

# Innovate UK

**Results of Competition: Health & Life Sciences - Round 2 - 12 Months or Under**

**Competition Code: 1702\_HLS\_R2\_12M**

**Total available funding is £5m**

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

<b>Participant organisation names</b>	<b>Project title</b>	<b>Proposed project costs</b>	<b>Proposed project grant</b>
<b>Axitan Limited</b>	Development of a novel antimicrobial for the treatment of an economically important disease in chickens	£99,118	£69,383
<b>Project description - provided by applicants</b>			
<p>Poultry meat currently enjoys several comparative advantages over other meats, e.g. affordability, convenience, absence of religious guidelines restricting consumption, healthy image, limited GHG emissions, lower production costs, short rearing time and lower required investments. Rapid population growth, increased urbanisation and rising per capita income in emerging markets mean we are going to need at least 70% more food by 2050 than what is available today. This challenge is significant, especially given that natural resource constraints, such as arable land and fresh water, will restrict the resources available to meet this increased demand. The FAO estimates that economic losses to poultry diseases are currently 10 to 20 percent of the gross value of production in developed poultry industries, and are likely to be higher in developing countries. This equates to a significant amount of resources wasted. Thus in order to meet future demand for animal protein such waste at the hands of disease must be reduced. This is especially pertinent given that the wide spread use of antibiotics, which has drastically increased the productivity of the poultry industry over the last 30 years, is coming to an end due to increasing antibiotic resistance, regulation and consumer pressure. This project aims to develop a novel protein based antimicrobial that will selectively kill economically destructive species of bacteria found in poultry, thus enabling the sustainable replacement of certain antibiotics within the poultry industry.</p>			

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<b>BioSystems Technology Limited</b>	TruLarv: innovative, non-mammalian preclinical technology platform	£70,221	£49,155
University of Exeter		£29,779	£29,779
<b>Project description - provided by applicants</b>			
BioSystems Technology (BST) is at the forefront of development of alternative research models and is a world leader in the production of standardised insect larvae ("TruLarv™") for research. TruLarv™ are a non-mammalian technology that can be used to generate pre-clinical efficacy and toxicity data for chemicals, compounds and drugs prior to human trials. They are also used more broadly for microbiological research into fungal and bacterial pathogens. In the proposed project, BST is seeking to consolidate its market leading position by evaluating the development of a new portfolio of supporting tools and services.			

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Paraytec Ltd	A novel instrument for the analysis of urine for the non-invasive detection of bladder cancer	£64,526	£45,168
Astrimmune Ltd		£35,380	£24,766
<b>Project description - provided by applicants</b>			
<p>Can we detect and monitor bladder cancer with a urine test? For many patients with bladder cancer (BC), their cancer comes back after treatment and so they have to be regularly checked. These patients are checked with a cystoscope. This is a long thin flexible tube with a light and a camera at the end that is inserted into the urethra (the tube that carries urine out of the body) and up into the bladder. The camera shows the inside of the bladder and the doctor can make a diagnosis. This method of diagnosis (cystoscopy) can be uncomfortable for the patient and is expensive to the NHS. This project aims to find out if a new laboratory method could be used instead. The test needs to be able to tell the difference between tumour cells and other things in the urine like regular cells shed into the urine by the normal action of the bladder and germs that are not due to these cancers. To do this we will shine UV and visual light at samples which mimic urine samples and take a video of the samples flowing. We have a new better way of doing this that will give us sharper images of the cells, especially in the UV light, and allow us to look at bigger samples up to 50 ml. Computer software will then take the data from the instrument and tell us information about the cells. We hope to be able to tell the difference between tumour cells, normal cells and blood cells and reduce the number of cystoscopies that patients need in future.</p>			

