BioSpectrum the business of Bio & Health Sciences ASIA EDITION

A*Star, SigN use patients' own blood to treat infection

30 September 2013 | News | By BioSpectrum Bureau

Singapore: Scientists at A*Star's Singapore Institute for Clinical Sciences (SICS) and the Singapore Immunology Network (SigN) have used patients' own blood to treat infection. This has led to the birth of a new personalised treatment strategy that can help patients suffering from diseases like HIV, hepatitis B and hepatitis C, among others. The findings have been published in The Journal of Clinical Investigation.

Patients suffering from chronic infections either undergo long periods of anti-viral drug therapy or turn to vaccines in order adress there problems. However, while anti-viral drugs are not fully effective against many viruses, vaccines for patients with chronic infections are often difficult to produce since these patients already have weak immune responses or the vaccine is not effective due to genetic diversity amongst viruses.

The team at SICS led by Professor Antonio Bertoletti discovered that monocytes are able to capture the virus in chronically-infected patients and use it to boost the patient's own immune response. By using the viral antigen already present in the blood of the patient, this strategy redefines therapeutic vaccines by cutting down on time and resources as there is no need to specially isolate the viral proteins from patients, purify it, and then inactivate it to create a vaccine.

All the proteins present within the virus can be used to create a personalised vaccine for each individual. This also means that many of the complex issues associated with current vaccine therapy against chronic infections can be overcome, such as that of genetic diversity of viruses.

One of the greatest beneficiaries of this discovery would be chronically-infected patient populations in lower socio-economic strata. By tailoring vaccines to be more specific to each virus and each patient, vaccine production can be simplified and thus less costly. Vaccines produced via this discovery could improve the accessibility of such treatments.

Professor Bertoletti said, "Mobilizing the immune system to use the virus within the patient for a vaccine is a simple idea that could lead to a personalised, yet widely applicable, vaccine for chronic infections."

Professor Judith Swain, executive director, SICS, said that, "This excellent collaborative discovery between SICS and SIgN is a milestone in vaccine therapy for chronic infections. I believe that these findings will go a long way in improving future therapeutic treatments for chronic infections."