Innovate UK Microbials Accelerator Evaluation

May 2023 - December 2023

iiCON infection innovation consortium

LYVA LABS

cpi

UKRI Innovate UK

UNIVERSITY OF LIVERPOOL

bionow

HEALTH INNOVATION North West Coast

Contents

Executive Summary

In response to Innovate UK's call for providers to bolster early-stage health and life science innovation in the UK, LYVA Labs successfully secured £500,000 funding to implement the 'Microbials Accelerator.' Teaming up with a consortium of local partners, including Bionow, CPI, University of Liverpool, Health Innovation Northwest Coast, and iiCON, LYVA Labs designed a 6-month Programme to support spinouts, start-ups, and academic entrepreneurs in the Microbials sector.

The accelerator attracted 38 applications, with 24 progressing to the pre-accelerator stage and culminating in 11 companies entering the full accelerator programme. Throughout the initiative, participants received personalised 1:1 support from partners, industry experts, and mentors. The programme concluded with a Demo Day where each company presented their innovations to a panel of investors.

The impact of the Microbials Accelerator extended beyond the programme itself, with 10 of the 11 participating companies subsequently submitted Biomedical Catalyst Feasibility applications. This collaborative effort between LYVA Labs and its consortium partners demonstrates a commitment to fostering innovation in the health and life sciences sector, contributing to the overall growth and advancement of the UK's biomedical landscape.

Introduction

Towards the end of 2022, Innovate UK launched a call for providers to deliver their Biomedical Catalyst pilot accelerator Programmes supporting the development of early-stage health and life science innovation in the UK. In collaboration with the Medical Research Council, they created the accelerator pilots to allow spinouts, start-ups, and entrepreneurial minded academics to test their ideas and develop concepts, with support from key stakeholders from the innovation ecosystem. LYVA Labs brought together a consortium of local partners with expertise in Microbials and were successful in securing £500,000 funding to deliver a national 'Microbials Accelerator'.

"Having the opportunity to deliver this programme meant we could solidify our partnerships and relationships with local experts in the microbials space. It was a great way for us to be able to connect SMEs with the knowledge base and encourage and foster collaborations throughout the programme."

Hannah Randles
Innovation Ecosystem Partner, LYVA Labs

The Consortium Partners:

LYVA Labs is an innovation support service funded by Liverpool City Region Combined Authority; we are a not-for-profit company limited by guarantee with a core focus of economic growth through collaborative innovation.

Bionow supports growth of the life-science sector across the north of England.

