

Rheumatology

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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

Selected Publications

- 1) Segawa S, Kondo Y, Nakai Y, Iizuka A, Kaneko S, Yokosawa M, Furuyama K, Tsuboi H, Goto D, Matsumoto I, Sumida T. Placenta specific-8 suppresses IL-18 production through regulation of autophagy and is associated with Adult Still disease. *J Immunol* 201(12):3535-3545, 2018
- 2) Kawaguchi H, Matsumoto I, Osasda A, Kurata I, Ebe H, Tanaka Y, Inoue A, Umeda N, Kondo Y, Tsuboi H, Shinkai Y, Kumagai Y, Ishigami A, Sumida T. Identification of novel biomarker as citrullinated inter-alpha-trypsin inhibitor heavy chain 4, specifically increased in sera with experimental and rheumatoid arthritis. *Arthritis Res Ther* 20(1):66, 2018
- 3) Kondo Y, Yokosawa M, Kaneko S, Furuyama K, Segawa S, Tsuboi H, Matsumoto I, Sumida T. Transcriptional regulation of CD4+ T cell differentiation in experimentally-induced arthritis and rheumatoid arthritis. *Arthritis Rheum* 70(5):653-661, 2018

- 4) Iizuka-Koga M, Asashima H, Ando M, Lai C-Y, 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-iPS cells from CD4+ T cell clones of Sjogren's syndrome. *Stem Cell Reports* 8(5):1155-1163, 2017
- 5) Tsuboi H, Hagiwara S, Asashima H, Takahashi H, Hirota T, Umehara H, Kawakami A, Nakamura H, Sano H, Tsubota K, Ogawa Y, Takamura E, Saito I, Inoue H, Nakamura S, Moriyama M, Takeuchi T, Tanaka Y, Hirata S, Mimori T, Matsumoto I, Sumida T. Comparison of the performance of new ACR-EULAR classification criteria for primary Sjogren's syndrome with former sets of criteria in Japanese patients. *Ann Rheum Dis* 76(12):1980-1985, 2017
- 6) Inoue A, Matsumoto I, Tanaka Y, Umeda N, Takai C, Kawaguchi H, Ebe H, Yoshida H, Matsumoto Y, Segawa S, Takahashi S, Sumida T. TIARP attenuates autoantibody-mediated arthritis via the suppression of neutrophil migration by reducing CXCL2/CXCR2 and IL-6 expression. *Sci Rep* 6:38684, 2016
- 7) Asashima H, Tsuboi H, Iizuka M, Hirota T, Kondo Y, Matsumoto I, Sumida T. The Anergy Induction of M3 Muscarinic Acetylcholine Receptor-Reactive CD4+ T Cells Suppresses Experimental Sialadenitis-like Sjogren's Syndrome. *Arthritis Rheum* 67(8):2213-25, 2015
- 8) Kondo Y, Yao Z, Tahara M, Izuka M, Yokosawa M, Kaneko S, Segawa S, Tsuboi H, Yoh K, Takahashi S, Matsumoto I, Sumida T. Involvement of ROR γ t-overexpressing T cells in the development of autoimmune arthritis in mice. *Arthritis Res Ther* 17(1):105, 2015
- 9) Iizuka M, Tsuboi H, Matsuo N, Asashima H, Hirota T, Kondo Y, Iwakura Y, Takahashi S, Matsumoto I, Sumida T. A crucial role of ROR γ t in the development of spontaneous sialadenitis-like Sjogren's syndrome. *J Immunol* 194(1):56-67, 2015
- 10) Tsuboi H, Nakai Y, Iizuka M, Asashima H, Hagiya C, Tsuzuki S, Hirota T, Miki H, Hagiwara S, Kondo Y, Tanaka A, Moriyama M, Matsumoto I, Nakamura S, Yoshihara T, Abe K, Sumida T. DNA microarray analysis of labial salivary glands in IgG4-related disease. Comparison with Sjogren's syndrome. *Arthritis Rheum* 66(10):2892-9, 2014