Results of Competition: UKRI Ideas to Address COVID-19 – Innovate UK Article 25 Funding Strand

Competition Code: 2005_UKRI_IDEAS_COVID19_ART25

Total available funding is £20,000,000 (Innovate UK, figure taken from PAF) £50,000,000

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
SPOREGEN LIMITED	SPOR-COV: Prophylaxis of COVID-19 using Innate Immunity	£440,624	£308,437
DESTINY PHARMA PLC		£337,300	£236,110
University of Liverpool		£253,841	£203,073

Note: you can see all Innovate UK-funded projects here: https://www.gov.uk/government/publications/innovate-uk-funded-projects
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Project description - provided by applicants
The COVID-19 pandemic demonstrates the need for a rapid response to a global public health emergency. Vaccination is ideal but, as is now apparent, a vaccine for an unknown disease cannot be produced in time to avert a major socio-economic disaster. Alternative strategies have been considered but so far have received little attention. One of these is that of immunomodulation, that is, enhancing our immune system such that we can prevent infection. More specifically, we present here an approach that stimulates our innate immune system. Innate immunity is our 1st-line of defence against pathogens and there are a number of ways this can be enhanced. In this SPOR-COV project we will use inactive bacterial spores which, in published studies, have been shown able to prevent complete protection to influenza infection. Our approach is attractive because our product can be produced easily, at low cost and can be stored indefinitely at ambient temperature without a supply cold chain. Thus, large quantities of product could be manufactured and stockpiled for future pandemics whether this be COVID-19, influenza or other respiratory viral infections. This product would enable a rapid response and contribute to preventing the devastating impact of a pandemic on both public health and income. Our approach is led by two UK companies who are responsible for the initial discovery with influenza and who have the expertise to take this forward to clinical evaluation. Working with virology experts at University of Liverpool we will assess the ability of our product to prevent COVID-19 as well as influenza infection. We will conduct studies to confirm that the product is devoid of toxicity at therapeutic, clinically relevant dose levels and complete studies necessary to enable human safety studies (Phase 1). Our intention is to ensure that this approach is available for subsequent waves of COVID-19 (should they occur) but also in preparedness for future pandemics.

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DIOSYNVAX LTD.	DIOS-CoVax - A vaccine designed to protect against COVID-19 and future Coronavirus epidemics, mitigating antibody enhanced disease.	£1,328,829	£930,180
University Hospital Southampton NHS Foundation Trust		£755,519	£755,519
University of Cambridge		£207,639	£207,639

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Project description - provided by applicants
Safe and highly effective vaccines are the most promising medical interventions for the prevention of infectious diseases. At the time of writing, there have been over 5 million cases and 330,000 deaths reported to the WHO. The coronavirus, referred to as SARS-CoV-2, causes a respiratory disease termed COVID-19\. Current experimental Spike-based coronavirus vaccines have limited efficacy in animals tested with the experimental vaccine, and there remains concerns about longer-term immunopathology. Animals given experimental SARS vaccines suffered more serious lung disease when challenged with coronavirus than unvaccinated animals who were infected with coronavirus, meaning human trials and vaccine development were impossible. Our study uses innovative technologies to avoid these problems by selecting modified coronavirus antigens that will be incorporated in the vaccine and will trigger the human immune system to produce the important and focussed antibody responses that we need to protect us against the virus. This proposal will take this new vaccine through the manufacturing and safety testing phases to a completed first in human phase 1 trial. Of note, the DNA vaccine does not require a cold-chain and can be administered without a needle, relatively pain-free, allowing highly efficient mass vaccination strategies to be rapidly deployed.