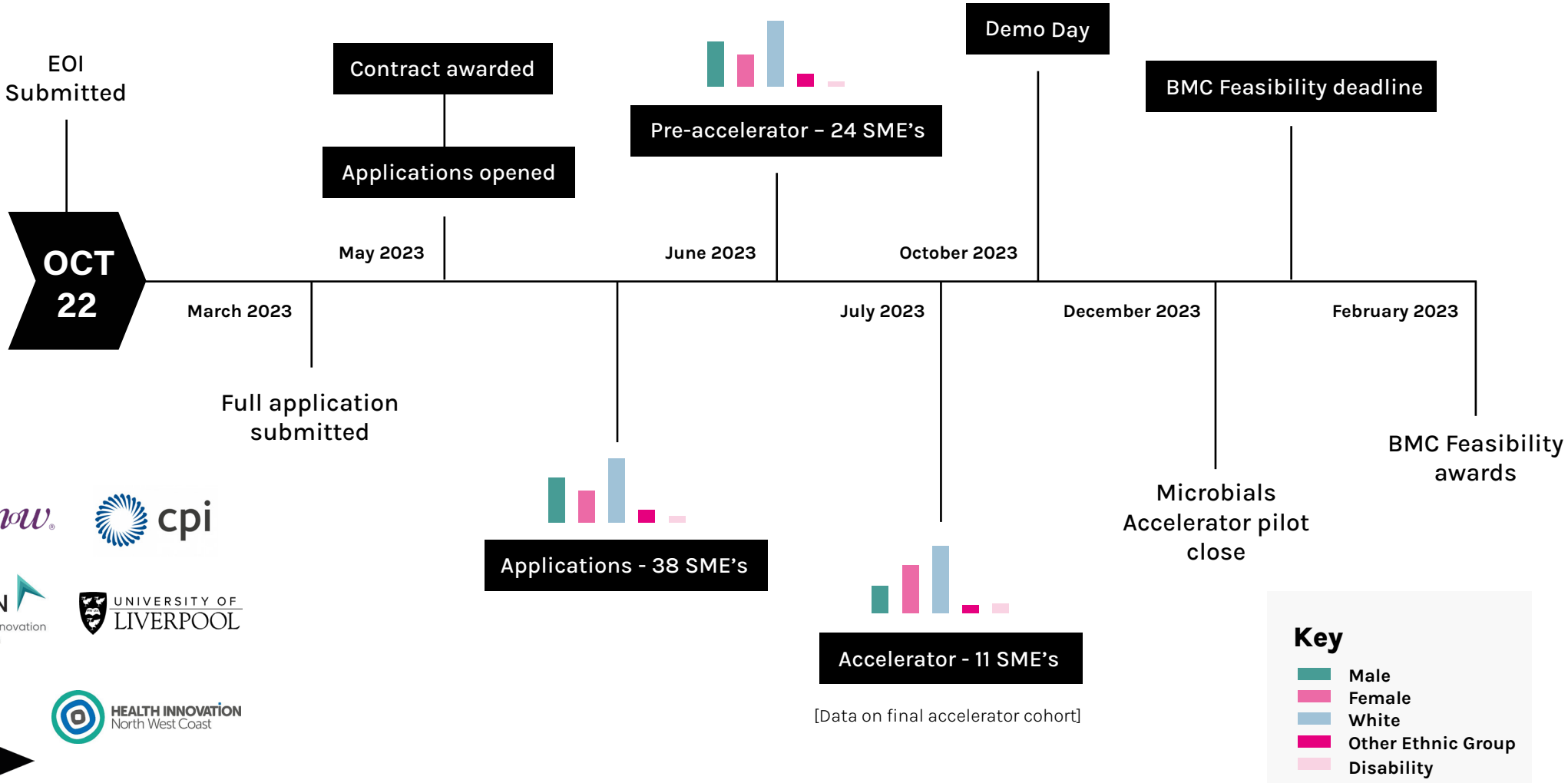
CPI is a technology innovation centre that acts as a catalyst bringing together academia, businesses, government and investors to translate bright ideas and research into the marketplace.

iiCON is a north-west-based consortium working with HEIs and industry to bring new health and life sciences products to market.

