

# Innovate UK

**Results of Competition: Health & Life Sciences Round 1 - under 12 months & under £100k**  
**Competition Code: 1609\_SC\_HLS\_R1**

**Total available funding is up to £5m**

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<b>Participant organisation names</b>	<b>Project title</b>	<b>Proposed project costs</b>	<b>Proposed project grant</b>
<b>Modern Baker Ltd</b>	Feasibility of a novel food preservation system	£70,528	£49,370
Campden BRI (Chipping Campden) Ltd		£29,472	£29,472
<b>Project description - provided by applicants</b>			
Modern Baker is a rapidly growing UK food manufacturer and retailer specialising in long-fermented and baked foods. Its ambition is to disrupt the baking industry and to redefine the market. The proposed project seeks to use cutting edge food science to naturally improve product shelf life.			

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<b>Perpetual Research Consultancy Ltd</b>	New wide-area radio frequency heating method for killing agricultural pests	£77,000	£53,900
The Royal Agricultural University		£19,693	£19,693
<b>Project description - provided by applicants</b>			
<p>The costs of the harm resulting from pesticides are significant. These are often hidden, long term and underestimated. The world pesticides industry is valued at US\$52 billion, and the costs of harm have recently been assessed to be similar. Pesticide use might now therefore have outweighed its benefits. Oilseed rape (OSR) growers in particular are progressively suffering loss of crops due to slugs and cabbage stem flea beetle (CSFB) attacking new growth "with terminator-like determination" as effective pesticidal treatments are becoming increasingly limited: CSFB have resistance to pyrethroids, and neonicotinoid-treated seed cannot be planted following the imposed restrictions; metaldehyde, the main organic compound used against slugs, is leaching into waterways, with water quality standards being compromised. This problem of crop loss is discouraging farmers from growing OSR, with a decrease of 20% in area of OSR planted. This project's goal is to prove the concept of using a new wide-area radio frequency heating method to kill invertebrates without recourse to pesticides, yet leaving the plants undamaged. If successful, the concept will provide a lasting solution to CSFB and slug control, and reverse the trend in decreasing OSR planting.</p>			

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<b>Cambimune Ltd</b>	Novel C.perfringens therapy as an alternative to antibiotics	£99,337	£69,536
<b>Project description - provided by applicants</b>			
Due to concerns regarding antibiotic resistance and consumer preference for meat which is antibiotic-free, use antibiotic growth promoters (which previously suppressed certain bacterial diseases) in livestock are no longer permitted. This has resulted in an increase in rates of diseases such as necrotic enteritis (NE) in poultry and enteritis in swine caused by Clostridium perfringens (C.perf). NE is one of the most economically important disease in poultry production, with losses and treatment costs in excess of c\$6bill each year globally (c£300mill in the UK). Meat contaminated with C.perf is also the third most common cause of food poisoning in humans. NE occurs in poultry when the gut flora is disturbed (e.g. by a change in diet or coccidiosis infections) leading to an overgrowth of C.perf. NE can exist as an acute disease with high mortality (1% daily) and as a sub-acute disease -both detrimental to production performance and animal welfare. The therapy under investigation in this feasibility project seeks to provide a non-antibiotic alternative to maintaining the health and welfare of livestock in the face of the increased and severe challenges presented to livestock by NE and other bacterial diseases.			

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IBEX Innovations Ltd	Enhanced mammography X-ray detector	£99,859	£69,901
<b>Project description - provided by applicants</b>			
<p>Mammography is a widely-adopted X-ray screening method used to detect and diagnose breast cancer earlier. Abnormalities in the breast are identified through contrast changes in the X-ray image. X-ray mammography is the only mass screening programme where patients are exposed to ionising radiation in a radio-sensitive organ, increasing the risk of radiation-induced cancer in healthy women. Mammograms are currently assessed subjectively which can lead to false positive/negatives in diagnosis, resulting in considerable distress and delay in treatment. IBEX have developed a core technology that can more accurately discriminate between tissue types and can improve image clarity to make it easier for clinicians to make accurate diagnoses. Additionally, the technology could be used to image patients at a lower dose than is currently used, further reducing the risk to women showing no symptoms during screening. This project aims to show that the materials information obtained is sufficiently sensitive to be able to discriminate between body fat and glandular tissue in the breast at lower patient doses</p>			

