

Genome Science

Syllabus Number

5D243

Special Subjects

Elective 2 credit

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1. Course Description

The purpose of this course is to learn

- (1) Gene expression pathway (transcription and translation)
- (2) Molecular mechanisms of the gene expression
- (3) Genome evolution and biodiversity

This course relates to diplomatic policy 1 and 2.

2. Course Objectives

Organisms have a large variety of control systems for the appropriate gene expression. In this course, we expound on control systems of eukaryote gene expression.

3. Grading Policy

The learning results are evaluated based on : tests (40%) and presentation (60%).

4. Textbook and Reference

Textbook

赤坂甲治 著 遺伝子科学
ゲノム科学への扉 裳華房

Reference

T.A. Brown ゲノム メディカル・サイエンス・インターナショナル

5. Requirements (Assignments)

Review is very important (2h).

6. Note

7. Schedule

- [1] What is "Genome" ?
- [2] Mechanisms of DNA replication
- [3] Cell cycle and cancer
- [4] Mechanisms of transcription
- [5] Mechanisms of translation
- [6] Initiation and termination systems of transcription
- [7] Mechanisms of transcription regulation
- [8] Post-transcriptional regulation
- [9] Presentation
- [10] DNA damage
- [11] DNA repair
- [12] Heterochromatin and transcription
- [13] Epigenetics and siRNA
- [14] Evolution of Genome
- [15] Conclusion and test