

Results of competition: Biomedical Catalyst - Early & late stage - Round 5

Total available funding for this competition was £10m from the Technology Strategy Board.

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
Domainex Limited	Development of a new treatment for Chronic Obstructive Pulmonary Disease	£2,327,742	£1,396,644
Project description - provided by applicants			
<p>This project aims to deliver an advanced candidate drug for the treatment for Chronic Obstructive Pulmonary Disease (sometimes referred to as emphysema or chronic bronchitis) – a highly debilitating condition that affects more than 200 million people worldwide and leads to over 6 million early deaths every year. The consequent social, economic, and health-care burden is huge.</p> <p>Treatment for COPD usually involves relieving the symptoms, for example by using drugs delivered through an inhaler, or supplementary oxygen, to make breathing easier. However the novel therapeutic mechanism that will be pioneered by this programme can be more conveniently taken as a tablet, rather than inhaled, and will target the processes that cause the disease, which should significantly slow - or even halt - its progression. These key aspects differentiates this approach from that of existing drugs, and of many other experimental treatments.</p>			

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F2G Limited	Phase I oral safety assessment of a novel antifungal for systemic fungal infections	£2,282,720	£1,369,632
Project description - provided by applicants			
<p>Systemic fungal disease is a life threatening groups of infections caused by yeasts and moulds that affects people who have impaired immune systems. The numbers of patients are increasing and the current treatment options are limited to three types of antifungal drug. Often these drugs have severe side effects or can't be used with other medicines.</p> <p>F2G has identified a new type of antifungal that works through a different mechanism. It is highly potent against many of the moulds that cause these serious infections. This project aims to develop this new antifungal drug by testing its safety in man and how it interacts with other drugs. Following this project the drug can be tested in patients suffering from serious infection.</p>			

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Heartlight Systems Limited (lead) Tioga Limited University of Nottingham	HeartLight: Heart-Rate Monitoring for Neonatal Resuscitation	£1,807,467	£1,415,727
Project description - provided by applicants			
<p>Approximately 10% of newborns require some form of resuscitation at birth, for example because the baby doesn't begin breathing after delivery. If babies are not resuscitated effectively they can suffer a range of poor outcomes, for example cerebral palsy due to low oxygen levels. Effective resuscitation is guided by changes in heart rate (HR). Current methods of assessing HR (via a stethoscope) are prone to error, interrupt resuscitation or only give HR after too long (1-2 mins).</p> <p>"HeartLight" is a platform technology for monitoring HR whose effectiveness has already been studied on 210 babies. The objectives, for this joint clinical, design and engineering team, are to integrate the HeartLight optical sensor into a single use newborn hat and undertake clinical studies on newborn babies. The hat will enable clinicians to resuscitate 'hands-free', reduce delays and errors, and so improve resuscitation outcomes, giving newborn babies the best start to life.</p>			

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Kimal Plc	Demonstration of a Sensor Catheter Technology for the Real Time Diagnosis of Sepsis	£446,314	£267,788
Project description - provided by applicants			
<p>Severe sepsis is a major cause of morbidity & mortality, claiming up to 64k lives/yr in the UK alone; 30-50% will die as a result of the condition. There is no reliable way to prevent sepsis, and no vaccine. The key to saving lives lies in early recognition and immediate treatment. Timely identification is therefore critical.</p> <p>Lactate levels in blood provide an indication of the level of sepsis in a critically ill patient. Antibiotics are used to lower lactate levels. 43% of patients die if lactate clearance takes more than 24 hours. Current treatment methodologies are time consuming (taking/analysing blood samples).</p> <p>This project aims to demonstrate the effectiveness of a novel type of vascular catheter technology for the measurement of sepsis through the real time detection of lactate in blood, through targeted laboratory & patient trails. This innovative on-line solution will improve treatment response times to potentially avoid detrimental impact on internal organs, benefitting patients globally.</p>			

