnostic evaluation

and implementation) in the UK and across Africa, Asia and the Americas. It also offers access to the people, skills and supply-chains to support the journey from drug discovery through to manufacturing and deployment.

A Dynamic Ecosystem

iiCON comprises leading UK organisations focused on infectious disease R&D, including Liverpool School of Tropical Medicine, Liverpool University Hospitals NHS Foundation Trust, Unilever UK, the University of Liverpool, Evotec, and Infex Therapeutics as part of a £248.7 million programme.

The combined infectious diseases, antibiotic and hygiene R&D portfolio of iiCON's six partners is highly complementary and covers the full spectrum of product discovery, development, manufacture, marketing and impact assessment – representing a concentration of expertise not replicated anywhere else in the UK.

iiCON is part of a dynamic, £2 billion infection R&D ecosystem across the Liverpool City Region, Cheshire and Warrington. With world-leading capabilities in drug discovery, diagnostics and clinical trials, all the way through to biopharmaceutical manufacturing, the North West represents one of the largest biopharmaceutical manufacturing clusters in Europe.

Collaborative Innovation

Operating across ten commercially sustainable specialist research platforms, iiCON's collaborative effort is directly reducing the global burden of infectious disease with a co-ordinated initiative to address key roadblocks in global R&D pipelines and strengthen and regenerate the global anti-infectives supply chain.

The consortium proactively identifies and engages with the most innovative companies working in the sector globally. iiCON forges long-term collaborative relationships with these organisations, and facilitates impactful partnerships that accelerate and enable innovative research and product development. This helps to bring the next generation of game-changing new products to market more quickly, safely, and affordably.



Industry Recognition

The impact that iiCON has had on the health and life sciences sector is exemplified by the prestigious awards the consortium and its staff have been presented with since its founding. This includes Founding Director of iiCON and Professor of Tropical Medicine at LSTM Janet Hemingway receiving both the Wigglesworth Memorial Award for outstanding services to the science of Entomology and BioNow's Outstanding Contribution Award, which recognises excellence in North England's biomedical, pharma and life sciences sectors. Dr Shaun Pennington, an immunologist and microbiologist working on iiCON's Organoid Models platform, was the recipient of the ECP Impact Award at Drug Discovery 2022, which celebrates early career professionals making a clear impact on the wider scientific community.

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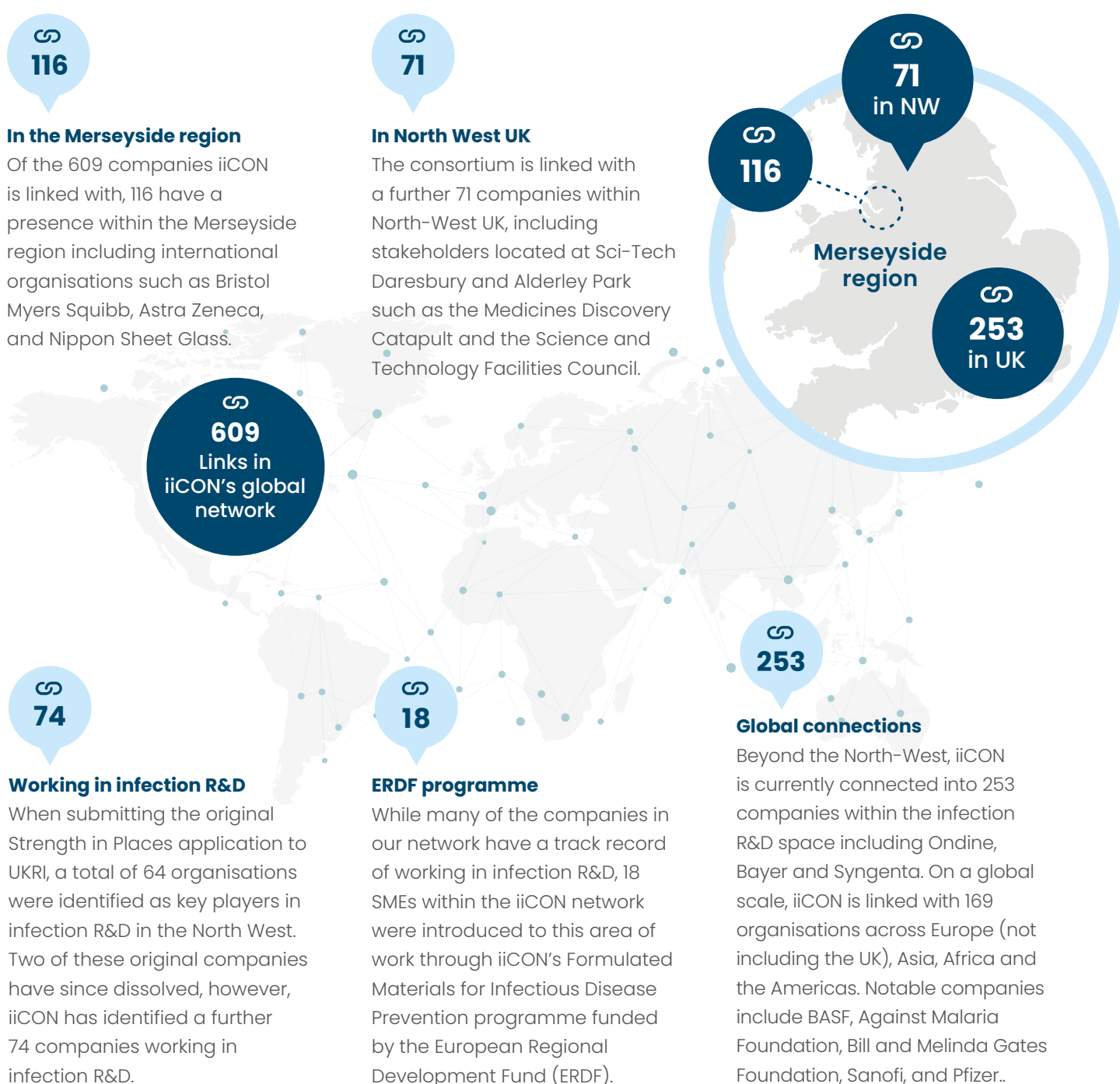
The iiCON Network

Overview

iiCON pays close attention to the infection research and development (R&D) network trends globally. Monitoring the key players, tracking who is moving into the space, and where organisations are based provides vital insight into upcoming opportunities.

At a glance

iiCON has access to a diverse and expansive global network ranging from environmental management consultants in Namibia to multi-national pharmaceutical and agrochemical companies, making it well positioned to make a substantial worldwide impact in the infection space.



Overall, iiCON has been successful in establishing and strengthening links with all organisation types playing an active role in infection R&D.

Key partners include:



373

MAJOR COMMERCIAL /
INDUSTRY STAKEHOLDERS



42

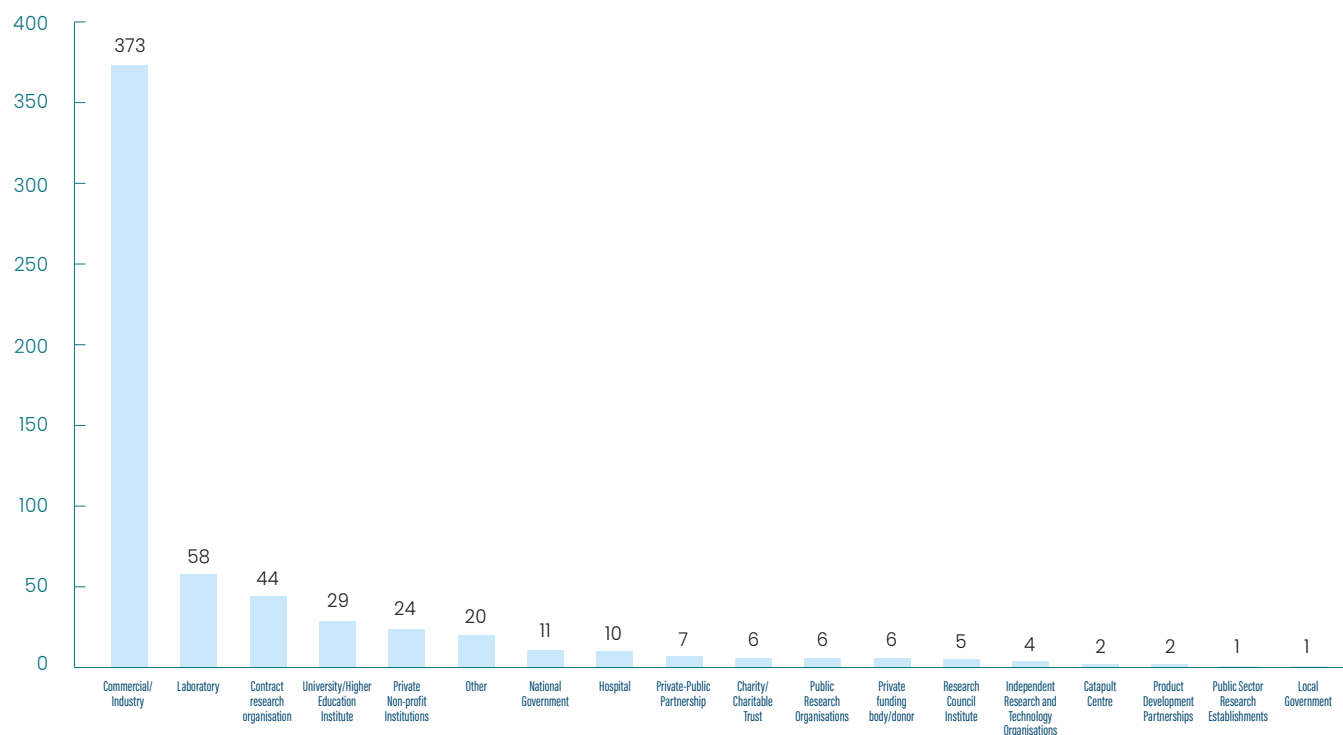
CONTRACT RESEARCH
ORGANISATIONS



57

LABORATORIES

iiCON Impact – Organisation Type



Strengthening Regional Capacity

NOTE: Some companies work across multiple life-science areas



29 SMEs

A total of 29 Merseyside based SMEs have received support through the ERDF funded Formulated Materials for Infectious Disease Prevention programme, with an estimated value of more than £250,000. Many of these companies have continued their collaboration with iiCON on larger projects.



28 assists

A further 28 SME assists have been lined up for delivery in the coming months.



£219m

iiCON is invested in supporting regional growth and strengthening capacity for Infection R&D in the North West. To enable this, £219.1m was spent by the consortium in its second year alone on R&D projects in the North West.

Partners

Led by the Liverpool School of Tropical Medicine, iiCON brings together leading UK organisations focused on infectious disease R&D, including Liverpool University Hospitals NHS Foundation Trust, Unilever UK, the University of Liverpool, Evotec and Infex Therapeutics.

The combined infectious diseases, antibiotic and hygiene R&D portfolio of our six partners currently exceeds £2 billion. The expertise of each partner is highly complementary and covers the full spectrum of product discovery, development, manufacture, marketing and impact assessment – representing a concentration of expertise not replicated anywhere else in the UK.



LSTM

iiCON lead Liverpool School of Tropical Medicine (LSTM) is a world leader in the discovery and early development of drug, diagnostic and public health insecticide therapeutics. The first institution in the world dedicated to research and teaching in the field of tropical medicine, LSTM attracts more Gates Foundation R&D funding than any other UK organisation. It has a long history of successful product development with multiple commercial partners and has spun out four companies over the last decade.