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Oppilotech Ltd	Development of a complete pathway model for the synthesis of the gram negative cell envelope.	£100,000	£70,000
<b>Project description - provided by applicants</b>			
<p>It is predicted that within the next 33 years, deaths attributable to antibiotic resistant bacteria will outnumber those caused by cancer. This problem is compounded by the lack of both the discovery and development of novel antimicrobial molecules. Of particular concern are the resistance levels exhibited by the Gram -ve bacterial species such as E.coli, Kelbsiella and pseudomonas. Oppilotech are developing a computational platform in order to facilitate the detection of novel antimicrobial targets against Gram-ve bacteria. We have used this method successfully to identify new targets which weaken the cell wall structures making them more permeable to existing drugs. This potentiating approach has the capacity to reactivate drugs which are no longer used because of high resistance levels. It can also reduce the doses at which antimicrobials are given, particularly important for drugs with know toxicity issues (such as colistin). Finally, this approach may facilitate the use of Gram +ve drugs for Gram -ve infections. If funded Oppilotech will use the award to employ a computational biologist to expand the existing model in order to incorporate peptidoglycan synthesis. This will effectively complete all of the main cytoplasmic steps involved in the synthesis of the bacterial cell envelope. Once complete this deterministic model will be linked with a spatial model with the aim of determining the most optimal drug target in terms of potentiating activity.</p>			

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Cambridge Respiratory Innovations Limited	The "Personal REspiratory Disease Index Calculation Technique" Project (PREDICT)	£99,995	£69,997
<b>Project description - provided by applicants</b>			
<p>Cambridge Respiratory Innovations Limited (CRiL) has been awarded an Innovate UK grant to complete the development of a respiratory performance index based on analysis of CO2 in normal tidal breathing. The CRiL team have developed a low-cost personal respiratory monitor which measures the CO2 in normal tidal breathing. Their goal is to develop personal respiratory monitors to help people who suffer from a range of respiratory diseases to better manage their condition. CRiL's N-Tidal C is powered by a unique advanced epitaxially-grown LED CO2 sensor. Although it uses advanced technology, the medical device is very easy to use, since it requires no forced expiration. CRiL's low-cost medical device accurately measures CO2 concentrations more than 50 times per second in normal tidal breathing. CRiL's N-Tidal C has recently been used in a pivotal exploratory clinical study with patients with Chronic Obstructive Pulmonary Disease (COPD). The breathing records demonstrate that clear changes in the breath record start to occur in COPD about 48 hours before an exacerbation. Through this research project the CRiL team will develop an automated alert for the next-generation personal monitor, the N-Tidal B, which will indicate to the patient that their respiratory condition is starting to deteriorate. The development of CRiL's innovative technology has been supported previously by Innovate UK, SBRI Healthcare and some healthcare charities.</p>			

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<b>Cancer Intelligence Network Limited</b>	Real World Systems for Precision Medicine	£99,853	£69,897
<b>Project description - provided by applicants</b>			
<p>Real World Systems for Precision Medicine aims to validate the potential to create a multi-national real world cancer trial and real time analytics system. By integrating, in real time, the national cancer registries, and all the electronic national clinical data assets in both Scotland and the Netherlands, we will create an international cancer network of unprecedented scale. With 110,000 incident cancers per annum, it will dwarf both the both the 'Salford Lung for Cancer' and the largest USA consortia (35,000 cancers pa). International research will need novel data privacy conserving analytics. By using federated statistical methods that are designed from inception to be compatible with medical data privacy laws, we can offer industry commercial access to high value, anonymised (NOT pseudonymised) insights built from unconsented care data without providing access to the line level, pseudonymised data. Such an approach is most useful in precision oncology where translational researchers need vast patient scale to validate biomarkers given their rarity, and where the FDA currently estimates 80% of predictive biomarkers to be false positives. This project will a) map the real world data assets in these countries, b) design the the integration process, and c) reach agreement on the privacy conserving analytic solutions. Our system will enable stratified real world trials and stratified health economics in cancer, especially less common cancers where 'incidence x biomarker' requires global collaboration to source enough patients to drive validation</p>			

