Infectious diseases are a leading cause of death worldwide and antimicrobial resistance represents a major health challenge mankind will face in the coming decades. The rapidly aging population and growing prevalence of chronic diseases are major risk factors. Without new antimicrobial strategies to replace the dated antimicrobials available, last century’s medical breakthroughs such as surgeries, transplants or chemotherapy will be unthinkable, bringing us back to the “dark ages” of medicine. Lecturers will address multiple aspects of infection, host responses to strategies to fight infectious agents and highlight the importance of constantly monitoring environmental microbiology and epidemiology. Students are encouraged to actively participate in the classes and will complete a final test.

Lecturers:
Akilesh Rai (CNC/UC-Biotech, IIIUC & FMUC, University of Coimbra)
Ana Eulálio (CNC/UC-Biotech & Department of Life Sciences, University of Coimbra)
Ana Maranha (CNC & IIIUC, University of Coimbra)
Gabriela J. Silva (CNC & FFUC, University of Coimbra)
Isabel Henriques (Department of Life Sciences, University of Coimbra & CESAM, University of Aveiro)
Igor Tiago (CFE, University of Coimbra)
Jaime Mota (Faculdade de Ciências e Tecnologia, Universidade NOVA, Lisboa (FCT NOVA))
John D. Marugg (CNC, University of Coimbra)
Manuela Ferreira (CNC/UC-Biotech & IIIUC, University of Coimbra & Champalimaud Foundation)
Nuno Empadinhas (CNC & IIIUC, University of Coimbra)
Pedro Curto (CNC/UC-Biotech & IIIUC, University of Coimbra)
Ricardo Viera-Pires (CNC/UC-Biotech & IIIUC, University of Coimbra)
Sónia G. Pereira (ciTechCare, Polytechnic of Leiria)
Vânia Moreira (CNC & FMUC, University of Coimbra)

PROGRAM

MONDAY 15 – It’s a microbial world, we only live on it (and sometimes clash)!
09:30 – 10:00 | Introduction to the course
10:00 – 11:00 | Microbial diversity in the 4-domain tree of life: an infective overview (Nuno Empadinhas)
11:00 – 12:00 | Sampling and detection strategies for classical and emerging foodborne pathogens (John D. Marugg)
12:00 – 14:00 | Lunch break
14:00 – 15:00 | The burden of antibiotic resistance in hospital acquired infections (HAs) (Gabriela Silva)
15:00 – 16:00 | Incursions into the untapped medicinal potential of the abietane-type diterpenoids (Vânia Moreira)

TUESDAY 16 – Mycobacterial threats: past, present and future
10:00 – 11:00 | The deadliest pathogens of all time (Nuno Empadinhas)
11:00 – 12:00 | The fight against leprosy: diachronic and biocultural perspectives (Vitor Matos)
12:00 – 13:00 | Nontuberculous mycobacteria in the home environment: ample opportunities for infection (Susana Alarico)
12:00 – 14:00 | Lunch break
14:00 – 15:00 | New targets for Mycobacterium infections: biosynthesis of polymethylated polysaccharides (Ana Maranha)
15:00 – 16:00 | Tuberculosis drug discovery: where we are and where we are going (Vitor Mendes)

WEDNESDAY 17 - Unconventional strategies
10:00 – 11:00 | Protein secretion systems in Salmonella (Jaime Mota)
11:00 – 13:30 | Coffee break
11:30 – 12:30 | Open Seminar: Identification and characterization of Chlamydia trachomatis virulence proteins (Jaime Mota)
12:30 – 14:30 | Lunch break
14:30 – 15:30 | Nanotechnology-based approaches to fight bacteria in infection models (Akilesh Rai)
15:30 – 16:30 | Antibody-based therapies for microbial and viral diseases (Ricardo Vieira-Pires)
16:30 – 16:45 | Coffee break
16:45 – 17:30 | How pathogenic SFG Rickettsia modulate host cells: new insights into rickettsial pathogenesis (Pedro Curto)

THURSDAY 18 – New microbiome-gut-brain & pathogen-host paradigms
10:00 – 11:00 | Microbiome profiling (Igor Tiago)
11:00 – 12:00 | The microbiome-gut-immune-brain axis in Parkinson’s disease and the stealth infection paradigm (Sandra Morais Cardoso)
12:00 – 14:00 | Lunch break
14:00 – 15:00 | Precision beer 4 health: from the gut to the brain (Nuno Empadinhas)
15:00 – 16:00 | Viruses and evolution
16:00 – 17:00 | MicroRNAs as novel players in host - bacterial pathogen interaction (Ana Eulálio)

FRIDAY 19 – Infection beyond borders
10:00 – 11:00 | The environmental dimension of antibiotic resistance (Isabel Henriques)
11:00 – 12:00 | The role of skin microbiome in diabetes: challenges and rewards of interdisciplinary research (Sónia G. Pereira)
12:00 – 14:00 | Lunch break
14:00 – 15:00 | Open Seminar: Fighting infection at body borders: Micronutrient immune sensing and early-life intestinal defence (Manuela Ferreira)
15:00 – 16:00 | Evaluation