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Modern Biosciences	Novel, oral bone-protecting compounds for the treatment of rheumatoid arthritis	£5,008,200	£2,400,000
Project description - provided by applicants			
<p>Modern Biosciences' novel bone-protecting agents programme aims to develop a new treatment for rheumatoid arthritis (RA) and other osteoimmune disorders. Rheumatoid arthritis affects 1% of the population worldwide and up to 40% of patients don't respond to current treatments.</p> <p>Modern Biosciences' compounds represent a new approach to treating RA via the reduction of inflammation and the reversal of bone damage. MBS' compounds are orally administered, which makes them more convenient to use than the most rapidly growing class of drugs for RA, the injectable biologics.</p> <p>They also show good activity in combination with existing treatments and may enhance the activity of existing agents and their duration of use. The aim of this project is to progress a candidate compound into clinical trials in patients with rheumatoid arthritis, demonstrating its safety and effectiveness.</p>			

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Sensium Healthcare (lead) University of Leicester	A wireless, wearable, automated early warning system for patients in emergency care	£496,804	£337,663
Project description - provided by applicants			
<p>This project aims to design and develop an automated wireless and wearable system for early detection and notification of patient deterioration in the emergency care pathway. This will be achieved by incorporating additional physiological measurements into our existing wireless, ambulatory platform, enabling automated calculation and notification of NICE-recommended National Early Warning Scores (NEWS).</p> <p>This development is highly innovative because there are no systems in current clinical use which automate the detection and notification of patient deterioration via NEWS, while allowing patients to remain comfortable and mobile as they move through the emergency care phase.</p> <p>The output from the project will be a prototype system ready for clinical validation and/or clinical trials in an emergency care setting. This project has the potential to save costs while delivering more effective and timely treatment to emergency care patients.</p>			

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SIRAKOSS Limited	Production and pre-clinical testing of MaxSi™ Graft synthetic bone graft substitutes	£1,566,492	£939,895
Project description - provided by applicants			
<p>SIRAKOSS Ltd have developed a novel bone graft substitute (BGS) that will revolutionise the treatment of bone defects and fusions. Developed to offer the surgeon an alternative to having to graft the patient's own bone, which involves a second surgical procedure associated with graft site pain and increased healthcare costs, the SIRAKOSS synthetic implants are capable of regenerating bone in fractures and bone defects. Bone is the second most commonly transplanted tissue, next to blood, with over 2 million bone graft procedures performed worldwide every year.</p> <p>Biomedical Catalyst funding of £900,000 will allow SIRAKOSS to finalise development of their novel bone graft substitute and complete pre-clinical testing to support regulatory approval for clinical use in Europe.</p>			

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XO1 Limited	Evaluation of an antibody that inhibits thrombosis without causing bleeding	£1,838,682	£1,103,209
Project description - provided by applicants			
<p>Thrombosis remains a major cause of death and morbidity worldwide. Existing antithrombotics reduce clotting but also increase bleeding, limiting their use. No agents approved for marketing or in clinical trials have been shown to significantly dissociate this bleeding risk from the degree of antithrombosis.</p> <p>This project relates to the initial manufacture and pre-clinical assessment of ichorcumab, a monoclonal antibody against the exosite 1 region of thrombin that is based on an antibody serendipitously discovered in a patient found to be completely anticoagulated but with no observed increase in bleeding risk - the ideal clinical profile. Ichorcumab has the potential to be the first drug to deliver antithrombosis without bleeding, making antithrombosis safer and more effective, and extending antithrombosis to new indications.</p>			

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Xstrahl Limited (lead) University of Nottingham	Clinical Assessment of Compact Gamma Camera: An advancement in cancer diagnosis	£1,016,222	£668,126
Project description - provided by applicants			
<p>The project aims to address the recognised need for greater accuracy in Sentinel Lymph Node Biopsy (SLNB), the standard procedure for evaluating & diagnosing a range of cancers - notably breast cancer & melanoma, through the development & clinical testing of a unique Compact Gamma Camera (CGC).</p> <p>The device will not only improve SLNB accuracy (to ~99.5%) but also improve rates of healing (by tissue sparing & nerve damage prevention): this advancement in imaging for cancer diagnosis will be provided at a cost of 60% less than current best in class gamma cameras. The CGC has the potential to deliver healthcare savings of ~£650Mp.a. in the targeted EU & US markets.</p> <p>The project, led by Xstrahl (SME), will include clinical assessment of the CGC for SLN detection in both breast cancer & melanoma across 2 major centres where these cancers are treated & practice taught: University of Nottingham (UoN) & Netherlands Cancer Institute (NKI).</p>			