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<b>NeuDrive Ltd</b>	Evaluation of Next Generation Receptor Technologies in OTFT Biosensors	£81,418	£56,993
The University of Bath		£13,342	£13,342
<b>Project description - provided by applicants</b>			
<p>The development of next generation point of care diagnostics is set to radically change the way in which health care is delivered. Portable, networked devices will deliver rapid test results from patient samples within a few minutes enabling accelerated medical decision making and patient stratification in primary care settings. These technologies will find application in diverse fields, for example cancer screening, acute and emergency care, management of chronic conditions, primary care and the tackling of antimicrobial resistance (AMR). Biosensors will be a central component of these next generation diagnostic products, however to maximise commercial potential there is an urgent need to provide specific and selective biosensors whilst reducing fabrication complexity and improving detector robustness. This must be achieved through a suitable mass production process and at a cost point that will enable adoption in the market. This project aims to demonstrate highly sensitive biomarker detection through the development of NeuDrive's organic thin film transistor (OTFT) biosensor platform. This will be achieved through its combination with novel platform technologies for biomolecular recognition, sourced from two innovative UK based SMEs.</p>			

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<b>GREENSKILL LIMITED</b>	Manufacturing Using Spectral Emissions (MUSE)	£99,999	£69,999
<b>Project description - provided by applicants</b>			
<p>Bio-Manufacturing Using Spectral Emissions (MUSE) will undertake industrial research to construct a novel light emitting diode (LED) illuminated photobioreactor (PBR) especially suited for carbon capture from power station emissions. CO<sub>2</sub> in the emissions provide a carbon source for the cultivation of targeted microalgal strains to sustainably produce high value commodity biomolecules for the food, drink, livestock feed, personal care and healthcare industries. The novel PBR is capable of operating at &gt;50k litre scale, far in excess of any comparable devices in the global marketplace. The LED illumination can be digitally tuned to provide specific light spectra to facilitate targeted induction of valuable secondary metabolites such as carotenoids. A 750 litre working model PBR will be fabricated during the project and a targeted microalgal strain will be propagated under defined spectral emission regimes to promote the accumulation of a high value carotenoids. The carotenoids will be recovered and purified from the biomass, and processed into marketable products. The working model PBR will serve as a blue-print for scale up to industrial working volumes with direct interfacing capability with CO<sub>2</sub> emissions from gas fired power stations.</p>			

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<b>BG Research Limited</b>	Investigating the direct detection of sepsis causing bacteria direct from whole human blood.	£99,785	£69,849
<b>Project description - provided by applicants</b>			
The project investigates the feasibility of detecting bacterial infections, causing sepsis, directly from whole human blood. The process involves lysing the bacterial cells by rapid cyclical freezing and boiling followed by detection of the released nucleic acid by real-time PCR. This novel approach will enable detection of bacterial infection in the critical ,1hr period after sepsis is suspected, leading to more targeted and appropriate use of antibiotics in contrast to the broad-spectrum antibiotic treatment used currently. If the clinician has data outlining which bacteria are present and importantly which antibiotics are likely to be most suitable, then the outcome for the more than 150k annual UK cases of bacterial sepsis will be greatly improved and reduce the 40k annual mortalities attributable to this condition. BGR has demonstrated that the technique and it's instrumentation, the QuRapID, is able to detect blood borne diseases such as Ebola, Zika and Malaria. This project will test infected blood in order to find out if the benefits of the technique can be applied to sepsis, where the number of bacterial cells is much lower than in viral disease. BGR will have access to blood from infected patients to compare on a small scale to existing gold standard methods in use by an NHS hospital.			

