## Results of Competition:Health & Life Sciences Round 1 - Over 12 Months or Over 100KCompetition Code:1609\_LO\_HLS\_R1

Total available funding is up to £10m for Stream 2

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
Capacity Building Support Ltd	Autonomous robots to support fruit	£741,046	£518,732
Berry Garden Growers Ltd	picking	£163,334	£81,667
The University of Lincoln		£361,041	£361,041

### **Project description - provided by applicants**

We estimate that the UK soft fruit sector employs over 35,000 fruit pickers each day. The roles are low skilled and the sector has a high reliance on EU migrants to fill these posts. The impact of Brexit, plus labour inflation through the national living wage legislation poses a serious and direct threat to the whole sector. The need to drive productivity in the sector is urgent. Of the picking costs we estimate that 30% are for the pickers to simply carry picked fruit from within a greenhouse to an on farm logistics hub. We aim to eliminate or dramatically reduce this cost by developing an autonomous robot which can find a picker and transport picked fruit and empty trays around a farm. The robot will be autonomous, have the capacity to map its environment and to find and safely interact with a picker. The key innovation will be the development of autonomous systems which can work safely and over long periods of time in a complex farm environment. The need to drive productivity in the agri-food sector is a global challenge. This project will directly stimulate new markets and supply chains in the production of advanced autonomous systems to support agricultural producers.

Note: you can see all Innovate UK-funded projects here

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Gendius Ltd	Intellin: A smart platform to reduce	£281,398	£196,979
Salford Royal NHS Foundation Trust	uicers		£72,671
FIECON LIMITED		£148,872	£104,210

### **Project description - provided by applicants**

Diabetic Foot Ulcers (DFUs) are a major worldwide issue, occurring in 15% of diabetes sufferers and 56% of these patients die within 5 years of the first occurrence. The recurrence rate is approximately 50% per annum with current methods and treatment requiring a multidisciplinary assessment (including diabetes specialists, surgeons and podiatrists). There are currently no universal methods across the UK to stratify patients according to their risk of reoccurrence of a DFU. The consortium consisting of Gendius (Project leader, start-up specialising in MHealth Solutions), Salford Royal Hospital (development and management of clinical trial) and FIECON (development of health economics) have come together to exploit this significant market opportunity through the development of Intellin – an AI solution using 'fuzzy logic' to stratify diabetes patients based on DFU risk factors (leading to more specific and effective interventions) and offer personalised advice and reminders based on inputted data, leading to potential annual savings of £100M for the UK health industry, based on a reduction to the annual reoccurrence of DFUs from 50% to 40%.If successful, market entry for the DFU specific application will be in 2019.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant	
Hypha Discovery Limited	PolyCYPs: optimising a preclinical	£526,883	£368,818	
University College London	platform tool to reduce pharmaceutical attrition rates	£149,589	£149,589	
Project description - provided by applicants The major healthcare imperatives are to deliver effective prevention and treatment of diseases. Whist pharmaceutical intervention in disease				
progress is effective in many cases, the use of n compounding the cost of therapy. The aim of this	nedicines can also lead to adverse re s project is to further develop a platfo	eactions resulting in the need for form product for which the techn	or further medical intervention, ical feasibility has been	
successfully achieved. The outcome will be a platform technology, which as well as increasing revenues and employment at a UK SME with mainly overseas clients, will allow the greater exploration of the chemical space of a potential drug to overcome the main cause of adverse reactions,				
polymorphic variation of cytochrome P450 enzymes (CYPs). This will allow greater assessment of drug metabolite safety, enabling Pharma clients				

polymorphic variation of cytochrome P450 enzymes (CYPs). This will allow greater assessment of drug metabolite safety, enabling Pharma clients to innovatively deliver improved medicines with more predictable properties and will further enable greener routes to the production of complex pharmaceuticals and other chemicals that consume fewer resources and produce less waste.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Marlow Foods	Extraction & purification of	£148,091	£74,046
Branston Ltd	calystegines & iminosugars (C&I) for use as natural preservatives	£35,560	£17,780
PhytoQuest Limited		£107,452	£75,216
Aberystwyth University		£68,813	£68,813
Membranology Limited		£25,000	£17,500
Campden BRI (Chipping Campden) Ltd		£60,540	£60,540

