UTokyo Amgen Scholars Program 2025

Host Laboratory and Research Topic

Name of Faculty Member (Title)	Akimitsu OKAMOTO
Name of Graduate School/ Faculty/ Institute	Graduate School of Engineering
Research Topic & Description	How are our bodies created from atoms and molecules? We systematically investigate how the atoms and building blocks of biopolymers (nucleic acids and proteins) participate in biological phenomena, introducing synthetic chemistry-based ideas into biological and genetic studies. Research in our group is concerned with diverse aspects of the design and function of biopolymers on an atomic scale. The focus is on the design, synthesis and physical properties of new, man-made biopolymers with various special functions. Also included is the design of unprecedented organic chemical systems for recognizing, transforming and visualizing a single component or atom in biopolymers of interest. These researches are the fundamental studies reflecting the essence of life science on an atomic scale and the material-developing studies to get useful functional materials for the latest studies on life sciences and medical technologies. The lab employs a multidisciplinary approach involving organic synthesis, photophysical chemistry, state-of-the-art spectroscopy, and biological assays to address new approaches to the interface between synthetic chemistry and life science. Current projects include: Synthesis of 'superbiopolymers' containing functional nucleotides and amino acids for elucidation of gene expression function. Drug design, cell introduction, and functional analysis based on new chemical ideas.
Academic Requirements & Expectations	**1) Field(s) of Study**
	Organic chemistry and molecular biology
	2) Knowledge/ Skill/ Proficiency
	Experience with either organic chemistry or molecular biology experiments required.
	3) Academic Background and Research Experience
	It is preferred that you currently belong to a department specializing in organic chemistry or molecular biology.
Lab Website & Relevant Information	https://webpark1516.sakura.ne.jp/
Campus / Location	Hongo / Yayoi
Area of Research	Chemistry Biochemistry Chemical and Biomolecular Engineering