

Emerging Opportunities

Q3 2013



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 one another achieve better 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 some of the 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”.

These projects are very early stage and may not yet be developed to the point where they can secure private investment. However, each project has had some targeted due diligence carried out as part of preparing a business plan for presentation to the KiwiNet IC.

The purpose of this document is help potential investors and companies have more visibility of the opportunities that are emerging from research organisations. We encourage people who are interested in learning more about these projects to contact KiwiNet and we’ll put you in touch with the relevant research organisation.

The project may not be ready for investment yet, but if you get involved earlier, you may be able to help guide the project to become an attractive investment proposition in the future.

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Market pain

Researchers at ESR have developed a technology for differentiating DNA evidence collected at crime scenes. Until now, differentiating mixed DNA was a long expensive process often providing results of limited value. The STRmix technology is the first of its kind that can differentiate the DNA of four individuals to an accuracy that can be used in court, through a competitively priced and user friendly interface.

Solution

The value of STRmix is the ability to more confidently determine the presence of an individual at the scene of a crime. This is powerful information in the context of a courtroom setting, where verdicts can hinge on the availability of strong evidence. STRmix allows individual DNA profiles to be identified from a forensic sample containing a mix of DNA evidence. It is common for DNA in a crime scene sample to be mixed, e.g. through several people touching the same door handle. The technology provides a much greater chance of identifying who was at a crime scene and getting matches with offenders already on a DNA database.

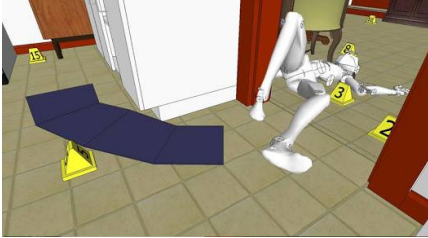
Commercial objective

The working solution delivered by STRmix is currently leading-edge. DNA analysts from the US Army's Criminal Investigation Laboratory (USACIL) have recently visited NZ specifically to evaluate the product and were very impressed, resulting in them purchasing a trial product to use for a limited time period.

ESR is now in a situation where the initial "word of mouth" from international experts is generating significant international interest, and ESR is now considering markets outside Australasia. The litigious US market is of particular interest, as there is demand for leading technologies that could provide an advantage in the courtroom.

Please contact KiwiNet and we will put you in contact with this organisation for more information on this development.

RAPID POINT CLOUD VIEWER



Market pain

ESR has developed a revolutionary prototype forensic tool to deliver scene imagery to the court leading to more certainty and confidence for those public servants reviewing the evidence. Currently, spoken accounts and/or two dimensional images are the only methodology used - which has limitations. In this new world of 3D movies and television, the ability to use this technology in the court has many advantages, but has been fraught with difficulties in obtaining and coordinating the vast information requirements.

Laser scanner users commonly complain that trying to show a rendered laser scanner model requires a complicated and time consuming series of steps and software applications – until now.

Solution

ESR's rapid point cloud viewer differentiation will be the fastest point cloud processing and visualisation tool on the market, producing 3D images in minutes, rather than numerous hours or days it currently takes other applications or workflows.

The Rapid Point Cloud Viewer will simplify the production of easy-to-use, accessible, accurate, visually rich 3D environments from point cloud data.

Furthermore, it will also produce the most easily shared output, meaning that users do not require investment in specialised training, or previous data processing experience to obtain results.

The data also retains the accuracy and integrity of the captured scene data and presents a visually appealing format that is comparable to photographic quality, but in 3D.

Commercial objective

The viewer will be offered to the New Zealand justice sector, and criminal and civil forensic users in Australia, US and UK, with secondary focus on laser scanner users in other markets. Current thinking is that it will be licenced on a per use basis.

Please contact KiwiNet and we will put you in contact with this organisation for more information on this development.

PRECISION ANTIFOULING SYSTEM



Market pain

Through innovative research, Cawthron has made a breakthrough in the discovery of a technology that may allow us to topically harness a natural antifouling compound for use on or with mussel ropes.

Solution

Currently the prevention of fouling in aquatic situations is achieved using compounds containing heavy metals such as copper etc. While these are quite effective, there are significant negative environmental issues around their use, particularly where harvesting aquaculture. More recently, new products have entered the market that creates a surface that prevents adhesion. However, existing solutions are not applicable for use in or on ropes in aquaculture farming given the rough surface and high wear situations.

This product will be environmentally friendly, easy to use, can be applied to existing lines or incorporated into new lines. It will be the only product specifically developed for use in the aquaculture sector, and be essentially utilising the mussels own abilities to leave the line foul free.

