KiwiNet

Kiwi Innovation Network

EMERGING OPPORTUNITIES

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Contents

ABOUT KIWINET

The Kiwi Innovation Network (KiwiNet) is a consortium of Universities, Crown Research Institutes and other publically funded research organisations who are dedicated to taking a collaborative approach to research commercialisation. Together these research organisations represent a total combined annual research expenditure of over $500 million and represent over 66% of the publically funded researchers in New Zealand.

KiwiNet's role is to empower people who are involved in research commercialisation by helping them to access the tools, connections, investment and support they need. By collaborating on projects, combining capability and sharing networks, we at KiwiNet believe that we can better leverage the limited resources available for commercialisation and help each another improve commercial outcomes for New Zealand.

KiwiNet is funded from the shareholder research organisations and the Ministry of Business, Innovation and Employment.

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
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ABOUT THIS DOCUMENT

This document provides an overview of recent investments made by the KiwiNet Investment Committee (IC). The KiwiNet IC invests PreSeed Accelerator Funding (PSAF) provided by the Ministry of Business, Innovation and Employment (MBIE). This PSAF funding is targeted at developing research discoveries to the point where they are "investor ready".

Our aim is to provide potential investors and business partners with unique insights into opportunities that are emerging from research organisations across New Zealand. These projects are very early stage and may not yet be at a point where they can secure private investment. However, each project has undergone some targeted due diligence and business planning as part of the KiwiNet IC process.

We would welcome early interest and involvement from potential investors and business partners. You may be able to guide these projects in the right direction and help create an attractive investment proposition in the future.

Please contact KiwiNet if any of these opportunities are of interest – we would be happy to make appropriate introductions.

HEALTHCARE

Pouchitis

OTAGO INNOVATION
A UNIVERSITY OF OTAGO COMPANY

The Pouchitis project is a clinically led opportunity that is seeking to provide a solution to a clearly defined clinical condition.

THE PROBLEM

Pouchitis occurs in up to 50% of people who undergo an ileal pouch-anal anastomosis (IPAA) surgery. About 10-20% per cent of these people develop chronic Pouchitis (inflammation). It results in symptoms such as bloody diarrhoea, the urgent need to pass stool, incontinence and pain or discomfort while passing stool. The current treatment for Pouchitis is limited to long-term continuous antibiotic therapy which combats the underlying bacterial infection.

Pouchitis patients will typically have well documented ulcerative colitis. To provide an indication of market size; the incidence of ulcerative colitis in North America is 10-12 cases per 100,000 per year, with a peak incidence of ulcerative colitis occurring between the ages of 15 and 25.

THE SOLUTION

Researchers at University of Otago have identified a novel and patentable strain of 'helpful' bacteria that reside in the pouch of otherwise healthy patients. Initial studies have suggested that by colonising the compromised pouch with these bacteria, a reversion to normal pouch health may occur. As such this novel treatment could be used prophylactically to reduce the incidence of Pouchitis in patients with an IPAA as well as treating patients with existing Pouchitis.

We aim to produce the first probiotic that is a single species of a bacterium believed to reside in healthy pouches. This bacterium will be delivered in sufficient quantities in people with Pouchitis so that reversion to normal healthy pouch may occur. We anticipate that our probiotic will be advantageous over the only current probiotic available in the market for Pouchitis, VSL#3, which is a high concentration cocktail of eight different strains of live bacteria. The VSL#3 product does not contain our probiotic bacterium.

COMMERCIAL OBJECTIVE

Otago Innovation would like to engage with potential commercial partners, to further develop this technology.

If you would like more information about this project, please contact KiwiNet and we will connect you with the project.

HEALTHCARE

Alzheimer's Therapeutic

viclink

Viclink have developed a new class of 'disease modifying' compounds for the treatment of Alzheimer's disease.

