



## **The practice of medicinal chemistry**

Lecturer: Prof. Dr. rer.nat. habil. Peter Imming CChem FRSC (Institut fuer Pharmazie, Martin-Luther-Universitaet Halle, Germany)

### **Course description:**

Medicinal or pharmaceutical chemistry deals with the discovery, design, development and optimisation of pharmacologically active substances with the ultimate goal of getting drug substances. It is a multi-parameter approach as activity is not the only property needed for a drug. Chemical and metabolic stability, crystallinity (if solid formulations are envisaged), solubility, bioavailability, safety (absence of toxicity) are other parameters some of which may sound trivial, but often pose major chemical or pharmacological challenges. The lecture will focus on the role of medicinal/pharmaceutical chemistry in the various stages of drug design and development.

### **Syllabus of the lecture:**

1. The Drug Substance (API): Properties and features
2. Sources for hits and leads in drug discovery (1) (general aspects, availability, assayability, physiological substances, natural products, synthetic substances)
3. Sources for hits and leads in drug discovery (2) (general aspects, availability, assayability, physiological substances, natural products, synthetic substances)
4. Profiling of hit structures: From hit to preclinical candidate
5. The medicinal chemist's toolbox: Reactions used for the synthesis of drug candidates and drug substances (1)
6. The medicinal chemist's toolbox: Reactions used for the synthesis of drug candidates and drug substances (2)
7. The structure and dynamics of molecular drug targets (1)
8. The structure and dynamics of molecular drug targets (2)
9. Drug discovery and the involvement of knowledge about molecular targets (1)
10. Drug discovery and the involvement of knowledge about molecular targets (2)
11. Drug discovery and the involvement of knowledge about molecular targets (3)
12. Molecular mechanism of action and drug discovery
13. Drug target validation: Rationale, methods
14. (Q)SAR: Substituents, functional groups, bioisosteres
15. Salts, solubility, formulation and metabolic instability challenges



<b>TERMINY WYKŁADÓW</b>			
<b>Data</b>	<b>Dzień tygodnia</b>	<b>Godzina</b>	<b>Sala</b>
3 marzec 2014	Poniedziałek	15-18	LUWR (Chemia A)
4 marzec 2014	Wtorek	9-12	LUWR (Chemia A)
5 marzec 2014	Środa	9-12	LUWR (Chemia A)
6 marzec 2014	Czwartek	9-12	LUWR (Chemia A)
7 marzec 2014	Piątek	9-12	LUWR (Chemia A)