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ST GEORGE STREET CAPITAL	The ARCADIA trial (Alleviation of cardioRespiratory complications in patients with COVID-19 And DIAbetes) using AZD1656	£4,720,294	£3,304,206

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Project description - provided by applicants
SGS is looking to run a clinical trial using a new drug, AZD1656 to treat diabetic patients suffering with COVID-19\. The potential drug AZD1656 was originally being explored for renal transplant rejection but it is hypothesised that the same mechanism of reducing excessive inflammation by the immune system could equally apply to those with severe coronavirus infection. Clinical observations have shown people with coronavirus can go through two stages of the disease. The first stage is an appropriate response of the immune system to fight the viral infection. In many people this is successful, and patients start to feel better after a week. In some people however the immune system overreacts, and they enter a second stage of the disease called 'hyperinflammation', where the body's own immune system starts to damage vital organs such as the lungs. Our potential treatment for COVID-19 aims to use the body's own mechanism of controlling excess inflammation by activating T regulatory cells. These T regulatory cells migrate to sites of inflammation such as the lungs, effectively dampening down the excess inflammation to reduce organ damage. In addition, AZD1656 has been shown to reduce blood glucose in patients with diabetes in clinical trials. Patients with both type I and type II diabetes are believed to be at higher risk of having more severe COVID-19 symptoms due to a number of biological factors, with blood glucose control being an important one. St George Street is aiming to start the clinical trial in July 2020, a vastly accelerated timescale driven by the urgency of the current pandemic. AstraZeneca will supply the formulated drug product at no cost to SGS and SGS will lead the clinical trial, enrolling 150 patients in hospitals in the UK over a 3-month timeframe. The primary objective of the trial through treating patients with AZD1656 is to reduce the number of diabetic patients with COVID-19 who decline and progress to the ICU.

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WEARABLE TECHNOLOGIES LIMITED	www.wearable.technology - Scaleup/Funding Of Existing Solution For Ensuring Social Distancing On Industrial Work Sites To Enable Them To Stay Open	£1,403,676	£982,573

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Project description - provided by applicants
Short video showing the solution in action -[https://vimeo.com/422508431][0] Problem: Inability to demonstrably enforce social distancing amongst industrial workers is forcing economy to be shut down and putting at risk key infrastructure, with massive economic and social cost. Shutdowns are currently indiscriminate. For every 100,000 workers on 3 months furlough, this costs the Coronavirus Job Retention Scheme ("CJRS")/Treasury c.£750m. Solution Overview: SCALEUP/FUNDING of WTLs existing connected worker IoT platform - sensor hub on each worker and cloud platform which can assist social distancing in the industrial workplace and provide real-time data to enable data-based safety and productivity decision-making by employers and government. Whilst other social distancing devices are beginning to appear on the market, they do not deliver real-time data on "2m bumps" between workers to dashboards to enable employers to make data led decisions on the effectiveness of their social distancing policies, eliminate overcrowding. [0]: https://vimeo.com/422508431

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
MEDISIEVE LTD	Treatment of critical COVID-19 patients through removal of IL-6 by magnetic blood filtration	£2,247,728	£1,573,410

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Project description - provided by applicants
MediSieve is a multi-award-winning medical device company developing Magnetic Blood Filtration (MBF), an extracorporeal technology similar to dialysis, in which Targeted Magnetic Particles (TB-MPs) are infused into the extracorporeal loop, binding specifically to disease-relevant targets in the patient's blood. The blood then flows through a Magnetic Filter (MF) which captures the particles and bound targets, while the remainder of the blood returns to the patient unaffected. There are 6 TB-MPs currently under development, targeting IL-6, endotoxins, IL-1?, IL-18, CD19 and CD20\. In this project, MediSieve proposes to accelerate the development of its anti-IL-6 TB-MPs and to apply MBF as a treatment to severe COVID-19 patients in the UK and worldwide. The project will support validation in animal trials and clinical trials, regulatory approvals, and lay the foundations for widespread distribution post-project. COVID-19 studies have identified IL-6 driven hyperimmune reactions as a significant contributor to mortality with elevated IL-6 ($p<0.0001$) a predictor of fatality (Conti, J. Bio. Reg. Hom. Ag. 2020; Mehta, Lancet 2020). Additionally, a retrospective study of 191 hospitalised patients with COVID-19 found that over 50% developed sepsis (Zhou, Lancet 2020). By focusing specifically on IL-6 MediSieve can rapidly bring a product to market to alleviate the cytokine storm and hyperimmune reaction as well as the secondary sepsis that is the cause of significant mortality in COVID-19 patients. In vitro data suggest that adult IL-6 levels could be reduced by 80% in 4 hours. The MF has completed GLP pre-clinical animal studies and manufacturing validation; it is ready for first-in-man trials. The IL-6 TB-MPs have been validated with in vitro blood testing and are ready for animal trials. This project will accelerate development of the IL-6 TB-MPs and whole system through pre-clinical validation and human clinical trials in preparation for full scale release.

