Division of Internal Medicine
Department of Human Biology and Pathophysiology

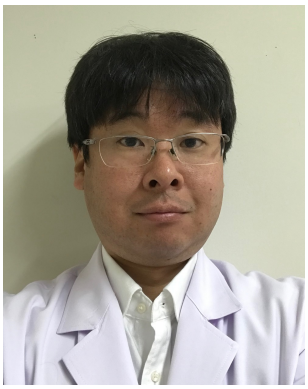
Outline

The promotion of basic research is a crucial activity for us. Research in this laboratory focuses on molecular biology, metabolism, diabetes, obesity, and rheumatology. Specific research interests are listed below. To achieve our research goals, we employ various methods in molecular biology, such as gene and protein expression analyses, and clinical testing. Projects are open to the basic research field of the interrelationship between dentistry and medicine (for example, the interaction between bone and metabolic organs through exosome), although we currently focus on the limited field of medicine. We are looking for graduate students to earn a doctoral degree.

Faculty members

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


Nobuhiko TAKAHASHI

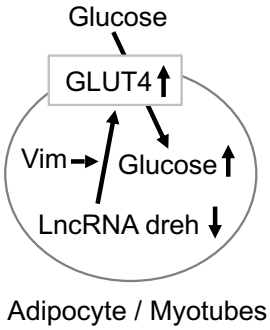

Kazumasa OHMURA

Main research in progress

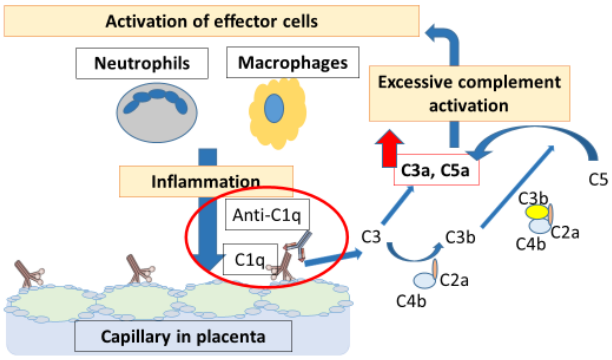
1) Molecular pathophysiology of diabetes, obesity, and rheumatology
2) Noncoding RNAs and extracellular vesicles (especially, exosome) in cell biology
3) Extracellular mitochondrial protein as novel markers of insulin resistance
4) Interrelationship between bone and metabolic organs such as muscle and adipose tissue
5) Complement activation in autoimmune diseases
6) Useful markers and removal of DOAC in case of serious bleeding
7) Standardization of laboratory tests for coagulation

Schematic summary of the current studies

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.



Research publications (selected)

1: 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. (IF=3.688) (The summarized schema is shown above)

2: 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. (IF=5.037)

3: 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. (IF=3.969) (The summarized schema is shown above)

4: 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. (IF=5.156)

5: 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. (IF=4.158)

6: 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. (IF=5.095)

7: 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. (IF=3.575)

8: 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. (IF=3.575)