Molecular Medicine and Metabolism

1. Staffs and Students (April, 2009)

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Research Students	Maki HATTORI	

2. Purpose of Education

The concept of the metabolic syndrome has come before the footlight because it is a precursory state of atherosclerotic diseases. It has been defined as a constellation of abdominal obesity, insulin resistance, hyperlipidemia, and hypertension, and is a multi-factorial pathologic condition that arises from complex interactions between genetic and environmental factors. In our laboratory, all the staffs and students have been provided the unique opportunities to investigate the pathophysiologic and therapeutic implication of adipocytokines, nuclear hormone receptors, and transcriptional co-activators/co-repressors toward the better understanding of the molecular mechanism of the metabolic syndrome.

3. Research Subjects

1) Role of central leptin signaling in peripheral macrophage recruitment
2) Molecular mechanism underlying adipose tissue remodeling
3) Transcriptional target genes of FOXO1 in the skeletal muscle
4) Characterization of DNA methylation in obese adipose tissue

4. Publications

1. T. Suganami, X. Yuan, Y. Shimoda, K. Uchio-Yamada, N. Nakagawa, I. Shirakawa, T. Usami, T. Tsukahara, K. Nakayama, Y. Miyamoto, K. Yasuda, J. Matsuda, Y. Kamei, S. Kitajima, and Y. Ogawa. Activating transcription factor 3 constitutes a negative feedback mechanism that attenuates saturated fatty acid/Toll-like receptor 4 signaling and macrophage activation in obese adipose tissue. **Circ. Res.** 105: 25-32, 2009.
2. N. Satoh, A. Shimatsu, K. Kotani, A. Himeno, H. Yamakage, T. Majima, K. Yamada, T. Suganami, and Y. Ogawa. Highly purified eicosapentaenoic acid reduces cardio-ankle vascular index in association with decrease in serum amyloid A-LDL in metabolic syndrome. **Hypertens. Res.** 32: 1004-1008, 2009.
3. M. Kawamura, H. Itoh, S. Yura, H. Mogami, T. Fujii, H. Makino, Y. Miyamoto, Y. Yoshimasa, S. Aoe, Y. Ogawa, N. Sagawa, N. Kanayama, and I. Konishi. Isocaloric high-protein diet ameliorates systolic blood pressure increase and cardiac remodeling caused by maternal caloric restriction in adult mouse offspring. **Endocr. J.** 56: 679-689, 2009.
4. T. Chiba, Y. Kamei, T. Shimizu, T. Shirasawa, A. Katsumata, L. Shiraishi, S. Sugita, Y. Ogawa, S. Miura, and O. Ezaki. Overexpression of FOXO1 in skeletal muscle does not alter longevity in mice. **Mech. Ageing Dev.** 130: 420-428, 2009.
5. H. Mogami, S. Yura, H. Itoh, M. Kawamura, T. Fujii, A. Suzuki, S. Aoe, Y. Ogawa, N. Sagawa, I. Konishi, and S. Fujii. Isocaloric high-protein diet as well as branched-chain amino acids supplemented diet partially alleviates adverse consequences of maternal undernutrition on fetal growth. **Growth Hormone & IGF Res.** 19:478-485, 2009.