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Tropic Biosciences UK Ltd	Singlestage non-Transgenic crispr for crop Productivity (STEP)	£99,868	£69,908
<b>Project description - provided by applicants</b>			
<p>Crop productivity must increase 70% by 2050 to meet rising global population (WHO, 2016). CRISPR gene editing (GE) increases productivity by creating new plant traits. Payments to use the technology for a single species range from £8m-80m (AgFunder, 2016). It is a complex 2-stage generation process, with the 2nd stage (non-transgenic CRISPR) especially lengthy. All crops are at risk of disease, eg Black Sigatoka Disease (BSD) causes 50% yield losses in banana, obliging farmers to use fungicide 20-70 times/yr (Fairtrade, 2016). Thus, to make non-transgenic CRISPR available to more species, such as asexual crops and crops with long breeding cycles the process needs to be faster and cheaper (Economist, 2016). Tropic Biosciences (TBio) has created a Non-Transgenic CRISPR (NTC) Tool, a single-stage only generation CRISPR process, meaning it can be applied to long breeding cycle and asexual crops. Their objective is to prove the concept in lab conditions, demonstrate it with a BSD-resistant banana trait, reduce the CRISPR process time and cost by 70% and make their NTC Tool affordably licensable to small innovators.</p>			

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Nature Metrics Ltd	NemaCode	£99,961	£69,973
<b>Project description - provided by applicants</b>			
<p>Parasitic species of free living nematodes in soils cause massive crop damage to UK farmers. Nematode infestation is extremely difficult to detect, as soil screening methods require highly trained experts to identify individual species, from live nematodes extracted from soil samples. This is time consuming, inaccurate, and expensive. Farmers therefore use preventative application of pesticides to reduce the risk of complete crop failure, which contributes to pesticides overuse, and associated environmental and agrochemical resistance risks. NemaCode is a new method for screening soils, based on DNA sequencing (metabarcoding) the complete biological component of the soil. It will enable farmers to screen their land for a whole suite of high-risk soil organisms prior to planting, enabling an earlier decision point, more specific risk assessment, and lower cost treatment strategies. This will greatly reduce the volume of pesticides required to treat the land leading to significant cost savings, reduce risk of crop failure, and allow responsible pesticide stewardship.</p>			

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InoCardia Ltd	Validating InoCardia's WorkLoop Model To Support Discovery Safety Improvements	£98,126	£68,688
<b>Project description - provided by applicants</b>			
<p>When drugs/chemicals are developed to treat a particular disease or for human use purposes they sometimes have side effects that cause damage to the heart. Occasionally these dangerous side effects are only recognised after the drug/chemical has been marketed &amp; taken/used by thousands of people. This is a significant risk to human health &amp; is costly to the pharmaceutical industry when a dangerous product is withdrawn from market. Although side effects of drugs can be caused by many things, one area of great concern is the effects of drugs on the force that heart muscle can produce during its role in pumping blood around the body. Many drugs developed to treat Cancer have a high risk of reducing the force of contraction of the heart, can lead to the development of heart failure &amp; increased mortality. InoCardia has recently developed a successful heart contractility (inotropy) assessment assay (supported by InnovateUK &amp; NC3R) which is now being adopted by the Pharma Industry to manage inotropy risk at the late pre-clinical stage of drug development. We aim to validate our highly predictive contractility assessment technology for use in the early chemistry phases of drug development and the ability to screen out the risk of causing contractility issues.</p>			

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<b>Imagen Therapeutics Ltd</b>	The personalisation of paediatric Oncology using Phenotypic High Content Analysis	£85,388	£59,772
<b>Project description - provided by applicants</b>			
<p>Thankfully, 80% of children's cancers are well treated with modern therapy. However, the remaining 20% suffer a high degree of poor health and mortality with many second and third line treatments offering very little benefit. This is despite the fact that there has been a very rapid increase in the number of potential chemotherapies that are available for the treatment of cancer over the last 20 to 25 years. One of the challenges facing paediatric oncologists is that many of the new chemotherapies that are available have never been tested in children. The ultimate aim of this project is apply an already mature laboratory test to the problem of finding the best available treatment for children who do not respond to standard chemotherapy. In order to do this we first need to demonstrate that we can produce definitive treatment data on 56 different chemotherapies from children samples collected as part of this research project. Once we have produced these data we can then determine how well our test was able to predict clinical outcome to standard therapies. Assuming our test works as well as it does in adult ovarian cancer, we can then use it to help find better treatments for the 20% of children who are not responding to first line chemotherapy.</p>			

