Introduction to Chemistry and Biology of Biofunctional Molecules

(Code: 3030 1st year 2 units)

Attendance hours	22.5
No attendance hours	7.5
Total hours	30

1. Instructor(s)

[Chief Instructor]
Prof. TAMAMURA Hirokazu; Dept. Med. Chem.; E-mail: tamamura.mr@tmd.ac.jp
Prof. KAGECHIKA Hiroyuki; Dept. Org. and Med. Chem.; E-mail: kage.chem@tmd.ac.jp
Prof. HOSOYA Takamitsu; Dept. Chem. Biosci.; E-mail: thosoya.cb@tmd.ac.jp

Affiliated Prof.; WATANABE Nobumoto, Adjunct Lecturer; YOSHIDA Hideyuki,
Associate Prof.; NIWA Takashi, Adjunct Lecturer; MOCHIDA Keisuke

2. Course Purpose and Outline

Course Purpose

The purpose of this course is to fully comprehend basic and application concerning biofunctional molecules.

Outline

This course deals with fundamentals and recent topics related to various biofunctional molecules, such as hormones and proteins, related to gene functions and/or cellular signal transduction. This course also covers the research techniques and their applications in the field of medicinal chemistry and chemical biology.

3. Course Objective(s)

This course objective is to comprehend structures and functions of various bioactive compounds, such as hormones and proteins, and DNA constructing genome in levels of atoms and molecules, and then to learn recent research topics concerning chemical syntheses, structural analyses and applications of these molecules.

4. Lecture Style

Lecture

5. Grading System

Final examination (80 points) and Attendance (20 points)

6. Prerequisite Reading

Preparation based on reference materials and homepages of the instructors is required.

7. Reference Materials

L. Schreiber, T. Kapoor, G. Wess (eds.) Chemical Biology, WILEY-VCH; Laudet, V & Gronemeyer, H. (eds) The Nuclear Receptors FactsBook, Academic Press; M. Ptashne & A. Gann Genes & Signals, CSHL Press.

8. Important Course Requirements

None

9. Language used in class

Classes are offered in English

10. Office hours

[Chief Instructor]
Prof. TAMAMURA Hirokazu; Dept. Med. Chem.;
Mon-Fri, 3-5 pm
Bldg22, Fl6, Rm603B
Prof. KAGECHIKA HIROYUKI; Dept. Org. and Med. Chem.;
Every Wednesday and Thursday, AM.10:00-PM.2：00
Bldg22, Fl6, Rm609A

11. Note(s) to students

None

12. Lecture plan

No	Day	Time	Theme	Staff
1	September 29	8:50～10:20	Chemical modification of Biomolecules Peptide and protein chemistry	HOSOYA Takamitsu TAMAMURA Hirokazu
2		10:30～12:00	Chemical probes	
3 4	October 20	8:50～12:00	Genome chemistry: basic and application	WATANABE Nobumoto TAMAMURA Hirokazu
5	October 25	8:50～12:00	Chemistry of Biomimetics	NARUMI Tetsuo MOCHIDA Keisuke
6				YOSHIDA Hideyuki
7 8	October 28	8:50～12:00	Medicinal chemistry of nuclear receptor	KEGECHIKA Hiroyuki
9 10	November 8	8:50～12:00	Genome chemistry: basic and application	TAMAMURA Hirokazu
11 12	November 9	8:50～12:00	Peptide and protein chemistry	TAMAMURA Hirokazu
13		13:00～14:30	Lead discovery and screening	TSUJI Kouhei
14 15	November 15	8:50～12:00	Strategy for the development of functional molecules	FUJII Shinya