Molecular Epidemiology

1. Staffs and Students (April, 2009)

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2. Education

Many common diseases such as diabetes, hypertension, obesity, metabolic syndrome, and atherosclerosis are caused by multiple genetic and environmental factors. We aim to decipher these factors as well as their interactions by applying the technology and information of human genome to epidemiology. Our goal is not only to identify disease genes and polymorphisms but also to elucidate gene-environment interactions that contribute to the onset and progression of the diseases. New projects to study the role of epigenetic changes in common diseases have also been started.

3. Research Subjects

1. Gene-environment interaction that affects the onset of metabolic syndrome and its related phenotypes.
2. Genetic factors that affect the severity of pathological atherosclerosis.
3. Responder vs non-responder of prodrugs and polymorphisms of drug metabolizing enzymes.
4. Severe cutaneous adverse response (Stevens-Jhonson's Syndrome) and HLA genotypes.
5. The role of epigenetic regulation and fetal programming in common diseases.

4. Publications

1. Sawabe M, Arai T, Araki A, Hosoi T, Kuchiba A, Tanaka N, Naito T, Oda K, Ikeda S, and Muramatsu M. Smoking confers a MTHFR 677C>T genotype-dependent risk for systemic atherosclerosis: Results from a large number of elderly autopsy cases died in a community-based general geriatric hospital. Atherosclerosis and Thrombosis, 16:91-104, 2009.
2. Matsunaga T, Yonemori C, Tomita E, Muramatsu M. Clique-based data mining for related genes in a biomedical database.BMC Bioinformatics. 2009 1;10:205.
3. Zhang L, Miyaki K, Wang W, Muramatsu M. CYP3A5 polymorphism and sensitivity of Blood Pressure to dietary salt. J Hum Hypertens 2009 [Epub ahead of print]
4. Ikeda H, Takahashi Y, Yamazaki E, Fujiwara T, Kaniwa N, Saito Y, Aihara M, Kashiwagi M, Muramatsu M. HLA Class I markers in Japanese patients with carbamazepine-induced cutaneous adverse reactions.Epilepsia. 2009 [Epub ahead of print]
5. Daimon M, Oizumi T, Toriyama S, Karasawa S, Jimbu Y, Wada K, Kameda W, Susa S, Muramatsu M, Kubota I, Kawata S, Kato T. Association of the Ser326Cys polymorphism in the OGG1 gene with type 2 DM. BBRC 386:26-29, 2009.
6. Miyaki K, Lwin H, Masaki K, Song Y, Takahashi Y, Muramatsu M, Nakayama T Association between a Polymorphism of Aminolevulinate Dehydrogenase (ALAD) Gene and Blood Lead Levels in Japanese Subjects. Int J Environ Res Public Health 6;999-1009, 2009.
7. Karasawa S, Daimon M, Sasaki S, Toriyama S, Oizumi T, Susa S, Kameda W, Wada K, Muramatsu M, Fukao A, Kubota I, Kawata S, Kayama T, Kato T. Association of the Common Fat Mass and Obesity Associated (FTO) Gene Polymorphism with Obesity in a Japanese Population. Endocr J. [Epub ahead of print]
8. Aoki K, Sato N, Yamaguchi A, Kaminuma O, Hosozawa T, Miyatake S.: Regulation of DNA demethylation during maturation of CD4+ naive T cells by the conserved noncoding sequence 1. J Immunol. 182: 7698-707, 2009.