Life Sciences / IBB
Faculty Candidate Seminar

"Regulation of intestinal T cell homeostasis by dietary antigens and gut microbiota"

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

Gastrointestinal tract is constantly exposed to overwhelming antigenic loads from gut microbiota and diet. Gut microbiota plays an important role in the development of intestinal immune system. However, the role of natural dietary antigens (Ags) in shaping intestinal immune system was not fully understood. By using germ-free (GF) mice raised on an elemental diet devoid of dietary Ags, we show that dietary Ags limit intestinal immunity by inducing a substantial population of Foxp3+ regulatory T cells in the small intestine. Furthermore, dietary Ags drive spontaneous IgE elevation in the absence of gut microbiota by generating IL-4-producing T follicular helper (TFH) cells. Early life is more favorable to the induction of dietary Ag-induced TFH cells. Therefore, the influences of dietary Ags on the host immunity are highly contextual depending on the presence of gut microbiota and developmental stages. Based on our experience with GF mouse model, we also sought to understand the mechanisms of how certain bacteria species contributes to the pathogenesis in inflammatory bowel disease (IBD). We reveal that tailored microbiota-based/targeted therapy is required depending on the characteristics of IBD and bacteria species involved in the IBD pathogenesis. Overall, our findings advance an understanding of the interaction between the gut microbiota, diet and the host immune system, and have implications in the development of a promising microbiota-based/targeted therapy.

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