LSTM's work in combating diseases such as TB, HIV/AIDS, malaria, dengue and lymphatic filariasis is supported by a research order book of well over £210 million. It has a £600 million partnered R&D portfolio, which includes 30 industrial collaborations,

one major Product Development Partnership (IVCC), and a shared Phase I Clinical trials unit with Liverpool University Hospital Foundation Trust and The University of Liverpool. LSTM has an extensive track record of establishing public-private partnerships and is working with major organisations in infection including the World Health Organization, the Department for International Development, and The Bill & Melinda Gates Foundation.

Its worldwide reputation and the calibre of its research outputs has secured funding to lead over 10 international consortia and product development partnerships aimed at reducing or eliminating the impact of diseases upon the world's poorest people. Its state-of-the-art facilities continue to develop new drugs, vaccines and pesticides which puts LSTM at the forefront of infectious disease research.



Liverpool University Hospitals
NHS Foundation Trust

Liverpool University Hospitals NHS Foundation Trust (LUHFT)

Liverpool University Hospitals NHS Foundation Trust (LUHFT) runs Aintree University Hospital, Broadgreen Hospital, Liverpool University Dental Hospital and the Royal Liverpool University Hospital. Bringing together a combined workforce of over 12,000 staff, the Trust serves a core population of around 630,000 people as

well as providing a range of highly specialist services to a catchment area of more than two million people in the North West region and beyond. It has an annual turnover of more than £1billion.

The NIHR Royal Liverpool and Broadgreen Clinical Research Facility (CRF) opened in 2009 and is embedded within the Royal Liverpool University Hospital. It has been MHRA Phase 1 Accredited since 2013. The CRF consists of 12 beds and is primarily designed to support and conduct early phase academic and commercial clinical trials in patients and healthy volunteers across a wide variety of disease areas, including infection and most recently, COVID-19. The Liverpool Life Sciences Accelerator is a collaboration between the Trust and Liverpool School of Tropical Medicine (LSTM). This co-locates Life Sciences companies which support the NHS research agenda, with LSTM and the Trust, and provides patient access to the latest healthcare innovations.

As an iiCON partner, LUHFT facilitates collaboration and partnership working between clinical, research, and industry partners in a clinical setting. This supports the development of innovative novel therapeutics and diagnostics through access to world-class expertise and facilities, particularly high-quality first-into-human clinical trials.



Unilever

Unilever is one of the world's largest consumer goods companies, known for famous brands and driven by the purpose to make sustainable living commonplace. Unilever invests €800 million into innovation every year to enable their global team of 5,000 R&D experts to make new breakthroughs for everyday products that care for the planet and improve people's health, confidence and wellbeing.

As part of iiCON, Unilever's R&D teams study health and hygiene, and how to prevent the transmission of

infectious diseases. The scientific discoveries in this space translate into new innovations in consumer products, benefitting millions of people around the world. This research collaboration between iiCON and Unilever has already yielded success in rapidly confirming the positive performance of mouthwashes against SARS-CoV-2 and sharing these results with consumers and professionals, with the ongoing research pipeline promising further discoveries.



Infex Therapeutics

Infex Therapeutics is a specialist translational development SME focused on WHO critical priority drug-resistant pathogens. Infex acquires, develops, and licenses innovative new antibiotic and antiviral programmes, with UK and international SMEs and pharma companies. Its mission is to ensure that all new, novel and needed drugs can get to market in the shortest possible time. It has agreements with UK, Swedish, US and Japanese partners to bring drug programmes into clinical trials in partnership with the NHS in Liverpool. Infex aims to capture significant long-term value from future commercial sales around the world.



Evotec

Evotec is a life science company with a unique business model to discover and develop highly effective therapeutics and make them available to the patients. The company's multimodality platform comprises a unique combination of innovative technologies, data and science for the discovery, development, and production of first-in-class and best-in-class pharmaceutical products. Evotec utilises this "Data-driven R&D Autobahn to Cures" for proprietary projects and within a network of partners including all Top 20 Pharma and over 800

biotechnology companies, academic institutions, as well as other healthcare stakeholders. Evotec has strategic activities in a broad range of currently underserved therapeutic areas, including neurology, women's health, as well as metabolic and infectious diseases.

Evotec is committed to meeting patient needs in the field of infectious diseases and with partners, is advancing a broad portfolio of programmes targeting key pathogens in the areas of virology, mycology and antibacterials. In addition to these strategic activities, Evotec provides bespoke research and development solutions in the anti-infective disease area ranging from target identification to investigational new drug ("IND") applications, with an established leading-edge platform enabling the discovery and development of new therapies and therapeutic approaches to treat and prevent serious and life-threatening infections in multiple classes of anti-infective agent including small molecules, natural products, peptides, antibodies, other biologics and vaccines.

In September 2020 Evotec joined iiCON as a co-founding member, bringing with it extensive expertise reaching far beyond conventional antimicrobial agents, into alternative modalities such as targeting virulent attributes, specific pathogen antibodies, combination therapies, antimicrobial peptides and phage technologies. In addition, Evotec adds a highly successful track record in collaborative funding applications in both Europe and US.



The University of Liverpool

The University of Liverpool is one of the UK's leading research institutions and a centre of world-class teaching and learning. A member of the prestigious Russell Group of the UK's leading research universities, Liverpool has over 5,600 staff and an annual turnover of over £583.5 million.

The university is globally recognised for its research in health and life sciences, science and engineering, and humanities and social sciences. Its interdisciplinary research centres include the National Centre for Zoonosis Research and the Stephenson Institute for Renewable Energy.

As an iiCON partner, The University of Liverpool supports and enables industry innovation with state-of-the-art infrastructure and expertise for the development of new experimental models of infection, antimicrobial drug development, and construction of comprehensive pharmacokinetic-pharmacodynamic (PK-PD) packages that are required data packages for new drug registrations.

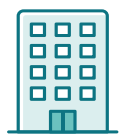
The University's Materials Innovation Factory is a joint venture co-developed with Unilever. The Open Innovation Hub for Antimicrobial Surfaces, with multiple commercial contracts, is already recognised as a major driver of surface science and biofilm technology within the UK and brings unique formulation capacity to the Consortium.

The University also supports access to advanced nanotherapeutics expertise through The Nanotherapeutics Hub (NTH) at the Centre of Excellence for Long-acting Therapeutics (CELT).



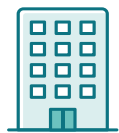
IMPACT: Enabling Innovation

iicon is driving innovation – supporting discovery and commercial development at all stages of the innovation journey and pivoting platforms to respond to public health needs nationally and globally.



52

Fifty two SMEs are currently engaged with iicon's ERDF Merseyside SME Support Programme.



9

Nine businesses have been supported with new product claims.



27

Twenty seven products are mid-way through the development pathway.



10

Ten products have reached patients and consumers.

IMPACT: Health Impact

iiCON's work is helping to shape and inform global health policy decision making.

Shaping Global Guidelines

- MHRA approval for the use of Excalibur Healthcare Services' SARSCOV-2 Antigen Screening Test – Datasets generated by iiCON were used to obtain national operational use approval in the UK.
- iiCON partner Infex's Executive Director, Dr Peter Jackson was an expert advisor for developing guidelines to control antimicrobial resistance.
- Oxford-AstraZeneca Covishield COVID-19 human vaccine – Datasets generated by iiCON were used for international approval of the vaccine against COVID.
- Unilever gained access to the Indian market with its CPC Technology Mouthwash, which was shown to be effective in reducing the viral load of SARSCOV-2 in a study led by iiCON.
- iiCON partner Infex's Executive Director, Dr Peter Jackson was a senior advisor on the Milken Institute's FasterCures think tank report "A Global Early Warning System for Pandemics".
- iiCON is working alongside the LSTM, Central Liverpool Primary Care Network (CLPCN), Hitch Marketing, and Capacity Development International on a community-led programme to halve vaccine inequity levels in Liverpool.

Informing WHO Malaria Prevention Policy

iiCON has conducted important research and large-scale trials into the protection offered by insecticide treated mosquito nets. This work has shaped the World Health Organisation's (WHO) recommendations for malaria prevention. The iiCON led trial found that Piperonyl Butoxide long-lasting insecticide treated nets (PBO LLINs) offered more protection against malaria than conventional non-PBO LLINs over a period of up to 25 months. Following this important work, more than 30% of the millions of treated mosquito nets distributed in Africa in 2021 were PBO nets – helping to protect communities and save lives. A second ongoing trial in the Democratic Republic of Congo is expanding the geographical breadth of the work and implementing a novel method for the collection of comparative epidemiological data.



iiCON has played a key role in the global COVID effort, helping to save lives across the globe through pioneering infection innovation.

iiCON completed a Phase 1 Vaccine Hesitancy Programme with Public Health Liverpool which resulted in a 20% increase in COVID-19 vaccine uptake in three different hard to reach population groups within the city. The Liverpool Vaccine Equity programme has been developed to support people locally with positive, practical interventions to overcome barriers to vaccine uptake.

Supporting industry in the global COVID effort

iiCON was the Northern Hub for the Phase III Oxford-AstraZeneca Covishield COVID-19 human vaccine trial and successfully recruited the largest cohort of volunteers for testing nationally.

iiCON validated the first Covid-19 lateral flow test for asymptomatic, presymptomatic and symptomatic COVID-sufferers, securing Medicines & Healthcare Products Regulatory Agency approval for Excalibur Healthcare Services' COV-2 Antigen Screening Test.

iiCON supported the Ministry of Defence with rigorous testing to validate Virusend, a disinfectant that inactivates coronavirus in 60 seconds. This was used by military personnel across UK test sites.

An iiCON study by LSTM and Unilever, showed that mouthwash using CPC Technology could reduce the transmission of coronavirus. This fast-tracked an accessible new consumer product to market.

A new experimental model to more accurately replicate the impact of respiratory infections on the lungs and upper airways was developed with Newcells Biotech, supporting the BioPharma industry in pre-clinical drug discovery.

iiCON analysed Wirral SME SafeClimb's safety equipment to ensure that its products would not be affected by enhanced cleaning regimens adopted during the COVID-19 pandemic.

Working with iiCON's ERDF SME Support Programme, Merseyside SME Bio Data Networks Limited developed a new device that aims to detect outbreaks of COVID-19 and other infectious diseases across communities through a sewage monitoring system. While another Merseyside company MAST was supported to take its COVID-19 diagnostic test through the development pathway. This is now available on the market.

Supporting the COVID-19 effort across Africa

High-quality, cost-effective antigen tests are critical to identify infection and stop the spread of the virus.

A rapid COVID-19 antigen test, validated by researchers at LSTM through iiCON is being used to deliver large-scale testing across Africa as part of a major FIND and UNITAID programme. The test provides a high-quality, affordable solution to protect some of the world's most vulnerable communities.

The consortium is working with the Malawian Government and the Wellcome Trust to provide high-quality data on the COVID variants that are spreading, shaping the country's COVID-19 policy response.



2.5 MILLION
antigen tests will
be deployed across
Africa per month
by 2022



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iiCON validated the first
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COVID-sufferers...

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Our Team

The growing iiCON team combines leading experts in infectious and tropical disease research, industrial collaborations and business strategies as well as project management in highly complex fields. This ensures that it has the skills and capabilities to support the consortium's many studies, partnerships and projects.



Professor Janet Hemingway
iiCON Director

CBE, FRS, DSc, PhD, BSc, NAS (Foreign Associate), FMedSci FRCP (Hon), FRES (Hon), FAAM

Founding Director of iiCON and Professor of Tropical Medicine at LSTM, Professor Hemingway was appointed the Director of LSTM in 2001 and stepped down in 2019 having overseen a period of exceptional growth of the organisation. This included the awarding of Higher Educational Institution Status & Degree Awarding powers to LSTM. She was awarded the Commander of the British Empire (CBE) for services to the Control of Tropical Disease Vectors 2012.

