



## **NEW ZEALAND AGRITECH TECHNOLOGY BEING USED TO HELP IMPROVE THE HEALTH OF CHILDREN IN DEVELOPING COUNTRIES**

**For Immediate Release**

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**Dunedin NZ:** Agritech technology developed in New Zealand for farmers is showing potential to help manage disease in children in developing countries.

In an example of 'One Health' - the global movement applying similar health principals to all living beings - technology developed by Dunedin's Techion to revolutionise animal health management through diagnostics is being used for people.

Techion's FECPAK<sup>G2</sup> technology is part of a project monitoring the efficacy of drugs to control parasites in humans. Known as STARWORMS (STop Anthelmintic Resistant WORMS), this global project is researching drug efficacy and drug resistance in programmes aimed at eliminating and controlling intestinal parasites in people. Techion's FECPAK<sup>G2</sup> is one of the diagnostic technologies being evaluated in the project, which is run by a collaborative group of research partners led by Professor Bruno Levecke from Belgium's Ghent University. STARWORMS is a US\$2.5 million project funded by The Bill & Melinda Gates Foundation.

According to the WHO, soil-transmitted helminths (STHs), commonly known as intestinal parasites or worms, affect more than 1.5 billion people or 24% of the world's population. These parasites live in the intestines and in children they can cause malnutrition, stunted growth, intellectual difficulties and cognitive deficits.

An image-based technology, FECPAK<sup>G2</sup> enables an operator to prepare a faecal sample for analysis in the field or clinic. The image is uploaded via the internet and is analysed for the presence of parasite eggs by a technician who can be located anywhere in the world, including Techion's Invermay lab, just outside Dunedin.

Across Asia, Africa and South America large school-based mass drug deworming programmes are the norm to treat the disease, meaning some children are treated with drugs regardless of whether they have parasites or not. Developing a system which allows an evidence-based approach to treatment to assist the targeting of drugs to children who have parasites, could revolutionise management of parasites in children.

Professor Bruno Levecke from Belgium's Ghent University, says the four year programme of study will conclude in January 2020. He says experience to date with FECPAK<sup>G2</sup> shows it has the potential to solve some of the most important challenges for diagnosis of worms. Most importantly, he says it offers quality control and in the future, may allow for quicker sample processing.

Researchers have confidence in the results we obtain with FECPAK<sup>G2</sup>. It offers a major advantage over existing techniques, as the results are stored online as pictures making it easy to re-check if there is a question.”

“As the technology evolves, the digital system enables the potential for automated egg counting – an exciting possibility. The idea that a process that today requires human eyes might soon be performed by a software algorithm, speeding up sample analysis and allowing more samples to be processed each day will significantly reduce costs and make a real difference to the fight against parasites in children.”

“We still have lots to learn as we continue to work in partnership with Techion evaluating new developments and improvements to the system and software” Professor Levecke said.

The original FECPAK was developed in 1992 for farmers to measure parasites in livestock with a simple on farm microscope-based test counting parasite eggs in animal faeces. FECPAK<sup>G2</sup> was developed as an on-line platform in 2014 in conjunction with the University of Otago, which then went on to be awarded a Bill & Melinda Gates Foundation Grand Challenge Grant to explore the potential for FECPAK<sup>G2</sup> to be used as a human parasite diagnostic tool. FECPAK<sup>G2</sup> is now being evaluated in the STARWORMS project to diagnose helminth infections in people in Africa, Asia and South America.

Techion’s founder and CEO, Greg Mirams says it's wonderful that their technology may contribute to solving one of the world’s biggest causes of childhood morbidity.

“It’s been a fascinating experience to see the 20 years of work we have done in livestock transferring into human disease management. It’s a real example of ‘one health’ in action. The principals for faecal testing in animals are very similar to those for people.”

“Our vision is to have a health official in a developing country visit a village and be able to test the goats, cattle, sheep and children for a range of diseases using the FECPAK<sup>G2</sup> platform. This efficiency will be life changing. We are delighted to be part of this project to help make the world a better, healthier place”, Greg Mirams said.

In addition to the STARWORMS project, Techion is also working with the Swiss Tropical and Public Health Institute which is also evaluating FECPAK<sup>G2</sup> technology to help in the development and evaluation of new drug options for combating human parasites.

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**FOR MORE INFORMATION**

Anna Schmid, TECHION Marketing & Communications Manager, [anna@techiongroup.co.nz](mailto:anna@techiongroup.co.nz)  
021 088 04807

OR

Nicola McConnell, Brand Amp, Public Relations Consultant, [nicola@brandamp.co.nz](mailto:nicola@brandamp.co.nz)  
027 2188120

## **ABOUT TECHION**

FECPAK was originally developed in 1992. In 2011 the Dunedin-based company began development of FECPAK<sup>G2</sup>, an innovative new remote location online parasite diagnostic platform. The core technology used in FECPAK<sup>G2</sup> was co-developed with the University of Otago. Techion has established a European-based business and continues to expand its research and commercial partnerships around the world. FECPAK<sup>G2</sup> is being used by Ghent University, Swiss Tropical and Public Health Institute and the Bill & Melinda Gates Foundation on a project which aims to reduce the world's second largest killer, soil-transmitted helminths.

## **ABOUT THE RESEARCH/ABOUT THE SCIENCE**

More information on the STARWORMS project can be found here

<https://www.starworms.org>

Peer-reviewed research papers have been published about the STARWORMS research programme. They are available at no charge here:

[https://www.researchgate.net/publication/323502697 Diagnostic tools for soil-transmitted helminths control and elimination programs A pathway for diagnostic product development](https://www.researchgate.net/publication/323502697_Diagnostic_tools_for_soil-transmitted_helminths_control_and_elimination_programs_A_pathway_for_diagnostic_product_development)

<http://journals.plos.org/plosntds/article?id=10.1371/journal.pntd.0006562>