Module Specification

Module Title	Classic Papers & Current Topics in Pharmacology	Module Code	BMD377

Credit Value	15	Level	6	Mode of Delivery	On Campus	Semester A

Pre-requisite modules	Co-requisite modules	Overlapping modules

1) Content Description

Provide a description of the module, as it will appear in the Module Directory and on the Student Information System (approx. 70-80 words).

In this module Students will focus on the science behind the discovery, subsequent and continued development of licensed drugs for treating human diseases. Lecture content will include a series of vignettes on drug target identification in common diseases, including malaria; principles of antibody-based therapies, as well as early hematopoietic cell therapies and of preclinical through to phase 3 clinical trials; DNA- and peptidebased therapies; the role of hepatic and renal transporters in clinical disposition of drugs and, touch upon mechanisms of acquired drug-resistance; the growing importance of genomic methodologies in drug development and targeted therapies. Lectures will be complemented by presentations given by external experts and small group, student-led Journal Clubs.

2) Module Aims

Specify the aims of the module, i.e. the broad educational purposes for offering this module.

To develop the student's knowledge base in the physiological, cellular and molecular mechanisms regulating drug disposition and efficacy and, attributes of successful identification of drug targets and their translation into a licensed drug. To develop skills in reading and understanding the scientific literature and, presenting this work to peers and senior colleagues. To provide opportunity to attend current topics in pharmacology delivered by internationally recognized scientists

3) Learning Outcomes

Identify the learning outcomes for this module, i.e. knowledge, skills and attributes to be developed through completion of this module. Outcomes should be referenced to the relevant QAA benchmark statements and the Framework for Higher Education Qualifications in England, Wales and Northern Ireland (2008). The SEEC Credit Level Descriptors for Further and Higher Education 2003 and Queen Mary Statement of Graduate Attributes should also be used as a guiding framework for curriculum design.

Academic Content:

A1	Critical analysis of published research papers in an area of pharmacology relevant to the students project
A2	Interpretation of experimental data and the ability to differentiate between scientifically sound and questionable findings
A3	To write a balanced scientific review of the literature in the area of interest judging clinical impact

Disciplinary skills - able to:	
B1	Critically evaluate published research studies
B2	Work independently and manage their own learning needs
B3	Prepare a formal and original scientific report according to the norms of the pharmacological literature
B4	Find, evaluate and summarise literature relevant to specific pharmacology topics
B5	Communicate orally using appropriate technology

Attributes:	
C1	Have the intellectual curiosity to learn continuously from diverse sources of information
C2	Be able to explain complex scientific concepts clearly and logically
C3	Make judgements based on evidence
C4	Effective time management and independent learning

4) Reading List

Provide an indicative reading list for the module. This should include key texts and/or journals but should not be an exhaustive list of materials.

1. Patel, M., Taskar, K.S., and Zamek-Gliszczynski, M.J. (2016). Importance of Hepatic Transporters in Clinical Disposition of Drugs and Their Metabolites. Journal of clinical pharmacology 56 Suppl 7, S23-39.
2. Stieger B, Hagenbuch B (2016) Recent advances in understanding hepatic drug transport. F1000Research
3. Zhou Y, Zhang GQ, Wei YH et al., (2013) The impact of drug transporters on adverse drug reaction. Eur J Drug Metab Pharmocokinet 38,:77-85
4. Maeda K, Sugiyama Y (2013) Transporter biology in drug approval: Regulatory Aspects. Molecular Aspects of Medicine 34, 711- 718
5. Neul, C., Schaeffeler, E., Sparreboom, A., Laufer, S., Schwab, M., and Nies, A.T. (2016). Impact of Membrane Drug Transporters on Resistance to Small-Molecule Tyrosine Kinase Inhibitors. Trends in pharmacological sciences 37, 904-932.
6. Chauvin, B., Drouot, S., Barrail-Tran, A., and Taburet, A.M. (2013). Drug-drug interactions between HMG-CoA reductase inhibitors (statins) and antiviral protease inhibitors. Clinical pharmacokinetics 52, 815-831.
7. Godfrey C, Desviat LR, Smedsrød B, Piétri-Rouxel F, Denti MA et al., Delivery is key: lessons learnt from developing spliceswitching antisense therapies. EMBO Mol Med. 2017;9(5):545-557.
8. Stein CA, Castanotto D. FDA-Approved Oligonucleotide Therapies in 2017. Mol Ther. 2017;25(5):1069-1075.
9. Grunweller, A., and Hartmann, R.K. (2007). Locked nucleic acid oligonucleotides: the next generation of antisense agents? BioDrugs : clinical immunotherapeutics, biopharmaceuticals and gene therapy 21, 235-243
10. van Poelgeest EP, Hodges MR, Moerland M, et AL. Antisense-mediated reduction of proprotein convertase subtilisin/kexin type 9 (PCSK9): a first-in-human randomized, placebo-controlled trial. Br J Clin Pharmacol. 2015 ;80(6):1350-61.
11. Baldo BA. Enzymes approved for human therapy: indications, mechanisms and adverse effects. BioDrugs.

5) Teaching and Learning Profile

Provide details of the method of delivery (lectures, seminars, fieldwork, practical classes, etc.) used to enable the achievement of learning outcomes and an indicative number of hours for each activity to give an overall picture of the workload a student taking the module would be expected to undertake. This information will form the Key Information Set for each undergraduate programme and will be used to populate the KIS widget found on the QMUL programme information pages. More information can be found online about KIS. You may also wish to refer to the QAA guidance on contact hours when completing this section.

Activity Type	KIS Category	Time Spent (in hours)
Lecture	Scheduled	22.5
Tutorial	Scheduled	10.5
Seminar	Scheduled	3
Guided independent study	Independent	114
	Total	150

Specify the total module notional study hours. This should be a total of the hours given for each activity. The notional study hours for each academic credit point is 10. A 15 credit point module therefore represents 150 notional study hours.

Activity Type	Total Time Spent (in hours)	Percentage of Time Spent
Scheduled learning and teaching	36	24
Placement		
Independent Study	114	76
Total	150	100

Use the information provided in the box above to specify the total time spent and the percentage time spent in each category of teaching and learning activity.

6) Assessment Profile

Provide details of the assessment methods used to assess the achievement of learning outcomes.

Description of Assessment	Assessment Type	KIS Category	Duration/Length	Percentage Weighting	Final element of assessment	Qualifying Mark
Examination	Written Exam	Exam	3 Hours	80%	Yes	
Coursework	Report	Coursework	2500 words	20%	No	

Final element of assessment: The assessment that takes place last. There should normally be only one element of assessment marked as final unless two assessment or submission dates occur on the same day.

Qualifying mark: A specified minimum mark that must be obtained in one or more elements of assessment in order to pass a module. This is in addition to, and distinct from, the requirement to achieve a pass in the module mark to pass the module.

Reassessment

Provide details of the reassessment methods used, specifying whether reassessment is either standard reassessment or synoptic reassessment.

○ Standard Reassessment ◉ Synoptic Reassessment

Synoptic reassessment details (if you have indicated synoptic reassessment above, please give details)		
Brief Description of Assessment	Assessment Type	Duration/Length of Examination/ Coursework