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Experior Micro Technologies Ltd	Intelligent LED lighting for maximised crop yield and reduced energy use	£35,044	£24,531
E-llume Ltd		£31,358	£21,951
University of Essex		£27,849	£27,849
<b>Project description - provided by applicants</b>			
<p>Mixed-colour LED lights have the potential to revolutionise horticulture by supplementing natural sunlight to extend growing seasons, increase crop quality and nutritional content and control the time taken for plants to become ready for harvest. Recent advances in LED technology has led to a wide range of LED luminaires becoming available, however, barriers exist to their use due to high capital expenditure, difficulties in matching lighting configuration to growth environment and the complexities of adjusting light intensity and wavelength to the conditions required to evoke desirable crop responses. In this project, two UK SMEs and one University will build, demonstrate and evaluate a state-of-the-art intelligent LED lighting system that continuously measures light spectra in crop canopies and automatically adjusts artificial lighting levels to achieve optimised lighting conditions for improved plant propagation automatically. Fertigation and environmental parameters will be used to complement lighting measurements which together with web-based data sharing and analytics, will realise a powerful tool that will enable growers to leverage the benefits of LED lighting at lower cost and with increased energy efficiency compared to current LED lighting solutions.</p>			

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<b>Design By Sol Ltd</b>	Laboratory study and technical feasibility analysis of the Bump Mark food expiry label	£51,777	£36,244
University of Chester		£20,963	£20,963
<b>Project description - provided by applicants</b>			
Smart packaging which shows a real-time indication of food spoilage is not a new idea. It has been talked about since the 90s as an effective way of improving food safety and reducing food waste. There have been a number of developments in this area but none of them have successfully launched in the market. Why? They use complex materials making them far too expensive. We are developing a product called Bump Mark, the first biologically-accurate food spoilage indicator made out of waste by-products in the food industry, making it a fraction of the cost of previous technologies. This project is to achieve full technical validation to ensure that the technology is accurate enough to be launched onto the market so that UK citizens and the economy can begin benefiting from more accurate information about our food.			

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LIG Biowise Ltd	Magnetic Antimicrobial Peptide-based (MAP) DNA Extraction Kit	£80,687	£56,481
<b>Project description - provided by applicants</b>			
<p>The accuracy and sensitivity of a molecular diagnostic method is dependent of the efficient extraction of nucleic acids and absence of amplification inhibitors in the reaction mixture. Bacterial DNA/RNA extraction usually requires enzymatic, physical or chemical cell lysis, which is especially critical when working with Gram + bacteria. DNA/RNA purification methods are then applied to remove amplification inhibitors. Additionally, molecular diagnostic tests that require the detection of low concentrations of the target bacteria frequently comprise an extra laborious bacterial enrichment step. LIG Biowise is currently developing a Magnetic Antimicrobial Peptide-based (MAP) DNA Extraction method. This method will combine the steps of bacterial enrichment and DNA extraction and purification in a rapid and simple procedure, which will be compatible with a variety of clinical and environmental samples. This enhanced performance DNA extraction method will be developed both as a stand-alone kit and as a step that can be incorporated in clinical and food pathogen diagnostic tests to increase its accuracy, sensitivity and speed.</p>			

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<b>YIELD TECHNOLOGIES LIMITED</b>	Upscaling nano-fertiliser production to reduce cost and open new application markets	£99,190	£69,433
<b>Project description - provided by applicants</b>			
Yield Technologies Ltd (YTL) has developed novel manufacturing processes for novel fertiliser additive production. The novel fertiliser can boost crop yield by around 25-42%, concurrently reducing time-to-harvest and increasing the nutrient content of food. The ability is fully developed at pilot scale and for our first applications. Whilst feedstocks are relatively cheap, the process is currently very labour intensive due to small batch sizes, as such the fertiliser currently has a total production cost which makes it prohibitively expensive for most food crops. Our research indicates a manufacturing cost reduction of around 70% gives a sustainable business model. This project will investigate whether it is possible to reliably upscale the process in order to reduce costs, by systematically examining and refining/automating bottlenecks in the process. If successful, the cost reduction will open new markets worldwide and will leave YTL in prime position to exploit those opportunities.			

