Technology Strategy Board
Driving Innovation

Results of competition: Biomedical Catalyst early stage round 3

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
Absynth Biologics Limited (Lead) University of Sheffield	Staphylococcus aureus Infections - Development of A Novel, Effective Vaccine	£3,049,019	£201,3706
Project description (provided by applicants)			
S. aureus is a bacterium that colonises the nasal lining and skin of >30% of people. Accidents, surgery or device implantation that breach natural barriers, allow invasion, which may result in life-threatening infections such as pneumonia and blood-borne infections particularly by the antibiotic resistant form (MRSA). Despite several attempts no vaccine is yet available for S. aureus. All vaccine clinical trials have failed despite promising pre-clinical animal model data. The partners and subcontractors in this project led by Absynth Biologics Limited and the University of Sheffield are bringing together capabilities to address this problem, namely: novel vaccine targets and technologies to more effectively stimulate the human immune system. This coupled with a greater understanding of the development of infection (physiological and immunological) will be used innovatively to select the best candidate vaccine for clinical development.			

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Arachos Pharma Limited (Lead)	Preclinical development of novel oral anti-inflammatory medicine AP362	£1,950,796	£1,170,477
Project description (provided by applicants)			
AP362 is a selective glucocorticoid receptor modulator with a novel profile of action which will retain the benefits of anti-inflammatory steroid medicines such as prednisolone but have fewer side effects. It is a non-steroidal oral drug candidate which we anticipate could be taken as a once daily tablet to control diseases such as eczema, rheumatoid arthritis and asthma. With this award AP would carry out the preclinical work to enable clinical studies to demonstrate these benefits: bulk synthesis, formulation, stability and characterisation of drug product and safety studies. It would also characterise the biological profile of AP362 to show its potential in humans. Arachos Pharma would then partner with a pharmaceutical company to complete the full clinical development into a new, safe, powerful anti-inflammatory medicine which would improve patients' quality of life.			

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Chronos Technology Limited (Lead)	Pre-clinical proof of concept for a new agent in the treatment of ALS	£914,652	£548,790
Project description (provided by applicants)			
Chronos Therapeutics Ltd, a company spun out of The University of Oxford, has received a grant to study its lead compound RDC5 in the motor neurone disease: Amyotrophic Lateral Sclerosis or ALS. RDC5 has shown very promising results in the company's Chronoscreen™ and in their models of other diseases involving accelerated cell death and neuro-degeneration. The grant will enable Chronos to develop models of ALS and test RDC5 in these models. If, as expected RDC5 has positive results in the grant-funded experiments, Chronos expects to raise new finance to move rapidly to clinical trials in ALS with the hope to bring another treatment option to patients with this devastating disease.			

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JRI Orthopaedics Limited (Lead) Surgical Innovations Limited	Early stage regenerative remediation of hip OA by novel curvilinear arthroscopy	£652,159	£391,296
Project description (provided by applicants)			
Early stage osteoarthritis (OA) of the knee and shoulder can be treated using Minimally Invasive Surgery (MIS), with such techniques having become widely adopted. In contrast, treatment of the OA in the hip is far more difficult as the joint is deep in the body and spherical. Variance between patients and the stiffness of the hip joint capsule and muscles makes access into and around the hip space very difficult because current arthroscopes are too large and operate with a 'line-of-sight'. Consequently, hip arthroscopy remains limited with low adoption. Our project seeks to overcome current limitations and develop a platform for 'ultra' MIS equipment that is both small and curvilinear, to enable complete access to hip lesions that are currently 'out-of-reach'. We seek to develop two prototype MIS tools. One that can accurately prepare the lesions to remove diseased cartilage and reveal the healthy bone below, and another to deliver new generative medicinal products into the target site.			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant	Proposed other funders project grant
Oxford Gene Technology (Lead) University of Birmingham	A novel platform for targeted sequence enrichment prior to clinical NGS	£664,626	£278,750	MRC: £199,960
Project description (provided by applicants)				
Oxford Gene Technology, in collaboration with Professor Mike Griffiths at the University of Birmingham, will develop novel strategies to help implement next generation sequencing (NGS) into routine clinical practice. NGS offers significant benefits in delivery of improved and earlier diagnosis, informed therapeutic selection, and monitoring of disease progression and remission. Current technology platforms are not ideal for clinical practice, in terms of cost and/or performance. OGT has extensive experience in genomic technology and service provision. As a UK-based life sciences company, OGT will focus its expertise to address some of the limitations of current NGS targeted sequencing technology, and in the process, will drive further investment in R&D and life sciences in the UK.				

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Oxford Immunotec (Lead)	T cell assay for BK virus infection in transplant patients	£278,668	£167,200

Project description (provided by applicants)

BK virus is endemic in the UK adult population. Although it causes little or no disease in healthy people the virus is known to persist in the kidney in particular. Reactivation of the virus is linked with immune suppressive conditions and this reactivation occurs in around 20% of kidney transplant patients and can lead to significant damage to the transplanted organ.

While the level of the virus itself can be measured there is currently no test available that indicates whether or not the patient is able to fight off the infection successfully through their T cell response. This project is therefore aimed at proving the principle for the design of such a test so that kidney transplant recipients can be managed for the infection more effectively, leading to less transplanted organ loss due to this infection.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
TAP Biosystems Limited (Lead) ReNeuron Limited The Open University	Novel Engineered Living Neural Tissue, for Peripheral Nerve Repair	£695,016	£531,584
Project description (provided by applicants)			
We plan to develop a novel 'living nerve growth guide' as an off-the-shelf therapy to treat peripheral nerve injury, which can cause lifelong pain and disability and is a significant unmet medical need. Our therapy would substitute for an autograft, the current 'gold standard' for peripheral nerve repair. Partners TAP Biosystems and The Open University have already shown that combining their novel tissue engineering technologies enables robust, self-aligning cellular tissues to be made from collagen. These mimic the structure of peripheral nerve and support neuronal regeneration in vivo. In this project we will build on initial work using partner ReNeuron's clinical grade neural stem cells. We will develop production tools, optimise the process, characterise the properties of our living nerve growth guide and then carry out efficacy tests of nerve regeneration. Success in the project will provide initial proof of concept data, so that this novel therapy can progress towards the clinic.			