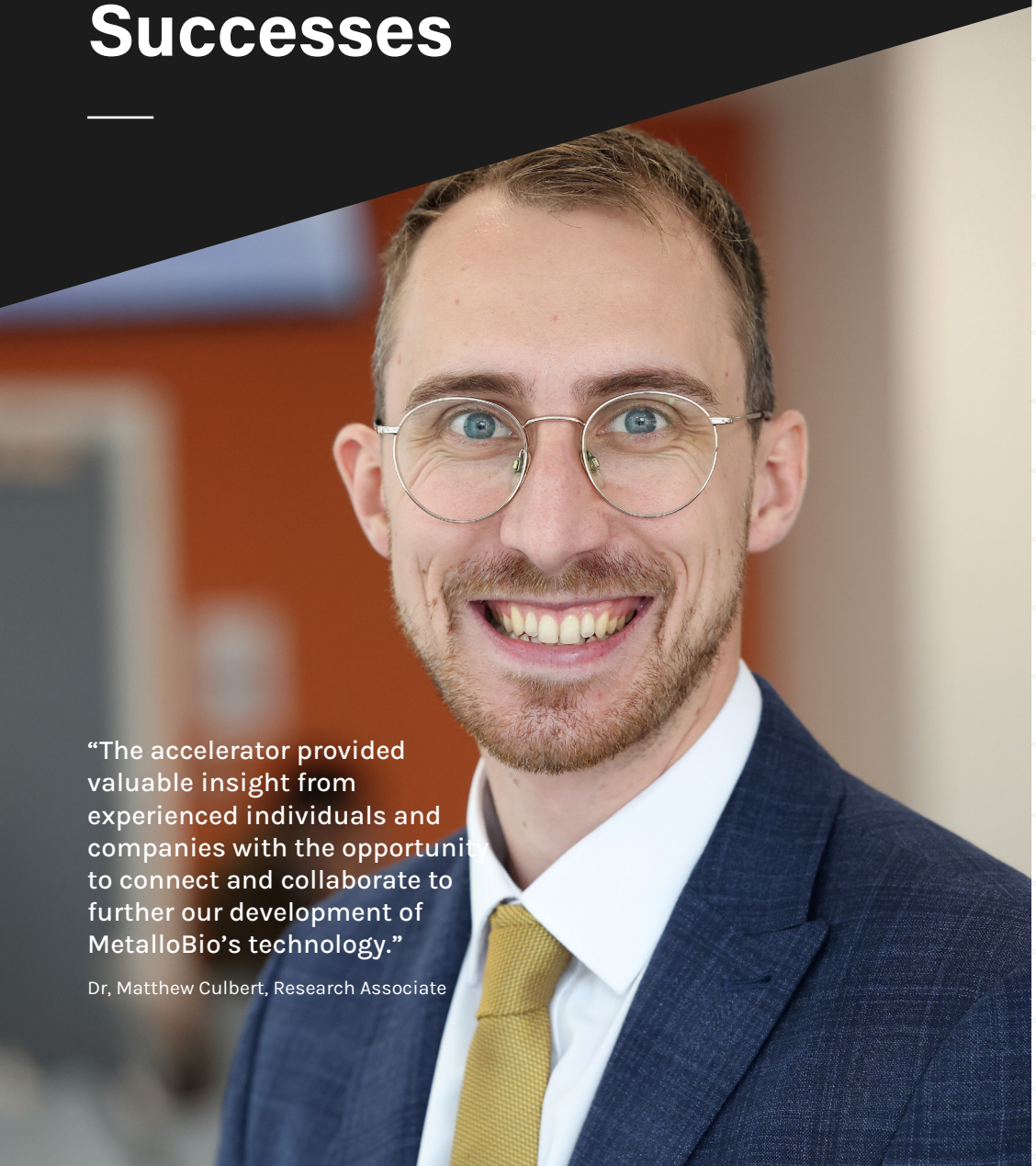
The University of Liverpool brings domain expertise through its innovation centres in both microbiomes and biofilms.

Health Innovation North West Coast brings access to patients and clinicians, and insights into route to market and reimbursement in the NHS.

Pilot accelerators launched to support the development of early-stage health and life science innovation in the UK



Achievements and Successes



"The accelerator provided valuable insight from experienced individuals and companies with the opportunity to connect and collaborate to further our development of MetalloBio's technology."

Dr, Matthew Culbert, Research Associate

100%

found the pre-accelerator content useful and 38% found it very useful

10

companies successfully secured BMC feasibility funding

54%

of companies have secured further funding during the Programme

100%

of companies are exploring follow on collaboration opportunities with the partners

92%

of companies are likely to recommend this programme

£857,000

secured for the cohort companies

COHORT COMPANIES

Agile Life Sciences specializes in advanced Next Generation Sequencing (NGS), focusing on vaginal microbiome sequencing. Their innovative menopause test, utilizing state-of-the-art NGS with non-invasive urine samples, successfully identified bacterial biomarkers through a pilot study of 1000 samples, showcasing scalability and paving the way for personalized treatment predictions using artificial intelligence and machine learning.

AMPLY Discovery employs machine learning and synthetic biology to uncover new biological drug candidates by extensively mining biological data. Their AI-driven drug development utilizes a distinctive deep mining approach, exploring uncharted regions of genetic code to discover natural antimicrobials with evolutionary insights, setting it apart as a tool capable of generating numerous novel antimicrobials in a single pass, known as AMPLYfolioAI.