Commercial objective

Potential applications – The initial product development has been focussed for use on development of a device that can be used on mussel ropes. The product is currently under early stage development, but Cawthron would be interested in talking with parties interested in finding out more about this emerging opportunity.

Please contact KiwiNet and we will put you in contact with this organisation for more information on this development.

SET AND FORGET FLOAT SYSTEM



Market pain

Cawthron has redesigned and markedly improved the current floatation system for use on mussel lines. The new system will allow for operation under the surface, which greatly increases the potential for more offshore aquaculture opportunities and greatly reduces the impact of the environment on commercial mussel operations.

Solution

Current float systems are designed to be used as surface floats, where they are attached by simple rope bindings providing surface support. This new system design allows operation under the surface, providing the following benefits:

- Requires less maintenance and replacement - under less environmental stress from wave and wind action;
- Can be fully deployed and retrieved from the surface without the need for divers;
- Reduces the wear on the ropes and there are less friction points using the new self-locking mechanism;
- Can be fully deployed and left for long periods of time.
- As the submerged mussel mollusc line significantly reduces the transfer of wave energy into the mussel production system the need to revisit the line and add floatation as the mussels grow is negated.

Potential applications –The technology has been developed to be used with offshore aquaculture systems but could be applicable to any use in marine or freshwater environments where weather and/or wave action is an issue or where it is desirable to be able to set a system in place and not have to check it regularly. Other potential applications would be in offshore drilling and mooring systems.

Commercial objective

Cawthron has discussed the concept in general terms with those in the ancillary equipment industry and they have recognised a significant development opportunity. Once developed and proven in the field the floats will have a significant market base as they offer distinct advantages over what is currently available.

The product is currently under development with a view to future trialling, but Cawthron would be interested in talking with parties interested in finding out more about this emerging opportunity.

STERILE AGAPATHUS



Landcare Research
Manaaki Whenua

Market pain

Agapanthus is often seen planted alongside fences in home gardens and framing driveway entrances. They are also found at baches, in road median strips, and embankments, due to their extreme hardiness, ability to stabilise soil slopes, salt-tolerance and very low maintenance.

However, this former ornamental plant favorite is likely to be listed this year as a pest plant and is being commercially banned in areas.

Solution

By inducing change in flower heads and through years of experience and advancements in plant breeding, Landcare Research specialists have produced a sterile version of the prolific ornamental Agapanthus.

There are no fully sterile cultivars known on the market (i.e., those that cannot produce seed). This makes any sterile cultivars very valuable to current and future markets.

Commercial objective

Sterile cultivars will dominate the domestic market, and Landcare Research is collaborating with one of the largest propagation research nurseries in New Zealand. They will become the main supplier of bulk lines of Agapanthus and mass produce these through tissue culture and other production methods.

New cultivars generated from this project will be protected with Plant Variety Rights to be held by Landcare Research/breeders.

Landcare Research is looking for more opportunities to develop the international market, and would therefore like to engaging with potential business partners interested in this emerging opportunity.

Please contact KiwiNet and we will put you in contact with this organisation for more information on this development.

RAT SPECIFIC TOXIN



Market pain

The ubiquitous rat is considered to be the most destructive mammalian species in the world. The economic impact directly associated with rats includes damage to agricultural crops and stored grains estimated at US\$ 20 billion annually in the United States alone.

A number of available toxicants are effective in controlling rats, but almost all are non-specific and have associated risks of non-target poisoning (children, domestic pets, wildlife, livestock).

Landcare Research have developed novel rodenticides that specifically target rats, while remaining harmless to other rodents and mammals.

Solution

The rodenticides developed by Landcare Research have significant advantage over conventional products, due to their selectivity, that dramatically lowers risk to other mammals. These novel rodenticides are analogues of Norbormide (NRB), a compound which is uniquely toxic to rats but suffer from low palatability problems. Landcare Research have developed analogues of NRB which retain their selective toxicity to rats, while significantly increasing palatability and lethal dosing.

Commercial objective

Investment in this technology offers a significant first mover advantage. Currently, there are no efficacious toxicants on the market that are species selective. The NRB analogues will fill that gap, eliminating poisoning risks to children, domestic pets, wildlife, and livestock and providing a sought after agent for conservation work. This technology has the potential to displace all currently used rodenticides targeting domestic rats, as well as providing an opening into new markets addressing food security (no risk to humans) and food industry needs.

Please contact KiwiNet and we will put you in contact with this organisation for more information on this development.



Landcare Research
Manaaki Whenua