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Spheritech Ltd	SpheriSome Hb	£99,687	£69,781
<b>Project description - provided by applicants</b>			
Blood substitutes are of immense importance in circumstances where immediate blood supply is required but cannot be supplied through traditional blood transfusion (e.g. in trauma units, haemophilia, cases where blood can be contaminated by disease, during transplant surgery, or on the battlefield). This project will explore the technical feasibility of developing SpheriSome® Hb an artificial haemoglobin-based oxygen carrier.			

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SimOmics Limited	Evidence Tool for In-silico Models in the Health and Life Sciences	£70,039	£49,027
University of York		£23,282	£23,282
<b>Project description - provided by applicants</b>			
<p>Computer models are useful tools for generating predictions that help understand a real world system, for example in determining how effective a potential new drug treatment could be before trial in laboratory or human studies. Building a computer model of a real system that we don't yet completely understand leads developers to make decisions and simplifications that will impact the meaning of these predictions. It is important that the model developer and their collaborating partners document these decisions and the evidence for them in a format that is accessible by teams of differing expertise (for example biologists, computer programmers, statisticians). If documentation is not created, or those working on a project leave the organisation, this information is lost, and it may no longer be sustainable to continue the use and development of this model. This project examines the creation of an infrastructure that generates a traceable history of the creation of a model, including the evidence for each decision, complementing previously created evidencing resources from SimOmics Ltd. Model curation will ensure the generation of high quality models that are sustainable for future studies, while reducing the effort of documenting key design decisions.</p>			

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<b>ELISHA Systems Ltd</b>	Biosensors for simultaneous detection of multibacterial species MultiBact	£99,945	£69,962
<b>Project description - provided by applicants</b>			
<p>Bacterial and viral infections include meningitis and septicaemia which are both serious, life-threatening illnesses. Patients who are suspected of having meningitis and/or septicaemia symptoms must be diagnosed and treated quickly, as it can become life threatening within a few hours. Accurate and fast diagnosis of these conditions can be difficult, therefore the availability of a simple electronic device able to diagnose the presence or absence of infecting bacteria in less than 20 minutes will be a significant step forward. This project is aimed at demonstrating the feasibility of producing biosensors that will be able to simultaneously detect a broad range of bacterial species using a simple sample collection routes, e.g. a fingerprick blood test. A biosensor is a compact electronic device that detects bacteria and sends an electronic signal, thus giving a measurable reading if bacteria are present. In addition a commonly used general test for infection will be included in the biosensor. If the bacterial biosensor is positive and the infection biosensor is also positive then the infection is bacterial. Conversely if the bacterial biosensor is negative but the infection biosensor is positive, the infection is almost certainly viral in origin.</p>			

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**Total available funding is up to £5m**

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<b>Participant organisation names</b>	<b>Project title</b>	<b>Proposed project costs</b>	<b>Proposed project grant</b>
<b>ProAxis Ltd</b>	Development of technology to support the advance of new protease therapeutics	£95,650	£57,390
<b>Project description - provided by applicants</b>			
<p>Neutrophil Elastase (NE) activity is associated with the severity of respiratory diseases including Cystic Fibrosis (CF) Chronic Obstructive Pulmonary Disease (COPD) and bronchiectasis. In these diseases repeated cycles of infection and inflammation result in the release of NE which causes lung damage. NE is predictive of loss of lung function and is the most informative biomarker of disease activity. NE inhibitors being developed by pharmaceutical companies as therapeutic drugs need to have their efficacy assessed within clinical samples from patients with respiratory disease. However, some adults, both from healthy and disease populations, alongside infants and young children, are unable to produce sputum. As a consequence, they are excluded from clinical trials involving these novel anti-NE therapies, that could otherwise prove beneficial. The challenge is to develop methods of measuring active NE from other biological fluids in the patients that would result in their inclusion in clinical trials. We have already commercialised an activity-based immunoassay which specifically measures active NE in sputum. This project aims to adopt this assay to be used with nasal fluid and breath condensate, which are easier to collect from most patients.</p>			

