

Exploration and Identification of Biomarkers of Multiple Sclerosis Which is Relevant for Management and Research of MS

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【Outline of survey】

Currently, diagnosis of multiple sclerosis (MS) largely depends on clinical examination and the results of MRI scans. Furthermore, decision by physicians of how to treat MS is empirical and not very objective. Here we attempt to establish laboratory tests enabling earlier diagnosis and personalized medicine of MS, which evaluate blood lymphocytes in terms of transcriptome profile as well as protein expression. To support the promise of this project, we have preliminary results that CD11c expression on peripheral NK cells reflect a disease activity in MS and that MS patients could be classified into four distinct groups based on T cell gene expression profiling (J. Neuroimmunol. 174: 108, 2006). We aim at identifying 10 brand-new biomarkers that are useful in the clinic.

【Expected results】

Identification of clinically useful biomarkers will make the management of patients with MS more objective, predictive, and personalized, which ultimately improves the prognosis and quality of life of the patients with MS. It is also probable that we will identify markers that are not only useful for MS but also for the research and management of other immune-mediated diseases.

【References by the principal researcher】

- Satoh J-i. et al. Microarray analysis identifies an aberrant expression of apoptosis and DNA damage-regulatory genes in multiple sclerosis. Neurobiol. Dis. 18:537-550, 2005
- Takahashi K, Aranami T, Endoh M, Miyake S, Yamamura T: The regulatory role of natural killer cells in multiple sclerosis. Brain 127: 1917-1927, 2004

【Term of project】 FY2006 - 2010

【Budget allocation】 27,000,000 yen

【Homepage address】

http://www.ncnp.go.jp/nin/guide/r_men/english.html