

## Syllabus

### 1. Course Title, style, and credit

Neuronal regulation of metabolism

Lecture, 1 credit

### 2. Appropriate grade level and Eligible Departments

D1, D2 (obligatory), D3-5 (optional) School of Life Science

### 3. Lecturer(s)

Yasuhiko Minokoshi

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Phone: 0564-55-7742

NIPS (Myodaiji)

### 4. Time

[oral]

10:00-12:00 on every Friday from April 4 to June 27, 2014

### 5. Place

1F Lecture room in Myodaiji building of NIPS

### 6. Prerequisites and Styles

This course is given as oral lecture in English.

### 7. Contents

Energy homeostasis is important for living organism. Recent studies demonstrate that inter-tissue communications for metabolic regulation play a crucial role in the achievement of physiological functions in cells and tissues. In this course, we present the recent understanding of the brain control of food intake, whole body metabolism and immune function. We also present a role of rhythm and stress in body metabolic homeostasis. In addition, we present the recent topic of the brain control of “longevity”.

## 8. Course objectives

1. To understand the crucial roles of inter-tissue communications in the control of metabolic homeostasis and physiological functions in cells and tissues
2. To understand the integrated role of the brain in the control of feeding behavior, metabolism and immune system
3. To understand a crucial role of rhythm and stress in the control of body metabolic homeostasis

## 9. Schedule

### 1. April 4

Introduction of metabolic homeostasis

Yasuhiko Minokoshi (NIPS)

### 2. April 18

Molecular dissection of the circadian clock in health and disease

Hitoshi Okamura (Kyoto University)

### 3. May 2

Molecular mechanism of food intake regulation

Yasuhiko Minokoshi (NIPS)

### 4. May 9

Neural control of stress response

Tatsushi Onaka (Jichi Medical University)

### 5. May 23

Hypothalamic and autonomic regulation of immune function

Shiki Okamoto (NIPS)

### 6. June 6

Brain regulation of metabolism

Yasuhiko Minokoshi (NIPS)

### 7. June 20

A role of orexin-producing neurons in regulation of sleep/wakefulness states

Takeshi Sakurai (Kanazawa University)

8. June 27

Brain regulation of longevity

Yasuhiko Minokoshi (NIPS)

10. Lecture materials and readings

Nature Insight: Obesity and Diabetes, Nature 444 (7121): 839-888.

11. Grades

The lecturer will present a theme based on the course objectives at the end of the course. Students are requested to submit an essay report on the theme by the deadline. The grades will be determined by the quality of the report, and will be either “passed” or “failed”.

12. Notes

Nothing particular.