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Crop Intellect Ltd	R-Leaf	£55,655	£38,959
University of Lincoln		£28,312	£28,312
<b>Project description - provided by applicants</b>			
<p>Crop Intellect Ltd (CI) is a developer of IP in the agrochemical industry. Based on R&amp;D for innovative solutions in agriculture they discover new actives and license the IP to multinational organisations to commercialise the inventions. More than 50% of the nitrogen applied to crops is lost through denitrification releasing Nitrous Oxide (NO) through the soil. Agricultural soils represent a very large and growing global source of NO, which is a key greenhouse gas contributing to climate change. They contribute 70% of the issue compared to 30% from car and industry emissions. The UK government was taken to court as there are no technologies to invest into for cleaning the air of NO. Nitrous oxide is 300 times more harming to the environment than CO2 as a greenhouse gas. 45,000 deaths yearly in the UK are attributed to air polluting NO. An innovative technology has been developed by Crop Intellect Ltd, administered as a foliar composition to improve crop productivity combined with an air cleaning technology in a synergistic manner.</p>			

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IMSPEX Diagnostics Ltd	Determination of Palm Oil Sustainability and Traceability using GC-IMS	£83,186	£49,912
<b>Project description - provided by applicants</b>			
<p>Palm oil is used in many food and cosmetic products by companies such as Cadbury, Nestle and Unilever, however palm oil production is currently not very sustainable and many forests are being cut down to plant new trees for the growing global demand of palm oil. These companies and the European parliament want to make palm oil more sustainable and ensure that it is farmed without deforestation and habitat degradation, particularly in South-East Asia. However, at present there are no validated methods for the traceability of palm oil apart from paper trails, which can be subject to misuse. Therefore, there is a need for an analytical test that can authenticate and trace where palm oil was farm. This will lead to certification of the palm oil and the ability to prove its sustainability. IMSPEX using their GC-IMS technology, have the ability to develop this sustainability and traceability test.</p>			

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FishFromGB Limited	FishFromaContainer	£98,503	£44,325
<b>Project description - provided by applicants</b>			
<p>Sustainable aquaculture has become the solution to the overfishing, mismanagement of crucial feeding grounds and unsustainable farming methods that are threatening fish stocks and the long-term supply of fish to market. However, farmer have struggled with how these farmed fish will be sustainably fed? Polychaetes are nutritionally rich, high quality aquatic worms increasingly used in shrimp and finfish feed. FishfromGB, in collaboration with the University of Edinburgh and with funding from the Scottish Funding Council, have developed a prototype “polychaete biofilter” under laboratory conditions. This high-density biofilter allows the worms to successfully feed upon aquacultural wastewater. Using Innovate funding we would deploy this biofilter as part of the filtration system used in a small Recirculating Aquaculture System (RAS), determine it's scalability, and then install a full-scale model at our aquaculture facility in West Lothian. Demonstrating a sustainable engineering solution for the inexpensive bioremediation of different types of aquaculture effluents, this biofilter also translates into a circular economy system; the bioremediated wastewater can be reused (especially in recirculating aquaculture systems) and the ragworm biomass, which has significant market value, can be then used as a premium component in aqua feeds. If the full-scale system proves to be viable, the uses in wider Scottish aquaculture, in food production and longer-term even in municipal water treatment systems are many, with the system easily exported to the wider world.</p>			

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<b>Skipping Rocks Lab Limited</b>	Ooho - A sustainable, biodegradable, plastic-alternative membrane for packaging liquids	£99,861	£69,902
<b>Project description - provided by applicants</b>			
<p>■ We intend to develop Ooho - the world's first edible, biodegradable, plastic-alternative packaging for water and other liquids. Utilizing a proprietary alginate blend from brown seaweed, we have been able to create a strong, flexible, edible, transparent membrane, in which liquids can be held. Although similar membranes are increasingly being used to package foods (porridge) or washing tablets, these dissolve on contact to water and none are capable of packaging drinkable liquids. ■ With UK consumption of bottled water growing at 10.1% CAGR (See Q4) yet UK recycling rates at only 32%, the UK sends more than 50 million PET water bottles to landfill every year. With initiatives such as the 5p charge designed to reduce plastic bag usage, now is the time environmentally, socially and economically, to develop alternative packaging technologies. ■ Building upon our initial success in the lab, we wish to further research the potential of the alginate blends and production method to improve the membrane's strength, capacity and shelf life. These innovations are crucial to us gaining market adoption at high footfall, immediate consumption events such as festivals and marathons, where the cost to both supply bottled water and clear used plastic bottles and cups is considerable. The project is integral to our growth and competitiveness as a company, resulting in £13.1m t/o and 13 new jobs created by Year 5. It will enable us to take advantage of global interest in the technology, boosting our exports and spearheading the use of natural, biodegradable, plastic alternatives.</p>			

