Temat zajęć:

Od pacjenta do wyniku – jak wykorzystać materiał biologiczny w pracy doktorskiej?

Proponowane daty, godziny oraz miejsce realizacji zajęć:

25-28.01.2027, 13:00- 16:45 (5 godzin dydaktycznych dziennie);Zajęcia prowadzone zdalnie za pośrednictwem platformy Microsoft Teams.

Forma zajęć:

zdalna

Profil zajęć:

kliniczny / molekularny / interdyscyplinarny

Dyscyplina naukowa:

nauki medyczne, nauki o zdrowiu

Imię i nazwisko koordynatora zajęć:

dr hab. Katarzyna Sobierajska, prof. UMed

Jednostka organizacyjna odpowiedzialna za przeprowadzenie zajęć:

Zakład Molekularnych Mechanizmów Komórkowych, Uniwersytet Medyczny w Łodzi

Dane kontaktowe jednostki organizacyjnej:

Mazowiecka 6/8, p.150

Limit liczby uczestników:

minimum 10 osób;

Czas trwania zajęć:

20 godzin – 4 × 5 godzin

Syllabus

Title:

From Patient to Result: How to Use Biological Material in a PhD Project

Course description:

The course is designed for PhD students with a biomedical background who use, or plan to use, patient-derived biological material in their research. It provides a practical link between clinical research and laboratory investigation.

Participants will work with examples involving blood, serum, plasma, tissue specimens, biopsies and patient-derived cells. They will learn how the type, quality, collection and processing of biological material affect the range of possible analyses and the reliability of results. The course will demonstrate how molecular and cellular methods can complement clinical data and how to select laboratory approaches that provide meaningful answers to clinically relevant research questions.

The course is case-based and includes demonstrations of laboratory procedures, analysis of experimental results and practical exercises in planning translational studies.

Course outline:

Day 1 – I have patients and a research idea: what can I study? (5 h)

From clinical observation to research hypothesis. Patient and control groups; clinical variables; inclusion and exclusion criteria; selection of biological material. Participants work with clinical scenarios and determine which samples and data to collect to answer specific research questions.

Day 2 – What happens to the sample before the analysis? (5 h)

Blood, serum, plasma, biopsies, surgical specimens and isolated cells. Sample collection, processing, transport and storage; pre-analytical variables; tissue heterogeneity; limited sample availability. Case studies demonstrate how inappropriate sample handling may affect experimental results.

Day 3 – Which laboratory method should I choose? (5 h)

Demonstrations and interpretation of selected molecular and cellular methods, including Western blotting, ELISA, flow cytometry, fluorescence microscopy and cell-based assays. Participants receive specific clinical and biological questions and select appropriate analytical approaches. The course emphasises combining complementary methods rather than selecting techniques independently of the research question.

Day 4 – From patient sample to a research project (5 h)

Participants work with complete translational research cases. Starting from a clinical problem and available patient material, they design a study, select analyses, identify necessary controls

and determine how clinical and laboratory results should be integrated. Participants discuss and critically evaluate proposed projects.

Learning outcomes:

After completion of the course, participants will be able to formulate research questions suitable for studies using patient-derived biological material, select appropriate patient and control groups, choose biological material appropriate to the research objective, recognise major pre-analytical factors affecting sample quality, select suitable laboratory methods, integrate clinical and experimental data and design a basic translational research strategy.

Teaching methods:

Clinical and experimental case studies, demonstrations of laboratory procedures, analysis of experimental data, problem-solving exercises and group-based research project design.