BioSpectrum the business of Bio & Health Sciences ASIA EDITION

Stanford Univ reverse vaccine to treat diabetes

28 June 2013 | News | By BioSpectrum Bureau

Singapore: Scientists at Stanford University, US, and Leiden University Medical Center in the Netherlands, have tested a 'reverse vaccine' that dampens the immune systems of people with type 1 diabetes, which is triggered when a hyperactive immune system begins attacking beta cells in the pancreas that produce insulin. The results from a small clinical trial with 80 patients were published in Science Translational Medicine.

The vaccine shuts down the CD8 T cells, which is the part of the immune system that harms the pancreas. Following a line of successful experiments in mice over the last decade, the researchers decided to try the vaccine in humans. Results from a phase I clinical trial also showed the vaccine switched off some of the hallmarks of the disease. No adverse side effects were observed in any of the patients.

The vaccine consists of a circular piece of DNA plasmid that carries genes for the insulin protein. This piece of DNA is soaked up by all of the cells in the body, and although this might seem counter-intuitive, this extra exposure to insulin helps to tamp down overactive T cells and preserve insulin-producing beta cells.

The vaccine reduced the number of CD8 T cells that target insulin-producing cells in diabetic patients and it also increased the levels of C-peptides in the blood, which is a marker of improved pancreatic function.