

Innovate UK

Results of Competition: Health & Life Sciences - Round 2 - 24-36 Months

Competition Code: 1702_HLS_R2_36M

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.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
Germinal Holdings Limited	Maximising the value of commercial forage grass seed production	£531,807	£319,084
Aberystwyth University		£203,029	£203,029
Project description - provided by applicants			
<p>Germinal Holdings Ltd (GHL) have built a reputation on delivering to market quality forage crops which meet the needs of livestock and dairy farmers in the quest for environmentally sustainable intensification of production and profit from their farms. GHL varieties are the products of cutting edge innovation in forage science for the benefit of the livestock industry. Seed yield of the varieties is a major factor on the commercial success of a variety and can influence the economic return from the variety and its longevity as well as its potential for marketing in other countries. The focus of this project is tackling commercial seed production costs of future forage grass varieties to ensure there is a profit margin to be made from each and every product, and to build resilience and efficacy in the GHL business model. This will be achieved through the development of genomic selection (GS) capabilities for seed yield by means of a novel accelerated breeding approach (called PReSS gang) developed by IBERS, Aberystwyth University. Not only will the outcome of robust seed production have direct benefit to the company, the proof of the PReSS gang approach will halve the expected return on investment time to bring any future innovations to market.</p>			

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Industrial Technology Systems Limited	MCAP2 - Measurement and Control of Acrylamide in Production Processes	£643,912	£386,347
KP Snacks Limited		£766,853	£380,000
Greggs PLC		£57,406	£28,703
Teesside University		£112,800	£112,800
University of Abertay Dundee		£307,194	£307,194
The James Hutton Institute		£111,661	£111,661

Project description - provided by applicants

Recent press reports on the problem of acrylamide in food products, observing the potential linkage between it and cancer in humans are common. The increasing nature of these articles serves to raise public awareness. The food industry and industry bodies have acted on these justifiable concerns and have produced technical guidance to manufacturers to reduce acrylamide levels. Safe limits are not yet specified, leaving it to the industry to achieve ALARA as the target. This is clearly a moving target as technology develops and new opportunities arise and the onus is on the industry to achieve reductions. One of the real challenges faced has been the complexity of the supply chain / manufacturing process and the inability to measure acrylamide other than with considerable delay in a laboratory. This project will investigate approaches for growing potatoes in a manner that reduce their potential to produce acrylamide. It will also derive better online measurement / estimation and how information from the supply chain and manufacturing line can be used to reduce levels of acrylamide in manufactured potato products. Subsequently the project will deliver improved measurement and control providing increased confidence to the consumer in the safety of potato and potato-derived products alongside bread and cereals.

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Innovent Technology Limited	TailTech: Developing an early warning system for pig tail biting	£165,987	£107,825
Agri-EPI Centre Limited		£59,856	£59,856
SRUC		£220,044	£220,044
Sainsbury's Supermarkets Ltd		£77,184	£38,592
Harbro Limited		£152,062	£76,031
Garth Pig Practice Limited		£123,092	£73,855
J.S.R. Genetics Limited		£74,706	£44,824
David Ritchie (Implements) Limited		£66,287	£39,772
Scottish Pig Producers Limited		£22,052	£15,436

Project description - provided by applicants

Tail biting in growing pigs is affected by many risk factors, but an outbreak can start without warning or obvious cause. This unpredictable tail biting results in pain and sickness for bitten pigs and severe economic losses for farmers: infection through tail wounds results in abattoir condemnation of meat. Tail docking of piglets is partly effective at reducing tail biting in later life, but is seen as an undesirable mutilation and its routine use is banned in the EU. Our innovative new solution to this long-standing problem begins with the observation that pigs hold their tails down before a damaging tail biting outbreak starts. In an earlier project, we used 3D cameras and developed machine vision software that automatically detects these changes in tail posture. In this project we will build on our promising early feasibility results to develop a prototype decision support system to give farmers early warning of tail biting. Testing it on diverse pig farm types in the UK with both tail docked and undocked pigs, we will assess its welfare and economic benefits for pig producers and breeders. There is considerable domestic demand and export potential for TailTech for use in pig production systems globally. Tackling tail biting and reducing tail docking involves a multi-disciplinary farm to fork approach which is reflected in our project team of Agri-tech engineers, animal scientists, veterinarians and pork supply chain partners.

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Highland Biosciences Ltd	Biosensor for the Precision Treatment of Trauma Patients with Severe Haemorrhage	£900,082	£630,057
Imperial College Healthcare NHS Trust		£433,323	£433,323
Imperial College London		£289,583	£289,583
Project description - provided by applicants			
Traumatic injuries are a major unmet clinical need and the leading cause of death and disability among young people around the world. Trauma treatment and management is very complex, costly and resource-intensive. It is a fast-moving environment where clinicians constantly seek the best treatment to manage and stabilise very sick patients. In these patients, blood loss causes usual levels of clotting factors to be deranged leading to coagulopathy. This defective clotting processes results in continued uncontrolled bleeding which has a high risk of mortality. This collaborative research project – with Highland Biosciences Limited (HBL), the NIHR Diagnostic Evidence Co-operative (DEC) London and Imperial College Healthcare NHS Trust - will develop new biosensor product technology. The new device will guide the selection of the best treatment and management regime for trauma patients by bringing results of a patient’s clotting status to the patient’s bedside within a few minutes and reduce the need for and number of blood transfusions in all but the most severely affected patients.			

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Smith & Nephew UK Limited	Development of a data-driven, patient-specific surgical workflow for more targeted treatment of localised knee osteoarthritis	£289,570	£144,785
Imperial College London		£298,970	£298,970
DCSL Software Limited		£250,667	£150,400
Euriscus Limited		£150,537	£105,376

Project description - provided by applicants

The objective of this industrial research project is to develop a patient-specific workflow for more targeted treatment of osteochondral defects in the knee joint using robot-assisted navigation. The surgical workflow would interface with S&N's commercial orthopaedic robot "NAVIO" providing new opportunities for earlier & more precise intervention. This innovation is supported by the development of a Virtual Reality 3D Headset, Cloud communication & a patient rehabilitation app, which are collectively designed to assist with the refinement of surgical planning, execution, & data management. The project allows S&N to be more competitive in the global robotic orthopaedic surgical market valued at £182m in 2016 & predicted to reach £1bn by 2020. It addresses the shifting demographics of younger, more active patients with localized knee OA who require tissue-sparing knee surgery to retain joint architecture & preserve function. The project is aligned with the competition brief aimed at developing patient-specific therapies in healthcare by combining clinical knowledge with advances in diagnostic techniques, data aggregation, & analysis. The project requires a multi-disciplinary team in orthopaedics, software engineering, 3D printing, & robotics, which will be achieved through partnership between a global medical device company (S&N), 2 SME's, (DCSL & Euriscus) & an academic group (Imperial College). The consortium is requesting £699.7k to fund a 3yr study to gain new skills for the purpose of commercial development, which could lead to the development of new products, & NHS services.

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