

ANNUAL PUBLICATIONS

Department of Maxillofacial Biology Cellular Physiological Chemistry

1993.1.-2000.3.

I. Staffs and Students (April, 1999)

Professor	S. Murota		
Associate Professor	I. Morita		
Research Associate	K. Kato,	T. Himi	
Secretary	M. Yoshida		
Parttime Lecturer	M. Ikeda,	J. Ikeda,	
	H. Fujita ,	I. Suzuki,	T. Tokushima
Graduate Student	L. Zhang,	J. Xu,	J. Ri,
	V.Garcia Palacios,	Y.W. Zhang,	J. Wang,
	M. Tuji		
Graduate Student (entrusted)	M.Sano (Gerodontology)		
	Y. Michi (Maxillo Facial Surgery)		
	D. Nishi (Hoshi University)		
	M. Onodera (Allied Health Sciences)		
	Y. Taniguchi (Comprehensive Reproductive Medicine)		
	S. Morishima (Oral Surgery)		
	H. Fujita (Ophthalmology & Visual Science)		
	H. Yoshino (Periodontology)		
Special Student	K. Sakaguchi,	M. Nishida,	T. Sato,
	H. Yamaguchi,	T. Maemura,	Y. Asakawa,
	F. Zhang,	R. Asami,	O. Safronova
Collaborator	K. Sato,	T. Watanabe,	K. Ohno
Foreign Collaborator	Y. Gao		
Undergraduate Student (entrusted)	T. Murakami,	Y. Horiuchi	

II. Educational Outline of Graduate Course

The section of Cellular Physiological Chemistry performs scientific research directed the determination of physiological roles of a various mammalian cells and the prevention of some diseases via regulation of cell functions. Specific offerings for course work include cell physiology, molecular biology, biochemistry, immunocytochemistry based on the development of new techniques of cell and tissue cultures. Moreover, our educational outline is that during our laboratory the students love investigation and that after graduation they create their own ideas in any fields.

III. Research Subjects

The research projects and education points in this department are all focused on the elucidation of the mechanisms of the cause of various diseases, such as inflammation, bone diseases, vascular diseases, neuronal diseases and so on. To fulfill the purpose, some in vitro cell culture systems have often been used. All kinds of the cells cultured in this department, including bone cells such as osteoblasts and osteoclasts, vascular cells such as endothelial cells and smooth muscle cells, neuronal cells such as astrocytes and neurons, fibroblasts and myofibroblasts isolated from palatal mucoperiosteum, odontoblasts and so on, have their own specific functions.

IV. Publications (January, 1993-March, 2000)

A. Original Articles

- 1 . Onodera M. Morita I. Mano Y. Murota S. Differential effects of nitric oxide on the activity of prostaglandin endoperoxide H synthase-1 and -2 in vascular endothelial cells. Prostaglandins Leukotrienes & Essential Fatty Acids. 62(3):161-7, 2000
- 2 . Sakaguchi K. Morita I. Murota S. Relationship between the ability to support differentiation of osteoclast-like cells and adipogenesis in murine stromal cells derived from bone marrow. Prostaglandins Leukotrienes & Essential Fatty Acids. 62(5):319-27, 2000