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<b>Participant organisation names</b>	<b>Project title</b>	<b>Proposed project costs</b>	<b>Proposed project grant</b>
<b>Scannerfutures Ltd</b>	ONSET: ON-Scene stroke diagnosis to reduce the time to Treatment	£100,000	£70,000
<b>Project description - provided by applicants</b>			
<p>Strokes are the 4th highest cause of death and the highest cause of long-term invalidity in the UK, with 110,000 stroke victims annually and c.1 million people living with the consequences; costing the NHS c.£10bn in 2014 for the treatment and rehabilitation of stroke patients. 'ONSET' is the development of an innovative new medical scanner using microwave frequencies, to detect and diagnose strokes, potentially in a pre-hospital environment. This new scanner technology utilises advancements in Radio Frequency Contrast Imaging allowing the development of a small, portable, inexpensive and safe-to-use device. Such a scanner can be carried in an ambulance/first responder vehicle and/or deployed in Hospital Emergency Departments, or even care homes for the elderly where there is a localised population at an increased risk of stroke. This scanner would enable patients who present with stroke-like symptoms to be assessed, diagnosed and potentially treated within the 'golden hour' prior to arrival at hospital. This advancement will significantly improve the prognosis for stroke patients and also has the potential to dramatically reduce the c.£10bn per annum NHS spend on the treatment of strokes and on-going rehabilitation.</p>			

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<b>Participant organisation names</b>	<b>Project title</b>	<b>Proposed project costs</b>	<b>Proposed project grant</b>
RowAnalytics Ltd	Combinations Of Multiple Biomarkers In Clinical Operations (COMBIO)	£99,932	£69,952
<b>Project description - provided by applicants</b>			
<p>The COMBIO project will develop a precision medicine delivery platform to help clinicians evaluate a patient's individual disease risks and their optimal therapeutic &amp; dietary regimens, in real-time at the point of care. The project is underpinned by RowAnalytics' groundbreaking combinatorial GWAS system and personalized dietary advisor tool. Large (&gt;15,000 patient) multi-factor (genomic, phenotypic, clinical and epigenetic) datasets from MND/ALS and breast cancer will be used to exemplify the potential of COMBIO for delivering precision medicine advice at the point of care in routine clinical practice. RowAnalytics' extensive combinatorial association studies on genomic, phenotypic &amp; clinical data have identified well-differentiated and reproducible sub-populations of patients sharing common clusters of up to 17 factors in combination, which provide for much more personalised recommendations than existing gene tests, e.g. BRCA1/2. COMBIO will develop clinical decision support tools applying these biomarkers clusters to enable stratification of patients, disease risk scoring and personalisation of prescription &amp; dietary advice on mobile devices.</p>			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Perfectus Biomed Limited	Development and validation of a novel test method for negative pressure wound therapy	£79,657	£55,760
BSN medical Ltd		£6,369	£3,821
University of Huddersfield		£10,846	£10,846
<b>Project description - provided by applicants</b>			
<p>Development of an in-vitro test method for the assessment of the fluid handling properties of negative pressure wound therapies and super absorbent wound dressings within an exuding wound model. Within the bioscience sector, specifically wound care, novel negative pressure wound therapy devices (NPWT) and superabsorbent (SAP) wound dressings are being released onto the market at a rate of multiple products per year. Currently there is no available validated test method that is capable of assessing and comparing the efficacy of these products. As such clinicians and healthcare professionals must make treatment choices for patient care based on marketing material and single case studies. The development and external validation of this project will support the wound care sector by providing an independent test method and will concurrently improve patient quality of life by supporting the uptake of products with demonstrable improved performance. The test method will be validated and accredited by UKAS and be carried out within the ISO 17025 guidelines.</p>			

