Laboratory of Physiology

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Educational activities
Veterinary Physiology is one of basic courses which undergraduate students learn just when professional courses begin during their early terms before clinical courses start. Teaching stuff mentioned above takes responsibilities for lecture and practice of Physiology for undergraduate students in a wide variety of fields such as General Physiology, Cell Physiology, Vascular and Cardiac Physiology, Respiratory Physiology, Endocrinology, Digestion and Absorption, Renal Physiology, Muscle Physiology, Neurophysiology, Brain function, and Environmental Physiology. For postgraduate students, special courses for Comparative Physiology and Neurophysiology will be offered. Our teaching staff carries on lecture and practice from the comparative and evolutional point of view in order to explain “The Logic of Life” in various animals. Understanding of “The Logic of Life” will surely be helpful for those students who are trying to be not only basic scientists but also veterinary clinicians.

Research activities
Our current research themes are as follows; studies on 1) the role of calcium ion in intracellular signaling system in various cells including secretory cells (Habara), 2) the specific mechanisms of energy metabolism in the brain of ruminants (Habara), 3) the effect of photodynamic action on intracellular signaling system in various cells (Habara), 4) the characterization of ionic channels in epithelial cells (Ishikawa), and 5) the cellular mechanisms of function of adrenal chromaffin and dorsal root ganglion cells (Kitamura). The second project is now processing as a domestic collaboration with Dr. Kenichi Yayou

and Dr. Kiyoshi Takeshita of Hokkaido National Agricultural Experiment Station of the Ministry of Agriculture and Fishery (Sapporo) and the third one is on going as a 3-year international joint research with Dr. Zong Jie Cui of Beijing Normal University (Beijing) and Dr. Yoichi Satoh of Iwate Medical College (Morioka) from 1998. For these scientific interests, we adopt fluorescent ratiometry technique, fluorescence imaging system, in vivo whole body animals, patch clamping technique, molecular biological technique, cell culture methods, in addition to ordinary physiological techniques. Those who are also interested in above projects, you are mostly welcome to contact with our laboratory (phone: 81-11-706-5199, Fax: 81-11-706-5202, e-mail: habara@vetmed.hokudai.ac.jp).

Selected recent publication list
6) A Ca$^{2+}$-activated 23pS potassium channel in a