She is a senior technical advisor on Neglected Tropical Diseases for the Bill and Melinda Gates Foundation (BMGF) and has 40 years' experience working on the biochemistry and molecular biology of specific enzyme systems associated with xenobiotic resistance. She has been PI on projects in excess of £200 million including the BMGF funded Innovative Vector Control Consortium, the ERDF funded Formulations programme and the BMGF funded Visceral Leishmaniasis Elimination programme.



Andrea Fyfe
Executive Assistant

Executive Assistant to Professor Janet Hemingway, Andrea joined LSTM in 2017 working with Professor Hemingway in her

capacity as Director of LSTM and joined iiCON in 2019. Andrea brings a wealth of experience in EA support and business administration to Janet and the wider iiCON team. She is instrumental in organising key events and high-profile visits.

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Dr Becky Jones-Phillips *Senior Business Development Manager*

Becky leads commercial business development for iiCON's UKRI Strength In Places programme. She establishes new commercial and strategic relationships for translational research and in promoting the research agenda of LSTM to external audiences. With a PhD in infectious disease immunology, she has over 10 years' experience in national business development strategy and implementation in the immunodiagnostics sector. She brings significant experience and expertise in commercial negotiations and industry engagement through innovative business development strategy and dynamic market landscaping.

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Dr Lisa Baldwin *Senior Business Development Manager*

Lisa leads iiCON's ERDF-funded Merseyside SME Support Programme and supports iiCON's portfolio in diagnostics. She began her career in industry developing point of care diagnostics tests and then worked on novel antibacterial formulations. Her PhD in Immunology focused on adverse immune responses to implanted biomaterials. She was selected as a Faraday Lecturer and toured the country promoting science. She has since led the Liverpool City Region's life science sector development and has worked in academia supporting academic-industry partnerships.

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Ruth Cobban *Communications Manager*

An experienced communications practitioner with a background in regional news journalism, Ruth leads communications for iiCON. A former Account Director at a leading independent communications agency, she has over 10 years' strategic

communications experience directing and delivering high-impact multi-platform campaigns for national brands across sectors including property, life sciences, and inward investment.

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Rinki Deb *Senior Programme Manager*

An experienced Senior Programme Manager with over 12 years' experience working on translational and operational research projects in public health, and product development for vector control tools, Rinki manages the iiCON portfolio and provides technical leadership to two Bill and Melinda Gates Foundation (BMGF) funded projects. She has a strong technical background in molecular biology, medical parasitology and project management and a proven track record of managing complex multi-sectoral, international partnerships. She has worked on several FCDO, Wellcome Trust and BMGF funded global public health programmes.

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Shelley Lewis *Finance Project Manager*

With over 20 years' experience in finance and project management, Shelley is iiCON's Finance Project Manager and supports the ERDF and UKRI Strength in Places programmes. Her experience includes working within Research Management Services at LSTM, providing support for submission of research funding applications to a variety of national and international funders. Prior to LSTM, she worked across several finance roles at the University of Central Lancashire (UCLan) over a number of years, monitoring and reporting of large faculty school accounts, grant awards and contracts.

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Gillian Kyalo *Senior Programme Manager*

Gillian is an experienced Senior Programme Manager with over 20 years' experience in project management, fundraising and organisational development. This includes 14 years' experience managing global public health focused operational research programmes. Her qualifications include a Masters degree in International Development Management, a Diploma in Humanitarian Assistance, and a Prince2 Practitioner Project Management qualification. Since 2008, Gillian has managed a wide variety of programmes at LSTM and in her current role she will be responsible for a team of project management and administration specialists at iiCON. Gillian also manages the consortium's portfolio, including the LSTM ERDF workspace activity, LSTM-based Strength in Places iiCON workstreams and related Gates programme.

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Dr Chloe Pugh *Trainee Programme Manager*

Chloe Pugh is a Trainee Programme Manager at iiCON. She is focused on supporting multiple projects, both academic and industrial, to drive forward innovation for infectious diseases. Chloe supports both the day-to-day and long-term running of ongoing projects to ensure that objectives are achieved. In 2018, Chloe completed her PhD in materials chemistry at the University of Liverpool, studying low density organic molecular cages for applications including selective gas separation. On completing her PhD, Chloe moved into materials science roles within the manufacturing industry. Her background has predominantly focused on super lightweight polymers for use in extreme environments.

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Abielle Hallas *Junior Programme Administrator*

Abielle's role as iiCON's Junior Programme Administrator means she is responsible for both day-to-day operational and specific project support to the programme management team. Previously, Abielle was a Programme Officer within education administration, where she led and facilitated a range of projects. She brings communications, events coordination and secretarial skills and experience to the team. Abielle holds a BA and MA in International Development from the University of East Anglia, with a particular focus on infectious and neglected tropical diseases as well as wider global health.

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Rebecca Patrick *Trainee Data Analyst*

As a Trainee Data Analyst at iiCON, Rebecca provides analytical support to the day-to-day running of the organisation. This includes key performance indicator monitoring, trends and market analysis as well as CRM database management. Rebecca completed an MSc in Public Health at the University of Salford in 2021, where she developed a keen interest in global public health. Prior to her role at iiCON, Rebecca gained 13 years' experience working in law enforcement in both data analytics and investigations.

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Our Platforms: Supporting Innovation

Operating across iiCON's ten open-access specialist research platforms, we remove barriers to market by providing companies access to world-leading research expertise, market intelligence, and cutting-edge facilities. This supports every stage of the discovery journey from discovery to adoption.

1 Discovery

Our early-stage-discovery platforms offer sophisticated expertise & facilities to support world-leading innovation. This knowledge & capability enables the discovery of innovative diagnostics & antimicrobials, bringing forward transformative novel candidates to combat global challenges including multi-drug resistance.



2 Translation

Our Translation platforms support the development of novel antimicrobials & diagnostics. Specialist support is available to progress novel therapeutics from hits to leads. Highly innovative technologies including nanotherapeutics, innovative humanised tissue & microfluidic models, including organoid systems & Organ-on-a-Chip are accessible to industry to fast-track drug discovery. New drug development pathways are being developed to support the industry effort to combat multi-drug-resistant superbugs.



3 Evaluation

World-class facilities & expertise support product evaluation & validation. Our expertise in Human Challenge trials offers industry co-located research & clinical facilities, with impactful first-in-human trials run by world-leading researchers available for all antimicrobial applications, significantly de-risking the transition into humans. Our platforms also offer validation & verification of non-invasive diagnostics & advanced surface science capability from leading research institutions.



4 Adoption

Our Adoption platforms shape & inform global health policy and support market access, helping to protect communities from diseases including Malaria. Our experts also work closely with industry & policy makers to position health interventions & products to enable maximum public health benefit.





iiCON provides access to ten commercially sustainable specialist research platforms, co-developed and operated by our industrial, academic, and clinical partners.

These specialist platforms provide industry with world-leading research capability and facilities – enabling access to resources and expertise that can transform the product discovery and development journey.

Our open-access platforms bridge the gap in the infection innovation ecosystem to support co-innovation and accelerate the product journey from concept to deployment.

Companies from early-stage start-ups to industry giants have leveraged the expertise and facilities available through the platforms in their discovery and development journeys.

We work with companies at all stages of the innovation journey – from very early-stage conceptual work, through to clinical trials, manufacturing, and market positioning, helping to fast-track new products and treatments to patients and communities.

iiCON's ten specialist platforms

1. Platform 1: *Bioactives Library*
2. Platform 2: *Hits to Leads*
3. Platform 3: *Organoid Models*
4. Platform 4: *Advanced PK-PD AMR Modelling*
5. Platform 5: *Human Challenge*
6. Platform 6: *Diagnostics*
7. Platform 7: *Randomised Control Trials*
8. Platform 8: *Mapping and Modelling*
9. Platform 9: *Nanotherapeutics*
10. Platform 10: *ERDF SME Support Programme*

Platform One

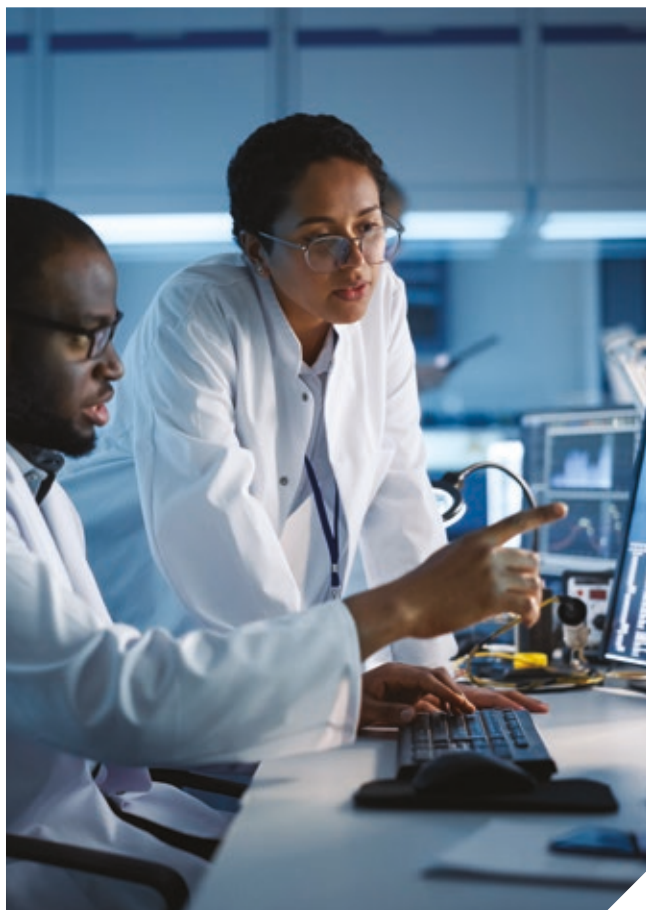
Future-proofing innovation through a diverse Bioactives Library

Designed to drive innovation and support companies of all sizes on the discovery journey, this platform offers industry early access to one of the world's largest and most diverse, and completely novel Bioactives Libraries, developed by the Liverpool School of Tropical Medicine.

This vast, untapped pool of thousands of environmental, bacterial, and fungal isolates has the potential to shape the next generation of transformative novel antimicrobial products and therapies.

The library is designed in a modular format to improve usability and increase efficiency. This enables a targeted approach, where specific isolate groups can be screened quickly and cost-efficiently. World-class end-to-end expertise and after-care from the expert team at LSTM ensures companies are supported at every stage of the discovery journey.

Expert antimicrobial product development support, validation, and consultancy is also available to industry partners at the early stage of the product development journey.



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This platform offers industry early access to one of the world's largest and most diverse, and completely novel Bioactives Libraries, developed by the Liverpool School of Tropical Medicine.

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Case study

Accessing funding and NHS collaborations

A study at the Royal Liverpool University Hospital will explore how a new antimicrobial coating can protect the NHS by reducing healthcare associated infections (HAIs).

To lower the risk of HAIs by touching contaminated surfaces, a new type of antimicrobial film coating has been developed by vacuum coating solutions specialist Genco. This film technology has been used on surfaces in busy public areas and Genco is now looking to explore applications in healthcare settings.

The initial stage of assessing the product's viability for hospitals was undertaken as part of iiCON's ERDF SME support programme. A fully funded study was conducted to verify the potential effectiveness of Genco's antimicrobial coating. The research particularly focused on pathogens for which new antibiotic treatments are required.