- 3 . Michi Y. Morita I. Amagasa T. Murota S. Human oral squamous cell carcinoma cell lines promote angiogenesis via expression of vascular endothelial growth factor and upregulation of KDR/flk-1 expression in endothelial cells. *Oral Oncology*. 36(1):81-8, 2000
- 4 . Nishida M. Morita I. Murota S. Mechanism of inhibitory effect of hypoxia/reoxygenation on gap junctional intercellular communication of endothelial cells in culture. *Ischemic Blood Flow in the Brain, Keio University Symposia for Life Science and Medicine, Vol 6, (Fukuuchi Y. Tomita M. Koto A. eds.)* pp.49-56, Springer-Verlag, Tokyo, 2000
- 5 . Fujita H. Shimotsuura S. Yanagisawa A. Morita I. Murota S. Ishikawa K. Simvastatin enhanced sodium nitroprusside-induced apoptosis of smooth muscle cells. An involvement of geranylgeraniol. *Atherosclerosis*. 148(2):309-15, 2000
- 6 . Zhang YW. Morita I. Zhang L. Shao G. Yao XS. Murota S. Screening of anti-hypoxia/reoxygenation agents by an in vitro method. Part 2: Inhibition of tyrosine kinase activation prevented hypoxia/reoxygenation-induced injury in endothelial gap junctional intercellular communication. *Planta Medica*. 66(2):119-23, 2000
- 7 . Zhang YW. Morita I. Shao G. Yao XS. Murota S. Screening of anti-hypoxia/reoxygenation agents by an in vitro model. Part 1: Natural inhibitors for protein tyrosine kinase activated by hypoxia/reoxygenation in cultured human umbilical vein endothelial cells. *Planta Medica*. 66(2):114-8, 2000
- 8 . Murota S. Onodera M. Morita I. Regulation of angiogenesis by controlling VEGF receptor. *Annals of the New York Academy of Sciences, Vol.902, Atherosclerosis V, The Fifth Saratoga International Conference, (Numano F. and Gimbrone Jr.M.A. eds.)* pp.208-213, The New York Academy of Sciences, New York, 2000
- 9 . Zhang L. Himi T. Morita I. Murota S. Hepatocyte growth factor protects cultured rat cerebellar granule neurons from apoptosis via the phosphatidylinositol-3 kinase/Akt pathway. *Journal of Neuroscience Research*. 59(4):489-96, 2000
- 10 . Sano M. Fujita H. Morita I. Uematsu H. Murota S. Vitamin K2 (menatetrenone) induces iNOS in bovine vascular smooth muscle cells: no relationship between nitric oxide production and gamma-carboxylation. *Journal of Nutritional Science & Vitaminology*. 45(6):711-23, 1999
- 11 . Noguchi K. Iwasaki K. Shitashige M. Murota S. Ishikawa I. Prostaglandin E2 downregulates interferon- γ -induced intercellular adhesion molecule-1 expression via EP2 receptors in human gingival fibroblasts. *Inflammation*, 23:411-494, 1999
- 12 . Ikeda M. Komachi H. Sato I. Himi T. Yuasa T. Murota S. Induction of neuronal nitric oxide synthase by methylmercury in the cerebellum. *Journal of Neuroscience Research*. 55(3):352-6, 1999
- 13 . Ikeda M. Komiyama T. Sato I. Himi T. Murota S. Neuronal nitric oxide synthase is resistant to ethanol. *Life Sciences*. 64(18):1623-30, 1999
- 14 . Fujita H. Morita I. Murota S. A possible involvement of ion transporter in tumor necrosis factor alpha and cycloheximide-induced apoptosis of endothelial cells. *Mediators of Inflammation*. 8(4-5):211-8, 1999
- 15 . Fujita H. Ishizaki Y. Yanagisawa A. Morita I. Murota SI. Ishikawa K. Suppressive effect of chloride bicarbonate exchanger blocker on staurosporine-induced apoptosis of cardiomyocytes and endothelial cells. *Cell Biology International*. 23(4):241-9, 1999
- 16 . Fujita H. Ishizaki Y. Yanagisawa A. Morita I. Murota SI. Ishikawa K. Possible involvement of a chloride-bicarbonate exchanger in apoptosis of endothelial cells and cardiomyocytes. *Cell Biology International*. 23(4):241-9, 1999.
- 17 . Shitashige M. Morita I. Murota S. Existence of endogenous inhibitor(s) of prostaglandin endoperoxide H synthase activities in murine NIH3T3 fibroblasts. *Prostaglandins Leukotrienes & Essential Fatty Acids*. 61(2):97-103, 1999
- 18 . Zhang YW. Morita I. Yao XS. Murota S. Pretreatment with eicosapentaenoic acid prevented hypoxia/reoxygenation-induced abnormality in endothelial gap junctional intercellular communication through inhibiting the tyrosine kinase activity. *Prostaglandins Leukotrienes & Essential Fatty Acids*. 61(1):33-40, 1999
- 19 . Weems YS. Lammoglia MA. Lewis AW. Randel RD. Sasser RG. Morita I. Weems CW. PGE2 induces its own secretion in vitro by bovine 270-day placenta but not by 200-day placenta. *Prostaglandins & Other Lipid Mediators*. 57(4):189-205, 1999
- 20 . Zhang YW. Morita I. Nishida M. Murota SI. Involvement of tyrosine kinase in the hypoxia/reoxygenation-induced gap junctional intercellular communication abnormality in cultured human umbilical vein endothelial cells. *Journal of Cellular Physiology*. 180(3):305-13, 1999
- 21 . Noguchi K. Shitashige M. Watanabe H. Murota S. Ishikawa I. Interleukin-4 and interferon- γ inhibit prostaglandin production by interleukin-1 β -stimulated human periodontal ligament fibroblasts. *Inflammation*, 23:1-13, 1999
- 22 . Zhao F. Morita I. Shao G. Yao X-S. Murota S. Anti-inflammatory activities of *phyllanthus emblica* and *betula alnoides* through transcription factor NF- κ B pathway. *J.Trad.Med.*, 16:155-162, 1999
- 23 . Sato I. Ma L. Ikeda M. Morita I. Murota S. Simvastatin, a potent HMG-CoA reductase inhibitor, inhibits the proliferation of human and bovine endothelial cells in vitro. *Journal of Atherosclerosis & Thrombosis*. 4(3):102-6, 1998.
- 24 . Sato T. Morita I. Murota S. Involvement of cholesterol in osteoclast-like cell formation via cellular fusion. *Bone*. 23(2):135-40,

