

Biochemistry

1. Staffs and student (April, 2010)

Professor	Masaki Yanagishita
Associate Professor	Miki Yokoyama
Junior Associate Professor	Yasuhiro Kumei
Assistant Professor	Katarzyna Anna Podyma-Inoue
Research Assistant Professor, Global Center of Excellence Program	Hiroyuki Nakamura
Technical staff	Kazue Terasawa
Graduate student	Hiroko Yamanokuchi

2. Purpose of education

Extracellular matrix is a critical constituent of multicellular organisms by functioning as scaffold for body structures and providing internal environment for cell activities. Our section focuses on the research and education on molecular composition, biological functions and pathological processes involving extracellular matrices.

3. Research subjects

- Studies on the biological functions of heparan sulfate proteoglycans
- Roles of sphingolipid metabolism on cell death progression
- Localization of transmembrane proteins on the plasma membrane
- Sensing and response mechanisms of cells toward gravity

4. No clinical services

5. Publications

[Original article]

- Sachiko Takehara, Masaki Yanagishita, Katarzyna Anna Podyma-Inoue, Masayuki Ueno, Kayoko Shinada and Yoko Kawaguchi, Relationship between Oral Malocclusion and Glycosylated Salivary Proteins. *J. Med. Dent. Sci.* (2010) 57:25-33
- N. Ebe, M. Hara-Yokoyama, K. Iwasaki, S. Iseki, S. Okuhara, K. A. Podyma-Inoue, K. Terasawa, A. Watanabe, T. Akizuki, H. Watanabe, M. Yanagishita and Y. Izumi, Pocket Epithelium in the pathological setting for HMGB1 release. *J. Dent. Res.* (2011) 90:235-240
- Sonnlyal S, Shi-Wen X, Leoni P, Naff K, Van Pelt CS, Nakamura H, Leask A, Abraham D, Bou-Gharios G, de Crombrughe B. Selective expression of connective tissue growth factor in fibroblasts in vivo promotes systemic tissue fibrosis. *Arthritis Rheum.* (2010) 62:1523-1532.
- George Bou-Gharios, Farhana Amin, Peter Hill, Hiroyuki Nakamura, Patrick Maxwell, Nicholas M Fisk, Microchimeric Fetal Cells Are Recruited to Maternal Kidney following Injury and Activate Collagen Type I Transcription. *Cells Tissues Organs* (2011) 193:379-392

[Review]

- Masaki Yanagishita, Preface, Special Issue on Hyaluronan, *Trend in Glycoscience and Glycotechnology.* (2010) 22:55-56
- Hascall, Vincent C., Toole, Bryan P. de la Motte, Carol, Yanagishita, Masaki and Kimata, Koji, HA2010 Overview, *Trend in Glycoscience and Glycotechnology.* (2010) 22:261-267

6. Presentation at meetings

- N. Ebe, M. Hara-Yokoyama, K. Iwasaki, S. Iseki, S. Okuhara, K. A. Podyma-Inoue, K. Terasawa, A. Watanabe, T. Akizuki, H. Watanabe, M. Yanagishita and Y. Izumi, Pocket Epithelium in the pathological setting for HMGB1 release. IADR, July 14-17, 2010, Barcelona, Spain
- Yamanokuchi, H., Torigoe, K., Ohnuki, Y., Yoshida, K. and Yanagishita, M., HA-tetrasaccharide stimulates differentiation and regeneration of neuron. International Symposium on Hyaluronan 2010, June 6, 2010, Kyoto, Japan
- Katarzyna A. Podyma-Inoue, Miki Yokoyama and Masaki Yanagishita, Association of Heparan Sulfate Proteoglycans with Membrane Rafts. Gordon Research Conference on Proteoglycan, July 11-16, 2010, Andover, NH, U.S.A.
- Miki Yokoyama, Kazue Terasawa, Masaki Yanagishita, Enhanced plasma membrane permeability depending on

Sphingosine kinase 2, Meeting on “Sphingo-Therapy”, July 16-17, 2010, Yonago

5. Miki Yokoyama, Kazue Terasawa, Shizuko Ichinose, Yoshio Hirabayashi, Yasuyuki Igarashi and Masaki Yanagishita, Increase in the plasma membrane permeability by intracellular generation of sphingosine-1-phosphate. Japanese Association of Biochemistry, December 7-10, 2010, Kobe
6. S. Takehara, M. Yanagishita, K. A. Podyma-Inoue, M. Ueno, K. Shinada and Y. Kawaguchi, Proteolytic Degradation of Human Salivary MUC5B and MUC7, the 25th International Carbohydrate Symposium, August 2, 2010, Makuhari
7. Kumei, Y., Zeredo, JL, Nomura, Y., Okuno, M, Kawano, F., Ohira, Y., Ohya, K., Atomi, Y., Matsuura, M., Toda, K., Wakata, K., Yamashita, M.: Low gravity threshold and adaptation to lunar and Martian gravity: Life Sciences Research in Partial Gravity. ESA-ELGRA Symposium June 17, 2010 Trieste, Italy.
8. Zeredo JL and Kumei, Y.: Rat behavioral responses to graded levels of partial gravity. ESA-ELGRA Symposium. June 16, 2010 Trieste, Italy.
9. Yasuhiro Kumei, Hideo Akiyama, Junko Atomi, Toru Ikeda, Noriaki Ishioka, Masao Ito, Kenichi Iwasaki, Makoto Okuno, Taro Kageyama, Masahiro Kizaki, George Zeredo, Kazuo Toda, Yasuyuki Nomura, Chiaki Mukai, Masaaki Matsuura, Sadao Morita, Masamichi Yamashita, Koichi Wakata, Makoto Igarashi, 2010 Report on “Bioresponses to pan-low gravity environment in moon and mars”, 26th Symposium on Space-developments, January 24, 2010, Sagamihara