The results proved that this solution could in principle be applied to a hospital setting and the data was a key part of Genco receiving additional funding for a larger study alongside LUHFT.

Innovate UK awarded a £584,066 funding grant as part of its BioMedical Catalyst Award to a partnership between Genco, LSTM and LUHFT to optimise their coating for use in healthcare environments and look for real world data on efficacy and safety in a clinical environment. Antimicrobial coatings will be installed within clinical environments including touchscreens and door handles in the Royal Liverpool University Hospital.

The coatings will be in place for up to 12 months and will be assessed for how they perform under standard NHS Infection Prevention and Control guidance for cleaning. Systematic environmental testing will be performed of coated and uncoated surfaces to look for differences in contamination. Parallel to this, testing will be conducted in a mock ward environment at LSTM to investigate whether changes to clinical cleaning pathways could be safely considered.

To create the coatings, the Midlands based Diamond Coatings Ltd. will transfer the new technology to production and develop a high-volume roll-to-roll capability for coating adhesive pads in order to protect screens and other surfaces.



PLATFORM LEAD

Dr Adam Roberts Reader
Antimicrobial Chemotherapy
and Resistance, Liverpool
School of Tropical Medicine

Platform Two

Accelerating pandemic preparedness and the drug resistance crisis

Speeding up the response to pandemics and creating new treatments to tackle the increasing global threat of drug resistance are the main focus areas in Platform Two. The work is led by Infex Therapeutics and provides a subsidised, cost-effective mechanism to accelerate the progress of novel therapies.

Infex, based at Alderley Park in Cheshire, has a range of projects in advanced stages of development. Its lead clinical candidate is RESP-X, a novel humanised monoclonal antibody. RESP-X is designed to help the body tackle *Pseudomonas aeruginosa* (Pa) infection, a hard-to-treat drug-resistant pathogen which causes chronic and debilitating respiratory disease. No approved treatments currently exist. RESP-X does not kill the bacteria directly but deactivates one of its critical mechanisms, enabling the immune system to clear the infection.



The iiCON-backed project has progressed to a Phase 1 clinical trial in healthy volunteers, which are being conducted by another iiCON partner, National Institute for Health and Care Research Liverpool and Broadgreen Clinical Research Facility, part of the Liverpool University Foundation Hospital Trust.

Dr Peter Jackson, Executive Director of Infex Therapeutics, said: “RESP-X has huge potential to improve the outcomes for patients suffering from this debilitating disease. The Phase 1a study assesses the safety and tolerability of RESP-X in a cohort of healthy volunteers and will inform the dosing in the later Phase 1b trial with patients. RESP-X has huge potential to improve the outcomes for millions of patients worldwide.”

Infex is also set to put a second program into clinic – MET-X, which targets urinary tract infections caused by WHO critical-priority resistant Gram-negative bacteria. MET-X is a novel therapy designed to help restore the function of antibiotics that have become ineffective because of drug resistance created by the spread of MBL enzymes.

Professor Janet Hemingway: “The Infex team is tackling head-on areas of unmet clinical need and producing exciting science and novel therapies that could make a huge difference to patients.”



Case study

Futureproofing against outbreaks and pandemics

Covid-19 created global interest in novel therapies which could improve pandemic preparedness. Infex's COV-X program is one such program and may yet be fast-tracked. COV-X works by targeting a protein which is essential for viral replication across a broad spectrum of related coronaviruses, including SARS-CoV-1, MERS-CoV and SARS-CoV-2.

Recent research has shown that the structures of key essential proteins are consistent across different coronavirus types, giving the potential to develop new therapeutics with broad spectrum activity across related pathogens with the potential for futureproofing against outbreaks and pandemics.

If successfully developed, COV-X could form a first line of defence against future pandemics. It would be administered as a precautionary measure to vulnerable groups including the elderly, immunocompromised people, and healthcare workers, greatly reducing the health risks and buying time to allow a bespoke vaccine to be produced.

Dr Peter Jackson, Executive Director, Infex Therapeutics, said: "It's evident that treatments that allow governments and healthcare organisations to slow down the spread of a pandemic while specific vaccines are developed would have real value. Through our work with COV-X, we hope to develop antiviral products that will help reduce infections as a result of viral replication from a new coronavirus strain. These new compounds work by targeting a key protease essential for viral replication. The inhibitors we are developing will help meet a desperate clinical need for innovative anti-viral agents which are effective in treating breakthrough cases, unvaccinated and high-risk patients, leading to reduced hospitalisation and pressure on healthcare systems, and lower death rates."

The COV-X program is backed by the Hits-to-Leads program within iiCON and supported by the Strength in Places Fund. It has also been supported by the Medicines Discovery Catapult at Alderley Park and a grant of £850,000 from Innovate UK Biomedical Catalyst towards the development program.

Professor Janet Hemingway, Director of iiCON, commented: "COV-X is showing encouraging performance in laboratory tests and should progress to clinical trials in 2023. It's an important project in an area where governments of the world want to see the scientific community deliver."



PLATFORM LEAD

Dr Derek Lindsay
Chief Operating Officer,
Infex Therapeutics

Platform Three

Pioneering technologies to fast-track and de-risk advanced drug development

This highly innovative platform led by the Liverpool School of Tropical Medicine offers industry access to pioneering technologies which support the development of game-changing novel therapeutics.

A range of sophisticated technologies including innovative human tissue & microfluidic models, are available to industry to fast-track drug discovery. Any infection can be rapidly screened, and our repository of human tissue models enables more precise assessment of therapeutic impact and efficacy – helping to de-risk development and support innovation.

Organ-on-a-Chip (OOC) technology is transforming industry's approach to drug development and precision medicine. In a pioneering development

in infection R&D, iiCON provides access to OOC technology that enables companies to bypass in-vivo studies and connect multiple organs, creating holistic models that enable faster, more accurate drug development.



Our repository of human tissue models enables more precise assessment of therapeutic impact and efficacy – helping to de-risk development and support innovation.



iiCON's platform is establishing human 2D cell systems and 3D human spheroids/organoids infected with clinically relevant human pathogens. The screening platform will be capable of supporting pre-clinical investigation of human pathogens (including coinfections such as HIV/TB) within a human host environment. This will significantly improve translation of pre-clinical studies to clinical disease – creating a much-needed platform for the screening of virulent -intracellular pathogens.

This expedites the drug development journey and significantly de-risks late-stage clinical efficacy failures – creating a bridge to Controlled Human Infection Models and/or Phase I and Phase II clinical trials, accelerating product registration and commercialisation and introducing new drugs to market.



Case study

New organoid models advancing new treatments

iiCON has partnered with bioengineering firm CN Bio to develop, characterise, and qualify multi-organ OOC technology for use in infectious diseases research. CN Bio has previously utilised similar models for drug development purposes, however this is the first time their technology is being deployed to study the high-risk BCL3 respiratory pathogens. Thanks to this project, CN-Bio have showcased the utility of its platform within the infectious disease space, opening up new applications and market opportunities.

The 3D microtissue structures generated using these models accurately mimic multicellular tissue structures, and these can be combined to create miniature multi-organ systems. They recapitulate how tissue structures in the body behave with a constant flow of blood and fresh nutrients across the tissues, providing a more representative microtissue model that accurately mimics conditions within the human body.

iiCON's Platform Three team are using a multi-organ liver-lung OOC system to study the impact of prodrugs, which work by creating metabolites in the liver that have activity against respiratory infections such as SARS-CoV-2. This work is important for determining whether new therapies are likely to be efficacious clinically, but also for advancing our understanding of how drugs and their metabolites combat infectious diseases.

The new model utilises both upper airway and lower airway lung tissue. This is important for diseases such as COVID-19 which can affect various parts of the lung in different ways, for example the more harmful COVID-19 variants are better able to replicate in the lower airway. This information allows researchers to quickly determine whether an emerging variant is more or less likely to lead to severe illness and so predict the likelihood of increased hospitalisation before the variant has spread significantly through the population.

In addition to iiCON's work with CN Bio, an Innovate UK grant has supported the platform's SARS-CoV-2 research, which is aimed at developing advanced in vitro models to inform a novel series of compounds that target the virus. iiCON is working closely with Infex on this project, using its innovative models to screen compounds with the aim of creating more effective treatments for patients that cannot be vaccinated or who are hospitalised due to infection.



PLATFORM LEAD

Professor Giancarlo Biagini

Head of the Department of
Tropical Disease Biology,
Liverpool School of
Tropical Medicine

Platform Four

Bolstering industry innovation with new models to combat AMR

This platform in molecular pharmacology and pharmacokinetics-pharmacodynamics (PK-PD) led by the University of Liverpool provides new drug development models and approaches to help industry develop new agents to meet the challenge of antimicrobial resistance. It supports the discovery and development of novel therapeutics to tackle the world's most critical, multi-drug-resistant infections.



The multi-drug-resistant pathogens *Pseudomonas aeruginosa* and *Acinetobacter baumannii* are key threats to human health at a global scale. New drugs are urgently required, however robust tools to assess these compounds at the early therapeutic lead stage are poorly developed.

To support industrial innovation, we are extending a suite of model systems that enable new therapeutic solutions for *Pseudomonas aeruginosa* and *Acinetobacter baumannii*. These include new experimental model systems of hospital acquired pneumonia, which continues to be associated with unacceptably high mortality and developing engineered strains that display a variety of resistance mechanisms while remaining highly pathogenic.

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This work supports the discovery and development of novel therapeutics to tackle the world's most critical, multi-drug-resistant infections.

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PLATFORM LEAD

Professor William Hope OBE
(FRACP, FRCPA, PhD)



PLATFORM LEAD

Dame Sally Davies
Chair of AMR Research
Director, Centre of Excellence
in Infectious Diseases Research
- Co-Lead, NIHR Infectious
Diseases National Specialty
Group University of Liverpool

Platform Five

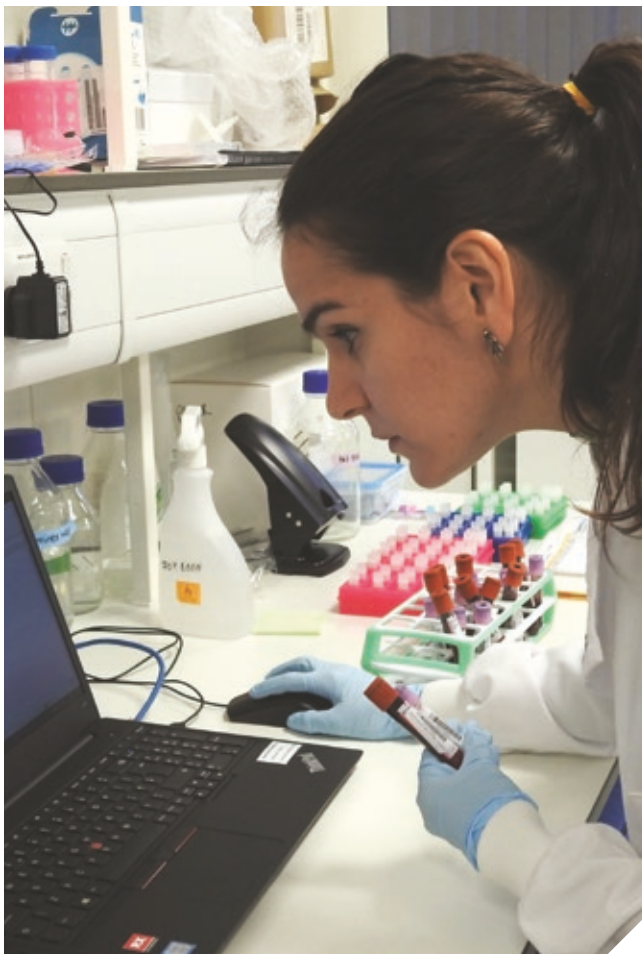
Super-charging industry innovation with agile end-to-end clinical trials

This platform provides single-point-access to an advanced clinical trials package that offers first-into-human testing across a full range of antimicrobial products and treatments – from hygiene and sanitation products, diagnostics, AI wearables and devices, to new therapeutics, and vaccines.

Leveraging the world-leading expertise of Liverpool School of Tropical Medicine (LSTM) and Liverpool University Hospitals NHS Foundation Trust's MHRA Phase 1 Accredited Clinical Research Unit (CRU), this

all-in-one solution covers each stage of the trial journey from study protocol design to downstream analysis. This removes the need for companies to call on the expertise of multiple partners or Contract Research Organisations.

iiCON's platform provides access to the expert team at the Accelerator Research Clinic (ARC) led by Professor Daniela Ferreira. The state-of-the-art research facility has 18 beds co-located with adjacent laboratories allowing for high clinical and research standards and enabling rapid processing of samples due to clinic and laboratory proximity and the clinic's expert and experienced team.



“iiCON's platform provides access to the expert team at the Accelerator Research Clinic (ARC) led by Professor Daniela Ferreira.”

Companies undertaking clinical trials also benefit from access to facilities including the largest complement of containment level 3 (CL3) laboratories in the North West and access to a comprehensive BioBank

Revolutionising Clinical Trials

The Human Challenge Model enables companies to carry out small scale clinical trials with between



100-300 participants to test the performance and efficacy of their product at a relatively early stage. This model provides companies with high-quality insight on their product's performance and offers the opportunity to assess whether the product needs further development or is ready to advance to large-scale clinical trials. This allows for product testing and evaluation much more quickly and cost effectively than the ordinary product development pathway.

"This ability to provide single point access to expertise at every stage of the trial journey has significant commercial impact for industry. Uniquely, we have the expertise and facilities available to shape the trial protocol design, secure ethical and regulatory approvals, deliver full clinical trials, and then conduct comprehensive downstream analysis of the trial results. We're not aware of any other facility globally that is able to offer this range of capability and end-to-end expertise."

Professor Daniela Ferreira

Testing the efficacy of a drug early in the development pipeline using human challenge models provides reassurance to developers and makes it less likely the product will fail in the later stages of development, particularly the large Phase III trials. This reduces overall costs in the product development phase and companies can test multiple candidates and combinations, conducting tests with a hundred participants at a fraction of the cost of larger Phase III trials.

Human Challenge trials are also an important tool in the context of anti-microbial resistance – where more targeted treatments are needed. Having access to rapid testing to refine and shape therapeutics to enhance precision and impact is crucial to combat resistance and avoid over-prescribing of antibiotics.



PLATFORM LEAD

Professor Daniela Ferreira

Professor of Respiratory
Infection and Vaccinology at
Liverpool School of Tropical
Medicine and the University
of Oxford



Case study

Enhancing pneumococcal vaccine development

The platform's team is collaborating with both Pfizer and MSD on vital pneumococcal vaccine development projects. These are the two largest global manufacturers of pneumococcal vaccines and they are refining these vaccines via a novel challenge model created in partnership with iiCON.

These projects will develop novel Experimental Human Pneumococcal Challenge (EHPC) models with pneumococcal serotype 3 (SPN3) to understand more about this particular disease serotype and potentially test efficacy of current in use and novel pneumococcal vaccines, with a particular focus on nasal immunology. This will allow researchers to better understand how vaccinated patients are protected against the disease entering the body in the most common way - via the nose. Together, the information gathered by these clinical trials will improve future vaccine production as well as inform roll out by identifying at-risk groups and vaccine efficacy across populations.

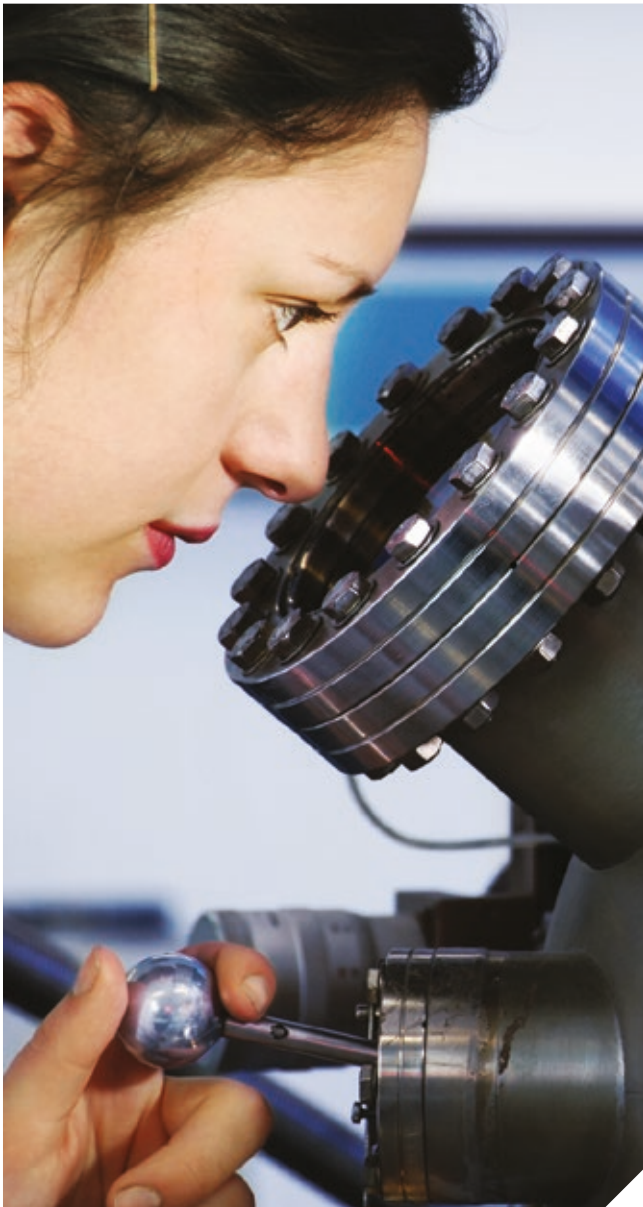


Platform Six

Innovative diagnostics and exploring antimicrobial surfaces

World-leading surface design and analysis, through the University of Liverpool's Surface Science Research Centre, is enabling anti-infective and vector control surfaces to be evaluated, optimised and upscaled via

knowledge-based engineering. This Interdisciplinary Research Centre, which also houses the Open Innovation Hub for Antimicrobial Surfaces, features sophisticated surface sensitive spectroscopic and imaging techniques. These allow surfaces to be mapped at the nanoscale level and enables the interaction between technology and biological systems to be studied with precision. Our expertise is available to support industry in leveraging this technology to bring forward innovation in the anti-infective surfaces space.



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... enables the interaction between technology and biological systems to be studied with precision.

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Case study

Testing life-saving safety equipment

Wirral SME SafeClimb wanted to check that enhanced cleaning regimens adopted during the COVID-19 pandemic, including the significantly increased use of multi-surface sanitising products, did not impact the integrity of their height safety equipment.

Through its Merseyside SME Support Programme, funded by the European Regional Development Fund (ERDF), iiCON provided advanced surface testing that SafeClimb would otherwise have been unable to access. This testing was led by consortium partner, the University of Liverpool's Open Innovation Hub for Antimicrobial Surfaces.

The Open Innovation Hub for Antimicrobial Surfaces designed a work package to visually analyse a number of products and materials before and after daily sanitisation for a period of four weeks. Electron microscopy and Energy Dispersive X-Ray Spectroscopy were used to evaluate the material at a sub-micron level to visualise the materials and check for signs of degradation.

The university concluded that for all three treated products, no visible damage to the fibres of the products could be observed.

Liza Collard, Managing Director of SafeClimb, said: "As a company focused on safety, it was imperative to ensure that changes in our customers' cleaning routines due to COVID-19 safety precautions were not adversely impacting the integrity of our products. Being able to have the University of Liverpool's expert team carry out incredibly detailed and thorough testing on our products has been incredibly helpful."



PLATFORM LEAD

Professor Rasmita Raval is a Professor in Chemistry and Director of the Surface Science Research Centre at the University of Liverpool. She is also the Director of 'The Open Innovation Hub for Antimicrobial Surfaces' and is one of the four co-founders and co-directors of the UK 'National Biofilms Innovation Centre'.

Developing innovative diagnostics

This programme is designed to develop, evaluate and validate novel antigen and molecular based diagnostics. Our team offers industry access to world-leading expertise and facilities that support every stage of the product journey, from early-stage concept, through evaluation and regulatory approval. We work with industry to assess analytical sensitivity and efficacy in real-world settings, providing valuable insights to accelerate optimal diagnostic deployment. The platform's industry partners benefit from a broad diagnostic focus and expertise across a range of platforms including lateral-flow, antibody, antigen, and molecular testing.

The diagnostics team continues to support the Foundation for Innovative New Diagnostics (FIND) as the UK evaluation site for antigen and antibody diagnostic tests for COVID-19. This support was initially using samples recruited from volunteers attending the government drive-through testing facility at Liverpool John Lennon Airport. Now that this site has closed, the team is continuing evaluations on patients attending hospitals in Liverpool.

This hub of diagnostics research expertise has access to the largest complement of Containment Level Three laboratories in the North West. Able to handle and process hazardous pathogens, including the live SARS-COV-2 virus, the team maintains cultures of the latest variants of concern.

These facilities and capabilities enable the team to quickly respond to changing circumstances and means it has experienced significant demand from commercial companies to establish partnerships and ongoing collaborations. Much of this demand stems from the continuing need to test the performance of COVID-19 diagnostics against newer variants and more recently there has been a requirement for our skills and capabilities from companies developing and wishing to evaluate Monkeypox tests.



Case Study



Detecting new COVID-19 variants

When a new COVID-19 variant emerges, it is important to determine if existing diagnostic tests will still be as effective in detecting infection.

The LumiraDx SARS-CoV-2 Ag Test is a microfluidic immunofluorescence single use assay for the direct and qualitative detection of nucleocapsid protein antigen in nasal swab and nasopharyngeal swab samples. It is considered one of the market leaders for providing high sensitivity and specificity performance. LSTM assessed the performance of the LumiraDx Test against the Omicron variant. LumiraDx share updates about the performance of the test on their website and have an ongoing project to monitor new mutations as they arise.

Dr. Nigel Linder, LumiraDx Chief Innovation Officer, stated: "LSTM are a reliable partner for LumiraDx in the process of sourcing, characterising and testing COVID variants with our COVID-19 Ag Tests. Understanding product performance with COVID variants is a vital part of our continued product support activities, and the independent testing from LSTM is invaluable."



PLATFORM LEAD

Dr Ana Isabel Cubas Atienzar
is a Post-Doctoral Research
Associate at Liverpool School of
Tropical Medicine.

Break-through sensor technology

This platform utilises sensor technology with advanced AI analysis to help develop point of use non-invasive diagnostics. These range from the measurement of parasites in peripheral blood to quantification of insecticide concentrations on a range of surfaces.

Our team is based at a world-class sensors laboratory located at the Liverpool Life Sciences Accelerator. The technology in this lab, developed by Liverpool John Moores University's BEST Research Institute, is designed to support the real-world development and evaluation of impactful non-invasive diagnostics to quality assure and monitor infectious disease prevention and treatment in order to better protect communities.

