Division of Material Chemistry	Research field	Biochemistry	Lab. ID MC05
Laboratory web site	http://chem.s.kanazawa-u.ac.jp/bio/index.html		

Research subjects

All living organisms have to convert chemicals for obtaining energy or for other purposes, and the process is termed as metabolism, the conversion process of biomolecules (i.e., dissimilation and assimilation). Among the conversion processes of biomolecules, the redox processes are particularly sophisticated and attractive due to its complexity and difficulty to explore. Secondary metabolic pathways in specific organisms are also attractive in terms of its relations for productions of valuable biomolecules such as natural rubber and natural dyes. Our laboratory focuses on structures and functions of complex systems for redox enzymes which require transition metal ions such as copper and iron or organic cofactors. We also study enzymes related to the secondary metabolic pathways and aim to do its industrial applications. Since our target proteins are involved in the central field of life (e.g., energy conversion, detoxification, biosynthesis and biodegradation), we analyze the details of its mechanistic processes by basic biochemistry techniques. At the same time, we promote application researches of our enzymes for biofuel cells, biosensors and productions of valuable biomolecules by protein engineering techniques to enhance its activities and to alter its specificities. Keywords: Metalloprotein, energy conversion, protein engineering, electrode catalyst, structural analysis, natural rubber biosynthetic machinery, photosynthesis, electron transfer, proton transport.

Master/Doctor course: Education policy, curriculum, typical activity in the laboratory

In addition to the lecture (seminars) about biochemistry to all graduate students (both Master and Doctoral Courses) we have seminars to carefully read review articles or books written in English and to show novel papers in which we are deeply concerned and are specially interested. All graduate students are required to actively participate in seminars to give timely questions and to discuss. The student to give a presentation is required to prepare a resume easily understandable and power point files to skill up his or her presentation ability. All graduate students should represent his or her research study at least once in the international or domestic meetings.

Daily life in the laboratory, etc.

We sometimes hold an event outside of the lab, for keeping a better communication between staffs and laboratory students (staff).
We are doing research hard and also enjoying laboratory life (Student).
All we laboratory members are friendly and assist each other even when reached a plateau (Student).

Message or comments by the laboratory faculty staffs

Students should keep paying attention what is going on, or anything unusual might happen, even in ordinary experiments in your laboratory. Only person to keep in mind, what should be done now or in future, whether everything what should be done is really done, are celebrated with success. What is now popular is already old! Look for research themes of high values for humanity in the future..

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