

Comprehensive Study of Osteoarthritis for Elucidation of the Etiology and Identification of the Molecular Target of Treatment: The ROAD Study

Kozo Nakamura

(The University of Tokyo, Faculty of Medicine, Professor)

【Outline of survey】

Osteoarthritis (OA), that affects all joints in the body, is a very common skeletal disorder. Although the prevalence is more than that of osteoporosis and about 10 times higher than that of rheumatoid arthritis, the molecular mechanism of OA remains unclarified, and even the basic epidemiologic index like prevalence rate or incidence rate has not yet been elucidated. In addition, there is no definite criterion for diagnosis or severity evaluation. We established a large-scale nationwide clinical study called ROAD (Research on Osteoarthritis Against Disability) in 2005, and created a comprehensive and systemic database including clinical and genetic information in three cohorts of urban, mountainous and seacoast areas. This theme includes the following three sub-projects.

- 1) Cloning of molecules regulating cartilage degeneration and elucidation of the molecular network
- 2) Establishment of automatic method for surrogate measurement of the OA severity
- 3) Comprehensive and systemic survey of genetic and environmental factors in a large-scale database through genomic epidemiologic approach

【Expected results】

By combining the three projects above, we are aiming at elucidation of the etiology and identification of the molecular target of treatment, which will lead to the improvement of quality of life of the elderly and elongation of healthy lifespan. The decrease of the prevalence of OA will also socially improve the economic situation of OA. Furthermore, a large-scale database whose size is already the biggest in the world will make an invaluable property for the international OA research.

【References by the principal investigator】

1. Yamada T, Nakamura K, et al. Carminerin contributes to chondrocyte calcification during endochondral ossification. *Nature Med* 12: 665-670, 2006.
2. Kizawa H, Nakamura K, et al. An aspartic acid repeat polymorphism in asporin inhibits chondrogenesis and increases susceptibility to osteoarthritis. *Nature Genet* 37: 138-144, 2005.

【Term of project】 FY2007—2011

【Budget allocation】 30,900,000 yen
(2007 direct cost)

【Homepage address】

<http://www.h.u-tokyo.ac.jp/ortho/index.html>