



The Max Planck Center Seminar Series

Joint seminar of
Laboratory of Molecular Biomedicine for Pathogenesis, Center for
Disease Biology and Integrative Medicine (CDBIM)

Speaker: **Diane Mathis Ph.D.**
Professor
Dept. of Microbiology & Immunobiology
Harvard Medical School, Boston, MA, USA



Title: **Aire, a tolerogenic transcription factor**

*Seminar will be given in English

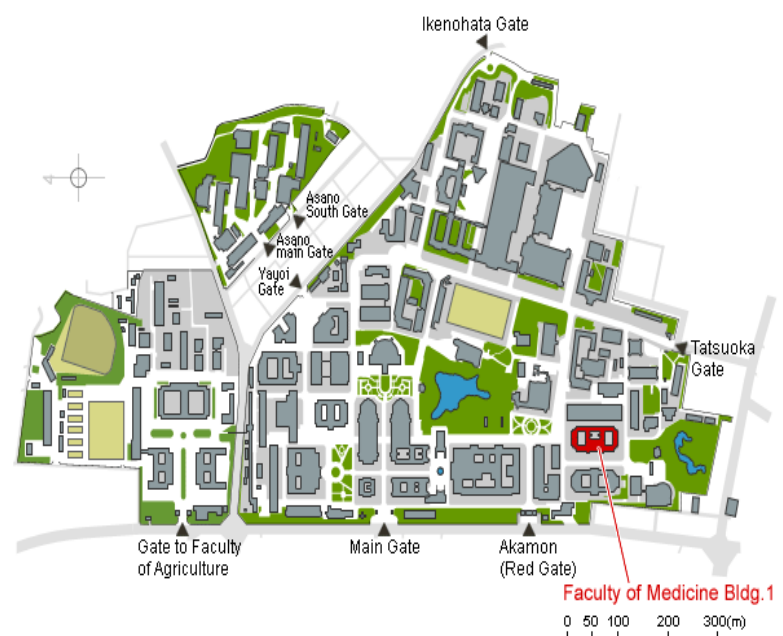
Date: 16 : 30 ~ 17 : 30, December 9, 2016

About the Speaker

The series of innovative work of Dr. Mathis has had a determining impact on our understanding of immunological tolerance and self/non-self discrimination, and of autoimmune diseases such as diabetes and arthritis. She has made many seminal contributions over the past decades, starting with a textbook experiment in 1995 that formally demonstrated the role of the major histocompatibility complex in controlling immune responses. In the context of this seminar, Dr Mathis and her colleagues built on the observation that a particular gene (Aire) is mutated in patients with "APECED (autoimmune polyendocrinopathy-candidiasis-ectodermal dystrophy)" which present with multi-organ autoimmunity. Because Aire is active in the thymus, they hypothesized that it might be necessary for ectopic expression in the thymus of a wide array of genes normally restricted to particular tissues, and tested this idea in a specifically engineered mouse model. The mice showed a disease very similar to that of human APECED patients, and a specific defect in ectopic gene activity in the thymus. They defined the mechanisms of action of Aire, from the standpoints of its immunologic impact as well as by a very elegant molecular genetic analysis of its mechanism of action, and how this mysterious ectopic gene expression is achieved. These studies were important in revealing a crucial mechanism of immunological self-tolerance, a phenomenon that is a fundamental tenet of the immune system, and which is at play in many autoimmune diseases.

At UT, Hongo Campus

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