

MEDICINAL CHEMISTRY: MED. CHEM., PHARMACOKINETICS, RECEPTORS, BRADYKININ, PTH, CONOTOXINS, CONVERTASES, RAS, CANCER DIAGNOSTIC, BBB 15h
prof. dr hab. inż. Witold Neugebauer, (emeritus) Sherbrooke University, Med.Pharm., Canada

In Gdańsk: Od 08.01.2018. Do 26.01.2018.

3 weeks (Monday to Friday) total. Each day- 1- hour of lecture, 1-hour seminar and 2- hours of consultation.

CHEMIA MEDYCZNA

Proponowane zajęcia są przewidziane głównie w języku angielskim (z dyskusją w polskim lub angielskim). Preferowane jest przeprowadzenie zajęć w języku angielskim dla zaznajomienia z terminologią i praktyką konwersacyjną angielskiego –powszechnie uznanego naukowego języka publikacji i komunikacji sympozjalnych.

1. Medicinal Chemistry (4-hours)

-Classification of Drugs

-Phases of Drugs Discovery

-Targets of Drugs

- *enzymes as drugs targets + [Enzymes as Catalyst- animated movie]*

- *receptors as drugs targets + [Cell life- animated movie]*

- *transporting proteins as drugs targets + [Motor proteins; Myosin; Kinesin - animated movie]*

- *structural proteins as drugs targets + [Microtubules cells; cytoskeleton- animated movies]*

- *nucleic acids as drugs targets + [Cell division; Protein synthesis- animated movie]*

- *lipids as drugs targets + [Membrane lipids]*

- *carbohydrates as drugs targets + [Cell surface carbohydrates]*

2. Pharmacokinetics of Drugs (2-hours)

- *drugs absorption [Cell membrane, blood circulation, heart function + animated movie]*

- *drugs distribution [Injection types- animated movie, tutorial on distribution -animated movie, BBB- movie]*

- *drugs metabolism [guts, liver, veins, kidney function- animated movie, stroke- animated movie]*

- *drugs elimination [kidney excretion – animated movie]*

(34 slides within several animated movies)

3. Receptors (2-hours)

Membrane Receptors type and subtypes. Cell membranes- animated movies.

- *ion channels [description, examples of ion channels, serotonin receptor, GABA receptor, nicotinic receptor, NMDA receptor, glycine receptor]*

- *GPCR [metabotropic receptors: muscarinic, melatonin, serotonin opioid + GPCR- animated movie]*

- *tyrosine kinase receptors [animated movie]*

- *intercellular receptors [video on nucleus hormone action]*

4. Bradykinin and their Analogous (1-hour)

- *biological function of BK + [Hereditary Angioedema- animated movie]*

- *therapeutic perspectives – analogous bradykinin*

5. Parathyroid Hormon (1-hour)

- biological function of PTH + [animated movie]
- therapeutic perspectives + [movie of parathyroid operation]

6. Conotoxins of Cone Snail and other Poisonous Venoms (1-hour)

- dangerous species [movie]
- peptide nature of these venoms
- drugs design based on venom structure [animated movie]

7. Proprotein Convertases (2-hours)

- classification
- development in search for leading compound
- PACE-4 inhibitor

8. Oncogenic RAS Proteins Inhibitors (1-hour)

- Small, monomeric GTP-binding **proteins** encoded by **ras** genes (**GENES, RAS**).
- Plays a role in normal cellular growth, differentiation and development

9. Cancer diagnostic with Fluorescent and NMR Markers (1-hour)

- synthesis of fluorescent peptide analogous
- synthesis of NMR marked peptides
- surgery with fluorescent probe [movie]

Extra subject for seminar or lecture

10. BBB - Blood Brain Barrier (1-hour)

-The **BBB** is a highly selective semipermeable membrane barrier in the central nervous system (CNS)

Termin	Dzień tygodnia	Godzina	Miejsce
08.01.2018	poniedziałek	12.15 – 14.00	Minicentrum Konferencyjne (Luwr)
09.01.2018	wtorek	12.15 – 14.00	Minicentrum Konferencyjne (Luwr)
10.01.2018	środa	12.15 – 14.00	Minicentrum Konferencyjne (Luwr)
11.01.2018	czwartek	12.15 – 14.00	Minicentrum Konferencyjne (Luwr)
12.01.2018	piątek	12.15 – 14.00	Minicentrum Konferencyjne (Luwr)
15.01.2018	poniedziałek	9.15-11.00	Minicentrum Konferencyjne (Luwr)
16.01.2018	wtorek	10.15-12.00	Sala 27 (Chemia A)
17.01.2018	środa	15.15-17.00	Minicentrum Konferencyjne (Luwr)
18.01.2018	czwartek	15.15-17.00	Minicentrum Konferencyjne (Luwr)
19.01.2018	piątek	15.15-17.00	Minicentrum Konferencyjne (Luwr)

22.01.2018	poniedziałek	12.15-14.00	Minicentrum Konferencyjne (Luwr)
23.01.2018	wtorek	10.15-12.00	Sala 27 (Chemia A)
24.01.2018	środa	12.15-14.00	Minicentrum Konferencyjne (Luwr)
25.01.2018	czwartek	12.15-14.00	Minicentrum Konferencyjne (Luwr)
26.01.2018	piątek	12.15-14.00	Minicentrum Konferencyjne (Luwr)