

Life Sciences / IBB

Faculty Candidate Seminar

“Regulatory T cells and immunological tolerance”

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- **Date: 4:00PM/July. 3(Wed.)/2019**
- **Venue: Auditorium(1F), Postech Biotech Center**
- **Contact: Department of Life Sciences (Tel. 279-2721)**

Regulatory T (Treg) cells comprise an indispensable population of our immune system, and due to their well-established immune-regulatory functions, hold enormous therapeutic promise for autoimmunity and cancer immunotherapy. To top up their importance, several non-immune functions like tissue homeostasis and regeneration are also being attributed to Treg cells in recent years. Moreover, the existence of a lineage specific transcription factor in Treg cells, Foxp3, makes them an attractive model for studying basic aspects of cellular differentiation and function. Research in our laboratory is focused on dissecting the molecular determinants accounting for Foxp3-mediated gene expression, with a long-term goal of translating this knowledge into potential therapeutic interventions. Using a mass-spectrometry based proteomic approach; we generated an exhaustive list of Foxp3-associated proteins involved in establishing Treg cell-specific gene regulatory networks. Biochemical and mass-spectrometric analyses revealed that Foxp3 forms multiprotein complexes of 400-800 kDa or larger and identified 361 associated proteins, ~30% of which are involved in the regulation of transcription. Notably, Foxp3 binds and directly regulates expression of a large proportion of the genes that serve as its co-factors. In reciprocation, some of the sequence-specific transcription factors that serve as Foxp3 binding partners facilitate Foxp3 expression. Functional analysis of Foxp3 cooperation with candidate associated partners provides further evidence for a cooperative network of transcriptional regulation afforded by Foxp3 and its associates to control distinct aspects of Treg cell biology. The relevance of these findings in light of the current research focus of our laboratory as well as short and long-term research directions we envision in the future will be discussed.

*** This seminar will be given in English.**

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