

Bioorganic Chemistry

Syllabus Number

5D347

Special Subjects

Elective 2 credit

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1. Course Description

Biosynthesis, bioactivities and modes of action of bioactive compounds, which have key roles in a variety of organisms such as mammals, insects, plants, and microorganisms are studied. Skills obtained in this class are related to DP2 and DP3.

2. Course Objectives

General biosynthetic pathways such as polyketide pathway and mevalonic pathway are studied to understand how bioactive compounds are biosynthesized. Structures, biosynthesis, bioactivities, and modes of action of various bioactive compounds such as insect hormones and signal molecules of microbes are studied to know the functions of bioactive compounds in each organism.

3. Grading Policy

Quiz every time and report: 40%

Finals: 60%

4. Textbook and Reference

Textbook

Handouts are used.

Reference book: "Chemistry and Biology of Bioactive Compounds" Hiromich Nagasawa, TERRAPUB, ISBN-10: 4887041667

5. Requirements(Assignments)

N/A

6. Note

7. Schedule

- [1] Learn about what bioorganic chemistry is.
- [2] Learn about classification of bioactive compounds and how to study them.
- [3] Learn about biosynthesis of fatty acids.
- [4] Learn about polyketide pathway.
- [5] Learn about mevalonic pathway.
- [6] Learn about isoprenoids.
- [7] Learn about shikimic acid pathway.
- [8] Learn about biosynthesis of sugars and peptides.
- [9] Learn about methods used for biosynthetic research.
- [10] Learn about insect hormones and pheromones.
- [11] Learn about bioactive compounds produced by plants and microbes.
- [12] Learn about microbial signal molecules.
- [13] Learn about bioactive compounds produced by microbes.
- [14] Learn about toxic compounds and bioactive peptides produced by a variety of organisms.
- [15] Finals and explanation.