THE PROBLEM

There are currently no effective treatments for Alzheimer's disease (AD). At present, there are five therapies in the market approved by the US Food and Drug Administration (FDA) and these therapies only treat mild to moderate symptoms. There have been no new therapies approved for AD since 2003. At best, current treatments slow-down symptoms and offer relief for only a few months.

There is a pressing need for disease-modifying treatments that actually address the underlying cause of the disease. Beta secretase (BACE1) inhibitors prevent and limit the production of the plaque that causes AD and therefore have the potential to address this major unmet need, this is well recognised by scientists and pharmaceutical companies' worldwide.

THE SOLUTION

Researchers at the Ferrier Research Institute at Victoria University, in collaboration with the University of Liverpool, are developing a novel disease modifying treatment for AD.

They have been working towards a 'druggable' heparan sulphate (HS) based solution that will regulate the activity of the BACE1 enzyme. HS is a polysaccharide molecule that aids in cellular regulation and biomedical repair. The team have developed three classes of HS compounds: semi synthetic HS, fully synthetic HS and HS dendritic clusters. Victoria University holds IP protection on all three classes, protecting both the compounds themselves and their use as an Alzheimer's therapeutic.

COMMERCIAL OBJECTIVE

Viclink's goal is to build a new NZ biotech company with a Phase I/II clinical asset for the treatment of Alzheimer's disease.

The first step in achieving this is to demonstrate the efficacy of this technology to Big Pharma companies in order to secure a clinical development program partner through sub-licensing/partnering of the IP.

Please contact KiwiNet to discuss this opportunity.

HEALTHCARE

Next Generation Elderly Formulation

waikatolink
University of Waikato Commercialisation

Development of a goat milk-based geriatric formulation that aids healthy weight gain while being palatable.

THE PROBLEM

The elderly (>65 y. o) constitute the fastest growing segment of the global population, and is largely overlooked by the food industry, with few food and drink products having been actively targeted to these ageing consumers. As people age there is a progressive loss of taste and smell and this leads to weight loss and malnutrition, and in turn the complications of malnourishment. While this problem is well understood there is a gap in the market for palatable health supplements not based on cow's milk.

THE SOLUTION

Pawel's concept is a goat's milk-based formulation that will target palatability by restoring proper hunger and satiety signalling, normalising gut function, and supplying necessary energy and nutrients. Ultimately the product will correct malnutrition, improve digestion and bowel function, and the physiological/psychophysiological outcomes of restored energy balance and enhanced reward will renew energy, enhance mental performance, and decrease susceptibility to wasting disorders.

Existing specialty diet formulations for elderly have limited palatability, which affects the ability of health care professionals to recommend these products to patients since they are unlikely to adhere to the supplementary diet. Pawel's proposed formulation would be very different from any existing products on the market, providing an alternative to cow's milk (thereby avoiding problems with allergies). Pawel has an outstanding track record in developing novel product formulations that target reward centres in the brain, while targeting biochemical pathways to optimise the consumer's nutritional status. A goat's milk formulation has many properties that lend it to health applications, and many of these properties relate to the similarity of the goat's milk fats and proteins with those in humans.

COMMERCIAL OBJECTIVE

This is a platform technology - the nutritional and palatability-related characteristics of the goat's milk-based formulation lends itself to wide application as a functional food in diverse formats. The opportunity to translate the IP generated by this project into different market applications is huge: sports recovery products, diabetes management etc. There is also potential to translate this technology into the growing sheep milk industry.

If you would like more information about this project, please contact KiwiNet and we will connect you with the project.

SOFTWARE

Sprint Force Velocity Profiling

AUT ENTERPRISES LIMITED

A seamless, innovative software for assessing and optimising sprinting performance.

THE PROBLEM

Sprinting assessment usually occurs with expensive light timing systems or inaccurate hand-held stop watches. These conventional methods measure the time between two or more points – nothing more. If the users want further sprinting performance metrics, they must go through a series of complex calculations and this process can be as long as 20 minutes per athlete. Therefore there is a market void for an accurate, cost effective and automated sprinting performance analysis software.