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- 25 . Gao Y. Morita I. Maruo N. Kubota T. Murota S. Aso T. Expression of IL-6 receptor and GP130 in mouse bone marrow cells during osteoclast differentiation. *Bone*. 22(5):487-93, 1998
- 26 . Himi T. Ishizaki Y. Murota S. A caspase inhibitor blocks ischemia-induced delayed neuronal death in the gerbil. *Eur. J. Neurosci.*, 10:777-781, 1998
- 27 . Irie K. Tsukahara F. Fujii E. Uchida Y. Yoshioka T. He W.R. Shitashige M. Murota S. Muraki T. Induction of cationic amino acid transporter-2 mRNA by tumor necrosis factor- α is associated with nitric oxide production in human umbilical vein endothelial cells. *The Biology of Nitric Oxide (Part 6)*, (Moncada S. Toda N. Maeda H. and Higgs E.A. eds.) pp.196, Portland Press, London, 1998
- 28 . Murota S. Nishida M. Morita I. Suppression of gap junctional intercellular communication in HUVEC by neutrophil adhesion. *Atherosclerosis XI*, (Jacotot B. Mathe D. Furchart J.-C. eds.) pp.969-972, Elsevier, Amsterdam, 1998
- 29 . Murota S. Onodera M. Yang Y. Sato-Suzuki I. Kanayasu-Toyoda T. Morita I. Eicosanoids and vascular endothelial cell functions. *Essential Acids and Eicosanoids*, (Riemersma R.A. Armstrong R. Kelly R.W. Wilson R. eds.) pp.248-251, AOCS Press, Champaign, U.S.A., 1998
- 30 . Nagashima H. Ishizaki Y. Nishida M. Morita I. Murota S. Goto T. Rubratoxin B induces apoptosis in p53-null cells. *Mycotoxins*, 46:35-37, 1998
- 31 . Yang SP. Morita I. Murota SI. Eicosapentaenoic acid attenuates vascular endothelial growth factor-induced proliferation via inhibiting Flk-1 receptor expression in bovine carotid artery endothelial cells. *Journal of Cellular Physiology*. 176(2):342-9, 1998
- 32 . Sano M. Sato-Suzuki I. Fujita H. Morita I. Nagao M. Murota S. NO is not involved in the simvastatin induced cell division and differentiation in PC12 cells. *Neuroscience Letters*. 243(1-3):73-6, 1998
- 33 . Kanayasu-Toyoda T. Morita I. Murota S. Arachidonic acid pretreatment enhances smooth muscle cell migration via increased Ca^{2+} influx. *Prostaglandins Leukotrienes & Essential Fatty Acids*. 58(1):25-31, 1998
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- 35 . Murota S. Onodera M. Shitashige M. Morita I. Selective effect of nitric oxide on cyclooxygenase 1 and 2 activities in cultured cells. *The Biology of Nitric Oxide (Part 6)*, (Moncada S. Toda N. Maeda H. Higgs E.A. eds.) pp.38, Portland Press, London, 1998
- 36 . Tokushima T. Sato T. Morita I. Murota S. Involvement of prostaglandin endoperoxide H synthase-2 in osteoclast formation induced by parathyroid hormone. *Advances in Experimental Medicine & Biology*. 433:307-9, 1997.
- 37 . Irie K. Tsukahara F. Fujii E. Uchida Y. Yoshioka T. He WR. Shitashige M. Murota S. Muraki T. Cationic amino acid transporter-2 mRNA induction by tumor necrosis factor-alpha in vascular endothelial cells. *European Journal of Pharmacology*. 339(2-3):289-93, 1997
