LITHUANIAN UNIVERSITY OF HEALTH SCIENCES

International Summer School Practice

The Relationship Between Gastric Bacteria, Types of Gastric Cancer, and Treatment Options

This internship offers students the opportunity to participate in an ongoing biomedical research project investigating the relationship between the gastric microbiota, molecular subtypes of gastric cancer, and clinically relevant biomarkers used in precision oncology.

The study is based on a cohort of gastric cancer patients who have undergone modern therapeutic approaches, including immunotherapy. Gastric tissue biopsy samples collected from these patients have been analyzed to characterize the gastric microbiome and to determine molecular tumor features, including clinically important therapeutic markers such as HER2, PD-L1, and CLDN18.2, as well as gene expression profiles and molecular cancer subtypes.

The overall objective of the research is to clarify how variations in gastric microbiota composition are associated with tumor biology, treatment response, patient survival, and disease recurrence, thereby contributing to the development of personalized therapeutic strategies in gastric cancer.

Internship objectives and student activities

During the internship, the student will primarily work with previously generated research datasets. Under supervision, the student will:

- perform statistical and bioinformatic analyses of microbiome and molecular data,
- gain practical understanding of sequencing data processing and analysis workflows,
- learn methods for scientific data interpretation and visualization,
- develop skills in presenting and discussing scientific results,
- gain insight into the design and execution of clinical and molecular oncology research.

In addition, the student will have the opportunity to observe laboratory procedures used to generate molecular and microbiome data within the project.

Learning outcomes

The internship provides training in biomedical data analysis and exposure to translational cancer research methodologies. Students will develop practical competencies in handling complex biological datasets and gain experience relevant to further studies or careers in biomedical sciences, medicine, bioinformatics, or related fields.

Given the rapidly growing importance of microbiome research in modern medicine, this internship offers valuable exposure to a highly relevant and evolving area of scientific investigation.