

The Hong Kong University of Science and Technology
Division of Life Science
LIFS 5710
Cellular Regulation
(2017/18 Fall Semester)

Course Description

This course will cover advanced topics on cellular regulation that include genome and epigenome replication, transcriptional regulation, miRNA biogenesis and regulation, and the mechanisms of vesicle trafficking.

Learning Outcomes

By the end of this course, you will be able to:

1. Understand the latest concepts in selected cellular processes and the basic mechanisms underlying these processes.
2. Have a general appreciation of how new discoveries can impact detection and treatment of diseases.
3. Acquire the ability to apply the knowledge learnt in this course to problem solving in your own research.

Date/Time: 12:00 PM-14:50 PM (Friday)

Venue: Rm 2504 (Lifts 25/26)

Instructors:

Prof. Yusong Guo (YSG) (Ext. 2492, E-mail: guoyusong@ust.hk) (Course Coordinator)
 Prof. Bik-Kwoon Tye (BKT) (Ext. 7307, E-mail: biktye@ust.hk)
 Prof. Toyotaka Ishibashi (TI) (Ext. 2238, E-mail: toyotaka@ust.hk)
 Prof. HYOKEUN PARK (HKP) (Ext. 7322, E-mail: hkpark@ust.hk)
 Prof. Tuan Anh Nguyen (TAN) (Ext. 2679, E-mail: tuananh@ust.hk)

| Date | Lecture | Instructor |
|-------------|--|-------------------|
| Sep 01 | Mechanisms of transcriptional regulation – I | TI |
| Sep 08 | Mechanisms of transcriptional regulation – II | TI |
| Sep 15 | Vesicle trafficking at the Golgi apparatus – I | YSG |
| Sept 22 | Vesicle trafficking at the Golgi apparatus – II | YSG |
| Sep 29 | Transport, Secretion and Endocytosis – I | HKP |
| Oct 06 | Transport, Secretion and Endocytosis – II | HKP |
| Oct 13 | Replication of Genomes | BKT |
| Oct 20 | Replication of Epigenomes | BKT |
| Oct 27 | miRNA biogenesis and regulation – I | TAN |
| Nov 03 | miRNA biogenesis and regulation – II | TAN |
| Nov 10 | Student presentations group I (Rm 2504, Lifts 25/26) | BKT |
| | Student presentations group II (Place TBD) | TI |
| | Student presentations group III (Place TBD) | YSG |
| | Student presentations group IV (Place TBD) | HKP |
| Nov 17 | Student presentations group I (Rm 2504, Lifts 25/26) | BKT |
| | Student presentations group II (Place TBD) | TI |
| | Student presentations group III (Place TBD) | TAN |
| Nov 24 | Student presentations group I (Rm 2504, Lifts 25/26) | TAN |
| | Student presentations group II (Place TBD) | HKP |
| | Student presentations group III (Place TBD) | YSG |
| Dec 01 | Study Break | |
| <i>TBD</i> | Written Examination | |

Grading method:

The oral presentation will account for 60% of the final score. In addition, a written examination, which will account for the remaining 40% of the final score, will be given at the end of the semester. One Q&A type question will be given by each instructor for the written exam.

Each instructor will upload 9 papers to canvas before Nov.1. Each student will be assigned a paper as the presenter and a paper as the reader. Readers will prepare at least 2 critical questions for the presenter. Each student will give a 25-min presentation and the presentation will be followed by a 5-min question/answer time. The class will be divided into four groups on Nov. 10 and three groups on Nov. 17 and Nov. 24. Each group will contain: 1) one instructor, 2) 4 or 5 students to present the paper, 3) the corresponding readers to ask at least 2 critical questions for the presenter. The instructor will evaluate the oral presentation. Students who volunteer questions will get bonus points of up to 5%. Students are also required to give an evaluation score for each presentation. 10% of the final score will be based on student evaluations.