Case Study

Advanced sensor technology fights vector-borne diseases

iiCON is spearheading an international project to develop sensors that enhance insecticide spraying activities designed to tackle vector-borne diseases such as malaria and Visceral leishmaniasis (VL). These diseases pose a substantial risk to people living in tropical climates, where mosquitoes and sandflies are abundant and able to access residential buildings. To control VL, the Indian government implemented an indoor residual spray programme in which teams biannually visit villages to apply a coating of insecticide onto the inner walls of cattle sheds and houses.

Despite the investment of a lot of time and resources into the insecticide programme, results are often mixed, as it is difficult for the teams to know if they are applying the right amount of insecticide. To refine and improve the process, we created a handheld sensor device that measures whether the correct dosage of insecticides is administered. The technology was originally created at LJMU's Exemplar houses testing facility to monitor moisture in building fabrics using advanced electromagnetic spectroscopy. It was subsequently recognised that the technology could be adapted to

quality assure large scale insecticide-based disease prevention programmes.

A Bill & Melinda Gates Foundation funded project was set up with a multidisciplinary team that included entomologists from LSTM as well as microwave engineers and machine learning experts from LJMU. Professor Patryk Kot, Deputy Director of the Built Environment and Sustainable Technologies (BEST) Research Institute, led the development of a sensor, including the hardware, electronics circuitry, and algorithm to detect levels of the insecticide alpha-cypermethrin. An enclosure for the device was then designed and manufactured by Merseyside product design company 4D Products Ltd.

4D Products designed the device to be held like a torch, with the sensor end offered up to the surface that's being monitored and then depressed. The end of the device has been designed to spring in and out according to the correct level of pressure for different surfaces, enabling the sensor to effectively contact the surface and engage with data collection. Security was a key design consideration, as 4D Products were advised that devices of this kind are at risk of being disassembled and the components removed. To deter unwanted attention, the design was made intentionally simple.

A preliminary study in India has shown the efficacy of this approach. This success has led to additional funding to further develop the technology to measure multiple concentrations of different insecticides commonly used for IRS in Africa.



PLATFORM LEAD

Professor Andy Shaw is Head of the Built Environment and Sustainable Technology Research Institute (BEST) in the Faculty of Engineering and Technology at Liverpool John Moores University. He also leads the RF and Microwave (RFM) research theme within the institute.

Platform Seven

Informing global health policy decision making

In many low and middle-income country settings, vector control products often need to be on a WHO recommended list before donors will make large scale purchases. This requires at least two epidemiological impact randomised control trials, which are inevitably time-consuming and usually limited in geographical scale. Pathways to implement trials in a more streamlined manner, which can improve the evidence base for newer products, could greatly assist the decision-making process for policy makers and procurers in order to expedite product roll-out.

iiCON is pioneering embedding of cluster-randomised control trials into large-scale operational programmes, through which it can be demonstrated

whether newer products outperform those currently recommended, as well as expanding the reach of trials to new geographies and transmission settings. By reducing the cost and complexity of these operationally-embedded trials and providing key data-led-insight to a broad range of organisations including non-governmental organisations, governments, and non-profit organisations, iiCON aims to provide expertise to support and inform global health policy decisions.

Led by the Liverpool School of Tropical Medicine and partners in Democratic Republic of Congo and Uganda, this platform provides robust data to inform global health policy and support and enable market access, helping to protect communities from malaria.

This work is already helping to protect communities and save lives by advancing innovative interventions.



iiCON has conducted important research and large-scale trials into the protection offered by insecticide treated mosquito nets. This work has shaped the World Health Organisation's (WHO) recommendations for malaria prevention.





Case study

Combatting malaria in vulnerable communities

Mosquito nets are a key weapon in the battle to protect communities from malaria. iiCON has conducted important research and large-scale trials into the protection offered by insecticide treated mosquito nets. Work from Uganda has shaped the World Health Organisation's (WHO) recommendations for malaria prevention, resulting in a recommendation for WHO Prequalification to change policy advice for PBO-nets.

Following this important work, 33% of the millions of treated mosquito nets distributed in Africa in 2021 were PBO nets – helping to protect communities and save lives.

A second ongoing trial in the Democratic Republic of Congo is expanding the geographical breadth of the work into central Africa, and implementing a novel method for collection of comparative epidemiological data, by testing visitors to ante-natal clinics to measure malaria prevalence. This model, which embeds naturally into ongoing health programmes, can provide continuous, large-scale data at reduced cost to facilitate broader assessments of new products.



PLATFORM LEAD

Dr David Weetman

Reader, Liverpool School of Tropical Medicine



Platform Eight

Guiding industry intervention and product placement

Supporting innovation and product development, this platform provides the expert insight required to optimally position health interventions. Industry partners can leverage the Liverpool School of Tropical Medicine's world-leading expertise in mapping and modelling of the transmission and dissemination of pathogens at a micro and macro level.

A major focus of 2022 has been the creation of a new study to explore reducing the risk to vulnerable patients of drug-resistant bacterial infections in residential care homes and hospital settings. The study seeks to improve the care of some of the most vulnerable people in society through enhanced infection prevention and control, allowing better stewardship of our last line of defence antibiotics, one of our most precious healthcare resources.

Professor Nicholas Feasey, an Infectious Diseases physician, and Professor of Clinical Microbiology at

the Liverpool School of Tropical Medicine, is leading on the project.

"When elderly and vulnerable patients arrive at an NHS hospital from residential care, or if they've had recent hospitalisation, we're a bit more suspicious that they'll have a serious bacterial infection that is difficult to treat with standard antibiotics. If you are vulnerable and have a severe infection, you often can't wait for test results to get the right diagnosis. And so quite often, we weigh-in with some of our last line antibiotics."

"We're trying to understand why there is an increased risk in some settings and explore ways of preventing patients from acquiring drug-resistant infections."

"Most infections come from bacteria in our bodies, typically in our gut. They don't normally cause us any harm – E. coli is an example, it's ubiquitous, and present at very low levels in all of our guts. Yet it can cause urinary tract infections, which, if you are frail, can spill over into the blood and become life threatening and life ending. So we're trying to stop the spread of those variants of E. coli which are resistant to commonly used antibiotics."

The study will go live in Liverpool in 2023 and will investigate how dangerous drug-resistant bacteria move around and find ways to interrupt that transmission which are pragmatic, affordable and not so restrictive they could not be implemented in a care home setting.

The team is developing care home and NHS partnerships to deliver the study, along with a research protocol, which is being submitted for ethical review. The transmission modelling study will begin early in 2023.





Case study

Developing the world's first oral snakebite treatment

During 2022 a new anti-venom study was developed led by Professor Nicholas Casewell, Director at the Centre for Snakebite Research & Interventions at Liverpool School of Tropical Medicine.

Snakebite envenoming is a WHO-listed neglected tropical disease which every year affects 1.8 million people and causes 138,000 fatalities. Despite the severity of the problem, conventional snakebite treatments have several limitations, such as weak demand, low availability, poor affordability, and the need to be delivered intravenously. The team is seeking to overcome these problems by developing the first oral therapeutic drug to treat snakebites.

This new, easily accessible style of treatment is based on small molecule "toxin inhibitors" that are administered orally to slow down the venom's effects. This delay will help to dramatically improve patient outcomes by giving the patient more time to reach a healthcare facility and receive follow-up treatment.

Funding from the Wellcome Trust, Cures Within Reach and the Bloomsbury SET has supported preclinical and clinical research to explore the safety and efficacy of a licensed heavy metal poisoning treatment Dimaval® (DMPS) as a repurposed oral treatment for snakebite. As well as being a safe and cost-effective drug that can be quickly administered, DMPS targets a specific bleeding-related toxin that's found in the venom of multiple snakes.

The project team are currently exploring tolerance to DMPS in a phase I study at the clinical trials unit of KEMRI-Wellcome in Kilifi, Kenya, and will also be identifying the drug's optimal dosage to use in future trials with snakebite victims.

iiCON has been collaborating with the project to help commercialise its ground-breaking research. This has involved developing a business case and looking at how best to deliver a completely new treatment to complex markets, where the clinical need is greatest, such as sub-Saharan Africa.



Case study 2

Quantifying pathogen transmissions

LSTM has been collaborating with fellow iiCON partner, Unilever, to quantify the transmission of pathogens between surfaces and people. Through this collaboration, a methodology to quantify the transfer of pathogenic viruses from surface to skin and from skin to surface was developed. This methodology has been utilised to quantify SARS-CoV-2 survival and transfer and to understand the risks associated with people's interaction with contaminated environments.

This work has demonstrated that SARS-CoV-2 is readily transferred from contaminated surfaces to the skin. Once on the skin, SARS-CoV-2 can survive for hours to days, depending on environmental factors such as temperature and humidity. Currently, the developed methodology is being used to evaluate monkeypox virus survival and transfer, and to evaluate the effectiveness of different interventions such as surface and hand disinfection.



PLATFORM LEADS

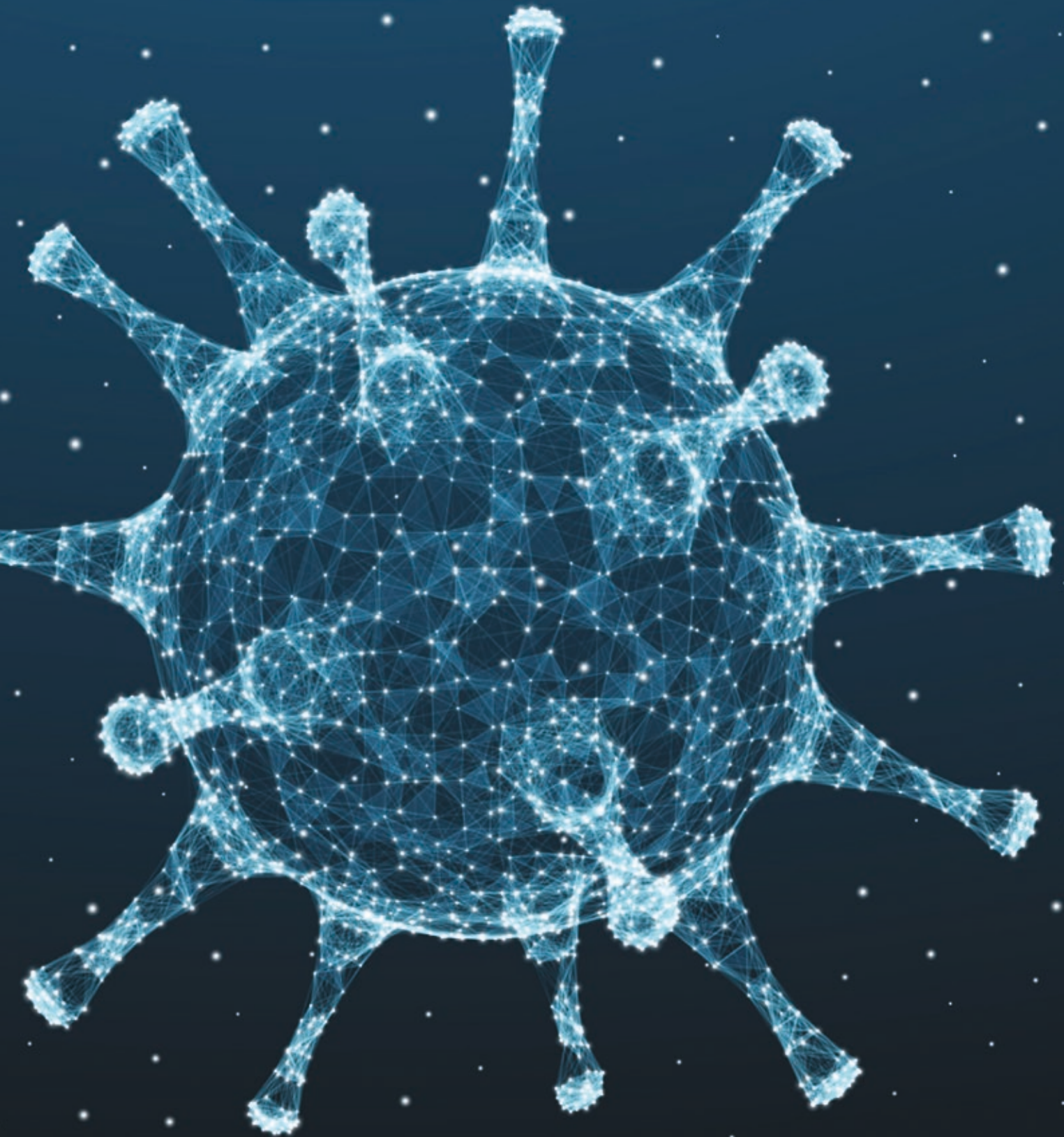
Professor Nicholas Feasey

is an Infectious Diseases physician and Professor of Clinical Microbiology at the Liverpool School of Tropical Medicine.

