

# Introduction to Drug Discovery Research (ME:200.704)

Spring 2016

Course Director: Takashi Tsukamoto ([ttsukamoto@jhmi.edu](mailto:ttsukamoto@jhmi.edu))

Location: Rangos Building Room 590

Time: 10:00 AM – 11:30 AM

Dates: Every Friday 1/8/2016-4/29/2016

This course deals with various aspects of the drug discovery process including target identification, medicinal chemistry, in vitro and in vivo drug screening methods, pharmacokinetics, drug safety, and intellectual property management. While the main focus of the course is centered on small molecule-based drugs, one lecture covers the principles of biologics-based drugs given the increasing interests in this area. The last two lectures are devoted to case studies in which discovery of particular drugs will be discussed in detail to provide further insights into the process of drug discovery research. Each lecture is given by an expert on that respective subject with many years of drug discovery research experience. Students will build a broad knowledge base that will allow them to prepare for a career in pharmaceutical research or basic medical science with implications for novel therapies.

Topic	Lecturer
1/8 Introduction	Takashi Tsukamoto
1/15 Drug-like properties and druggable targets	Takashi Tsukamoto
1/22 in vitro Pharmacology I	Camilo Rojas
1/29 in vitro Pharmacology II	Camilo Rojas
2/5 in vitro Pharmacokinetics	Takashi Tsukamoto
2/12 in vivo Pharmacokinetics	Takashi Tsukamoto
2/19 Drug Safety	Adaline Smith
2/26 Midterm Exam	
3/4 Winter weather make-up day (no lecture if the course is on schedule)	
3/11 Spring Break	
3/18 in vivo Pharmacology	Krystyna Wozniak
3/25 Intellectual Property	Jeff Childers
4/1 Lead Optimization	Takashi Tsukamoto
4/8 Biologics	Tomas Mustelin
4/15 Case Study I (Sitagliptin)	Jim Barrow
4/22 Case Study II (Imatinib)	David Meyers
4/29 Final Exam	

Blackboard will be used to communicate with students, share course materials, make announcements, and post grades. Grades will be determined by quiz participation (given at the end of each lecture, 1/3), Mid-term Exam (1/3), and Final Exam (1/3). No quiz will be given at the first lecture.

Prerequisite: No prior knowledge in drug discovery is required. This course is recommended for students in the 2<sup>nd</sup> or subsequent years of their graduate program. Please contact Dr. Takashi Tsukamoto ([ttsukamoto@jhmi.edu](mailto:ttsukamoto@jhmi.edu)) for more information.