11th Annual Congress on

Immunology & Immunotechnology

September 13-14, 2018 | Zurich, Swizerland

Suppressive activity method of human peripheral blood regulatory T Cells in rheumatoid arthritis patients

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Regulatory T cell (Treg) is an immune suppressor. Mechanisms of its suppression include inhibitory cytokine secretion, expression of inhibitory molecules and apoptosis induction by perforin and gramzyme. The number of peripheral blood (PB) Treg in rheumatoid arthritis (RA), a chronic inflammatory autoimmune disease, is impaired due to the disease state. Yet, current evidences are insufficient to indicate the immune status of RA patients owing to T cell plasticity property. Suppression assay is a functional study used to determine Treg suppressive activity. Because conventional protocol requires an extensive Treg expansion *in vitro* prior to experiment, this study aims to establish a co-culture suppression assay to determine the suppressive activity of Treg derived from PB of RA patients by using short-term expanded PB-Treg, requiring no freeze/thaw autologous conventional T cell (Tconv) for the assay. Treg of RA patients were isolated from peripheral blood mononuclear cells in two steps: initial CD8+ depletion by magnetic sorting and cell sorting by FACSAria III. Treg underwent short-term expansion while autologous Tconv was rested by resting assay. Later, Treg and Tconv were co-cultivated for 3 days and suppressive function was measured by monitoring of CFSE division using flow cytometry. Tconv proliferation in absence of Treg was about 50-60% while in presence of Treg was 13-30%. In control group, such percentage of suppression was about 64%. Significantly, suppression activity (%) of Treg differs between active and remission RA patients.

Biography

Putthapoom Lumjiaktase is an Instructor in Clinical Pathology at Faculty of Medicine Ramathibodi Hospital, Mahidol University. He graduated BSc in Medical Technology, MSc and PhD in Clinical Pathology at Mahidol University, Thailand and Postdoctoral fellowship at University of Zurich, Switzerland. He have been involved in diverse topics as Immunology, Clinical pathology, Molecular Microbiology and Ecology.

Korawit Kanjana is a PhD candidate in Clinical Pathology program at Faculty of Medicine Ramathibodi Hospital, Mahidol University and completed for certificate online course in Design and Interpretation of Clinical Trials program from Johns Hopkins Bloomberg School of Public Health, Johns Hopkins University. He has completed his bachelor degree from Walailak University. He had been nominated finalist for Merck Young Scientist Award 2015

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