

Syllabus

1. Course title, style, and credit

Molecular and Cellular Neurobiology

1 credit

2. Appropriate grade level and Eligible Departments

D1, 2 (obligatory), D3-5 (optional) School of Life Science

3. Lectures

Masaki Fukata

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8th Floor East, 3rd Building, NIPS (Yamate Area)

4. Time

[Oral]

16:00~18:00 on Friday

September 10, 17, 24

October 1, 8, 15, 22

November 5

5. Place

Seminar Room, 2nd Floor West, 2nd Building, NIPS (Yamate Area)

6. Prerequisites and Styles

Basic knowledge on the molecular and cellular biology will help to understand the lecture but is not essential.

7. Contents

Reorganizing cytoskeleton and cell adhesion, cells, especially neurons, exert their physiological functions such as morphological change, cell migration, cell polarization and synaptic transmission. In this course, we will give a series of lectures on their molecular mechanisms, which are being elucidated.

8. Course objectives

1. Understand the basis of cytoskeleton, cell adhesion and motor proteins.
2. Learn the basis of cell biology and molecular biology and understand the basis of signal transduction.

9. Schedule

(1) September 10th

Cytoskeleton and Cell adhesion

Masaki Fukata (NIPS)

(2) September 17th

Signal transduction and posttranslational modification of proteins

Masaki Fukata (NIPS)

(3) September 24th

Molecular mechanism for neural morphogenesis

Kazuo Emoto (Osaka Bioscience Institute)

(4) October 1st

Septin cytoskeleton

Makoto Kinoshita (Nagoya University)

(5) October 8th

Cellular mechanisms of mitotic cell division by microtubule dynamics and motor proteins

Gohta Goshima (Nagoya University)

(6) October 15th

Synaptic transmission ~ Molecular basis of postsynapse ~

Yuko Fukata (NIPS)

(7) October 22nd

Synaptic transmission ~ Molecular basis of presynapse ~

Toshihisa Otsuka (Yamanashi University)

(8) November 5th

Molecular mechanism for neural network formation

Mitsuharu Hattori (Nagoya City University)

1 0 . Lecture materials and readings

Bruce Alberts et al, "Molecular Biology of the Cell 5th edition": Garland Science

(This book is in our Lab.)

1 1 . Grades

Students are requested to file the short essay related to the Course Objectives. Either passed or failed is determined by the quality of the report. Students must attend the classes at least half of total classes to take a credit.

1 2. Notes

Nothing in particular