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<b>Biovorn Limited</b>	BVX: Feasibility of a novel herbicide	£99,955	£69,969
<b>Project description - provided by applicants</b>			
Biovorn Ltd, an innovative UK biotechnology company, is developing a novel herbicide to help farmers better manage weeds and increase crop yields whilst reducing the negative side-effects associated with some current approaches and technologies. The proposed project will allow Biovorn to further investigate the effectiveness of its herbicide and to evaluate potential commercialisation options.			

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<b>FungiAlert Limited</b>	Feasibility studies for early, in-situ diagnostic tools for water and soil sensing for agri-tech	£99,672	£69,770
<b>Project description - provided by applicants</b>			
<p>FungiAlert is an in-field, early detection device for plant disease in soil and water. It can be described as the smoke detector for farmers, since it alerts the user about the risk of infection before the disease spreads and destroys the entire field. The user simply places the device into the soil or water irrigation system, and they will be alerted to the presence of destructive plant pathogens, allowing them to take timely remedial action, preventing the spread of the pathogen to the rest of the field. FungiAlert aims to increase crop yields, whilst also allowing for evidence based spraying, to ultimately reduce the amount of pesticides in our food chain. The FungiAlert device will help the user to tailor their disease management practices, helping to increase their yields, while reducing their production costs. The guided use of pesticides by precision farming (such as FungiAlert) could also contribute towards reducing the chance of diseases developing resistance to pesticides. The project aims to adapt our current technology (soil sensing) for the detection of spores in both soil and water. Furthermore, the project will also explore the feasibility of different strategies for including wireless remote sensing technology, which would allow for data collection and storage of information relating to the presence of disease. We envisage that our technology could be integrated into farming practices around the world, allowing farmers and growers to understand the health of the soil within their fields at all times, in an affordable and intuitive way.</p>			

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<b>P. I. Bioscience Limited</b>	Enhancing Metal Uptake in Soya Crops	£49,976	£34,983
Croda Europe Limited		£19,954	£9,977
Sheffield Hallam University		£29,366	£29,366
<b>Project description - provided by applicants</b>			
<p>Soya is an important crop best known as a source of protein in food production it is however also the primary source of material used to produce biodiesel. Over 30% of the world's soya is grown in South America from where Europe imports 97% of its soya. Increasing global demand for soya for food and bioenergy production, coupled with concerns over the environmental impact and sustainability of South American production (deforestation, loss of biodiversity and pollution), are driving demands to increase soya yields for a given land area. Soya requires a constant supply of nutrients to ensure the growth of a healthy, high yield, crop. Of particular concern is calcium since deficiency in this element is a serious problem that leaves soya susceptible to pathogens and reduced yields. The aims of this project are to develop new calcium-containing nutrient formulations, and to enhance technology to monitor calcium uptake and distribution in soya plants. This will increase the yield of soy crops resulting in a decrease in land needed.</p>			

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<b>GreenTech Limited</b>	Development of Graphene Based Anti-Biofouling Coating	£53,200	£34,000
NanoRegMed Ltd		£105,200	£66,000
<b>Project description - provided by applicants</b>			
<p>Aquaculture is increasing in importance, with over 60% of seafood products expected to come from farms by 2030 (UNFAO). It is a vital industry for global food security and estimated to be worth over \$85 billion annually. Biofouling of nets and other submerged infrastructure represents a major challenge for the industry with estimates that dealing with it accounts for between 10% and 20% of all operational costs. Occluded nets mean that fouled and de-oxygenated water is not adequately exchanged with fresh water, resulting in loss of livestock and stressed, sick fish, which in turn increases the need for antibiotics. Current anti-biofouling technologies are overwhelmingly based on biocides, which over time build up in the environment and the feedstock itself, which is in turn ingested by humans. The current solutions are regarded by industry and regulators as inadequate. NanoRegMed has developed a novel hydrophobic and anti-bacterial graphene-based coating which has the potential to address this issue. The material, which is ten times stronger than steel, was developed in a medical context and mimics superhydrophobic surfaces that occur in nature, such as butterfly wings. The aim of this research and development is optimisation of the material as an anti-biofouling coating for aquaculture infrastructure. There is a very strong market demand for such a product.</p>			

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Anacail Ltd	Reducing food safety pathogens & spoilage microbes on food products using in-pack ozone	£125,878	£88,115
The James Hutton Institute		£30,202	£30,202
<b>Project description - provided by applicants</b>			
<p>Fruit, vegetables, nuts and seeds account for at least 48,000 cases of food poisoning in the UK each year (1). As many fresh produce products are eaten raw and a low infectious dose results in human infection, these products can represent a significant threat to consumers. Anacail have previously demonstrated that their in-pack ozone generation technology can significantly improve the shelf life of berry and tomatoes. Ozone is a powerful but short-lived germicidal agent which can reduce the numbers of microbes on food, including food poisoning bacteria such as Escherichia coli O157:H7, in seconds. With the Anacail system ozone is generated from the conversion of oxygen within the pack. The inherent instability of ozone means it quickly degrades back to oxygen within the pack. However in this interim time it is able to reduce the amount of potentially harmful microbes present on food, as well as reduce mould spores to improve the quality of the food product. We now want to validate that the technology can reduce a variety of food spoilage microbes naturally present on tomatoes and berries, as well as determine whether in-pack ozone can reduce a Norovirus surrogate and human pathogens, E. coli and Salmonella enterica on food products which have been associated with these pathogenic organisms in the past.</p>			

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<b>Seaweed &amp; Co. Limited</b>	Addressing iodine insufficiency with an innovative, natural & sustainable seaweed ingredient	£44,238	£30,966
Eat Balanced Limited		£25,760	£18,032
University of Glasgow		£29,999	£29,999
<b>Project description - provided by applicants</b>			
Seaweed&Co., is a pioneering market leader in the development and supply of UK seaweed for application in mainstream food products. The proposed project seeks to demonstrate the feasibility of incorporating an innovative, sustainably sourced seaweed ingredient into a mass-market food product to enhance its nutritional value and to address rising levels of micronutrient insufficiency in UK and European markets.			

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Pipkin and Moo Limited	Pipkin & Moo: Ambient Baby Muffins	£98,700	£69,090
<b>Project description - provided by applicants</b>			
Pipkin and Moo is a new baby food business looking to revolutionise the baby food industry with an exciting and innovative new product range. The proposed project seeks to harness recent technological advances to drive product development and accelerate Pipkin and Moo's market entry.			

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<b>The Scotch Whisky Research Institute</b>	EPH Elimination from Malting	£37,421	£26,195
The James Hutton Institute	Barley for Scotch Whisky Production	£12,513	£12,513
<b>Project description - provided by applicants</b>			
<p>In the food and drink industry ethyl carbamate is a strictly regulated compound. To ensure minimal levels are produced during whisky distillation, only EPH non-producing barley varieties are recommended to the industry, EPH being the precursor for ethyl carbamate. The James Hutton Institute (JHI) in Dundee and the Scotch Whisky Research Institute (SWRI) in Edinburgh are teaming up to develop a new molecular marker that can be used by breeders to ensure all newly released commercial distilling barley varieties are EPH non-producers. We will use state-of-the-art sequencing approaches to develop a high throughput assay that can be fully integrated into commercial breeding programmes. Increasing the integrity and throughput will allow highly efficient screening, increasing potential to assay more individuals from diverse germplasm sources, earlier in the selection process. Ultimately this will result in a greater number of suitable candidate barley varieties, with higher agronomical and processing qualities for malting and distilling industries.</p>			