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SCANCELL LIMITED	A novel DNA vaccine that delivers long lasting immunity by stimulating high avidity CD8 T cells and strong neutralising antibodies	£2,689,918	£1,882,943
Nottingham Trent University		£104,264	£104,264
University of Nottingham		£456,657	£456,657

Note: you can see all Innovate UK-funded projects here: https://www.gov.uk/government/publications/innovate-uk-funded-projects
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Project description - provided by applicants
Scancell have developed a fast, low cost and effective DNA vaccine which stimulates potent immune responses that can kill cancer cells and has already been shown to be safe and effective in the treatment of patients with skin cancer. This approach can also be used to develop a safe and effective vaccine to prevent infection with viruses such as the coronavirus that causes COVID-19\. Like other vaccines being developed, the Scancell one will help the body to make antibodies to stop the COVID-19 virus getting into cells and causing the person to become infected. What makes this vaccine different from other approaches is that it will also stimulate the immune system to make special T cells that can recognise and kill cells that may have been infected with the virus. These T cells will also remain in the body longer than antibodies and be there in case of future infections. The proposed COVID-19 vaccine will initially be administered to healthy volunteers using a process called electroporation which delivers the DNA with a mild electric shock to increase efficacy. Although this approach worked well in cancer patients it requires an expensive device to deliver the vaccine. This is not practical when millions of healthy subjects will need to be immunised as during the current pandemic. To overcome this problem we have developed an elegant system to allow the DNA to be given without electroporation. This technology is called 'GET'. Our aim is to test the new COVID-19 vaccine in healthy volunteers, initially with electroporation to allow us to start trials more quickly and validate our novel DNA approach. This will be rapidly followed by immunisation with our GET-enabled COVID-19 vaccine to validate this more practical delivery system.

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BICYCLE TX LIMITED	A broad multi-program approach to rapidly identify and develop novel therapeutics and diagnostics for Covid-19 using Bicyclic Peptides (Bicycles)	£3,545,983	£2,127,590

Note: you can see all Innovate UK-funded projects here: https://www.gov.uk/government/publications/innovate-uk-funded-projects
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Project description - provided by applicants
Bicycles are a new class of drug that can rapidly be identified using our unique platform technology and have utility if they can be developed as novel anti-virals for use in tackling the current and/or future covid pandemics. They also have potential as novel anti-inflammatory therapies tailored to the requirements of later stage Covid-19 disease sufferers that go on to develop severe inflammatory conditions in the hospital setting. In this application we propose a multi-target strategy to identify novel therapies to treat the ongoing, and potentially future, pandemics.

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NOVABIOTICS LIMITED	Repurposing cysteamine as a rapdily deployable intervention for COVID-19	£4,522,953	£3,166,067