BoobyBiome has created a discovery platform leveraging the breast milk microbiome to formulate customized infant probiotics. By targeting the crucial period for training the infant immune system and identifying highly beneficial bacterial strains through metagenomic analysis, gut modeling, and growth optimization, BoobyBiome aims to offer innovative probiotic products for infants with demonstrated feasibility through collaboration with a contract research organization (CRO).

BugBiome seeks to transform the mosquito repellent industry by developing a natural, long-lasting solution to prevent mosquito bites and protect against diseases like malaria. Utilizing microbiology and bioinformatics, BugBiome has created a proprietary combination of postbiotics and prebiotics that repel mosquitoes and promote the production of protective substances, aiming to surpass the effectiveness of current market leader DEET while providing a natural and extended duration of protection.

Ferryx specializes in the development of live biotherapeutic products (LBPs) designed to thrive in conditions of active disease, particularly during increased gut iron levels associated with inflammation or stress. Their selected LBP, FX856, a strain of Streptococcus thermophilus, exhibits the unique ability to survive and thrive under these conditions, showing promise for oral administration to reduce gastrointestinal inflammation, prevent relapse, and promote mucosal healing.

LightOx has developed innovative photoactive molecules activated by light to selectively destroy targeted cells and tissues, with some molecules demonstrating potent antimicrobial activity against pathogens like Staphylococcus aureus. The company aims to reduce bioburden in infected wounds, particularly with LightOx78, which has shown the ability to permeabilize and inhibit biofilm establishment, crucial for successful wound healing, as they work towards creating prototypes including impregnated dressings, hydrogels, and gel/aqueous solutions.

COHORT COMPANIES

Matrix Bio Ltd is an innovative biotechnology company utilizing a machine learning platform that integrates advanced hydrogel library synthesis, high-throughput characterization, and computational strategies to discover and cultivate previously “unculturable” bacterial species. Their tool supports the design of bacterial co-culturing models, known as “bacterial organoid models,” allowing improved in-vitro testing of bacteria-host interactions and bridging the understanding gap of these microbes’ roles in human health.

MetalloBio is developing an innovative antimicrobial coating technology designed to prevent biofilm formation and infections associated with medical devices, offering higher broad-spectrum activity at significantly lower loading levels than current market-leading coatings. The adaptable formulation, active against a wide range of bacteria including World Health Organization Priority Pathogens, is initially focused on catheters and endotracheal tubes, with potential for substantial growth by targeting various infectious diseases.

Oxford Silk Phage Technologies (OSPT) employs bioactive textile material integrating bacteriophages to create advanced medical devices and implants capable of actively killing bacteria, thereby reducing reliance on antibiotics. Overcoming limitations of prophylactic phage use, this technology enables the production of cost-effective devices containing various active phages, effectively targeting prevalent bacteria associated with surgical site infections.

Oxford Sim Cell (OSC), a University of Oxford spinout, utilizes SimCell technology to develop vaccines against bacterial infections. This innovative approach involves enzymatically shearing the bacterial genome, leaving SimCells ‘replication-deficient’ with retained immunogenic features, making them highly suitable for the production of whole-cell bacterial vaccines.

Vitec Microgenix aims to combat hospital-acquired infections (HAIs) by applying their VSC1000 antimicrobial coating through fogging, spraying, or wiping various surfaces, forming a permanent, odourless, and invisible bond that remains active for at least 12 months. This innovative coating employs a “mechanical kill” to eliminate microbes, including bacteria, viruses, fungi, algae, and yeast, with no risk of mutation or resistance over time, making it effective against a broad range of pathogens on surfaces within medical settings.

DEMO DAY

In the morning, the cohort companies pitched to a panel of investors, receiving feedback and advice on their pitch. The afternoon consisted of networking and talks from Innovate UK, Innovate UK KTN and a founder story from Dr Samantha Westgate Phd.