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# Innovate UK

**Results of Competition: Health & Life Sciences - Round 2 - 12 Months or Under**

**Competition Code: 1702\_HLS\_R2\_12M**

**Total available funding is £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>Observe Technologies Limited</b>	Data Science for Feed Optimisation for Aquaculture	£99,784	£69,849
<b>Project description - provided by applicants</b>			
<p>Every aquaculture farmer knows that feeding and health observation of fish stock is the greatest cost of production in aquaculture. Ensuring each and every fish is optimally fed, healthy and environmentally safe is a massive cost to farmers. Rearing healthy fish requires a delicate balance between overfeeding at the cost of feed wastage, or underfeeding at the cost of sub-optimal fish growth. Our powerful machine learning algorithms extract real-time analytics of the behavior and movement of aquaculture stock. Our approach combines video streams with existing sensory data platforms such as dissolved oxygen, pH, salinity, temperature and other sensors to calculate optimal feeding portions. With this information, farmers can make data-driven decisions related to on-demand feeding, the health of the stock, and the environmental impact of the farm. We augment our machine learning algorithms using computer vision to quantify the feeding behavior, movement, and the growth rate of fish stocks. Combining these data with readily available environmental measurements, our system can provide real-time informed recommendations on optimal feeding strategies, as well as flagging health issues within the stock.</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>Liquid Vision Innovation Limited</b>	Real-time assessment of olive oil quality through the supply chain	£55,091	£38,564
<b>Project description - provided by applicants</b>			
<p>Olive oil is one of the most frequently adulterated food products in the EU, as well as being susceptible to degradation during storage, with potential damage to its nutritional, health and sensory attributes. There are also serious human health concerns surrounding food security in such a vulnerable supply chain. Recently, it has been estimated that up to 80% of Italian extra virgin olive oil is at best below minimum standards and at worst fraudulent. There is an urgent requirement for the development of real-time monitoring technology for providing traceability of olive oil through the supply chain. The use of light for analysing pigments, vitamins and phenolic compounds found in olive oil provides the potential for development of a real-time sensor for monitoring olive oil quality through the supply chain, assuring product authenticity and providing traceability. In this Innovate UK project, Liquid Vision Innovation Ltd. will carry out a detailed laboratory study of a range of olive oil samples provided by a large UK olive oil producer, in order to determine the optimum choice of optical components for development of a sensor for inline olive oil quality assessment. A prototype sensor will also be developed. The application of such a sensor commercially has the potential to improve public and retailer confidence in extra virgin olive oil and protect high quality UK and international producers. The project outcomes will be suitable for monitoring other edible oils, as well as having wider applicability in the food and drink industry.</p>			

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<b>Moleculomics Limited</b>	A software tool for patient stratification by genetic variations in drug metabolism	£99,540	£69,678
<b>Project description - provided by applicants</b>			
<p>Human drug metabolism and clearance is driven by liver enzymes, most notably the Cytochrome P450s (or CYPs). CYPs are a well characterised superfamily of enzymes, which are of great importance in drug discovery and development. Historically not so well understood is the differential metabolism and adverse events associated with currently prescribed drugs due to the highly polymorphic nature of CYP enzymes, in particular CYP2D6. CYP2D6 is an important enzyme involved in the metabolism of over 25% of clinical drugs, many of these heavily used and collectively making up around 80% of UK prescriptions. It is highly subject to polymorphisms which cause significant clinical consequences. CYP2D6 is currently at the forefront of research for personalised medicine due to its high level of genetic variation and the effects that poor drug metabolism can have on a patient's health. Advances in the field of bioinformatics have made it possible to produce structural models of CYP2D6 variants that are known from laboratory work to demonstrate different reactive rates, being ultra-rapid, extensive, intermediate and poor metabolisers. This project seeks to develop a clinical software tool that enables the stratification of patients according to individual CYP2D6 activity based on clinical observations of their response to prescribed drugs that may be used independently of, or in conjunction with, genotypic information.</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>Qkine Limited</b>	Next generation growth factors for organoid-driven precision medicine	£97,804	£68,463
<b>Project description - provided by applicants</b>			
<p>One of the most exciting developments in biological research is the development of miniature three-dimensional structures that mimic mammalian organs such as gut, pancreas, lung and, in the case of cancer, tumours. These so-called organoids allow us to study the structure, development and function of these organs in highly controlled environment and most importantly, without the need to use animals. Organoids are likely to revolutionise drug development by providing a platform in which to test the efficacy and possible toxicity of new drugs and they facilitate the development and modelling of individualised therapies. One of the critical factors in growing organoids is the use of a precise cocktail of specific proteins, growth factors and cytokines, to mimic the micro-environment in the body. These proteins are hard to make, expensive and their use is often limited by variable quality and commercial availability. We have expertise in developing variant forms of these proteins using structure-guided protein engineering to optimise the biological properties, production process and quality of these growth factors. Here, we will use our expertise to improve those growth factors critical for organoid culture. We will ensure the quality of our products by defining strict criteria for their evaluation and ensure they are formulated in the most effective way for routine use. The results of this project will establish UK-based manufacturing of critical components for the emerging field of precision medicine.</p>			