Dr Grant Hughes is a Reader and Wolfson Fellow at Liverpool School of Tropical Medicine.

Professor Nicholas Casewell

is Director of the Centre for Snakebite Research & Interventions and Chair in Tropical Disease Biology at Liverpool School of Tropical Medicine.



Platform Nine

Leveraging nanotherapeutics expertise to support product development

As a result of significant public research and development investment, many promising prototypes for nanomedicine applications in the areas of therapeutics, diagnostics and regenerative medicine are reaching clinical trials and entering the regulatory approval pathway. This trend is exemplified by the recent success of the COVID-19 vaccines from Moderna and Pfizer-BioNTech.

There is a growing requirement by regulators and developers to de-risk translation by better understanding the critical determinants of efficacy and safety. Nanotechnology offers great promise for treatment and diagnostics but is constrained by the interdisciplinary expertise required for the robust characterisation needed for progression towards clinical trials.

Led by The Nanotherapeutics Hub, located at the University of Liverpool, this platform provides industry and academic partners access to the Hub's expertise, in addition to its network of UK partner organisations to support the development of innovative new antimicrobials, and vaccines, leveraging nanotechnology.

"As an iiCON platform, we bring expertise in the field of nanotherapeutics which encompasses applications in infectious disease, cancer, immune modulation and regenerative medicine. The benefits, and promise, of nanotechnology, are clear. However, robust characterisation of their interactions with biological systems is vital to their translation to clinical use.

Using our expertise, we are determining critical quality attributes for nanotherapeutics to assist in the future rational design of advanced materials. This is supported by our partnership with the National Measurement Laboratory and our links to national, and international, activities."

Dr Neill Liptrott





PLATFORM LEAD

Dr Neill Liptrott is a Reader in Pharmacology and Immuno-compatibility at the University of Liverpool and Coordinator of The Nanotherapeutics Hub at The University of Liverpool.

Platform Ten

Merseyside SME Support Programme

iiCON's Merseyside SME support programme is funded by the European Regional Development Fund and designed to support regional innovation and invigorate the product development pipeline.

Delivered in partnership by Liverpool School of Tropical Medicine and the University of Liverpool, this platform helps Merseyside SMEs overcome roadblocks to product development in the formulation of infectious disease products by providing access to state-of-the-art equipment and world-leading expertise.

iiCON's platform provides SMEs access to worldclass expertise and facilities across three key focus areas to support product development: Screening for AMR Emergence; Novel Surfaces and Materials; and Diagnostic Evaluation.

Facilities and expertise available include AMR testing platforms combined with a microbiology suite in the Materials Innovation Factory supported by Unilever at the University of Liverpool; a surface chemistry suite at the Open Innovation Hub for Anti-Microbial Surfaces at the University of Liverpool; and a Diagnostics and Engineering suite to enable diagnostic development and evaluation– supported with expertise from the Liverpool School of Tropical Medicine and Liverpool John Moores University.



“

... this platform helps Merseyside SMEs overcome roadblocks to product development in the formulation of infectious disease products by providing access to state-of-the-art equipment and world-leading expertise.

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Case study 1

Merseyside start-up progressing pandemic early warning system

Supported by iiCON, Merseyside start-up Bio Data Networks Limited (BDN) is developing a set of promising new devices that will act as a surveillance tool to provide early warning of outbreaks of infectious diseases.

Regular sampling and analysis of sewage can enable the early detection of infectious disease or resistance markers within a population. This type of monitoring is particularly key in instances like the COVID pandemic where some individuals can be asymptomatic.

To enable BDN to further develop and test its exciting new products, iiCON connected the company to the expertise within the Antimicrobial Chemotherapy and Resistance Group at LSTM, which designed and conducted a comprehensive series of experiments in real-world scenarios.

This initial study has led to an additional £1.2m of funding being awarded from the Joint Programming Initiative on Antimicrobial Resistance (JPIAMR), to further develop the system for microbiological detection and surveillance within sewage systems.

“BDN’s device is an exciting example of innovation in this space and has the potential to act as an impactful early warning system for COVID and future pandemics. Connecting through iiCON into the outstanding microbiology expertise at LSTM has enabled BDN to test its device under challenging conditions and secure the evidence of efficacy needed to progress their product forward to the next phase.”

Dr Adam Roberts





Case study 2

iiCON investigates efficacy of advanced medical cleaning process

iiCON: Infection Innovation Consortium has worked in close collaboration with Alphasonics, an ultrasonic cleaning specialist headquartered at Knowsley Business Park, to assess the effectiveness of its advanced ultrasonic cleaning systems.

Alphasonics' propriety systems utilise cavitation, the application of sound into water, to achieve a high standard of cleanliness. One of the main applications for this technology is to ensure the thorough decontamination of reusable surgical and robotic instruments to avoid contamination risks in clinical environments.

To prove the efficacy of its systems, a method of analysis was required that would visually demonstrate the results and confirm the company's own protein studies. iiCON's ERDF programme supported a project with the Open Innovation Hub for Antimicrobial Surfaces at the University of Liverpool, which obtained high magnification images using scanning electron microscopy (SEM) to investigate Alphasonics' protein coatings removal procedure. Energy X-Ray Analysis (EDX) was also used to identify the elemental composition of observed defects or artefacts on the surface.

The SEM high-resolution images and data for soiled and cleaned material compiled during the project indicated that the ultrasonication cleaning process results in a largely clean surface and that SEM images of the soiled and cleaned material are comparable to new and ultrasonication-cleaned ones.



Case study 3

iiCON proves Wirral-made wipes prevent the formation of antimicrobial resistant bacteria

Assist Hygiene is a Wirral based manufacturer of hygiene products that specialises in the production of wet and dry wipes for industrial purposes. As a hygiene specialist, it is acutely aware that antimicrobial resistance (AMR) has become a significant global health issue.

Preventing biofilm formation is an important part of protecting clinical environments against AMR bacteria. Biofilms are multicellular communities of bacteria adhered to a surface and encased in a protective extracellular matrix. These can act as reservoirs of AMR bacteria, as well as increase transmission of AMR between different bacterial species. However, biofilms are challenging to eradicate and there is a scarcity of biofilm focused cleaning agents available.

To ensure that healthcare settings could understand the effectiveness of its wipes, Assist Hygiene sought to establish the antibacterial performance of different formulations by comparing a novel biodegradable wipe material to the standard wipe material.

iiCON evaluated three disinfectant formulations on two wipe materials against multidrug resistant (MDR) bacteria. The pathogens selected for this study are some of the most challenging antimicrobial resistant pathogens that are of the utmost priority from a clinical point of view, and all of which are competent biofilm formers.

Wipes impregnated with different formulations were tested against dry biofilms on stainless steel surfaces by simulating real-world wiping conditions. Assist Hygiene's Protex brand name wipes showed no recoverable viable bacteria from MRSA, *P. aeruginosa* or *A. baumannii* biofilms, suggesting these products were highly effective against these bacterial dry biofilms on steel surfaces. As it is not possible to completely prevent biofilm formation, eradication of these structures is an attractive strategy for infection control measures.



PLATFORM LEAD

Dr Lisa Baldwin

Senior Business
Development Manager

Two Years of SME Support Boosts Merseyside's Life Sciences Sector

iiCON's European Regional Development Fund (ERDF) programme has successfully propelled some of Merseyside's most innovative new life science businesses – stimulating R&D and economic growth in the region.

Thanks to the support that SMEs have been provided through this programme, such as access to state-of-the-art equipment and world-leading expertise, a host of businesses have been able to accelerate the development and commercialisation of infectious disease products.

iiCON hopes to attract additional participants to follow in the footsteps of the businesses that have already benefitted from the initiative – helping to further establish the Liverpool City Region as a life science incubator and magnet for international investment.

Designed to boost regional innovation, the programme has been instrumental in helping specialist companies play a role in combating deadly infectious diseases such as COVID-19 and malaria.

Thanks to this support, four new products have already gone to market, generating revenue for local businesses and improving the health and wellbeing of people around the world. These include COVID-19 diagnostic products, sewage sampling devices for the early detection of infectious diseases and sensor technology that will help eliminate vector-borne diseases such as malaria.

To-date, the iiCON programme has seen 29 projects completed for regional companies, with another 28 underway. More than 50 companies have engaged with the programme, representing a range of sectors, including engineering, chemicals, diagnostics and manufacturing.

Approximately 50% of the companies engaging with the programme have introduced a new innovation as a result of the collaboration. The programme has also supported five newly established companies to evaluate their innovations.



“We want to support Merseyside companies by enabling them to innovate and bring products to market. Not only can we provide access to cutting-edge facilities and equipment, but we can also facilitate independent evaluation from a world-class research organisation, ultimately adding credibility for investors.

“So far, a significant amount of money has been invested in local businesses due to this scheme, with many grants being secured thanks to the data collected during our collaborations. What’s more, a large proportion of the projects we’re involved with go on to forge a long-term relationship with the universities, which will help them secure and maintain a place at the forefront of their fields.”

Dr Lisa Baldwin, iiCON Senior Business Development Manager

“The Liverpool City Region has a unique heritage as a world-leader in infection control, where innovative approaches to global health challenges have been pioneered for over 100 years. Through this ERDF funded platform we’re building on that legacy, facilitating a dynamic, collaborative interface between Merseyside innovators and academia. By supporting pioneering infection innovation from companies of all sizes, we aim to help save lives across the world.”

Professor Janet Hemingway, Founding Director of iiCON



Future Proofing

Investment & Job Creation


347

contracts signed with iiCON to date


188

high value jobs created in the North West


143

contracts with commercial or industrial partners


395

total jobs created to date

Capacity Development – future-proofing the Infection R&D landscape

iiCON has been working to develop the North West's world-leading infection R&D capabilities. The newly completed Capacity Development Centre at Pembroke House will play a central role in developing the local, national and international workforce required for the future of public health and translational research.

The centre's inaugural event was held on the 7th November and featured a talk on antimicrobial resistance by Dame Sally Davies as part of LSTM's 125th anniversary lecture series.

Other initiatives to advance the sector's skills and capabilities include iiCON's expert team presenting a series of masterclass lectures and workshops via the Bloomsbury Consortium platform.