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<b>Participant organisation names</b>	<b>Project title</b>	<b>Proposed project costs</b>	<b>Proposed project grant</b>
<b>Soma Bioscience Limited</b>	Development of a quantitative Point of care salivary testosterone test	£99,592	£69,714
<b>Project description - provided by applicants</b>			
<p>Soma Bioscience is a R &amp; D SME that needs to expand product lines to grow and survive. Endocrine testing is a rapidly developing activity in response to the growing prevalence of obesity and diabetes, with the global market estimated at US\$6.1 bn in 2014 and projected to reach \$12.8 bn by 2023. Saliva collection and analysis has rapidly and recently developed as a tool for the assessment of biomarkers usually measured in blood and offers the advantage of being non-invasive, less stressful to participants, is cheaper and requiring less expertise than venipuncture. The development of a Point of Care testosterone test is a bioscience characterisation and discovery tool that would enable much quicker and cheaper results than traditional, yet slow, blood laboratory methods. The novel aspect of this project is that no real-time test to measure anabolic hormones exists, yet is relevant to researchers and clinicians in the fields of stress, disease, well-being, sexual function and sport science. In the field of healthcare, such a tool is becoming more relevant to an ageing population. This project aims to produce a prototype salivary testosterone Point of Care LF test, that can generate revenue immediately as a research tool, before moving to full commercialisation and clinical trials.</p>			

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<b>Participant organisation names</b>	<b>Project title</b>	<b>Proposed project costs</b>	<b>Proposed project grant</b>
<b>Ripptide Pharma Limited</b>	Development of a high throughput production process for focussed macrocycle libraries	£99,860	£69,902
<b>Project description - provided by applicants</b>			
<p>There are two major classes of drugs: 'small molecules' and 'biologics'. Both have limitations: small molecules do not address complex disease targets, whilst biologics have to be injected. A new drug class, 'macrocycles', has desirable properties of both, in that it can be administered orally, penetrate into the human cell, and can tackle disease-causing processes therein. Pharma is seeking novel and patentable macrocycles for use in inflammation, auto-immune disease and cancer. Ripptide Pharma's proprietary technology generates novel macrocycles, and is currently capable of creating 10's of these for testing. This project will develop the process to allow hundreds of novel macrocycles to be generated, where future automation will increase numbers significantly. The new technology will allow Ripptide to partner with Pharma, structuring agreements so that the partner is responsible for the complex later stages of drug development and therefore the financial burden and the risks associated with drug failure. As ongoing milestone payments can be achieved during the course of the discovery alliances, a strong asset base can be quickly established. Adopting this business model will enable Ripptide to become a revenue generator which is both profitable and lower risk.</p>			

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<b>Participant organisation names</b>	<b>Project title</b>	<b>Proposed project costs</b>	<b>Proposed project grant</b>
<b>Sense Biodetection Limited</b>	Novel Technologies for a Rapid, Single-Use Cervical Cancer Screening Test.	£99,769	£69,838
<b>Project description - provided by applicants</b>			
This project is focused on developing a simple product to allow for primary cervical cancer screening tests to be performed in a single medical appointment. The latest state-of-the-art approach to screening involves testing for infection by high-risk human papilloma virus but this currently requires complex and expensive machines which need to be run by skilled operators in central hospital laboratories. Our product would be a simple, low-cost device that could be used directly in a single screening appointment with a nurse or GP. This would allow for lower costs and for patients to get an immediate result from the test which can currently take several weeks to report. In the future, it may even be possible for women to self-administer the test which could greatly reduce inconvenience and encourage women who don't currently attend screening appointments to take a test.			

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<b>Participant organisation names</b>	<b>Project title</b>	<b>Proposed project costs</b>	<b>Proposed project grant</b>
<b>Industrial Design Consultancy Ltd</b>	Development of a micropipette to facilitate an breakthrough treatment for severe dry eyes	£95,082	£52,295
<b>Project description - provided by applicants</b>			
Severe Dry Eyes affects over 2 million people in the EU and 2 million in the US. Current treatments are generally below what is required for patient's condition. The aim of this project to create a prototype micropipette device to allow trials of a new, innovative and uniquely effective treatment for Severe Dry Eyes. The programme will research and define the core requirement and then develop a micropipette device to allow trials by a much wider patient population.			