"This accelerator was hugely beneficial for our business, our R&D and exploitation plans, and ourselves as individuals."

Dr David Chisholm, LightOx

"The microbials accelerator programme has helped us to refine our development plan for our pharmaceutical product. This has very much focussed our efforts and increased our chances of receiving investment to progress our plans."

Jenny Bailey, Founder, Ferryx

booby biome

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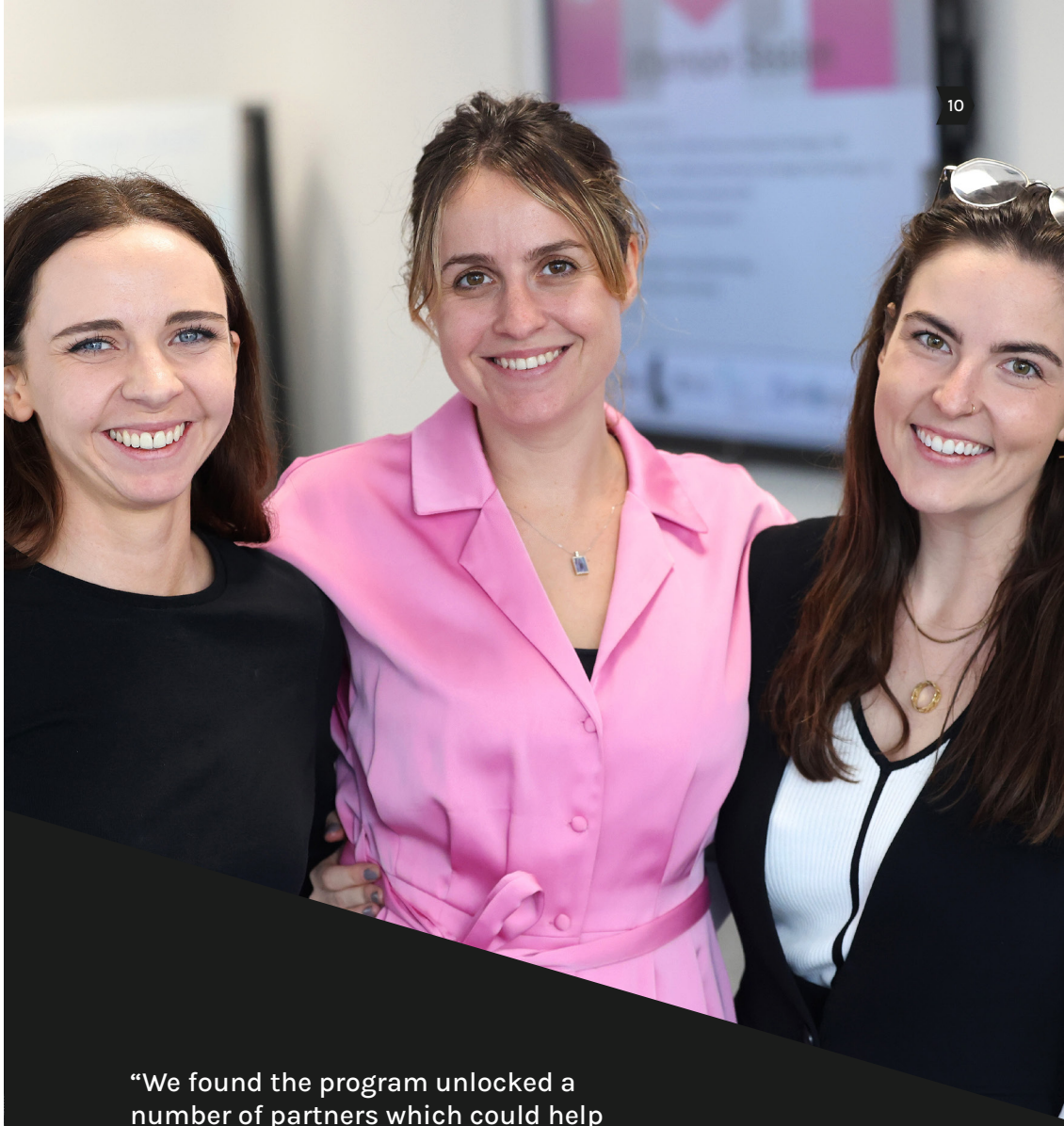
Partners worked with:

- Bionow
- iiCON
- Health Innovation Northwest Coast
- LYVA Labs

BMC Feasibility Grant: **Successful**

What did you most value in the support you received from partners?

