

Drug Discovery

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The objective of the course is to introduce the participants into the practice of drug discovery in general, and medicinal chemistry, in particular. The pre-requisite for enlisting to this course is the completion of the MSc course entitled “Research and development in the pharmaceutical industry”.

The course will cover a collection of the different aspects of drug discovery through cases studies. Participants will be provided with real-life data coming from different research programs, and will be expected to analyze data, propose strategies, design molecules, and prioritize plans. The sequential process will lead them through the major steps of a drug discovery program:

- Target validation: what are the key questions to ask when selecting and validating a target. Use of databases outside chemistry
- Hit identification: how to validate hits, which hits to select for further development, how to design your hit expansion campaign
- Lead selection: which are the key criteria, how to assess their relative importance. How to formulate key experiments.
- Lead optimization: multiparametric optimization, how to build up the in vitro – in vivo correlations, how to choose the administration route.
- Candidate selection: properties beyond activity and efficacy and their relative importance. Patentability.

Participation to the course will be limited to a maximum of 8 students forming 2 groups of 4 people, who will work as a team throughout the semester. The course will consist of classes (one for opening and one for concluding each major step) as well as home/teamwork.

On successful completion of the course the students will have a better understanding of the drug discovery process, they will be able to identify the key questions at the different stages of the process and formulate experiments to answer them. They will also be able to analyze complex data sets in the light of project priorities.