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Project description - provided by applicants
Nylexa is a repurposed therapy, already in advanced development for chest infections in CF patients, that can be rapidly deployed as a treatment for COVID-19\. Nylexa is unique and potentially game-changing, because it has multiple targets; the nSARS-CoV-2 virus, the immune response to the infection and also the complications of intractable bacterial infections secondary to SARS-CoV-2 that result in as many as 20% of COVID-19 deaths currently and more than 50% early in the outbreak (in Hubei Province, China). Nylexa is an antimicrobial-immunomodulator with the potential to alter the trajectory of this disease. To save lives and aid better recovery of those infected with less permanent lung damage. It can be rapidly and safely tested (as an intravenously infused drug) in hospitalised COVID-19 patients in the UK and thereafter, worldwide. Nylexa isn't just great science, it is a truly viable solution to COVID-19: Cost effective, readily available and scalable, such that it can be deployed on the global scale required post successful, expedited clinical testing and approvals. NovaBiotics is perfectly positioned to deliver this outcome as a leading biotechnology company developing first-in-class anti-infective and respiratory disease therapies. The business has a track record of developing novel drug candidates from invention to late stage clinical development and commercialisation thereafter through partnerships with pharmaceutical entities with manufacturing and sales-distribution infrastructure. Nylexa could not only be transformational on outcomes of the COVID-19 pandemic, but for NovaBiotics. Nylexa could potentially become NovaBiotics' first approved drug and could pivot the business to profitability, allowing company growth and re-investment in research and development to advance the company's other, potentially life-saving antimicrobial medicines for bacterial and fungal disease, which could have even greater benefit to society and the economy than Nylexa.

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PROAXSIS LTD	COVID-19: Novel protease biomarkers to identify high-risk patients	£392,283	£274,598

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Project description - provided by applicants
ProAxsis is a Northern Ireland-based company which specialises in the measurement of a group of enzymes called proteases. Current tests being developed to support the fight against COVID-19 (the infectious disease caused by coronavirus) are focused on identifying patients who currently have, or have previously had, the virus. Whilst this is clearly useful, a longer-term aim is for healthcare professionals to be able to identify which people who catch the virus are likely to suffer the worst symptoms, and when new treatments are available, which patients are likely to need and respond best to these. This will allow the healthcare professionals looking after patients who contract the COVID-19 virus to know which patients are most likely to need to spend time in hospital, and to require more extensive treatments in order to maximise the chances of them recovering. It will also allow more specific treatment for each individual patient. ProAxsis will use its long-standing and unique expertise in the chemistry of proteases and _in vitro_ diagnostic development to create a brand new combination test, which will enable two key protease biomarkers, neutrophil elastase and cathepsin G, to be specifically measured in a much larger number of samples each day than is currently possible. Early clinical studies of patients in Chinese hospitals have highlighted that both of these proteases are linked with certain risk factors associated with people having poorer outcomes when infected with the COVID-19 virus. ProAxsis has the team in place, and the extensive experience required, to very rapidly create and then up-scale tests for both of these highly important targets. This project offers substantial positive benefits to both patients affected by the COVID-19 virus, and the healthcare professional teams providing them with clinical care. It will also provide new innovative tools to show how well the drugs currently being assessed for use in COVID-19 patients will work. In turn, this will support healthcare systems such as the UK's National Health Service (NHS) to prioritise which patients are likely to need the most support for their recovery from the virus, and which drugs they should prioritise to purchase from their limited budgets.

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INTELLIGENT FINGERPRINTING LIMITED	Sensitive POC diagnostic for the rapid detection of COVID-19 virus	£704,572	£317,057

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Project description - provided by applicants
The project will use Intelligent Fingerprinting's existing technology -- which features highly sensitive lateral flow technology and fluorescence measurement techniques within a portable test reader -- and be developed to create a 'point-of-care' test that allows COVID-19 testing to be carried out quickly and safely by non-medical professionals. Intelligent Fingerprinting will work with researchers at the Institute of Global Health Innovation at Imperial College London to validate its testing approach and accelerate development. A fingerprint-based system could play a significant role in enabling rapid coronavirus testing at the point of care. Current diagnostic tests for coronavirus -- which tell whether people have the COVID-19 virus -- can take hours or even days if the test sample needs to be sent off to a laboratory for analysis. In contrast, the Intelligent Fingerprinting approach, which works by collecting fingerprint sweat onto a small test cartridge for analysis using a portable reader, has potential to deliver a positive or negative COVID-19 result on-site within just ten minutes. The system is hygienic and non-invasive and by using the sweat from fingerprints rather than nasal or oral fluid samples, there is no hazardous biological waste associated with each test. Intelligent Fingerprinting's testing solution features a small, tamper-evident screening cartridge onto which ten fingerprint sweat samples are collected, in a process which takes less than a minute. The Intelligent Fingerprinting portable DSR-Plus analysis unit then reads the cartridge and provides a positive or negative result on-screen in ten minutes. Combining the DSR-Plus reader with a dedicated coronavirus testing cartridge would provide the basis for a robust, extremely sensitive and rapid COVID-19 test that is suitable for deployment at a range of locations. Fingerprint testing using a portable system would also be particularly valuable in supporting simple and easy testing by non-medically trained staff at multiple sites across the UK, such as care homes and workplaces.

