Syllabus

1. Course Title, Style and Credit:
Regulation of biological function I,
(X) Lecture, ( ) Discussions ( ) Practice
1 credit

2. Appropriate grade level and Eligible Departments:
D1, 2, 3, 4, 5
(X) Department of Physiological Sciences, School of Life Science

3. Lectures
Yasuhiko Minokoshi (minokosh@nips.ac.jp, Tel: 0564-55-7741, Myodaiji)
Motohiro Nishida (nishida@nips.ac.jp, Tel: 0564-59-5560, Yamate)
Makoto Tominaga (tominaga@nips.ac.jp, Tel: 0564-59-5286, Yamate)

4. Time
(Oral): AM 10:00-12:00 on Friday
Oct 23, 30, Nov 6, 13, 20, Dec 11, 18, 25th in 2020

5. Place
Yamate Area：Seminar room, 9th Floor of the Yamate 3rd Building.
Lectures will be delivered by a remote lecture system.

6. Prerequisites and Styles
There is no lecture course especially requested to have been finished in advance.
The entire course will be presented in English.

7. Contents
(1) Mechanisms for the regulation of food intake, taste modification and metabolism will be lectured focusing on the control in the brain.
(2) Regulating mechanisms for the maintenance and transfiguration of cardiovascular homeostasis will be lectured by focusing on post-translational modifications and organelle quality control.
(3) Mechanisms for sensing temperature and nociceptive stimuli will be lectured by focusing on channel molecules, various model animals and electrophysiological analysis *in vitro*.

8. Course objectives

(1) To understand the homeostatic and hedonic control of food intake, taste modification and metabolism.

(2) To understand mechanisms underlying maintenance and transfiguration of cardiovascular tissues.

(3) To understand mechanisms for detecting noxious stimuli and ambient temperature

9. Schedule

(1) October 23rd, Friday

“Energy sensing mechanism in the brain”

Yasuhiko Minokoshi (Div. Endocrinology and Metabolism)

(Yamate area: Seminar room B, 9th Floor of the Yamate 3rd Building)

(2) October 30th, Friday

“Brain mechanism that regulates feeding and gustatory sensation”

Ken-ichiro Nakajima (Div. Endocrinology and Metabolism)

(Yamate area: Seminar room B, 9th Floor of the Yamate 3rd Building)

(3) November 6th, Friday

“Regulation of cardiovascular function by redox-dependent post-translational modification”

Motohiro Nishida (Div. Cardiocirculatory Signaling)

(Yamate Area: Seminar room B, 9th Floor of the Yamate 3rd Building)

(4) November 13th, Friday

“Regulation of cardiovascular function elucidated by mitochondrial quality control”

Tomohiro Tanaka (Div. Cardiocirculatory Signaling)

(Yamate Area: Seminar room B, 9th Floor of the Yamate 3rd Building)

(5) November 20th, Friday

“Neural circuits controlling metabolism”

Kunio Kondoh (Div. Endocrinology and Metabolism)

(Yamate area: Seminar room B, 9th Floor of the Yamate 3rd Building)

(6) December 11th, Friday

“Structure and physiological functions of thermosensing molecules”

Makoto Tominaga (Div. Cell Signaling)

(Yamate Area: Seminar room B, 9th Floor of the Yamate 3rd Building)

(7) December 18th, Friday

“Mechanisms for sensing temperature and nociceptive stimuli in Drosophila”

Takaaki Sokabe (Div. Cell Signaling)

(Yamate Area: Seminar room B, 9th Floor of the Yamate 3rd Building)

(8) December 25th, Friday

“Evolution of thermosensing molecules”

Shigeru Saito (Div. Cell Signaling)

(Yamate Area: Seminar room B, 9th Floor of the Yamate 3rd Building)

10. Lecture materials and readings

(1) A.M.Katz, Physiology of the Heart, 5th ed.

11. Grades

(1) Themes based on the above course objectives will be presented by lecturers. Students will select one of themes and are requested to submit an essay report by the deadline.

(2) The grades will be determined by the quality of the report.

(3) Students must attend at least half of the lectures to get credit.

12. Notes

Nothing in particular