The KMPG regulatory report was very useful and is being used now to show investors. Additionally the team which reviewed our grant application made some very helpful comments, also LYVA Labs sending the marketing reports was very helpful as it allowed us to build our marketing case in the business plan. Finally, we enjoyed pitching to a live audience and getting feedback from the judges.



"We found the program unlocked a number of partners which could help with many facets of the business - from regulatory support, grant writing feedback and access to healthcare networks. Highly recommend to other start-ups in the microbial healthcare sector!"

Lydia Mapstone PhD, CEO

Oxford SIMCELL

Oxford SimCell Oxford Sim Cell (OSC), a University of Oxford spinout, utilizes SimCell technology to develop vaccines against bacterial infections. This innovative approach involves enzymatically shearing the bacterial genome, leaving SimCells ‘replication-deficient’ with retained immunogenic features, making them highly suitable for the production of wholecell bacterial vaccines.

Partners worked with:

- Bionow
- CPI
- iiCON
- Health Innovation Northwest Coast
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BMC Feasibility Grant: **Successful**

What did you most value in the support you received from partners?

The opportunities for a joint grant application

Vitec Microgenix

Vitec Microgenix aims to combat hospitalacquired infections (HAIs) by applying their VSC1000 antimicrobial coating through fogging, spraying, or wiping various surfaces, forming a permanent, odourless, and invisible bond that remains active for at least 12 months. This innovative coating employs a “mechanical kill” to eliminate microbes, including bacteria, viruses, fungi, algae, and yeast, with no risk of mutation or resistance over time, making it effective against a broad range of pathogens on surfaces within medical settings.

Partners worked with:

- Bionow
- iiCON
- Health Innovation Northwest Coast
- LYVA Labs
- University of Liverpool

BMC Feasibility Grant: **Successful**

What did you most value in the support you received from partners?

Knowledge & expertise in the sector.

Conclusion

The 8-month programme has been a resounding success, fostering collaboration, innovation, and growth within the microbials ecosystem. Through introductions to experts, mentorship, and support in grant applications and pitching, the cohort companies have flourished. The programme's impact is underscored by the achievement of securing £857,000 in Biomedical Catalyst feasibility grants, empowering 10 companies to advance their R&D activities. Moreover, the establishment of a consortia of microbials experts highlights a sustained commitment to advancing the field and supporting future innovation and commercialisation efforts. LYVA Labs would like to thank all partners, participating companies, and Innovate UK for their invaluable contributions to the success of this accelerator programme. This journey marks not only a milestone but also the beginning of a promising future for microbials innovation in the Liverpool City Region.

"We are immensely proud of the success achieved through the Microbials Accelerator. Our collaboration with expert local partners and the dedication of the participating companies clearly demonstrates the transformative impact tailored, expert support can bring to innovative SME's. This accelerator not only fuelled the growth of Microbials-focused ventures but also laid the foundation for a vibrant ecosystem where pioneering ideas thrive."

Lorna Green, CEO, LYVA Labs

"Bionow is proud to have been a co-delivery partner of the Innovate UK Microbials Accelerator Programme as it reinforces our core ethos of collaboration and support. We were thrilled to be able to help entrepreneurial SMEs and start-ups to achieve their route to commercialisation and develop the next generation of healthcare products, services and technologies. There was a real sense of teamwork throughout the process with the sharing of ideas amongst the cohort and the partners, and I feel that everyone involved has gained valuable insights from the programme."

Geoff Davison, CEO, Bionow

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