Division of Internal Medicine
Department of Human Biology and Pathophysiology

Outline

We are interested in basic and clinical research especially in the pathogenesis of metabolic and rheumatic diseases. To achieve our research goals, we employ various methods in molecular biology and clinical testing. Our specific research interests are shown below. We also educate undergraduate students in the field of Internal Medicine and Clinical Laboratory Medicine. Currently, the faculty members routinely care the patients with health problems especially in metabolic and rheumatic disorders such as diabetes, dyslipidemia, and rheumatoid arthritis at the outpatient care division in our affiliated hospital.

Faculty members

Professor; Nobuhiko TAKAHASHI, M.D., Ph.D.
Associate Professor; Kazumasa OHMURA, M.D., Ph.D.

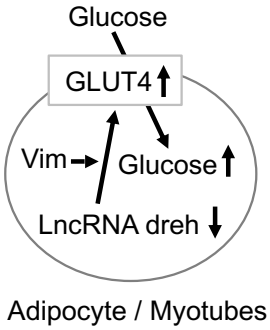
Nobuhiko TAKAHASHI

Kazumasa OHMURA

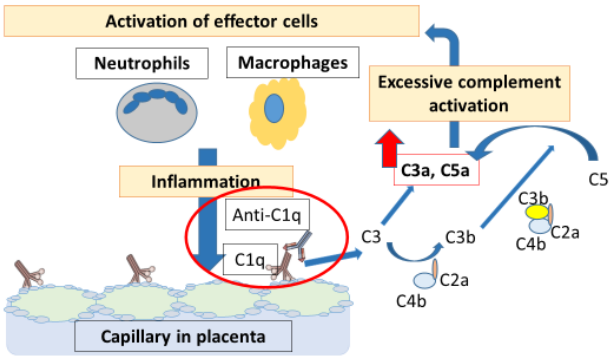
Main research in progress

1) Molecular mechanisms of the pathogenesis of diabetes, obesity, and rheumatology
2) Association between metabolism and bone
3) Involvement of extracellular vesicles (exosome) and noncoding RNAs in cell biology
4) Complement activation in autoimmune diseases
5) Anti-inflammatory effect of DOAC in vascular endothelial cell
6) Standardization of laboratory tests for coagulation

A novel mechanism of glucose uptake regulated by a long noncoding RNA (lncRNA), dreh



✓ Anti-C1q could contribute to the pathogenesis of RPL via excessive complement activation.



Current publications (selected)

* Takahashi N, Kimura AP, Ohmura K, Naito S, Yoshida M, Ieko M. Knockdown of long noncoding RNA dreh facilitates cell surface GLUT4 expression and glucose transport through the involvement of vimentin in 3T3-L1 adipocytes. *Gene* 735: 144404, 2020. (The summarized schema is shown above)

* Takahashi N, Kimura AP, Otsuka K, Ohmura K, Naito S, Yoshida M, Ieko M. Dreh, a long noncoding RNA repressed by metformin, regulates glucose transport in C2C12 skeletal muscle cells. *Life Sciences* 236: 116909, 2019.

* Ohmura K, Oku K, Kitaori T, Amengual O, Hisada R, Kanda M, Shimizu Y, Fujieda Y, Kato M, Bohgaki T, Horita T, Yasuda S, Sugiura-Ogasawara M, Atsumi T. Pathogenic roles of anti-C1q antibodies in recurrent pregnancy loss. *Clinical Immunology*, 203: 37-44, 2019. (The summarized schema is shown above)

* Ohmura K, Kato M, Watanabe T, Oku K, Bohgaki T, Horita T, Yasuda S, Ito Y, Sato N, Atsumi T. Effect of Combined Treatment with Bisphosphonate and Vitamin D on Atherosclerosis in Patients with Systemic Lupus Erythematosus: A Propensity Score-based Analysis. *Arthritis Research & Therapy*, 20: 72, 2018.

* Takahashi N, Kimura AP, Naito S, Yoshida M, Kumano O, Suzuki T, Itaya S, Moriya M, Tsuji M, Ieko M. Sarcolipin expression is repressed by endoplasmic reticulum stress in C2C12 myotubes. *Journal of Physiology and Biochemistry* 73: 531-538, 2017.

* Takahashi N, Yoshizaki T, Hiranaka N, Kumano O, Suzuki T, Akanuma M, Yui T, Kanazawa K, Yoshida M, Naito S, Fujiya M, Kohgo Y, Ieko M. The production of coagulation factor VII by adipocytes is enhanced by tumor necrosis factor-α or isoproterenol. *International Journal of Obesity* 39: 747-754, 2015.

* Takahashi N, Yoshizaki T, Hiranaka N, Suzuki T, Yui T, Akanuma M, Kanazawa K, Yoshida M, Naito S, Fujiya M, Kohgo Y, Ieko M. Endoplasmic reticulum stress suppresses lipin-1 expression in 3T3-L1 adipocytes. *Biochemical and Biophysical Research Communications* 431: 25-30, 2013.

* Takahashi N, Yoshizaki T, Hiranaka N, Suzuki T, Yui T, Akanuma M, Oka K, Kanazawa K, Yoshida M, Naito S, Fujiya M, Kohgo Y, Ieko M. Suppression of lipin-1 expression increases monocyte chemoattractant protein-1 expression in 3T3-L1 adipocytes. *Biochemical and Biophysical Research Communications* 415: 200-205, 2011.