THE SOLUTION

AUT University in conjunction with Université Nice Sophia Antipolis and Université Savoie Mont Blanc have developed a software that is able to pinpoint the sprinting deficits of an athlete in an accurate, automatic, and cost-effective manner. The integratability of the software allows product portfolio expansion without developing new product lines.

COMMERCIAL OBJECTIVE

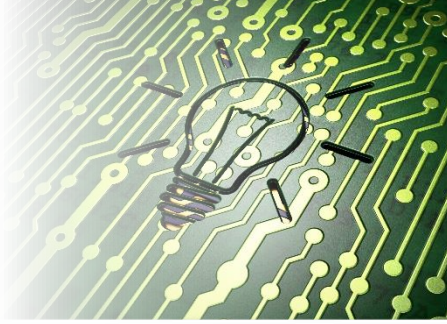
A pre-commercial prototype has been tested by a number of sports organisations and teams. AUT Enterprises Limited is seeking a commercial partner to support further product development and commercialisation.

If you would like more information about this project, please contact KiwiNet and we will connect you with the project.

SOFTWARE

Improved Power Station Systems

waikatolink
University of Waikato Commercialisation



Linear AC technology that will improve the performance and reduce the production costs of power conditioners.

THE PROBLEM

Power quality has become a major concern for end users as well as power generation and distribution authorities worldwide.

Power conditioners are designed to improve and maximise the quality of power flowing to electrical devices. However, there appears to be an untapped market relating to the development of even better power quality. Specifically, the mitigation of voltage fluctuations to a quality standard, and the reduction of manufacturing costs.

THE SOLUTION

Linear AC (alternating current) technology is elegant with a streamline design utilising semiconductor components that reduce both manufacturing costs and maintenance costs. It is a breakthrough technology that can improve and lower the cost of currently expensive power conditioners.

By developing power conditioners with the Linear AC technology it is envisaged that a higher quality of AC power will be achieved. The application of the Linear AC technology will also replace an expensive core part of power conditioners (the 'motor driven variac'), which are bulky and at times not very responsive. This will result in a superior, streamlined and more cost-effective product.

COMMERCIAL OBJECTIVE

In the first instance, developing the Linear AC technology for power conditioners presents itself as an ideal opportunity with an established industry partner. The envisaged intellectual property arising from this research would then provide a robust platform to engage wider industry, as well as seeking out other applications.

If you would like more information about this project, please contact KiwiNet and we will connect you with the project.

Silver Gel

HEALTHCARE

OTAGO INNOVATION
A UNIVERSITY OF OTAGO COMPANY

Silver Gel will be a product for the dentist to treat periodontitis and peri-implantitis by preventing plaque formation to avoid mechanical plaque removal and to increase implant survival.

THE PROBLEM

Gum inflammation with alveolar bone loss around teeth (periodontitis) or dental implants (peri-implantitis) is caused by bacteria that form a biofilm (plaque) on teeth or implants. It can result in loss of the tooth or the implant. Peri-implantitis affects 43% of people with dental implants and replacement can cost more than $6,000 per implant.

Currently, standard practice for treatment include a dentist visit every 4-6 weeks to mechanically remove new plaque formation. This can damage the implant. Implant failures come at significant biological and financial cost and are a problem for dental implant manufacturers.

THE SOLUTION

Silver nanoparticles are known for their antimicrobial effect. The University of Otago have developed a Silver Gel including silver nanoparticles to inhibit new plaque formation.

The Silver Gel aims for sustained release of antimicrobial activity for at least 4-6 weeks. This allows the dentist to reapply the Silver Gel in alignment with standard treatment schedules whilst inhibiting new plaque formation so that ongoing plaque removal would be redundant. The use of the Silver Gel does not require patient compliance other than attending the clinic.

