

ImmunoTools *special* Award 2015



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A study of immunobiology of human thymocyte development and T cell receptor signaling

Human immune system is essential to protect the body from invading pathogens. The development and homeostasis of thymocytes and T cells are critical for adaptive immunity and avoidance of immunopathological disorders. Experiments concerning cellular and molecular mechanisms that govern development of thymocytes into mature T cells would shed light on their biological nature. The knowledge would bring to applications useful for treatment and prevention of diseases associated with immune responses to pathogens and organ transplants as well as of autoimmunity.

Within the human thymus are developing T cells or so called thymocytes. They develop into mature functional T cells. T cells have specific T cell receptors (TCR) that can recognize and bind to peptide antigens associated with the major histocompatibility complex molecules (MHC) on the surface of antigen presenting cells (APCs).

The wonderful phenomenon is that normally adaptive immunity occurs when T cells recognize and bind to foreign peptide antigens associated with the MHC (foreign p-MHC). The T cells would normally not respond to self p-MHC and individuals do not develop autoimmunity very often.

The mechanisms that underlie this strict development of thymocytes into mature T cells as well as differentiation of effector T cells have intensely been investigated by immunologists worldwide. However, it is not fully understood about the mechanisms that underlie central tolerance and TCR signaling in both the developing thymocytes and mature T cells. Our research group has focused on working on TCR signaling in terms of molecular and biochemical aspects.

The scope of our study covers experiments, using T cell lines, primary human T cells as well as thymocytes. We have aimed to explore molecular and biochemical events in relation to enzymes and adaptor molecules that play roles in early T cell signaling both in the thymocytes and mature T cells.

The knowledge obtained would be served as the basis for an approach to immunomodulation for treatment of immunopathological conditions. According to our plan of using thymocytes and T cells, the below detailed antibodies and cytokines from **ImmunoTools** would be a great benefit for our research project.

ImmunoTools *special* AWARD for **Dr. Sutatip Pongcharoen**
includes 24 reagents

FITC - conjugated anti-human CD1a, CD3, CD38, CD44, CD69, Control-IgG1, Control-IgG2a, Control-IgG2b

PE - conjugated anti-human CD4, CD25, CD34, IFN-gamma, Control-IgG1, Control-IgG2a, Control-IgG2b

PerCP - conjugated anti-human CD8, Control-IgG1, Control-IgG2a, Control-IgG2b

Multicolour combinations anti-human:

CD4 **FITC** / CD3 **PE** / CD8 **PerCP**

CD3 **FITC** / CD4 **PE** / CD45 **PerCP**

CD3 **FITC** / CD8 **PE** / CD45 **PerCP**

recombinant human cytokines: rh IL-2, rh-7

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