### Project description - provided by applicants

Natural food preservatives to extend the shelf life of processed foods are increasingly important in the provision of food safety in sugar & salt limited recipes. Iminosugars (C&I) are valuable products which have been shown to provide a natural preservative function in foods. Potato manufacturing process generates out of spec potatoes, known to contain the compounds. The proposed project is designed to generate the technical knowledge for extraction, purification & concentration of C&Is & evaluation of effectiveness through testing in chilled & ambient processed food systems. This project is innovative in that, if successful, it will be the UK's first major source of new natural preservatives, likely to be widely used, especially where reduction in salt & sugar may lead to shelf life & food safety issues. The use in food systems will support public health initiatives - weight management, salt & sugar regulation, and progression towards a circular economy via the reduction in food waste, supporting business sustainability and innovation strategies.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Smith & Nephew UK Ltd	Resorbable Osteoplasty for	£178,453	£89,227
Lucideon Limited	Orthopedic Applications	£265,047	£159,028
Arterius Limited		£229,551	£160,686

### **Project description - provided by applicants**

The primary objective of this 2 year collaborative research project is to develop the world's first resorbable osteoplasty for minimally invasive intramedullary stabilisation of osteoporotic bone fractures, which is a growing international healthcare problem that contributes to the £2.3bn annual cost of fractures to the NHS. In the UK, the population over 65 will rise from 17.7% in 2014 to 23.2% by 2034 with osteoporosis affecting 20% of women over 70 and 40% over 80 (Source: International Osteoporosis Foundation). The consortium is led by a global medical device company (Smith and Nephew UK Ltd) collaborating with two UK-based SME's, Lucideon UK Ltd, an independent global expert in materials testing, analysis and consultancy, and Arterius UK Ltd, who commercialize bioresorbable stents for the cardiovascular industry. The primary output of this technical feasibility study will be to develop a demonstrator for pre-clinical assessment in a sheep fracture model, and a platform technology, which is applicable in other areas of healthcare such as maxillofacial, reconstruction, spine and dental given its high level of innovation.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Censo Biotechnologies Ltd	Patient Derived iPSCs for High	£1,000,472	£700,330
University of Leeds	Grade Glioma (PDi:HGG)	£134,279	£134,279
Project description - provided by applicants			

The typical patient diagnosed with Glioblastoma multiforme (GBM), which constitutes 45% of all malignant primary brain and CNS tumours, is aged 50-60 and will survive 15 months after diagnosis. The Patient Derived iPSCs for High Grade Glioma (PDi:HGG) project will provide a new strategy for researchers to develop treatments specifically for this cancer. If successful, the project will have a profound and widespread impact on cancer research. We will bring together two different areas of science which have each developed rapidly in the last ten years. During this time, the capacity to transform human cells into an induced Pluripotent Stem Cell (iPSC) has become a mainstay of biological research. Separately, there has been a growing appreciation that solid tumours include a small number of 'cancer stem cells', which if not entirely removed by therapy can cause the cancer to return. These cancer stem cells are elusive and designing treatments that target them has been largely unsuccessful. PDi:HGG will use iPSC technology to create iPSCs from cells extracted from patients suffering High Grade Glioma, mainly GBM. The project will use the stem cells and derivatives created to support the development of new cancer drugs, which specifically target cancer stem cell differentiation.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant	
CHAIN Biotechnology Ltd.	Developing Clostridium as a Novel	£504,562	£353,193	
University of Nottingham	Secretion System for Therapeutic Peptides	£200,728	£200,728	
Project description - provided by applicants				
CHAIN Biotechnology Ltd. and the University of Nottingham are developing Clostridia bacteria for the healthcare market targeting C. difficile nfections and chronic diseases like inflammatory bowel disease. The bug is a live biotherapeutic product. Success on the project will transform existing treatments for chronic gut-related diseases benefiting the lives of millions of sufferers around the world.				

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Feed Algae Ltd.	Low Cost, High Quality, Algal	£433,731	£303,612
Plymouth University	Biomass for Aquaculture Feed	£129,832	£129,832
Project description - provided by application	ants		
are important to reduce the use of fishmeal and thas lowered the production cost of high-nutrition to partially reduce the use of fishmeal and fish oi fundamentally sustainable. For every ton of fishmeal and fish oil. The method is based on repartial and fish oil. The method is based on repartial to grow candidate species, analyse these months. This will determine the fair value for the the sustainability of UK trout and salmon aquacute	algal biomass while increasing the s I. This additive capacity is generate neal replaced with Feed Algae bioma plicating large-scale natural algal blo and select candidates for in vivo fee algal feed ingredient and enable ra	scalabilty of growth systems to p of on desert land, with seawater ass, 2.3 tons of wild caught fish poms on land, with local species of trials to accelerate Feed Alga pid reinvestment into creating jo	produce a strategic commodity , in a manner which is is no longer required for 5. This project will enable Fee e's access to market by 18 obs, increasing UK exports and