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- 39 . Kitamura Y. Morita I. Nihei Z. Mishima Y. Murota S. Effect of IL-6 on tumor cell invasion of vascular endothelial monolayers. *Surgery Today*. 27(6):534-41, 1997.
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- 42 . Morita I. Sato I. Ma L. Murota S. Enhancement of membrane fluidity in cholesterol-poor endothelial cells pre-treated with simvastatin. *Endothelium*. 5(2):107-13, 1997.
- 43 . Kameda H. Morita I. Handa M. Kaburaki J. Yoshida T. Mimori T. Murota S. Ikeda Y. Re-expression of functional P-selectin molecules on the endothelial cell surface by repeated stimulation with thrombin. *British Journal of Haematology*. 97(2):348-55, 1997
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- 45 . Ikeda M. Ko, iyama T. Sato I. Himi T. Murota S. Ethanol does not affect nitric oxide production by nitric oxide synthase in neurons. *Neurochem.Res.*, 22:890, 1997
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- 47 . Kitamura Y. Morita I. Nihei Z. Mishima Y. Murota S. Effect of IL-6 on tumor cell invasion of vascular endothelial monolayers. *Surgery today*, 27:534-541,1997
- 48 . Morita I. Shindler M. Dewitt D. Murota S. Smith W. A novel method for prostaglandin endoperoxide H synthase activity in individual intact cells. *Eicosanoids and Other Bioactive Lipids in Cancer, Inflammation and Radiation Injury #*. (Honig K.V. Marnett L.J. Nigam S. Jones R.L. and Wong P-Y.K. eds.) pp.521-524, Plenum Publishing corporation, New York, 1997
- 49 . Murota S. Nishida M. Morita I. Effect of hypoxia-reoxygenation on gap junctional intercellular communication of Vascular endothelial cells in culture. *Proceeding of World Congress of Clinical and Experimental Pathophysiology*, (Nicolov N.A. ed.) pp.86-88, Sofia, Bulgaria, 1997
- 50 . Nagashima H. Nishida M. Ishizaki Y. Morita I. Murota S. Goto H. Cytological effects of rubratoxin B: Morphological change and gap junctional intercellular communication. *Animal Cell Technology: Basic and Applied Spectra*, (Funatsu K. et al eds.) Vol.18, pp.571-575, Kluwer Academic Publishers, Netherlands, 1997
- 51 . Sato T. Morita I. Murota S. Prostaglandin E2 mediates parathyroid hormone induced osteoclast formation by cyclic AMP independent independent mechanism. *Eicosanoids and Other Bioactive Lipids in Cancer, Inflammation and Radiation Injury 3*. (Honig K.V. Marnett L.J. Nigam S. Jones R.L. and Wong P-Y.K. eds.) pp.383-386, Plenum Publishing Corporation, New York, 1997
- 52 . Fujita H. Morita I. Ishikawa K. Murota S. The synergistic effect of elastase and hydrogen peroxide on vascular endothelial cell injury is due to the production of hydroxyl radical in the endothelial cells. *Journal of Atherosclerosis & Thrombosis*. 3(1):32-8, 1996.
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- 54 . Sato I. Himi T. Murota S. Lipopolysaccharide-induced nitric oxide synthase activity in cultured cerebellar granule neurons. *Neuroscience Letters*. 205(1):45-8, 1996
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