



Takayuki Sumida

Faculty of Medicine

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Lab web page : URL <http://www.md.tsukuba.ac.jp/clinical-med/rheumatology/>

Forest of Scholars :

Kakenhi :

Orcid :

Affiliation : Department of Internal Medicine, Faculty of Medicine, University of Tsukuba

Theme

- Science-based Rheumatology

Keyword Autoimmune diseases, pathogenesis, molecular targeting therapy

Highlight

Major Scientific Interests of the Group

Development of novel treatment and diagnostic methods through elucidation of autoimmune diseases at the molecular level.

Projects for Regular Students in Doctoral or Master's Programs

1. Novel therapeutic molecular target in Sjögren's syndrome and IgG4 related disease
2. Procedure to induce CD4+ T cells from iPS cells constructed from organ infiltrating CD4+ T cells in autoimmune diseases
3. Pathogenic role of citrullinated proteins in rheumatoid arthritis
4. Regulation mechanism of sialylated IgG in rheumatoid arthritis
5. Transcriptional regulation in the differentiation of

antigen specific CD4+ T cells and Foxp3+ regulatory T cells in rheumatoid arthritis

6. Relation between TLRs activation and the induction of pathogenic CD4+ T cells in systemic lupus erythematosus

Study Programs for Short Stay Students (one week – one trimester)

- 1) Analysis of gene expression in autoimmune disease and their animal models
- 2) Analysis of immune cell subsets in autoimmune diseases and their animal models

Other Faculty Members

Associate Professor; Isao Matsumoto

Assistant Professor; Hiroto Tsuboi, Yuya Kondo,

Shinya Hagiwara, Hiroyuki Takahashi, Mizuki

Yagishita, Saori Abe, Izumi Kurata, Ayako Ohyama

Applications and Prospects

- Analysis of pathogenesis in autoimmune diseases.
- Establishment of new molecular targeting therapy.

Literature, intellectual property, work

- Abe S, Tsuboi H, Kudo H, Asashima H, Ono Y, Honda F, Takahashi H, Yagishita M, Hagiwara S, Kondo Y, Matsumoto I, Sumida T.: M3 muscarinic acetylcholine receptor-reactive Th17 cells in primary Sjögren's syndrome. *JCI Insight*. 5(15):e135982, 2020
- Kurata I, Matsumoto I, Ohyama A, Osada A, Ebe H, Kawaguchi H, Kaneko S, Kondo Y, Tsuboi H, Tomioka A, Kaji H, Sumida T.: Potential involvement of OX40 in the regulation of autoantibody sialylation in arthritis. *Ann Rheum Dis*. 78(11):1488-1496, 2019
- Iizuka-Koga M, Asashima H, Ando M, Lai CY, Mochizuki S, Nakanishi M, Nishimura T, Tsuboi H, Hirota T, Takahashi H, Matsumoto I, Otsu M, Sumida T.: Functional Analysis of Dendritic Cells Generated from T-iPSCs from CD4+ T Cell Clones of Sjögren's Syndrome. *Stem Cell Reports*. 8(5):1155-1163, 2017