UTRIP 2026 Host Laboratory Information

Department	Name and Title of Hosting Faculty Member	Laboratory Website	Research Topic & Research Description
Biological Sciences	Tetsuya HIGASHIYAMA (Professor)	https://www.devcell-u-tokyo.bio/	Sexual reproduction research in combination with gene manipulation and live-cell imaging. In this UTRIP online program, student(s) will experience research on sexual reproduction of flowering plants. To address biological questions, students will try gene manipulation techniques and live-cell imaging with laser microscopes, in combination of bio-sensors. Through these experiments, a UTRIP student will learn molecular genetics and developmental biology as well as research techniques in living cells.
			Special Academic Conditions Required for Research
			1) Prerequisite knowledge and/or specific skills, and required level of proficiency Basic knowledge of molecular biology and basic experimental technique of biology.
			2) Required major field(s) of study Molecular biology, Cell biology
			3) Academic background or research project experience to be considered during selection It is better for the student to have a basic knowledge of Molecular biology and Cell biology.
			4) Selection and evaluation criteria (if any) None
Department	**Name and Title of Hosting Faculty Member**	**Laboratory Website**	**Research Topic & Research Description**
Biological Sciences	Sotaro UEMURA (Professor)	http://www.biochem.s.u-tokyo.ac.jp/uemura-lab/index-e/	All biological phenomena are sustained by extraordinarily complex and finely tuned mechanisms. This principle applies to every hierarchical level — tissues, cells, and molecules — but understanding the cellular and molecular levels in particular remains a major challenge. One of the main reasons for this difficulty lies in the limitations of conventional measurement techniques. Traditional methods typically assess cells or molecules as ensembles, making it impossible to directly investigate the properties of individual cells or molecules. As a result, such analyses are confined to population averages and cannot reveal the true behaviors of each cell or molecule. By applying our original single-cell and single-molecule measurement technologies, we aim to overcome these limitations. Our goal is to extract the genuine information hidden within averaged data and achieve a deeper understanding of life phenomena at the level of individual cells and molecules.
			Special Academic Conditions Required for Research
			1) Prerequisite knowledge and/or specific skills, and required level of proficiency Knowledge of biology and basic experimental technique of biology
			2) Required major field(s) of study Biochemistry, Biophysics
			3) Academic background or research project experience to be considered during selection It is better for the student to have a basic knowledge of biological science.
			4) Selection and evaluation criteria (if any) It is preffered that the candidate has interest in single-molecule biology.

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Biological Sciences	Tatsuhiko TSUNODA (Professor)	https://mesm.bs.s.u-tokyo.ac.jp/index_Eng.html	Tumor microenvironment analysis / predicting anticancer drug efficacy using statistical machine learning Our laboratory conducts interdisciplinary research: developing analytical algorithms (including mathematical simulations) for tumor microenvironment analysis and/or anticancer drug efficacy prediction using deep learning and/or quantum computing, and performing computational characterisation of tumors using these novel analytical methods. Among these, some topics we are interested in are novel methods for analysis of spatial transcriptomcs datasets, discovery of regulatory mechanisms and integrative biomedical deep learning.
			Special Academic Conditions Required for Research
			1) Prerequisite knowledge and/or specific skills, and required level of proficiency Basic knowledge of omics (e.g. transcriptomics) as well as statistical (e.g. machine learning) analyses
			2) Required major field(s) of study Computational biology/medicine, statistics, or bioinformatics
			3) Academic background or research project experience to be considered during selection Students should ideally possess foundational knowledge and analytical experience related to omics, as well as proficiency in machine learning, programming (e.g., Python), command-line operations on Linux/UNIX (including Mac), and GitHub usage.
			4) Selection and evaluation criteria (if any) Past involvement in projects or research related to algorithm development/scientific analysis in the fields of biology and medicine. Priority will be given to students interested in pursuing graduate studies in Japan in the future.
Department	**Name and Title of Hosting Faculty Member**	**Laboratory Website**	**Research Topic & Research Description**
Biological Sciences	Misato OHTANI (Professor)	https://plantfunkashiwa-en.jimdofree.com/	Our aim is to obtain molecular information on how plants sense and react to environmental conditions, and how control flexibly cell proliferation and differentiation, for an active control of their life system. For this purpose, we focus on “dynamics of RNA metabolism” and “dynamics of cell wall polymer”, which are key regulatory elements of gene expression and cell function in plants. Furthermore, we aim to develop new technologies that can contribute to a sustainable society, by maximizing plant functions and/or creating new functions by artificial modification of these molecular factors.
			Special Academic Conditions Required for Research
			1) Prerequisite knowledge and/or specific skills, and required level of proficiency Knowledge of plant molecular biology and basic experimental technique of biological sciences
			2) Required major field(s) of study Molecular biology, Plant Biology
			3) Academic background or research project experience to be considered during selection Experience in tissue culture and molecular biological experiments (not limited to plants) is preferred.
			4) Selection and evaluation criteria (if any) None
Department	**Name and Title of Hosting Faculty Member**	**Laboratory Website**	**Research Topic & Research Description**
Biological Sciences	Masatoshi HARA (Associate Professor)	https://sites.google.com/view/haragroup/home	We study how fertilized eggs initiate and progress through cell division, and how genomic information is faithfully transmitted during early embryogenesis. To address these fundamental biological questions, our research focuses on elucidating the molecular mechanisms that regulate mitotic progression, using mouse and Drosophila as model systems.
			Special Academic Conditions Required for Research
			1) Prerequisite knowledge and/or specific skills, and required level of proficiency Knowledge of molecular biology and cell biology, and basic experimental techniques of molecular biology and cell biology
			2) Required major field(s) of study Molecular biology and cell biology
			3) Academic background or research project experience to be considered during selection Applicants should have a basic understanding of molecular biology, cell biology, and developmental biology.
			4) Selection and evaluation criteria (if any) None