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M2JN LIMITED	COVID-19: Prediction of Respiratory Distress Episodes	£87,174	£61,022
WIDEBLUE LIMITED		£86,966	£60,876

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Project description - provided by applicants
Knowing at an early stage that severe breathlessness and degradation will occur reduces the chances for severe complications and need for hospitalisation. Our proprietary wireless, wearable product predicts shortness of breath episodes and degradation to prevent them from happening by notifying the patient and clinicians to take adequate preventative drugs. Thus, our technology allows clinicians to remotely monitor patients, who can stay at home. This project aims to fast-track the commercialisation of this innovation to particularly address: 1) the unprecedented number of patients having shortness of breath due to COVID-19, and, 2) assist in the management of emergency surgeries due to cardiorespiratory and cardiovascular diseases. Hence, it will contribute in lowering the impact of the two biggest challenges coming from dealing with the pandemic: the shortage of clinical equipment and staff, and, the risk of contagion. Our product better rationalises the usage of hospital equipment and reduces unnecessary contact with infected patients. At the sight of the latest updates (Dec20) regarding the pandemic: the vaccine distribution and the mutation of the virus, the scope of the project will be broadened to strengthen the exploitable outcomes of the project.

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EM SCIENTIFIC LIMITED	Two rapidly scalable, differentiated and validated COVID-19/SARS-CoV-2 antibody tests for mass-testing	£126,674	£88,672

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Project description - provided by applicants
There is no easily accessible COVID-19/SARS-CoV-2 antibody test with adequate sensitivity and specificity. This hampers diagnosis, contact tracing and policy decisions. We have initiated the development of 2 targeted mass spectrometry (MS) antibody tests for mass-testing and vaccine development. These saliva and plasma tests are rapidly scalable, automated, can be transferred and standardised across multiple instruments, manufacturers and laboratories, providing an achievable 100,000 tests/day capacity. To our knowledge, this is the first targeted mass spectrometry test for SARS-CoV-2 antibodies. The test is complementary to other technology platforms (immunoassays, point-of-care tests) as it uses a different set of consumables, instrumentation, laboratories and scientists with different skill sets. This expands the UK's antibody testing capacity under UK government's testing strategy Pillar 3 and 5, whilst delivering more accurate results within the same cost ballpark. The test has high inherent specificity and sensitivity in contrast to existing tests, reducing the false positive and false negative rate. In addition to commonly measured elements (IgM and IgG antibodies), the test also measures elements which have a stronger correlation with neutralising antibody levels (which confer protection from the disease) at the same time. The results show how much of the antibodies are present in contrast to a binary (positive/negative) readout, which may become particularly important if it emerges that antibody concentration correlates with the degree of immunity conferred. Saliva samples utilised in this test simplify and broaden access to antibody tests as these samples can be collected at home. Our vision is the test's application to vaccine development and mass-testing in the UK and US, rolled out this autumn from several central laboratories which is how mass PCR-testing is conducted currently. Innovate UK funding will allow us to validate our differentiated antibody tests to published Target Product Profiles and work with Public Health England and vaccine developers to ensure adoption of this test. Once this test is set up, it can be readily adapted to mutated SARS-COV-2 or different viruses for the upcoming winter season and future outbreaks.

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SMI DRUG DISCOVERY LIMITED	A novel automated optical device that rapidly screens large numbers of patient samples for past and present COVID-19 infection	£1,971,313	£1,379,919
MEDICINES DISCOVERY CATAPULT LIMITED		£191,084	£191,084
University of Cambridge		£328,734	£328,734

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Project description - provided by applicants
SMi Drug Discovery, a developer of optical devices capable of unprecedented levels of resolution, has designed an automated diagnostic device that will enable the detection of both past and present COVID-19 infections. Unlike other tests, SMi's technology directly observes single molecules to provide irrefutable evidence of their existence. The device produces highly accurate results at unprecedented speed, and is highly scalable. It is capable of screening a handful of samples in less than 2 minutes, and up to 1,000 samples in less than 20 minutes - a theoretical capacity of up to 72,000 samples per day, per machine. SMi's technology also allows the simultaneous screening of multiple disease types, allowing COVID-19 to be distinguished from diseases with similar symptoms such as other coronaviruses or influenza - especially beneficial during winter flu seasons. The device is compact, portable, can be operated by non-specialists and does not require specialised laboratory conditions. Here are two examples of how it might be used for COVID-19: * Workplace: The device's speed means that employees can be tested as they arrive at work, and receive results within minutes. Infected persons can therefore be identified very quickly, significantly reducing the risk of transmission. This capability could be especially critical in healthcare settings such as hospitals and care homes. * Population: The device's portability and ease of use by non-specialists means that routine mass testing can be undertaken at testing centres and population pinch-points; for example, at public transport terminals such as airports, at supermarkets or via mobile testing vans. Providing near-instant results and the ability to conduct testing outside of a clinical environment fundamentally distinguishes this technology from others. Because the SMi device is able to analyse single molecules, it requires only tiny quantities of reagents (dramatically lower than the amounts currently used in a single COVID-19 diagnostic testing kit) and small patient samples. This mitigates the risk of reagent shortages, and dramatically reduces operational costs. Portability, its ability to work outside of specialist laboratories and reduced material waste provide additional environmental benefits. Together with its high throughput, these features would facilitate the monitoring of entire populations - a transformational leap for the management of the global pandemic. SMi's technology provides the diagnostic capabilities necessary to get people back to work and economies moving again in a safe and controlled manner.

Innovate UK

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JAVELIN HEALTH LIMITED	Development of an innovation to secure peripheral intravascular cannulas: improving care, minimising exposure, conserving PPE and saving cost.	£390,352	£273,246
Frimley Health NHS Foundation Trust		£79,973	£79,973

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Project description - provided by applicants
Intravenous cannulas are the most commonly used patient device in modern medicine. The majority of COVID-19 patients will receive an IV cannula to administer drugs, fluids and antibiotics. IV cannula insertion takes 20 minutes of HCW time. However, up to 50% of devices fail before meeting their clinical need. Patients admitted to intensive care routinely undergo cannulation of the radial artery. These cannulas also frequently fail and need replacing. If the majority of the UK population is affected by COVID-19, cannula failures could lead to millions of reinsertions, unnecessary HCW exposure and PPE use. An SME is developing a low-cost device that is worn by patients to protect and secure cannulas in order to reduce failure rates, improve care, reduce waste and minimise unnecessary HCW exposure to COVID-19\.

Note: you can see all Innovate UK-funded projects here: https://www.gov.uk/government/publications/innovate-uk-funded-projects
Use the Competition Code given above to search for this competition's results

Results of Competition: UKRI Ideas to Address COVID-19 – Innovate UK Article 25 Funding Strand

Competition Code: 2005_UKRI_IDEAS_COVID19_ART25

Total available funding is £20,000,000 (Innovate UK, figure taken from PAF) £50,000,000

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
PHION THERAPEUTICS LTD	Development of a Therapeutic mRNA Vaccine for COVID-19 using pHion's Delivery Technology	£1,181,325	£826,928

