

Pulmonary Medicine

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Major Scientific Interests of the Group

- 1) Genetic basis of asthma and COPD
- 2) Helper T cell paradigm in respiratory diseases
- 3) Cross-talk between pro-inflammatory transcription factors and respiratory diseases
- 4) Oxidative stress in the pathogenesis of respiratory diseases
- 5) Molecular targeting for lung cancer
- 6) Psycho-oncology and palliative care research

Projects for Regular Students in Doctoral or Master's Programs

Students in doctoral and master's programs conduct translational research projects to elucidate the aspects described above using genetic, molecular biological and biochemical techniques. Multidisciplinary clinical research studies are also conducted. Students are expected to develop study design, give presentations on their research topics and write scientific papers.

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

Our short term programs present opportunities for students to learn how to handle animal research models and to advance their basic laboratory skills. Those who wish to gain additional experience in clinical respiratory medicine may also participate in educational rounds and conferences.

Selected Publications

- 1) Kuramoto K, Morishima Y, Yoshida K, et al. Nrf2 deficiency accelerates IL-17-dependent neutrophilic airway inflammation in asthmatic mice. *Antioxidants*. [Epub ahead of print], 2024.
- 2) Sakai C, Matsuyama M, Nakajima M, et al. Blood eosinophil phenotype during treatment with mepolizumab in patients with severe eosinophilic asthma. *Allergol Int*. 73:473-476, 2024.
- 3) Akiyama T, Sadahiro T, Yamada Y, et al. Flk1 deficiency and hypoxia synergistically promote endothelial dysfunction, vascular remodeling, and pulmonary hypertension. *Arterioscler Thromb Vasc Biol*. 43:1668-1683, 2023.
- 4) Arai N, Nakajima M, Matsuyama M, et al. Variations in *SI00A8/A12* gene expression are associated with the efficacy of nintedanib and acute exacerbation development in idiopathic pulmonary fibrosis patients. *Am J Respir Cell Mol Biol*. 69:242-246, 2023.
- 5) Nakajima M, Morishima Y, Mori K, et al. Hereditary hemorrhagic telangiectasia with diffuse bronchopulmonary arteriovenous malformations. *Am J Respir Crit Care Med*. 208:726-727, 2023.
- 6) Yoshida K, Morishima Y, Ano S, et al. ELOVL6 deficiency aggravates allergic airway inflammation through the ceramide-S1P pathway in mice. *J Allergy Clin Immunol*. 151:1067-1080, 2023.
- 7) Yamamoto K, Sonehara K, Namba S, et al. Genetic footprints of assortative mating in the Japanese population. *Nat*

Hum Behav. 7:65-73, 2023.

- 8) Namkoong H, Edahiro R, Takano T, et al. DOCK2 is involved in the host genetics and biology of severe COVID-19. *Nature*. 609:754-760, 2022.
- 9) Sherpa MT, Kiwamoto T, Matsuyama M, et al. *Has2* regulates the development of ovalbumin-induced airway remodeling and steroid insensitivity in mice. *Front Immunol*. 12:770305, 2022.
- 10) Noguchi E, Konno S, Hirota T, et al. ORMDL3/GSDMB genotype is associated with distinct phenotypes of adult asthma. *Allergol Int*. 70:495-497, 2021.
- 11) Shigemasa R, Masuko H, Oshima H, et al. Dust mite-dominant sensitization pattern as a causal factor for adult-onset asthma. *Allergol Int*. 70: 368-369, 2021.
- 12) Yoshida K, Morishima Y, Ishii Y, et al. Clinical significance of invariant natural killer T cells and IL-5 in acute eosinophilic pneumonia. *Allergol Int*. 70:258-261, 2021.
- 13) Kitazawa H, Masuko H, Kanazawa J, et al. ORMDL3/GSDMB genotype as a risk factor for early-onset adult asthma is linked to total serum IgE levels but not to allergic sensitization. *Allergol Int*. 70:55-60, 2021.
- 14) Sakaue S, Yamaguchi E, Inoue Y, et al. Genetic determinants of risk in autoimmune pulmonary alveolar proteinosis. *Nat Commun*. 12:1032, 2021.
- 15) Nakajima M, Matsuyama M, Kawaguchi M, et al. Nrf2 regulates granuloma formation and macrophage activation during mycobacterium avium infection via mediating Nramp1 and HO-1 expressions. *mBio*. 12:e01947-20, 2021.
- 16) Tsunoda Y, Sherpa MT, Kiwamoto T, et al. Has2 deficiency enhances OVA-induced airway inflammation and hyperresponsiveness in mice. *Allergy*. 76:2214-2218, 2021.
- 17) Nakajima M, Matsuyama M, Arai N, et al. Identification of whole blood gene expressions correlated with responsiveness to benralizumab. *J Allergy Clin Immunol*. 147:772-775, 2021.
- 18) Shigemasa R, Masuko H, Hyodo K, et al. Genetic impact of CDHR3 on the adult onset of asthma and COPD. *Clin Exp Allergy*. 50:1223-1229, 2020.
- 19) Adachi T, Kainuma K, Asano K, et al. Strategic Outlook toward 2030: Japan's research for allergy and immunology - Secondary publication. *Allergol Int*. 69:561-570, 2020.
- 20) Matsuda T, Yamada H, Hida N, et al. An asthmatic case of psoriasiform eruption caused by administration of dupilumab. *Allergol Int*. 69:478-479, 2020.
- 21) Kaneko Y, Seko Y, Sotozono C, et al. Respiratory complications of Stevens-Johnson syndrome (SJS): 3 cases of SJS-induced obstructive bronchiolitis. *Allergol Int*. 69: 465-467, 2020.
- 22) Nakayama T, Hirota T, Asaka D, et al. A genetic variant near TSLP is associated with chronic rhinosinusitis with nasal polyps and aspirin-exacerbated respiratory disease in Japanese populations. *Allergol Int*. 69: 138-140, 2020.