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<b>Cardiocity Ltd</b>	Kiosk Automated Scening Cardiovascular Performance - KASC-P	£87,401	£61,181
<b>Project description - provided by applicants</b>			
<p>The prevalence of the disease Atrial Fibrillation runs at about 1.6% of the UK population. Atrial Fibrillation is one of the key causes of one of the most serious forms of Stroke. Find the people with Atrial Fibrillation and place them on the right medication known as a NOAC (New Oral AntiCoagulant) and the amount of Stroke is significantly reduced. Whilst a proportion of sufferers of AF have been identified already current estimates from Public Health England place the number of unidentified cases of people suffering from Atrial Fibrillation around the 500,000 mark. Technology exists that allows the screening of cardiac performance to determine cardiac arrhythmia and Atrial Fibrillation very simply and easily with a screening taking around 30 seconds to perform. The main problem is that the usage of this equipment to find people with Atrial Fibrillation requires a clinically trained person to operate the equipment. In GP surgeries there is not the time, the motivation, or the staff available to perform such screening sessions. The KASC-P project proposes using a new kiosk technology to allow patients to screen themselves and to enable the results to be sent straight to the GP allowing them to receive a confirmed case of AF in a manner that supports their workload rather than increase it.</p>			

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3f Bio Ltd	Sustainable protein: batch to continuous process demonstration	£99,500	£69,500
<b>Project description - provided by applicants</b>			
<p>This project addresses the global challenge for food sustainability and more specifically protein sustainability by demonstrating the process for continuous fermentation of protein as an integrated zero waste process within a first generation biorefinery. The process demonstrated from this project will create protein from carbohydrate, converting low cost grain feedstocks into high quality protein using a natural fermentation process that has substantially lower land and water use, and lower carbon emissions than the production of animal protein. The innovative process integrates two discreet processes to achieve the core benefits of lowest cost feedstock and zero waste, resulting in the lowest cost source of protein. This project will demonstrate integrated continuous process operations at lab scale, in order to develop the technology and provide commercial performance demonstration and scale-up information necessary to support a commercial investment proposal. The opportunity to substitute meat with a low-cost sustainable protein will offer major potential for sustainability improvements in feeding an expanding global population and meeting future sustainability challenges. In the context of a growing population which will approach 10bn by 2050 and with increasing per capita demands for protein, this provides a genuine solution to the demand for protein which already totals &gt;300M tonnes per annum.</p>			

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<b>Clarity Biosolutions Limited</b>	Development of a rapid, point of care screening test for	£49,992	£34,994
Kingston University	Staphylococcus aureus for acute	£49,443	£49,443
<b>Project description - provided by applicants</b>			
Modified Screening Guidance provided to the NHS removes the mandatory element of screening for MRSA. Commentary on the proposal from 4 hospital infection control groups suggest change away from universal screening can be expected to lead to a greater number of undetected MRSA patients, with a potentially greater transmission risk. This project develops Kingston University's patent-pending fluorescence probe (LGX) that can detect SA at low bacterial concentration within 30 minutes, without the need for microbiological culturing and at a reduced cost. It will develop the technology from a bench test to a prototype assay validated by means of a clinical/usability study.			

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