Capital Contracts

iiCON has secured capital investment of £26.3 million over the past two years. Key capital projects that have been delivered under the programme include a major University of Liverpool laboratory refurbishment which has recently been completed. This will progress the Advanced PK-PD AMR work package being delivered under Platform Four.

Other investments of note include £6.3m in funding to develop a Capacity Development Centre in Pembroke House, Liverpool. £500,000 has also been received from the Wolfson Foundation grant for Robotic Category 3 Chemistry Laboratories.

Leverage and Scale of Programme

£18.6 million

Core funding secured through UKRI's flagship Strength in Places Fund (SIPF) with a further £1.7M through the UKRI RED fund in 2022.

£198.1 million

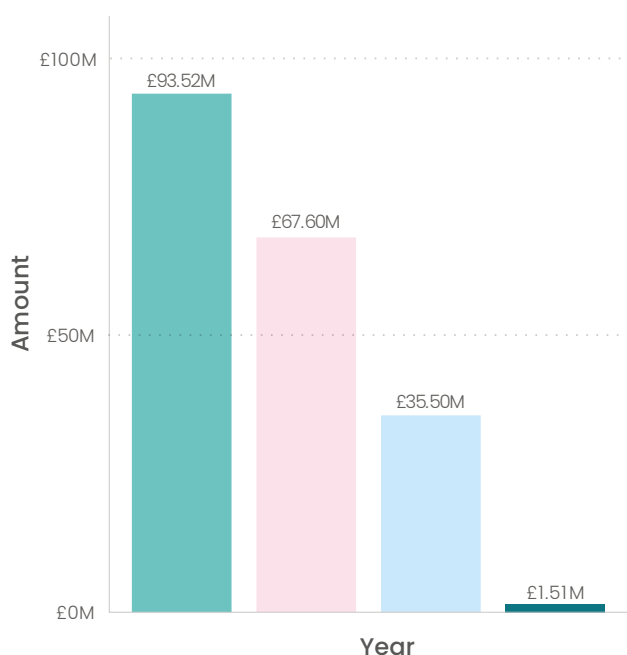
Total value of iiCON portfolio



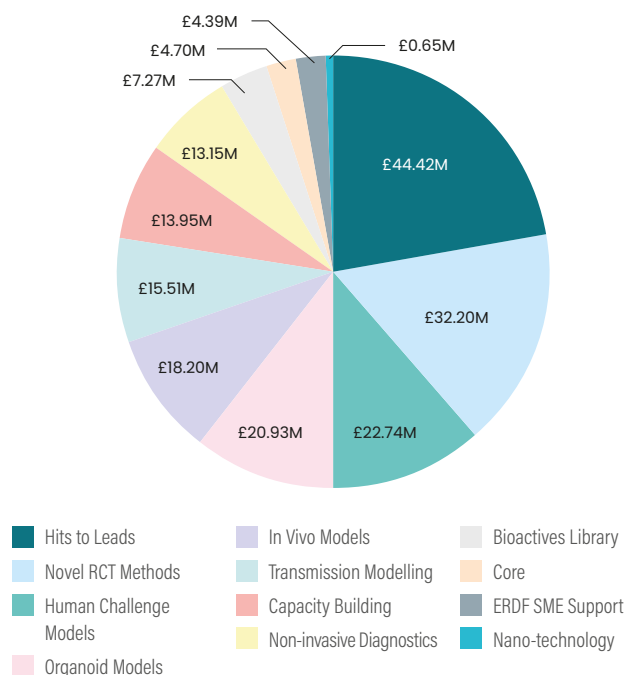
146

Total funding awards

Funding income by year



Funding by platform



Core funding: UKRI Strength in Places Fund

iiCON's core £18.6 million government funding was provided through UK Research and Innovation's flagship Strength in Places Fund (SIPF). SIPF is a competitive funding scheme that takes a place-based approach to research and innovation funding, to support significant local economic growth. SIPF helps areas of the UK to build on existing strengths in research and innovation to deliver benefits for their local economy. It aims to support innovation-led regional growth and enhance local collaborations involving research and innovation.

The European Regional Development Fund (ERDF)

iiCON secured £3.3 million from the ERDF to support its Merseyside SME Support Programme and leveraged a further £3.3 million to create a £6.6 million programme. The ERDF aims to strengthen economic, social and territorial cohesion in the European Union by correcting imbalances between its regions.

Pembroke House

iiCON has been central to establishing a new multi-million pound centre in Liverpool that will develop the next generation of global health leaders.



Pembroke Centre – located in the heart of the city's Knowledge Quarter – will see the Liverpool School of Tropical Medicine expand its footprint and enhance its capacity to develop the local, national and international workforce required for the future of public health and translational research.

Pembroke House will be a key element of how LSTM drives innovation and growth throughout the Liverpool City Region, and will facilitate dynamic collaboration with industry, NHS, philanthropic partners, students, communities, and other local stakeholders.

The birth of iiCON coupled with a renewed global focus on infectious diseases has resulted in a re-think of how LSTM can evolve its educational capacity development offer in a manner that is directly linked to future workforce development in a format that is much broader than a traditional educational offer.

Consequently, iiCON and LSTM's education department will use Pembroke House to develop the skills and capabilities of the sector's talent at all career stages, from local school students to experienced researchers.

“Pembroke House will be at the vanguard of 21st century, post-pandemic education, working and research.”

This will be achieved through a variety of workforce development efforts as well as creative, community-based educational programmes with partners such as Everton Football Club. Specific initiatives will include facilitating Kick-Start placements for 16–24-year-olds at risk of unemployment and implementing a diverse training portfolio for all LSTM staff from PhD students and Research Managers to Principal Investigators.

Pembroke House will be at the vanguard of 21st century, post-pandemic education, working and research. In line with the plan to expand its teaching portfolio with changing work practices, Pembroke House will be home to digital learning spaces that enable collaborations with overseas partners and students, allowing seamless collaboration with on-campus learning in Liverpool.

Together, this will result in the accelerated development of transformative technologies, future proofing the region as a world-leading centre for infection innovation and research while simultaneously increasing investment in the City Region and cementing Liverpool's standing as a scientific powerhouse.

iiDiagnostics



iiDiagnostics, iiCON's first spinout, facilitates industry engagement and commercial access to advanced diagnostics, R&D expertise, and facilities.

This dynamic commercial platform supports the discovery and development of innovative, life-saving diagnostics. It supports co-innovation and partnership working, enhancing the delivery of new diagnostic solutions that will ease the global burden of disease.

Previously, iiDiagnostics activities were housed within separate research groups at LSTM. However, this set up lacked the flexibility to fully optimise the skills and unique capabilities of the teams and their facilities.

Now, iiDiagnostics enables industry to directly interact with its game changing scientists to support the assembling, marketing and distribution of innovative new diagnostics, vector control products or sensor technology. The sensor technology is co-developed with Liverpool John Moores University.

“...enhancing the delivery of new diagnostic solutions that will ease the global burden of disease.”

iiDiagnostics offers industry access to the UK's only validation site for the Foundation for Innovative Diagnostics (FIND). This encompasses expertise ranging from the development of point-of-care diagnostics such as rapid-diagnostic-tests (RDTs) to simplified molecular diagnostics that can be used at the community level. The team has also worked on a range of targets including emerging infectious diseases, antimicrobial resistance, and neglected tropical diseases.

Through iiCON's new spinout, businesses can access the Liverpool Insect Testing Establishment (LITE). Originally established by LSTM's Vector Biology Department and now incorporated into iidiagnostics, LITE is world-renowned for its research on insecticide resistance in disease vectors. LITE tests new insecticides or repellent based products against a wide range of mosquito populations for commercial partners.

Professor Hillary Ranson, Professor of Medical Entomology at LSTM and founder of LITE, is iiDiagnostics Chief Scientific Officer.

“iiDiagnostics supports every stage of the diagnostic development journey from early-stage concept and specification design to prototype development, end-stage evaluation and regulatory approval,” said Professor Ranson.

Professor Janet Hemingway, iiDiagnostics CEO, explains: “With world-leading experts backed by LSTM's FIND and WHO accredited facility, we are the collaborator of choice for industry partners. We are increasingly in demand due to our broad diagnostic focus and skills across a range of platforms including lateral-flow, antibody, antigen, and molecular testing, in addition to access to Biological Safety level 3 laboratories.”

Current iiDiagnostics priorities include developing new methods to assess insecticide levels on bed nets. This will help resolve quality control issues encountered when countries or big organisations procure significant quantities of nets.

Closing Comments



Steve Rotherham
Mayor of the Liverpool City Region

“““

I'm incredibly proud of our area's outstanding contribution to global health – few places can claim to have made a bigger impact on infection control as we can.

But we aren't a place that is content to rest on our laurels. Looking to the future, we want to go even further, to do even better. The Liverpool City Region has the capacity, the capability and the creativity to be at the vanguard of UK – and global – innovation.

That is an ambition built on an enviable foundation: our existing, world-leading industry strengths in infectious disease control to materials chemistry innovation, and artificial intelligence.

I want to harness those strengths – and potential – and turn them into profitable businesses, creating better, greener jobs and bringing greater prosperity to local people. To make that happen, we will be investing 5% of our GVA in research and development over the next few years – nearly double the government's national targets.

iiCON has got a massive role to play in that and is already reaping rewards for the region. It's been fantastic to watch it grow over the past year and I am sure it will continue to go from strength to strength and help drive us towards those targets.



John Whaling

Lead Officer

*- Commercialisation and Innovation,
Liverpool City Region
Combined Authority*

““””

The Liverpool City Region is renowned for the real-world application of its pioneering creativity, which is evident in many sectors and walks of life. iiCON exemplifies this, with revolutionary projects leading the fight globally against COVID-19, malaria, antimicrobial resistant bacteria and a long list of other infection issues.

The extensive infectious disease R&D ecosystem across the Liverpool City Region means that there's a wide range of tools, talents and support for iiCON to tap into, as it takes new therapies and products from the early seeds of an idea through to a mass manufactured product and is why infection prevention & control is one of our three distinctive, established world-leading capabilities.

“With ground-breaking developments such as Pembroke House, Liverpool University Hospitals NHS Foundation Trust's new Clinical Research Facility, the iiDiagnostic spin out and lots more in the pipeline - it's clear that the future of global infection innovation is taking place in the Liverpool City Region today.

Jonathan Hague

*Chair of Liverpool City Region's
Innovation Board,
Unilever Homecare Head of Clean
Future Science and Technology*

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The global challenges posed by infectious diseases and potential future pandemics require collaboration and co-innovation to solve. As one of iiCON's founding partners, it's been amazing to see the programme drive so many highly successful working relationships in the Liverpool City Region that are already saving lives and improving the health and wellbeing of millions.

Leveraging the area's world-class research capabilities and manufacturing strengths alongside public R&D funding has proven to be a potent combination. Thanks to its success, iiCON is a key part of the integrated innovation strategy outlined in the recent Science & Innovation Audit, which will help the City Region fulfil its potential and become a Capital of Innovation as well as one of Culture.

A Global Centre of Infection R&D Saving Lives by Supporting Innovation

iiCON is a world-leading collaborative infectious disease R&D programme established in 2020. It brings together industry, academia, and the NHS in a concerted effort with a clear aim: to combat the growing global threat posed by infectious diseases and save lives through collaborative innovation.

The consortium is revolutionising the discovery, development, and rapid deployment of new antimicrobial products, diagnostics, and therapeutics – bringing these to patients and communities more quickly, safely, and affordably.

To find out more about more about iiCON or explore opportunities to collaborate, please contact us at:
iiicon@lstm.ac.uk