

Pathological Cell Biology

1. Staffs and Students (April, 2010)

Professor	Shigeomi SHIMIZU	
Associate Professor	Norio SHIMIZU	
Assistant Professor	Tatsushi YOSHIDA, Satoko ARAKAWA	
Tokunin Assistant Professor	Michiko MUROHASHI,	Yuya NISHIDA,
	Leishuku LI	
Secretary	Mimi SAKAGUCHI,	Sachiko OTSUKA
Graduate Student	Hirofumi YAMAGUCHI,	Megumi SUGANUMA,
	Shiho YOSHIDA,	Sayumi ICHIKAWA,
	Miyako HIRASAWA	

2. Purpose of Education

Main objective in the graduate course is to provide students opportunity to study the molecular mechanisms of cell death, the cell death-related diseases, the physiological and pathological roles of autophagy, the development mechanism of Epstein-Barr virus (EBV) infection, the employment of immunodeficiency animals for the creation of virus research models and development of an exhaustive pathogenic microbial screening system.

3. Research Subjects

- 1) Analysis of apoptosis mechanism
- 2) Analysis of non-apoptotic cell death (autophagic cell death)
- 3) Physiological and pathological roles of cell death in mammals
- 4) Analysis of alternative macroautophagy mechanism
- 5) Physiological and pathological roles of autophagy in mammals
- 6) Development of novel EBV infection animal models using the hNOG mice
- 7) Development of an exhaustive pathogenic microbe screening system

4. Clinical Services

No services.

5. Publications

Original Article

1. Mouri A, Noda Y, Shimizu S, Tsujimoto Y, Nabeshima T. The role of cyclophilin D in learning and memory. **Hippocampus** 20, 293-304, 2010
2. Shimizu S, Konishi A, Nishida Y, Mizuta T, Nishina H, Yamamoto A, Tsujimoto Y. Involvement of JNK in the regulation of autophagic cell death. **Oncogene** 29, 2070-2082, 2010
3. Nabeyama A, Kurita A, Asano K, Miyake Y, Yasuda T, Miura I, Nishitai G, Arakawa S, Shimizu S, Wakana S, Yoshida H, Tanaka M. xCT deficiency accelerates chemically induced tumorigenesis. **Proc. Natl. Acad. Ssi. USA** 107, 6436-6441, 2010
4. Ideguchi K, Shimizu S, Okumura M, Tsujimoto Y. Cyclophilin D-dependent mitochondrial permeability transition is not involved in neurodegeneration in mnd2 mice. **Biochem. Biophys. Res. Commun.** 393, 264-267, 2010.
5. Kamiya K, Tsumoto K, Arakawa S, Shimizu S, Morita I, Yoshimura T, Akiyoshi K. Preparation of connexin43-integrated giant Liposomes by a baculovirus expression-liposome fusion method. **Biotechnol. Bioeng.** 107, 836-843, 2010
6. Yoshida T, Mizuta T, Shimizu S. Neurodegeneration in mnd2 mutant mice is not prevented by parkin transgene. **Biochem. Biophys. Res. Commun.** 402, 676-679, 2010.
7. Yoshioka Y, Shimizu S, Ito T, Taniguchi M, Nomura M, Nishida T, Sawa Y. p53 Inhibits Vascular Endothelial Growth Factor Expression in Solid Tumor. **J Surg Res.** *in press* 2011
8. Sugita S, Shimizu N, Watanabe K, Katayama M, Horie S, Ogawa M, Sugimoto Y and Mochizuki M. Diagnosis of bacterial endophthalmitis by broad-range quantitative PCR. **Br J Ophthalmol.** 95, 345-349, 2011.
9. Miyayama M, Sugita S, Shimizu N, Morio T, Miyata K, Maruyama K, Kinoshita S, Mochizuki M. A significant association of viral loads with corneal endothelial cell damage in cytomegalovirus anterior uveitis. **Br. J.**

- Ophthalmol.** 94, 336-340, 2010.
10. Nagasawa M., Ogawa K., Nagata K., Shimizu N. Serum granulysin as a possible biomarker of NK cell neoplasm. **Br J Haematol.** 148, 812-814, 2010.
 11. Zhang Y, Ohyashiki JH, Shimizu N, Ohyashiki K. Aberrant expression of NK cell receptors in Epstein-Barr virus-positive gammadelta T-cell lymphoproliferative disorders. **Hematology.** 15, 43-47, 2010.
 12. Kariya Y, Hamatake M, Urano E, Yoshiyama H, Shimizu N, Komano J. Dominant-negative derivative of EBNA1 represses EBNA1-mediated transforming gene expression of Epstein-Barr virus infection independent of rapid loss of viral genome. **Cancer Sci.** 101, 876-881, 2010.
 13. Iwata S, Wada K, Tobita S, Gotoh K, Ito Y, Demachi-Okamura A, Shimizu N, Nishiyama Y, Kimura H. Quantitative Analysis of Epstein-Barr Virus (EBV)-Related Gene Expression in Patients with Chronic Active EBV Infection. **J Gen Virol.** 91(Pt1), 42-50, 2010.
 14. Yamanaka Y., Tagawa H., Takahashi N., Watanabe A., Guo Y-M., Iwamoto K., Yamashita J., Saitoh H., Kameoka Y., Shimizu N., Ichinohasama R., and Sawada K. Aberrant overexpression of microRNAs activate AKT signaling via down-regulation of tumor suppressors in natural killer-cell lymphoma/leukemia. **Blood** 114, 3265 – 3275, 2010.
 15. Miyagawa Y., Kiyokawa N., Ochiai N., Imadome K., Horiuchi Y., Onda K., Yajima M., Nakamura H., Katagiri Y., Okita H., Morio T., Shimizu N., Fujimoto J. and Fujiwara S. Ex vivo expanded cord blood CD4 T lymphocytes exhibit a distinct expression profile of cytokine-related genes from those of peripheral blood origin. **Immunology.** 128, 405-419, 2010.
 16. Chan KK, Shen L, Au WY, Yuen HF, Wong KY, Guo T, Wong ML, Shimizu N, Tsuchiyama J, Kwong YL, Liang RH, Srivastava G. Interleukin-2 induces NF-kappaB activation through BCL10 and affects its subcellular localization in natural killer lymphoma cells. **J Pathol.** 221, 164-74, 2010.

Review Article

1. Shimizu S, Arakawa S. and Nishida Y. Autophagy takes an alternative pathway. **Autophagy** 6.2, 290-291, 2010