

Virulence and Resistance

Organization: University of Tours

Teaching unit coordinator: Catherine GAUDY-GRAFFIN

Position: Professor of Microbiology at the Faculty of Medicine (MD, PhD)

Teaching unit outline

After an initial short presentation to introduce the whole module, lectures will highlight different mechanisms of virulence associated with disease pathogenesis for a selection of important pathogens in humans and/or animals. Subsequent lectures and tutorials will give students an understanding of the mechanisms of drug resistance occurring with various viruses, bacteria and fungi. Treatment options for some major pathogens in humans and animals will be discussed.

Topics addressed

Virulence:

Diversity of the mechanisms of bacterial virulence
Mechanisms of plant colonization by zoonotic bacterial pathogens
HCV and HIV diversity and escape
Role of accessory proteins of HIV in the viral pathogenesis
Virulence of apicomplexan parasites
Pathogenic fungi
Malaria infection
Non conventional pathogens
Parasitic wasp virulence

Resistance:

Principles of antiviral therapy and molecular basis of viral resistance (models of HIV, HBV, HCV), illustration by interactive work using bioinformatic tools
Mechanisms of bacterial resistance (including practical work)
Fighting antimicrobial resistance (AMR), development of innovative products
Nematode resistance
Antifungal drugs and resistance mechanisms

ECTS	Lectures	Tutorials	Practical work	Digital learning	Personal work
5	36 hours	10 hours	10 hours		69 hours

Assessment method

40% Oral presentation of a scientific article

60% Written exam