The outcomes for treating periodontitis and peri-implantitis with the Silver Gel are expected to be at least as good as current treatment methods. The Silver Gel will be less detrimental to teeth and dental implants; leading to less implant failures and to better overall treatment outcomes.

COMMERCIAL OBJECTIVE

Otago Innovation would like to engage with dental implant manufacturers, dental consumables and pharmaceutical companies to discuss further development of the Silver Gel and to understand which information will be essential for licensing or sale of the Intellectual Property.

Otago Innovation welcomes discussions with investors to form a company, especially should human clinical trials be required for larger companies to take the Silver Gel to market.

If you would like more information about this project, please contact KiwiNet and we will connect you with the project.

Conveyor Moisture

AGRITECH

Lincoln University
Te Whare Wānaka o Aoraki
CHRISTCHURCH·NEW ZEALAND
New Zealand's specialist land-based university

Remote sensor that accurately measures moisture levels in conveyored materials such as concrete sand in asphalt plants.

THE PROBLEM

The ability to accurately measure moisture inputs can save tens of thousands per annum for asphalt plants. The more accurately you can measure moisture, the more accurately you can calculate the equivalent dry weight of materials.

Current contact moisture measurement probes wear out rapidly from material abrasion (typical to see less than 3 months life in asphalt), and require frequent recalibration.

THE SOLUTION

Lincoln Agritech has developed a sensor to accurately measure moisture levels in conveyored materials such as concrete sand in asphalt plants. From deployed testing, the remote moisture sensor can achieve greater than +/- 0.5% accuracy with future performance improvements potentially able to further increase accuracy.

The sensor produces a moisture measurement that is representative of a large footprint of the material on the conveyor, rather than just from the material that is physically in contact with the probe.

COMMERCIAL OBJECTIVE

Lincoln Agritech are now looking for candidate companies that could take the product to market (including start-ups) and potentially a contract for manufacture arrangements.

If you would like more information about this project, please contact KiwiNet and we will connect you with the project.

ANALYTICS

NeuCube

AUT UNIVERSITY ENTERPRISES LIMITED

AUTEL Ltd have developed a software platform that analyses complex genomic data sets to identify patients with the right biological profile for conducting clinical trials.

THE PROBLEM

Drug discovery programs are dependent on high quality clinical trials that can validate the effectiveness of new disease therapies. To do this, pharmaceutical companies spend approximately US$600 million per drug in late stage clinical development. Clinicians are currently unable to identify sub-groups of patients with the right biological profile to respond to a new therapy. This means that over half of patients in many clinical trials are unable to respond to treatment, regardless of whether the new therapy actually works. As a result, pharmaceutical companies are losing hundreds of millions of dollars in unnecessary development costs.

Clinicians need a way to analyse a patient's genome to determine whether they express the biological target (known as a biomarker) that the new drug is designed to hit. Although patient genomic data is now readily accessible at low cost, the limits of existing analytical techniques mean that it is very difficult to analyse this data to find patients that will respond to treatment.

THE SOLUTION

The team at AUTEL Ltd have developed a web-based software as a service (SaaS) platform that allows researchers and pharmaceutical companies to upload and analyse complex genomic data sets to identify patients with the right biological profile for conducting clinical trials.

This software platform will save a substantial amount of money on clinical trials by increasing the accuracy of detecting associations between genomic data and clinical events such as disease occurrence, progression and response to treatment.

COMMERCIAL OBJECTIVE

AUTEL Ltd is working with a major multinational drug firm to validate the NeuCube system by identifying appropriate trial patients that will respond to their new cancer immunotherapy drug. If successful, the NeuCube system would likely be applicable to a further 18 drug discovery programmes currently being pursued by this firm and would be licensable in at least five broad disease groups, including allergy, asthma, various cancers, Alzheimer's Disease and viral infections.

If you would like more information about this project, please contact KiwiNet and we will connect you with the project.