

Tissue Regeneration

1. Staff (April, 2009)

Associate Professor

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2. Purpose of Education

Our laboratory is interested in the molecular mechanisms underlying the formation and maintenance of connective tissues including cartilage and periodontal tissues. Our goal is to control the restoration and regeneration of the tissues. To achieve this goal, we are focusing on extracellular matrix molecules specifically expressed in the tissues and transcription factors regulating their expressions. Therefore, in our graduate course, we provide students opportunity to study molecular biology and extracellular matrix biology.

3. Research Subjects

- 1) Study on transcription factors necessary for the maintenance of chondrogenic phenotype.
- 2) Study on novel genes actively expressed in periodontal tissues.
- 3) Study on the molecular dynamics of extracellular matrix in connective tissue.

4. Publications

Original Article

1. Satake, H., Ito, K., Takahara, M., Furukawa, T., Takagi, M., Ogino, T., and Shinomura, T. Spatio-temporal expression of activating transcription factor 5 in the skeletal development of mouse limb. *Develop. Growth Differ.* 51 669-676 (2009)
2. Furukawa, T., Ito, K., Nuka, S., Hashimoto, J., Takei, H., Takahara, M., Ogino, T., Young M. F., and Shinomura, T. Absence of Biglycan Accelerates the Degenerative Process in Mouse Intervertebral Disc. *Spine* 34 E911-E917 (2009)
3. Nuka, S., Zhou, W., Henry, S. P., Gendron, C. M., Schultz, J. B., Shinomura, T., Johnson, J., Wang, Y., Keene, D. R., Ramirez-Solis, R., Behringer, R. R., Young, M. F., and Höök, M. Phenotypic characterization of epiphycan-deficient and epiphycan/biglycan double-deficient mice. *Osteoarthritis Cartilage* 18 88-96 (2010)