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Dunbia Northern Ireland	An innovative approach to food	£181,625	£90,813
Wirral Sensory Services Ltd	packaging	£69,200	£48,440
Linpac Packaging Limited		£159,000	£79,500

### Project description - provided by applicants

Dunbia is an international food producer and a leading supplier of beef, pork and lamb products into the UK multiple retail sector and European markets. The company works closely with its customers to ensure the food it produces is of the highest quality for consumers. Continuous research, development, market insight and consumer intelligence drive our product innovation strategies. Dunbia is aware of its role in the production of safe, healthly and great tasting food of surpasses its customer expectations and the needs of consumers. This project seeks to extend the total product life of vacuum skin packed chilled meat products supplied into multiple retail in the UK and Europe far beyond current shelf life standards without compromise to product quality. Moreover, the project will explore opportunities to improve the production process leading to enhanced eating quality and increased consumer convenience through the development and testing of a novel approach in food packaging concept and design. This is to support the development and launch of a range of chilled meat products offering both, customers and consumer's flexibility and quality through an improved, longer life product range. The project will seek to reduce food waste and associated packaging waste, improve product yield and sustainability and increase sales for both the manufacturer and the retailer, whilst addressing the needs of today's consumers, who are personally engaged with desiring more convenient healthy and socially responsible food.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
MMUK Ltd	Novel system to improve grape	£193,564	£96,782
TRC Engineering Ltd	quality & shelf life, reduce waste & increase supplier income	£399,776	£279,843
Project description - provided by applica	ants		
Grape bunches can contain a variety of large del toxins that they produce). These can present a n grapes are affected at end of life by rots and mol £39 mpa for retailers and wholesalers throughour unwanted debris (eg. dangerous spiders/webs) of packing and consumption (MMUK data & WRAP grapes as well as kill micro-organisms which may include: - Extension of grape shelf life by 2 days GrapeWash is adopted by the entire UK grape m	umber of different problems, includir ds (MMUK data); - Represent a hu t the UK; through produce losses be or rotten fruit is present; - Cause wa , 2008). Our aim is to develop a nove y cause fruit rotting and decreased s s; - Reduce grape waste by 50% be	ng: - Accelerate rotting of fruit man health hazard; - Generate tween packing & sale and repla- iste of up to 12,900 tonnes of g el technology which will recogni- helf life. It is envisaged the ben etween packing and sale (5,250	& reduce shelf life - 47% of e economic losses in excess of acing customer punnets where rapes per annum between ise and remove debris from hefits of the technology will tonnes per annum if

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Renovos	Harnessing Clay Gels for Bone	£279,228	£195,460
University of Southampton	Tissue Repair	£101,103	£101,103
Project description - provided by applica	ints		
The UK already spends £2 bn/year on bone fract that 23% of the UK population will be aged over 6 inadequate healing. Bone healing agents are effe effects at other sites. Innovate UK funding has al of Southampton, to convert decades of musculos healing agents in a more precise, localised mann amounts of the therapeutic agents for the same 6 funding Renovos will accelerate development of the relevant models leading to first in-man trials. Ultir	65. Many bone fractures lead to orth active, but currently difficult to use as lowed Renovos, a new orthopaedic skeletal research at the latter into an her, increasing their safety. This nove effect, and therefore can enhance he this novel clay product as a theraped	opaedic operations that, in turn s they are mobile in the body ar regenerative medicine company exciting, innovative product, all el product a clay biomaterial allo ealing and clinical outcomes at utic and prepare it for the proce	, need to be repeated due to ad can cause problematic side y, spun out from the University owing for the use of bone- ows for delivery of smaller ower cost. With Innovate UK ss of testing in clinically-

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
<b>,</b> , , , , , , , , , , , , , , , , , ,		£344,136	£240,895
Contro for Drococo Innovation Limited	High-Throughput Glycoanalytics for Biopharmaceuticals	£52,725	£52,725
Pall Europe Ltd (ForteBio Pall Life Sciences)		£100,167	£0
Allergan Biologics Ltd		£55,760	£0

