Advanced Biomaterials

2 units (selection)

Toshifumi Tomoyasu · Associate Professor / Biological Functions, Biological Science and Technology, Earth and Life Environmental Engineering
Hideaki Nagamune · Professor / Biological Functions, Biological Science and Technology, Earth and Life Environmental Engineering

Target〉 Study and investigate about the scientific background which produced the new technology.

Outline〉 Students are required to investigate how the important discovery (which acquired the Nobel Prize as an example) were established and how improved our life and research activities by these accomplishments.

Style〉 Lecture

Keyword〉 ***technology, biomolecules, research, application***

Requirement〉 Required to have a good understanding of undergraduate-level biochemistry and molecularbiology.

Goal〉

1. Understand how the important discoveries in the scientific field were performed.
2. Investigate how the important discoveries are applied to our life and research.

Schedule〉

1. Orientation
2. Discoveries concerning the role played by the chromosome in heredity. T. Morgan.
3. The production of mutations by means of X-ray irradiation. H. Muller
4. Discovery of mobile genetic elements. B. McClintock.
5. The discovery of penicillin and its curative effect in various infectious diseases. A. Fleming, E. Chain, H. Florey.
6. Discovery of tumour-inducing viruses. P. Rous.
7. Interpretation of the genetic code and its function in protein synthesis. R. Holley , H. Khorana, M. Nirenberg.
8. The discovery of restriction enzymes and their application to problems of molecular genetics. H, Smith. W, Arber.
9. Contributions concerning the determination of base sequences in nucleic acids. W. Gilbert, F. Sanger.
10. The genetic principle for generation of antibody diversity. S. Tonegawa.
11. Contributions to the developments of methods within DNA-based chemistry. K. Mullis, M. Smith.
12. Discovery concerning the genetic control of early embryonic development. L. Lewis, C. Nüsslein-Volhard, E. Wieschaus.
13. Discovery of Prions - a new biological principle of infection. S. Prusiner.
14. The development of methods for identification and structure analyses of biological macromolecules. J. Fenn, K. Tanaka, K. Wüthrich.
15. Generalization of lectures

Evaluation Criteria〉 Grades are judged about two attainment targets described above by a presentation (50 points) and a report (50 points). The student requires more than 60 points to a pass.

Textbook〉 To be introduce in the class.

Reference〉 To be introduce in the class.

Contents〉 http://cms.db.tokushima-u.ac.jp/cgi-bin/toURL?EID=216735

Student〉 Able to be taken by only specified class(es)

Contact〉

⇒ Tomoyasu (G701, +81-88-656-9213, tomoyasu@bio.tokushima-u.ac.jp)
Mail (Office Hour: Monday 16:20-17:50)

Note〉

- ◇ Students require 2hrs preparation and 2hrs review per a lecture (2 hrs).
- ◇ 1-14th lectures contain both attainment targets 1 and 2.