Note: you can see all Innovate UK-funded projects here: https://www.gov.uk/government/publications/innovate-uk-funded-projects
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Project description - provided by applicants
As infections with SARS-CoV-2 continue to rise with associated healthcare and economic implications, there is a race on to develop a vaccine to prevent the disease. RNA vaccines are designed to encode the genetic sequences of antigens of a disease, in this instance SARS-CoV-2 and evoke an appropriate immune response. There are several pipeline mRNA vaccines for SARS-CoV-2 that are designed to evoke a prophylactic response but as yet there is no therapeutic vaccine in development. To make a vaccine therapeutic, a particular type of immunity is required known as a CD8+ response. Phion Therapeutics (Belfast SME) have a technology that when added to mRNA, creates a vaccine that produces a CD8+ response. We get this response because we can deliver the vaccine into the correct cells (antigen presenting cells) using a cell penetrating peptide (RALA) as a delivery vehicle which is not recognised as foreign and bypasses the innate response. RALA is designed to cross cellular membranes and fuse with endosomal membranes when the pH lowers which facilitates the release of the mRNA antigens into the cytosol without any associated toxicity. We are the only company to have this peptide to deliver the vaccine. The vaccine itself is a genetic cargo (mRNA) designed to code for the antigens in a particular disease, in this instance multiple immunogenic proteins from SARS-CoV-2\. RALA is adept at condensing all three mRNA into nanoparticles which are lyophilised and uniquely stable at room temperature without losing functionality. Studies are designed to create a RALA/mRNA vaccine, validate baseline characteristics in humanised mice expressing the ACE-2 receptor, followed by determining the response in hamsters and then ferrets through outsourced challenge studies with SARS-CoV-2\. Finally, we will develop a regulatory framework to ensure progression to the clinic. Outputs from this project are designed to provide definitive evidence of a robust prophylactic and therapeutic response using in vivo models. With a comprehensive data package, by the end of this 18 month project we will have the candidate vaccine to progress to toxicology studies. We believe that the RALA/mRNA technology marks the advent of a new generation of therapeutic vaccines that could clear viral infections on a global scale. Most importantly, this platform technology for therapeutic vaccination will be made readily available to other industries and academics across the UK. With validation of automated scalability by the Centre for Process Innovation, pHion is confident of the supply chain.

Results of Competition: UKRI Ideas to Address COVID-19 – Innovate UK Article 25 Funding Strand

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Total available funding is £20,000,000 (Innovate UK, figure taken from PAF) £50,000,000

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
IMPLI LIMITED	Leeds Lifeband - COVID-19 - saving lives, proposing living	£621,743	£435,220
BABCOCK INTEGRATED TECHNOLOGY LIMITED		£618,171	£309,086
CORPORATION 9 LIMITED		£435,020	£304,514
DISCOVR ANALYTICS LIMITED		£62,090	£43,463
FALCON ADVANCED TECHNOLOGY HOLDINGS LTD		£124,607	£87,225
University of Leeds		£215,620	£215,620

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Project description - provided by applicants
The exclusive use of a smartphone-based application risks the digital exclusion of particular societal sub-groups (older people, disadvantaged and vulnerable groups, youth). Such gaps in population coverage will compound risk to these groups and seriously undermine the comprehensiveness of the NHS programme. This project will address these gaps in data arising from the NHS/PHE contact tracing smartphone application by providing a cheap, low-tech and highly secure wristband alternative providing a more complete picture of infection rates; and risks to (and from) population groups such as older people and school children By consent, the location/proximity data will also enable research, analysis and modelling using large-scale data analytics. This will generate epidemiological insights such as how different population sub-groups are impacted by COVID; how government guidelines create contextual challenges or opportunities, and the effectiveness of local mitigation measures. The wristband technology has potential use-cases beyond the immediate tracing context, for example informing smart-city planning and reducing environmental/broader population health burdens (Cottril and Derrible, 2015). The project will support the regional economy in the process of recovery, given that only infected individuals and their contacts will need to quarantine.

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