

# SgN Immunology Seminar



## Dr. Roberto Crea

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### Antibody Mimics: Pronectins - A Platform Technology For The Post-Antibody Era

*Host*  
Dr Zhong Pingyu  
Singapore  
Immunology  
Network, A\*Star

*Date*  
**Friday,**  
**11 October 2013**

*Time*  
11am – 12pm

*Venue*  
SgN Seminar Room  
Immunos Building  
Level 4  
Biopolis

The use of non-immunoglobulin scaffold libraries as tool to discover binding proteins for research and therapeutic applications has proven to be a promising alternative to monoclonal antibodies. However, the successful selection of candidates having desired properties (affinity, specificity, stability, efficacy) relies on (a) high quality libraries of engineered binding domains, (b) efficient high-throughput screening to select binders with high affinities, (c) a precise understanding of the binding modes of the selected binders and their ability to disrupt the targeted receptor-ligand interaction (epitope mapping) and (d) the use of technologies to efficiently affinity mature the candidate molecules.

The notion of “universal” library has become popular with advent of antibody-based drugs and its use has been extended to the research in the antibody mimics field. The big advantage of these discovery tools is that they can be used for a variety of targets and therefore they significantly accelerate the process to identify novel protein binders.

Dr. Crea’s research has focused on DNA mutagenesis to develop a universal library of antibody mimics for the rapid discovery of numerous protein antagonists. The platform is based upon the use of a human protein scaffold: the fourteenth fibronectin type-III repeat of Human Fibronectin (14Fn3). The well-characterized fibronectin protein is prevalent throughout the human body. Like antibodies, fibronectin resides outside of cells, where it is exposed to and tolerated by the human immune system. Fibronectin binds to other proteins using protein structures called “loop domains.” The 14Fn3 scaffold consists of the natural amino acid sequence of one of the Fn3 repeats of human Fibronectin, and three targeting loops, which are modified by DNA mutagenesis in order to enable specificity for a therapeutic target of interest.

Dr. Crea will also discuss Hidrox®, a compound shown clinically a potent natural antioxidant; it is a unique anti-inflammatory and immune-modulator with a very broad spectrum of health benefits, from reduction of joint inflammation to dramatic benefits in skin disorders (dermatitis, psoriasis and eczema) and other inflammation and autoimmune diseases.