#### Project description - provided by applicants

While biotherapeutics offer potential treatments for some of the most debilitating diseases the development and manufacture of these potentially life changing treatments is risky, technically challenging and expensive. This program will combine GlycoSeLect UK Ltd's glycosylation recognition technology with ForteBio Pall Life Science's unique BLI biosensor based analytical platform technology. This will create a novel analytical platform that will enable rapid and high-throughput analysis of biotherapeutic product glycosylation, a critical product quality attribute that impacts on the efficacy and safety of these therapeutic molecules. This new glycoanalytical platform can be deployed throughout the biotherapeutic development pipeline, and in manufacturing processes, to increase the efficiency and deliver significant cost savings. By working in partnership with Allergan Biologics Ltd, a leading biotherapeutic developer and manufacture, and the Centre for Process Innovation (CPI) this project will demonstrate the value of this new glycoanalytical platform for the rapid glycoanalysis of biotherapeutic products to support the development and manufacture of these important therapeutic products.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant	
Ablatus Therapeutics Limited	Bimodal Electric Tissue Ablation -	£413,156	£289,209	
eg technology Ltd	Next Generation Radiofrequency Ablation	£221,032	£154,722	
Project description - provided by applicants				
BETA is the next generation of radiofrequency a will revolutionise the approach to non-resectable within patients. BETA is the result of 10 years of presents a wide range of benefits, both to patien improving recovery times) and a low treatment of oncology applications such as gynaecology indic certified medical device, IUK funding will give pa healthcare.	liver metastases, allowing for the no academic research, and will significa ts and trusts including: a minimally ir ost. Further BETA will make RFA su ations and varicose veins. In suppor	on-invasive treatment of large ve antly improve the provision of m nvasive treatment approach (rea itable for a wider range of treat ting the development of BETA	olume with low recurrence risk nedicine in the UK. BETA moving surgical risk and ment procedures including non from a research prototype to a	

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
EMBLATION LIMITED	MTAK - Microwave Therapy for	£206,062	£144,243
University of Dundee	Actinic Keratosis	£138,389	£138,389
Project description - provided by application	ants		
It is estimated that 1 in 3 people over 60 years o appearance of a non-melanoma skin cancer. Wi diminished. Up to 25% of GP workload is skin ba decentralised and time efficient. Existing treatme microwave platform for use in treating AK. Alread response effect, the potential to treat AK needs the and develop the current product's hand piece and on humans in a small trial, in addition to investiga point for a Randomised Control Trial (RCT) after	th a deficit of more than 200 dermat ased and with an ageing population ents fail to balance effectiveness, sic dy a highly effective treatment for pla to be explored. Measurements of the tenna (the part applied to the skin). ating the healing mechanisms at pla	cologists in the UK, the ability to the crisis in dermatology needs de effects and cost.Emblation wi antar warts, through a combined e physical properties of AK will a Studies in a lab will help determ by. The results and experimental	diagnose and treat is being treatments that are effective, sh to repurpose a portable d destructive and immune also be taken in order to adapt ine the dose to treat AK cells

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Image Analysis Ltd	Improving Brain Tumor Patient	£310,250	£217,175
10t Coordinate Line construction and an	Outcomes through Patient Stratification & Novel Biomarkers	£239,313	£239,313

### Project description - provided by applicants

Glial tumours are the most common primary brain tumour, and since the majority of these are high-grade (malignant) tumours, overall patient survival is poor. A newly diagnosed glioma may be a slow-growing low-grade<sup>™</sup> or a more heterogeneous, highly infiltrative high-grade<sup>™</sup>. Accurate diagnosis of the tumour grade, and delineation of the tumour core and infiltration into normal brain is crucial for optimum treatment. Within this project, we will deliver a fully integrated software application for analysing MRI scans to create a 3D map of the glioma core and its infiltration pattern. The software can be cloud-based to analyse patient MRI scans directly from the scanner and send tumour tissue maps to workstations in neurosurgical and radiotherapy units. Improved patient outcome is possible by use of this information at three points in patient management: i) targeting the best tumour region to obtain tissue for histological (biopsy) diagnosis; ii) enabling optimal surgical removal of the tumour core; iii) improving the planning of radiotherapy that targets the highest dose to the most malignant part of the tumour while keeping the dose to functional brain low.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
PhoreMost Ltd	UDS: A novel discovery tool for	£587,419	£411,193
Babraham Institute	positive selection of signalling pathway inhibitors	£183,015	£183,015
Project description - provided by application	ants		
UK to comply with government requirements. Pr public disclosure. Funding will not be provided to reverse the things that go wrong in cells and cau screening tools to find and then develop drugs to and to make new tools so that we can produce r the list, but they cannot tell us how to go about r the list, at the same time as writing the instructio	o successful projects without this. The use disease. The list of the targets th o these targets. To cope with an incre new medicines, more rapidly. At pres	e pharmaceutical industry make hat go wrong is far from complet easing healthcare need, we the sent, our existing screening tools	s medicines designed to e, and we do not have the refore need to expand that list s can find new targets to put o

effects which are easier for us to identify, because only the disease cells which contain an interesting target can grow. This will make our screening process much quicker, cheaper and more efficient than it was before, allowing us tackle more diseases more quickly. In the first instance, we will use our new screening system to find new targets for cancer.

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