

Molecular Medicine and Metabolism

1. Staffs and Students (April, 2010)

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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) Molecular mechanism underlying adipose tissue inflammation
- 2) Metabolic analysis of transgenic mice overexpressing RXR γ in skeletal muscle
- 3) Regulation of hepatic lipogenesis gene expression via DNA methylation.
- 4) Molecular mechanism underlying the LPS-induced cytokine production in macrophages

4. Publications

Original Articles

1. N. Satoh, A. Shimatsu, A. Himeno, Y. Sasaki, H. Yamakage, K. Yamada, T. Suganami, and Y. Ogawa. Unbalanced M1/M2 phenotype of peripheral blood monocytes in obese diabetic patients: effect of pioglitazone. **Diabetes Care** 33: e7, 2010.
2. M. Tanaka, T. Suganami, S. Sugita, Y. Shimoda, M. Kasahara, S. Aoe, M. Takeya, S. Takeda, Y. Kamei, and Y. Ogawa. Role of central leptin signaling in renal macrophage infiltration under unilateral ureteral obstruction. **Endocr. J.** 57: 61-72, 2010.
3. Y. Kamei, T. Suganami, T. Ehara, S. Kanai, K. Hayashi, Y. Yamamoto, S. Miura, O. Ezaki, M. Okano, and Y. Ogawa. Increased expression of DNA methyltransferase 3a in obese adipose tissue: studies with transgenic mice. **Obesity** 18: 314-321, 2010.
4. Y. Yamazaki, Y. Kamei, S. Sugita, F. Akaike, S. Kanai, S. Miura, Y. Hirata, B.R. Troen, T. Kitamura, I. Nishino, T. Suganami, O. Ezaki, and Y. Ogawa. The cathepsin L gene is a direct target of FOXO1 in the skeletal muscle. **Biochem. J.** 427: 171-178, 2010.
5. T. Yamamoto, T. Suganami, M. Kiso-Narita, P. A. Scherle, Y. Kamei, M. Isobe, S. Higashiyama, and Y. Ogawa. Insulin-induced ectodomain shedding of heparin-binding epidermal growth factor-like growth factor in adipocytes in vitro: role of a disintegrin and metalloproteinase 17. **Obesity** 18: 1888-1894, 2010.
6. K. Yamashiro, T. Sasano, K. Tojo, I. Namekata, J. Kurokawa, N. Sawada, T. Suganami, Y. Kamei, H. Tanaka, N. Tajima, K. Utsunomiya, Y. Ogawa, and T. Furukawa. Role of transient receptor potential vanilloid 2 in LPS-induced cytokine production in macrophages. **Biochem. Biophys. Res. Commun.** 398: 284-289, 2010.

Cardio-Pulmonary Diseases

7. Y. Okazaki, N. Ohshima, I. Yoshizawa, Y. Kamei, S. Mariggio, K. Okamoto, M. Maeda, Y. Nogusa, Y. Fujioka, T. Izumi, Y. Ogawa, Y. Shiro, M. Wada, N. Kato, D. Corda, and N. Yanaka. A novel glycerophosphodiester phosphodiesterase GDE5 controls skeletal muscle development via a non-enzymatic mechanism. **J. Biol. Chem.** 285: 27652-27663, 2010.
8. A. Sato, H. Kawano, T. Notsu, M. Ohta, M. Nakakuki, K. Mizuguchi, M. Itoh, T. Suganami, and Y. Ogawa. Anti-obesity effect of eicosapentaenoic acid in high-fat/high-sucrose diet-induced obesity: importance of hepatic lipogenesis. **Diabetes** 59: 2495-2504, 2010.

Review Articles

1. T. Suganami and Y. Ogawa. Adipose tissue macrophages: their role in adipose tissue remodeling. **J. Leukoc. Biol.** 88: 33-39, 2010.