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<b>Participant organisation names</b>	<b>Project title</b>	<b>Proposed project costs</b>	<b>Proposed project grant</b>
<b>RoboScientific Limited</b>	Rapid Detection of Microbial Infection in Livestock Rapid-MIL	£98,500	£68,950
<b>Project description - provided by applicants</b>			
<p>Rapid detection and identification of microbial infection in livestock on the farm will enable stratified antimicrobial treatment to be given to assist in the production of healthy animals and in turn, meat products. It will also assist in reduction of the use of antibiotics which in turn will lead to a reduction in the prevalence of antimicrobial resistance in farm animals. In commercial terms healthy animals grow faster and in some cases, chicken production for instance, the growth cycle is just 35-36 days. Illness in chicken flocks can affect the commercial profitability in a major way, therefore early detection leads to early treatment and better productivity. Into this whole scenario of animal health, there is a trend towards significant restrictions of antibiotics with the possibility of a total ban on their use in livestock production in the future. By knowing the cause of an infection and potentially the identity and resistance profile of the micro-organism(s) responsible, the targeted use of antibiotics will become possible. The aim of the project is to produce a volatile organic compound analyser which, when coupled with rapid microbiology on selective agar plates, will give an unequivocal response and detect and identify the infectious agents in less than 8 hours - i.e. in a single working day.</p>			

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<b>Cresset Biomolecular Discovery Ltd</b>	Real time, collaborative 3D molecule design for preclinical drug discovery	£95,565	£66,896
<b>Project description - provided by applicants</b>			
<p>Design of new molecules is a central task in the discovery of modern medicines. The properties of molecules and their biological responses are determined at the moment that a design is complete. Over the last 15 years a radical change in terms of the composition of Pharma R&amp;D teams has occurred through increased usage of outsourcing (often in India, China or other low-cost locations). This change has resulted in teams of chemists that cross national, international and corporate boundaries yet work together on new molecule designs. Improving the productivity and success of these teams through radical change of the design process and the communication of the ideas and theories that underlies them promises better medicines for less investment. In this research Cresset are exploring new methods for design that intricately link together chemists, their designs and the biological responses that the molecules elucidate. The new science that we will be investigating uses cloud resources dynamically to provide real time feedback to the designer on the likely biological outcome of her design and enables them to communicate this across their team, no matter where they are located.</p>			

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PhytoQuest Limited	Novel methods to identify and isolate bio-active iminosugars for rumen manipulation.	£64,522	£45,165
United Feeds Ltd		£7,606	£3,803
Aberystwyth University		£27,442	£27,442
<b>Project description - provided by applicants</b>			
<p>The iminosugars are a widespread group of plant and microbial compounds that are attracting interest as therapeutic agents due to their ability to interact with enzymes and microbes within the gut. They have many activities beneficial to health but due to difficulties with their identification and isolation most remain un-investigated. Here we focus on the identification and isolation of novel bioactive iminosugars from plant materials and food waste streams. We hope to find a market for these compounds in the ruminant feed sector where they may help replace the use of antibiotics in the animals diet to develop products that increase the production efficiency and sustainability of domestically supplied ruminant meat and milk for food, reducing the carbon footprint in the supply chain and improving the nutritional value of meat and milk for human consumption.</p>			

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Rincare Limited	Feasibility of Smart Thermal Analysis Resource (STAR) in Maternity Services (MAT)	£70,395	£49,277
University of Central Lancashire		£23,430	£23,430
<b>Project description - provided by applicants</b>			
<p>Rincare's Smart Thermal Analytics Resource (STAR) proposes to develop analytical software to interpret thermal images and video of the foetus aiming to reduce over diagnosis of foetal compromise and over-use of tests and procedures. Maternity teams with this data could understand and facilitate normal pregnancy and birth with reduced invasive and expensive interventions such as ultrasound, induction of labour, and Caesarean sections in the UK, and eventually globally. This could empower healthy women to choose a midwifery led birth place and so improve foetal and maternal health at birth, based on current Cochrane Collaboration evidence and NICE and WHO guidelines. The feasibility study will collect thermal images and develop software to reflect foetal activity and wellbeing. We will explore acceptability of this technology to women and clinicians in preparation for a larger study. Rincare Ltd is a Lancaster based (UK) SME offering state of the art technology for healthcare applications. Rincare's healthcare portfolio present SAFE (System to Avoid Fall Events), PRIME (Pre-hospital Information and Monitoring E-system), BAR score (British Aneurysm Repair score) app with products in development.</p>			

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