DISCOVERY & SCREENING OF BIOACTIVE PEPTIDES FROM MUSHROOMS

A RESEARCH-BASED TEACHING COURSE

ONLINE CLASSES 20 – 29 MAY 24, UFA LFP

- Drug discovery and development
- Importance of pre-clinical research
- Pharmacokinetics, toxicokinetics & metabolism
- Basics of pharmacology
- Brief understanding of human physiology related to bioactive peptides
- Pharmacology of central nervous system drugs
- Cutting-edge research on peptides
- Role of peptides in pharmacological research, stages of drug development
- Early phase of drug discovery, discovery of bioactive peptides
- 3D in vivo tumor model
- Gel based proteomics (theory and lab tour)
- Non- gel based proteomics (theory and lab tour)
- Basics of mass spectrometry (theory and lab tour)
- Surface plasmon resonance (theory and lab tour)
- NMR analysis (theory and lab tour)

5-DAYS HANDS ON TRAINING

PHYSICAL ACTIVITIES 24 – 28 JUNE 24, UFA LFP

Mushroom hunting program (1- day) for collection of edible/non-edible mushrooms: In this program, mycologist or scientific researchers will introduce the participants to various wild mushroom species including edible, medicinal & toxic varieties and educate them about their culinary and medicinal uses. Collected species of mushrooms will be washed, lyophilized and stored.

Extraction of peptides (1- day): Using a standardized protocol from the lab, protein/peptide extraction will be done. Peptides will be isolated by ultrafiltration of the mushroom homogenate using spin columns and subsequent purification with solid phase extraction columns.

Bio-activity on cell culture (2-day): Cell culture analysis will be performed and effect of extracted peptides will be assessed.

Analysis of peptides by MALDI/mass spectrometry (1-day): Peptide fingerprinting will be analyzed by MALDI. Data analysis will be performed and matched with previous data. The peptide sequence will be identified.

Data analysis and interpretation of results

Point of Contact:
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MALDI analysis

Cell culture analysis

Hands on experience

Mushroom
THEORY CLASSES (10:30 - 17:00)
(VIRTUAL TEACHING AND RESEARCH ACITIVTY)

Day 1 - S. Pandey | R. Kučera
10:30 - 13:00 | Introduction
14:30 - 17:00 | Basics of Pharmacology

Day 2 - S. Pandey + S. Härteis | R. Kučera
10:30 - 13:00 | Importance of Preclinical Research and 3D in vivo tumor model
14:30 - 17:00 | Pharmacokinetics, toxicokinetics, and metabolism

Day 3 - S. Pandey | M. Chottová
10:30 - 13:00 | Stages of drug development
14:30 - 17:00 | Brief understanding of human physiology related to bioactive peptides

Day 4 - S. Pandey | R. Kučera
10:30 - 13:00 | Early phase of drug discovery
14:30 - 17:00 | Pharmacology of CNS Drugs

Day 5 - S. Pandey + Z. Tůma | M. Jirásko
10:30 - 13:00 | Discovery of Bioactive Peptides from Mushroom
14:30 - 17:00 | Pharmacological Potential of Mushroom

Day 6 - S. Pandey + Z. Tůma | R. Viták | E. Peroni
10:30 - 13:00 | Gel based proteomics + Lab tour
14:30 - 17:00 | Peptide Synthesis, Purification + Lab tour

Day 7 - S. Pandey + Z. Tůma | G. Grasso
10:30 - 13:00 | Non-gel based proteomics + Lab tour
14:30 - 17:00 | Surface plasmon resonance + Lab tour

Day 8 - S. Pandey + Z. Tůma | M. Larregola
10:30 - 13:00 | Basics of Mass spectrometry + Lab tour
14:30 - 17:00 | NMR analysis + Lab tour

PHYSICAL MOBILITY (9:00 - 17:30)
HANDS ON EXPERIENCE  S. Pandey | R. Viták | Z. Tůma | E. Fousková

Day - 1
09:00 - 17:30 - Mushroom Hunting Program

Day - 2
09:00 - 13:00 - Protein/peptide extraction from mushroom
13:30 - 17:30 - Protein quantification and Gel-based proteomics

Day - 3
09:00 - 13:00 - Cell culture
13:30 - 17:30 - Sample preparation for MALDI

Day - 4
09:00 - 13:00 - MALDI analysis
13:30 - 17:30 - Cell culture analysis of extracted peptides

Day - 5
09:00 - 17:30 - Data analysis and interpretation of results

FOR REGISTRATION PLEASE CONTACT YOUR LOCAL COORDINATOR

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Dr. S. Pandey, Ph.D., Researcher at Dept. of LFP UFA
MUDr. M. Jirásko, Assistant Prof. at Dept. of LFP UFA
Mgr. Bc. R. Viták, Researcher at Dept. of LFP UFA
Ing. E. Fousková, Researcher at Dept. of LFP UFA
doc. MUDr. M. Chottová-Dvořáková, Ph.D., Associate Prof. at Dept. of LFP UFA
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