Developmental and Regenerative Biology

1. Staffs and Students (April, 2008)

Professor	Hiroshi NISHINA	
Assistant Professor	Yoichi ASAOKA,	Takashi NAKAMURA,
	Shinya TAKAHASHI,	Takahiro NEGISHI,
	Jinzhan Wu	
Secretary	Keiko OTAKA	
Graduate Student	Tadashi YOKOI,	Eiichiro NODA

2. Purpose of Education

Our goal is to define the molecular basis for the mechanism of organ formation and regeneration using knockout mice and mutant fishes. To accomplish this goal, we have focused on defining signaling molecules and pathways that regulate liver formation and stress responses. Moreover, we are trying to establish a cell therapy for intractable diseases such as liver failures using self-bone marrow cells. Our study will provide new insights into understanding the precise molecular mechanisms that underlie organ failures found in human disease and will lead to he development of new rational therapy for the diseases.

3. Research Subjects

1) Activation mechanism and physiological roles of stress-activated MAP kinase signaling pathway
2) Molecular mechanism of mouse liver regeneration
3) Mutations affecting liver development and function in Medaka, Oryzias Latipes

4. Publications

Original Article

1. Yoshifumi Matsumoto, Hiroki Oota, Yoichi Asaoka, Hiroshi Nishina, Koji Watanabe, Janusz M Bujnicki, Shoji Oda, Shoji Kawamura and Hiroshi Mitani (2009) Medaka: a promising model animal for comparative population genomics. ***BMC Research Notes*** 2, 88.
2. Norio Miyamura, Jun Hirayama, Kenji Sawanobori, Teruya Tamaru, Yoichi Asaoka, Reiko Honda, Takuro Yamamoto, Hatsume Uno, Ken Takamatsu, Hiroshi Nishina (2009) CLOCK:BMAL-independent circadian oscillation of zebrafish Cryptochrome1a gene. ***Biol. Pharm. Bull.*** 32, 1183-1187.
3. Jun Hirayama, Norio Miyamura, Yoshimi Uchida, Yoichi Asaoka, Raiko Honda, Kenji Sawanobori, Takeshi Todo, Takuro Yamamoto, Paolo Sassone-Corsi, and Hiroshi Nishina (2009) Common light signaling pathways controlling DNA repair and circadian clock entrainment. ***Cell Cycle*** 8, 2794-27801.
4. Shinya Ohata, Makiko Nawa, Takeshi Kasama, Tokiwa Yamasaki, Kenji Sawanobori, Shoji Hata, Takashi Nakamura, Yoichi Asaoka, Toshio Watanabe, Hitoshi Okamoto, Takahiko Hara, Shuji Terai, Isao Sakaida, Toshiaki Katada, and Hiroshi Nishina (2009) Hematopoiesis-dependent expression of CD44 in murine hepatic progenitor cells. ***Biochem. Biophys. Res. Commun.*** 379, 817-823.
5. Shuhei Tanemura, Haruka Momose, Nao Shimizu, Daiju Kitagawa, Jungwon Seo, Tokiwa Yamasaki, Kentaro Nakagawa, Hiroaki Kajiho, Josef M. Penninger, Toshiaki Katada, and Hiroshi Nishina (2009) Blockage by SP600125 of Fce Receptor-induced degranulation and cytokine gene expression in mast cells is mediated through inhibition of phosphatidylinositol 3-kinase signaling pathway. ***J. Biochem.*** 145, 345-354. Cover of the issue.
6. Ryota Saito, Tokiwa Yamasaki, Yoko Nagai, Jinzhan Wu, Hiroaki Kajiho, Tadashi Yokoi, Eiichiro Noda, Sachiko Nishina, Hitoshi Niwa, Noriyuki Azuma, Toshiaki Katada, and Hiroshi Nishina (2009) CrxOS Maintains Self-Renewal Capacity of Murine Embryonic Stem Cells. ***Biochem. Biophys. Res. Commun.*** 390, 1129-1135
7. Nao Shimizu, Hajime Watanabe, Junko Kubota, Jinzhan Wu, Ryota Saito, Tadashi Yokoi, Takumi Era, Takeshi Iwatsubo, Takashi Watanabe, Sachiko Nishina, Noriyuki Azuma*, Toshiaki Katada, and Hiroshi Nishina* (2009) Pax6-5a Promotes Neuronal Differentiation of Murine Embryonic Stem Cells. ***Biol. Pharm. Bull.*** 32, 999-1003. Cover of the issue.
8. Takashi Nakamura and Hiroshi Nishina (2009) Liver development: lessons from knockout mice and mutant fish. ***Hepatol. Res.*** 39, 633-644.