

Molecular Craniofacial Embryology

1. Staffs and Students (April 2010)

Professor	Sachiko Iseki	
Associate Professor	Masa-Aki Ikeda	
Assistant Professor	Masato Ota	
Part-time Lecturer	Hirofumi Doi,	Shumpei Yamada,
	Shigeru Okuhara,	Juan Liu (Gerodontology)
Graduate Students	Ryousuke Nagaoka,	Yuki Date,
	Teng Ma,	Widya Lestari,
	Khandakar Abu Shameem MD. Saadat,	
	Tomoko Nagayama,	Akihiko Machida,
	Masako Fujioka,	Shihoko Shimizu
Research Student	Endrawan Pratama, Kyo Ka	
Foreign Researcher	Olivier Philippe	

2. Purpose of education

Section of Molecular Craniofacial Embryology studies molecular mechanisms of craniofacial morphogenesis including regulation of cell proliferation and differentiation, and apply these achievements to regenerative medicine. Main objective of our section in the graduate course is to provide students with opportunities to define the research topic by themselves with the advice of laboratory staffs. Students can learn research laboratory techniques according to their projects, ways to make strategies, and scientific English writing.

3. Research subjects

- 1) Molecular mechanisms of mammalian craniofacial development
- 2) Application of developmental mechanisms to regenerative medicine
- 3) Identification of tissue stem cells in craniofacial region and molecular mechanism of their stemness
- 4) Regulation of gene expression in cell growth and stress response
- 5) Nuclear architecture and function in regulating gene expression
- 6) Dysregulation of tumor suppressors in oral cancer

4. Publications

Original articles

1. Shimada N, Ohno-Matsui K, Iseki S, Koike M, Uchiyama Y, Wang J, Yoshida T, Sato T, Peters C, Mochizuki M, Morita I. Cathepsin L in Bone Marrow-Derived Cells Is Required for Retinal and Choroidal Neovascularization. *Am. J. Pathol.*, 175(5), 2571-80, 2010.
2. Kimura A, Inose H, Yano F, Fujita K, Ikeda T, Sato S, Iwasaki M, Jinno T, Ae K, Fukumoto S, Takeuchi Y, Itoh H, Imamura T, Kawaguchi H, Chung UI, Martin JF, Iseki S, Shinomiya K, Takeda S. Runx1 and Runx2 cooperate during sternal morphogenesis. *Development*, 137(7), 1159-67, 2010.
3. Ebe N, Hara-Yokoyama M, Iwasaki K, Iseki S, Okuhara S, Podyma-Inoue KA, Terasawa K, Watanabe A, Akizuki T, Watanabe H, Yanagishita M, Izumi Y. Pocket epithelium in the pathological setting for HMGB1 release. *J. Dent. Res.*, 90 (2), 235-240, 2010.
4. Ikeda Y, Matsunaga Y, Takiguchi M, Ikeda MA. Expression of cyclin E in postmitotic neurons during development and in the adult mouse brain. *Gene Expr. Patterns*, doi:10.1016/j.gep.2010.09.004, 2010.
5. Ohazama A, Porntaveetus T, Ota MS, Herz J, Sharpe PT. Lrp4: A novel modulator of extracellular signaling in craniofacial organogenesis. *Am.J.Med.Genet., Part A*, 152A(12), 2974-83, 2010.
6. Ohazama A, Haworth KE, Ota MS, Khonsari RH, Sharpe PT. Ectoderm, endoderm, and the evolution of heterodont dentitions. *Genesis*, 48(6), 382-9, 2010.
7. Ohazama A, Blackburn J, Porntaveetus T, Ota MS, Choi HY, Johnson EB, Myers P, Oommen S, Eto K, Kessler JA, Kondo T, Fraser GJ, Streelman JT, Pardiñas UF, Tucker AS, Ortiz PE, Charles C, Viriot L, Herz J, Sharpe PT. A role for suppressed incisor cuspal morphogenesis in the evolution of mammalian heterodont dentition. *Proc Natl Acad Sci USA.*, 107(1), 92-7, 2010.