

# Medical Biochemistry

## 1. Staffs and Students (April, 2010)

Professor	Yutaka Hata
Assistant Professor	Kentaro Nakagawa
Assistant Professor	Mitsunobu Ikeda
Assistant Professor	Hiroaki Iwasa
Other two staffs and six students	

## 2. Purpose of Education

### 1) Undergraduate

We organize two courses: “Molecular Biology and Human Genetics” and “Medical Biochemistry”. The students are requested through these courses to obtain a comprehensive integrated knowledge of human molecular genetics and biochemistry, which is important to understand how health is maintained and which molecular and biochemical events cause human diseases and underlie the rational treatments.

### 2) Graduate and others

We are studying the cell adhesion-related signaling pathway which is involved in the regulation of cell proliferation, cell polarity, and apoptosis. This pathway is well conserved from fly to human. The mutations of the components lead to oncogenesis and organ malformation. Several recent studies suggest that this pathway is implicated in inflammation and cell differentiation such as adipogenesis, osteogenesis, and keratinocyte differentiation. The pathway plays an important role in various human diseases and could be a new therapeutic target. We give lectures about our current studies to graduate students and others, and provide graduate students with the opportunity to participate in them. For more information, please visit our Web site (<http://www.tmd.ac.jp/english/mbc/index.html>).

## 3. Research Subjects

- 1) Study of the mammalian Hippo pathway
- 2) Study of cancer stem cells
- 3) Study of RASSF proteins

## 4. Clinical Services

N/A

## 5. Publications

### Original Articles

1. Fukaya M, Kamata A, Hara Y, Tamaki H, Katsumata O, Ito N, Takeda S, Hata Y, Suzuki T, Watanabe M, Harvey RJ, Sakagami H. SynArfGEF is a guanine nucleotide exchange factor for Arf6 and localizes preferentially at post-synaptic specializations of inhibitory synapse. *J. Neurochem.* Dec 27, 2010.
2. Kaufman L, Potla U, Coleman S, Dikiy S, Hata Y, Kurihara H, He JC, D' Agati VD, Klotman PE. Upregulation of the homophilic adhesion molecule Sidekick-1 in podocytes contributes to glomerulosclerosis. *J. Biol. Chem.* 285, 25677-25685, 2010.
3. Nakagawa K, Sugahara M, Yamasaki T, Kajiho H, Takahashi S, Hirayama J, Minami Y, Ohta Y, Watanabe T, Hata Y, Katada T, Nishina H. Filamin associates with stress signaling kinases MKK7 and MKK4 and regulates JNK activation. *Biochem. J.* 427, 237-245, 2010.
4. Iwasa H, Yu S, Xue J, Driscoll M. Novel EGF pathway regulators modulate *C. elegans* healthspan and lifespan via EGF receptor, PLC-gamma, and IP3R activation. *Aging Cell* 9, 490-505, 2010.