

New venture to produce rabies virus neutralising antibody secures a big win for the CSIR

A proposed new start-up venture, GreenPharm™, that intends producing cost-effective anti-rabies prophylaxis in plants, specifically tobacco leaves, was named the inaugural winner of the SA Bio Business Plan Competition, walking away with prize money of R100 000 and an investment indication of up to R15 million.

Science and Technology Minister, Dr Mosibudi Mangena, announced the winning plan at a dinner to mark the launch of the SA Bio

Business Plan Competition on Tuesday 9 December 2008. The SA Bio Business Plan Competition is an initiative of the Innovation Fund in partnership with Emory University in the USA with the ultimate aim of helping to promote the creation of new, venture capital friendly biotechnology companies based in South Africa. The competition commenced in April 2008 and the entries were judged by an international panel of venture capitalists from the USA and Switzerland, most of whom have participated in biotechnology start-ups up to initial public offering.

According to the Innovation Fund, eight teams made it to the semi-final round and were given an opportunity to present their final business plan presentations to the judges on 8 & 9th December at the first annual SA Bio Plan Investor Forum where the final decision was taken and announced later in the evening.

GreenPharm™

GreenPharm™ stems from research conducted at CSIR Biosciences and an innovation on a rabies virus neutralising antibody produced in plants. The business plan proposed a technology that will use plants to generate proteins used in preventative post-exposure rabies treatment and other complex therapeutic proteins such as HIV antibodies at a competitive price.

This research began in 2003 when the plant biotechnology research group entered into the molecular farming arena and, with funding from the South African Department of Science and Technology, joined the international Pharmaplanta project. The knowledge gained during the five-year life span of the project is being extended to other areas.

Dr Rachel Chikwamba, the principal investigator, said the prize money, including the initial R100 000 that has already been awarded, would be channelled towards the production of clinical batches of anti-rabies antibody, which would be packaged as a post-exposure prophylaxis (PEP) Rabivir™ - a plant-based alternative to the existing one made in human or equine blood plasma. "With the prize money we will develop a process to extract rabies antibody from tobacco leaves under good manufacturing production compliant (cGMP) conditions. cGMP conditions are essential for the production of antibody that will go into early phase of safety testing. Thus the money will be invested into modification of existing cGMP plant material processing infrastructure and into human capacity building in cGMP antibody production. While the



From left: Dr Gatsha Mazithulela, Executive Director: CSIR Biosciences; McLean Sibanda, Acting Executive Director: Innovation Fund; Dr Ereck Chakauya, Project Manager: GreenPharm™; Dr Mosibudi Mangena, Minister of Science and Technology; Dr Rachel Chikwamba, Principal Investigator, GreenPharm™; Dr Bridget Crampton, Research Group Leader: CSIR Plant Biotechnology; Steve Sencer, Emory University Deputy General Counsel

primary output will be the clinical grade anti-rabies antibody, another major output of the same investment is a platform for production of other highly valuable antibodies used as therapies for HIV, cancer and other autoimmune diseases," she said.

Rabies is a viral disease that affects mammals and is often transmitted through the bite of rabid animals, most often dogs. If not prevented through PEP, it has a 100% fatality through inflammation of the brain. Worldwide, the disease kills more than 50 000 people, mainly in Africa and Asia. Rabies is endemic in South Africa, although only a few cases are reported annually.

Dermapearl™

A team from CSIR Materials Science and Manufacturing was the runner-up in this competition with its business plan for Dermapearl™, an injectable, minimally-invasive dermal filler that is used in cosmetic and facial reconstruction procedures.

The specific composition and structure of these microparticles allow it to have a longer lasting effect than other hyaluronic acid-based dermal fillers currently in the market. It also possibly has tissue regeneration properties providing patients with a long-term benefit.

According to Lara Kotzé from Team Dermapearl™, their business plan involved details on producing the micro-particles in South Africa and then partnering with an established international company in the dermal filler market. "This is because there are currently no companies in South Africa that produces dermal fillers," she explains.

As one of the four best teams, Team Dearmapearl™ has the opportunity to further its business plan development through an internship outside of South Africa. This may include internships in technology transfer or even at venture capital firms in the USA. This is something that Kotzé is thoroughly looking forward to.

"Taking part in the SA Bio Plan Business Plan Competition was an unbelievable learning experience," she says. "It is not often that scientists are given the opportunity to learn how to shape their ideas into business ventures. It has certainly broadened my horizons and given me a healthy interest in the topics of technology transfer and venture capital funding."

The selected SA Bio Plan semi-finalists will have the opportunity for further training through an internship in the USA for a period of four to six weeks in early 2009.

Enquiries: [CSIR Communication](#)