Immunology and medical microbiology

Module Information

2022.01, Approved

Summary Information

Module Code	5111BMBMOL
Formal Module Title	Immunology and medical microbiology
Owning School	Pharmacy & Biomolecular Sciences
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 5
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
Pharmacy & Biomolecular Sciences

Learning Methods

Learning Method Type	Hours
Lecture	33
Practical	15
Workshop	4

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
			12 Weeks

Aims and Outcomes

Aims	An introduction to the practical and theoretical concepts of medical microbiology and immunology.To provide an understanding of the principles and practices involved in the laboratory diagnosis, prevention and treatment of infectious diseases in humans.

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Apply knowledge of cellular and humoral components of the immune response and selected immunological techniques
MLO2	2	Apply knowledge in the identification of pathogenic organisms and in the treatment of infectious disease
MLO3	3	Review the principles of vaccination and the role of immunity in infectious diseases
MLO4	4	Apply knowledge of the range of microorganisms involved in human disease processes and the role of normal microbiota in health and disease

Module Content

Outline Syllabus	Microorganisms involved in human disease and mechanisms of pathogenicity. Public Health microbiology.Clinical specimens used in the diagnosis and prevention of infectious disease together with an appreciation of normal microbiota contaminants.The importance of microbial culture and microscopy procedures for the isolation and identification of suspected pathogens. Biochemical, serological and molecular methods used in identification of bacteria and viruses.The modes of action of selected antimicrobial and anti-viral chemotherapeutic agents together with methods for determining their effectiveness and potential toxicity. The emergence of bacterial resistance and the value of drug resistance epidemiology.Overview of Immunity: concepts of self and non-self, innate and adaptive immunity, acute and chronic inflammation, immune surveillance and tolerance, specificity and diversity of immune response. primary and secondary responses.Immune cells and tissues.Humoral immunity: antibody structure and function, primary and secondary responses, antigen-antibody interactions, complement, acute phase reactions, cytokines.. Cellular immunity: B and T cell receptors and the MHC; antigen presentation, clonal expansion, concepts of immunological memory Selected immunological techniques, Vaccination: active and passive immunisationRole of immune system in defence processes (e.g. elimination of microorganisms, tumour surveillance, induction of inflammation) and as a therapeutic tool. Introduction to immune dysfunction (e.g. hypersensitivity, autoimmunity, immunodeficiency) and immunity in pregnancy; case studies of selected diseases including diagnosis and therapy. The immune system and cancer. Prophylaxis and immunotherapy
Module Overview	
Additional Information	Infection and immunity is designed so students may learn and fully appreciate the importance of microorganisms and the immune system in human health and disease. The content is practically orientated in order to develop important skills that may later be appreciated in the workplace environment. Students are encouraged to use reviews, papers and subject specific texts. There is a wide range of medical microbiology and immunology textbooks available. Students should have access to one of each.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Test	Immunology Online	50	0	MLO4, MLO3
Portfolio	Micro Practical & MCQ	50	0	MLO2, MLO1

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Darren Sexton	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings