

Module code: MOD010807	Version: 2 Date Amended: 09/Sep/2026
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1. Module Title
Pharmacology and Translational Medicine

2a. Module Leader
James Edgar

2b. School
School of Life Sciences

2c. Faculty
Faculty of Science and Engineering

3a. Level
7

3b. Module Type
Standard (fine graded)

4a. Credits
30

4b. Study Hours
300

5. Restrictions			
Type	Module Code	Module Name	Condition
Pre-requisites:	None		
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:	MSc Biotechnology		

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

This module explores recent advances in pharmacological approaches with a strong emphasis on non small molecule therapeutics and the discovery science that underpins their development and application. Building on the foundational principles of pharmacology, you'll compare classical small molecule drug approaches with modern therapeutic strategies that target proteins, nucleic acids, cells, and biological systems.

Throughout the module, you'll examine how advances in molecular biology, immunology, nanotechnology and genomics have transformed drug discovery, expanding the range of druggable targets beyond traditional enzyme and receptor targets. You'll study both emerging and established modalities including antibody therapies, antibody–drug conjugates (ADCs), RNA therapeutics, targeted protein degradation technologies, vaccine approaches, gene and cell therapies, nanobiology, and explore the unique challenges presented by such large molecular weight drugs.

You'll investigate the key pharmacokinetic and pharmacodynamic differences between traditional small-molecule and modern therapeutics, highlighting how basic discovery science informs therapeutic design, delivery and clinical application. Through case studies, primarily in oncology and immunology, you'll explore how advances in modern pharmacology increasingly relies on precision targeting.

By the end of the module, you'll have developed a strong conceptual understanding of current and emerging directions in pharmacology, preparing you for careers in biomedical research, drug discovery or biotechnology.

6b. Outline Content

Examine the evolution of pharmacology by comparing classical small-molecule approaches with modern therapeutic strategies that target proteins, nucleic acids, cells, and complex biological systems. Introduce key principles from molecular biology, immunology, genomics, and nanotechnology that underpin contemporary drug discovery. Explore the distinctive pharmacokinetic and pharmacodynamic properties of non-small molecule therapeutics, including the principles of absorption, distribution, metabolism and elimination, and consider their implications for therapeutic design, delivery, and clinical application.

6c. Key Texts/Literature

The reading list to support this module is available at: <https://readinglists.aru.ac.uk/>

6d. Specialist Learning Resources

Students have access to a wide range of full text E-journals through the Anglia Ruskin University digital library. In addition to the main University Library and Student Resource Centre, where students have access to computer facilities. All students have their own email address and full internet and Canvas access. Students will also make full use of the modern and well-equipped molecular laboratories.

7. Learning Outcomes (threshold standards)		
No.	Type	On successful completion of this module the student will be expected to be able to:
1	Knowledge and Understanding	Critically evaluate the strategies employed within the biotechnology and pharmaceutical sectors to develop therapeutic agents that satisfy pharmacokinetic and pharmacodynamic requirements.
2	Knowledge and Understanding	Critically appraise and synthesise knowledge across diverse areas of pharmacology to inform evidence-based decision-making and scientific argumentation.
3	Knowledge and Understanding	Critically compare and evaluate classical small-molecule pharmacology and contemporary non-small-molecule therapeutic approaches targeting proteins, nucleic acids, cells, and complex biological systems.
4	Intellectual, practical, affective and transferrable skills	Analyse and assess how advances in molecular biology, immunology, genomics, and nanotechnology have expanded the druggable landscape and influenced therapeutic innovation.
5	Intellectual, practical, affective and transferrable skills	Critically analyse, synthesise, and evaluate evidence from the scientific literature to demonstrate how chemistry, biology, molecular and cellular biology, and medicine integrate to drive the development of novel therapeutic interventions.
6	Intellectual, practical, affective and transferrable skills	Independently investigate, critically evaluate, and effectively communicate a drug development case study, integrating and presenting evidence from multiple sources to support well-reasoned conclusions.

8a. Module Occurrence to which this MDF Refers				
Year	Occurrence	Period	Location	Mode of Delivery
2026/7	ZZF	Template For Face To Face Learning Delivery		Face to Face

8b. Learning Activities for the above Module Occurrence			
Learning Activities	Hours	Learning Outcomes	Details of Duration, frequency and other comments
Lectures	36	1,2,4,5	12 x 3hrs Lectures/active learning
Other teacher managed learning	24	3,6	12 x 2 hour workshop
Student managed learning	240	1-6	Background reading, online activities, preparation for lectures and practicals, and completion of assessments
TOTAL:	300		

9. Assessment for the above Module Occurrence					
The assessment for some modules includes a presentation (see below for details on how this particular module is assessed). We recognise that presenting, especially to a large group, can cause significant anxiety or distress for some students. If this may affect you, please contact your Module Leader or the Disability and Neurodiversity Service as early as possible. We will work with you to consider appropriate reasonable adjustments. Depending on your individual needs, these might include, for example, presenting to a smaller group or presenting only to a member of academic staff.					
Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
010	Coursework	1-6	60 (%)	Fine Grade	40 (%)
2000 words equivalent					
Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
011	Examination Cambridge	1-5	40 (%)	Fine Grade	40 (%)
Exam 2 hours					

In order to pass this module, students are required to achieve an overall mark of 40% (for modules at levels 3, 4, 5 and 6) or 50% (for modules at level 7*). In addition, students are required to: (a) achieve the qualifying mark for each element of fine graded assessment as specified above (b) pass any pass/fail elements [* the pass mark of 50% applies for all module occurrences from the academic year 2024/25 – see Section 3a of this MDF to check the level of the module and Section 8a of this MDF to check the academic year]
