



Advances in Protein Science and Enzymology

Lecturer: prof. Sławomir Milewski (WCh)

Monographic lectures for PhD students (15 hrs)

1. Protein isolation and purification

General rules; strategies of protein purification; selective precipitation and two-phase partitioning methods; chromatographic techniques; high affinity methods of protein purification; preparative electrophoretic methods of protein separation; special aspects of membrane proteins purification.

2. Protein structure determination

Primary structure: protein sequencing, MALDI-TOF mass spectrometry;

Secondary and tertiary structure: X-ray and neutron diffraction, CD spectroscopy, 2D and 3D NMR, FTIR and Raman spectroscopy;

Quaternary structure: protein cross-linking, spectroscopic techniques, dynamic light scattering

3. Determination of protein properties

Determination of molecular weight, thermal stability, isoelectric point; methods of studying protein denaturation and folding; microcalorimetry

4. Experimental approaches to determination of enzyme mechanism and inhibition

Enzyme: ligand interaction studies: UV-vis differential spectroscopy, spectrofluorimetry and CD spectroscopy; ESI mass spectrometry; surface plasmon resonance measurements, EPR spectroscopy, atomic force microscopy

5. Experimental approaches to enzyme kinetics; rational modification of catalytic properties

Stopped-flow spectroscopic techniques; real time kinetic measurements; recent advances in protein engineering

Data	Dzień tygodnia	Godzina	Sala
20.04.2012	Piątek	12-15	LUWR (Chemia A)
27.04.2012	Piątek	12-15	LUWR (Chemia A)
11.05.2012	Piątek	12-15	LUWR (Chemia A)
18.05.2012	Piątek	12-15	19 (Chemia B)
25.05.2012	Piątek	12-15	19 (Chemia B)