SIgN
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SIgN Immunology Seminar



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Developing Cell-Based Therapies of Cancer

Host
Dr Wang Cheng-I
Singapore Immunology Network, A*Star

Date
Monday
9 March 2015

Time
11am – 12pm

Venue
SIgN Seminar Room
Immunos Building
Level 4
Biopolis

Despite advances in the treatment of hematologic and non-hematologic malignancies, a substantial proportion of patients do not attain durable complete remissions. Even when treatment is successful, it may cause serious toxicities and long-term sequelae. Immunotherapy is attractive because it can potentially bypass the resistance of cancer cells to standard treatment modalities while sparing normal tissues. In addition to therapeutic antibodies and vaccine strategies, infusion of immune cells that can directly lyse tumor cells is being increasing implemented in the clinic. The tremendous potential of this approach is demonstrated by recent clinical trials with autologous T cells redirected against tumor cells via the expression of chimeric antigen receptors ("CAR"): immune cells induced tumor responses where all other therapies had failed. These results have spurred great interest in this area of translational research and encouraged efforts to further improve immune cell therapy of cancer. To overcome the need of developing an individual CAR for each target and allow targeting of multiple cancer antigens simultaneously, we recently developed a CD16V-41BB-CD3ζ receptor which endows T cells with antibody-dependent cell cytotoxic capacity. This receptor has shown promise in preclinical studies and is currently being tested in a clinical trial. In parallel efforts, methods to expand and genetically engineer natural killer (NK) cells have been established and validated in a clinical-grade setting, leading to 4 clinical trials currently open in Singapore. Current research is directed towards developing ways to further enhance T and NK cell anti-tumor activity. Simplifying ex vivo cell processing, widening the range of targetable antigens and generating safe allogeneic cell products are other important objectives to move this promising field forward.