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Bacterial & Viral Infections, Pathogenesis, Antibiotic Resistance & Vaccine Development

Globally, over 20% of deaths result from an infectious disease. Research in bacteriology and virology at the University of Birmingham brings together world leading strengths in basic and clinical Science to tackle global infections. Particular strengths exist in the study of antibiotic resistance, bacterial and viral pathogenesis and persistent virus infections; all major worldwide causes of morbidity and mortality.

We host a group of prominent, internationally recognised researchers investigating key aspects of infection. We work with a range of bacterial and viral pathogens and study mechanisms of pathogenesis, host-pathogen interactions, pathogen transmission and drug resistance. Our fundamental science underpins the development and application of improved therapies to combat infection.

Particular strengths exist in the study of persistent virus infections, the pathogenesis of Gram negative bacteria and antibiotic resistance where we have an international reputation for our work. Viral persistence and bacterial pathogenesis involve complex host-pathogen interactions to evade innate and adaptive immune responses. We work closely with cell biologists and immunologists to study these interactions. Antibiotic resistance is a global challenge and the topic of the 2011 WHO 'World Health Day', we study the mechanisms and transmission routes of antibiotic resistance as well as developing new approaches to treat antibiotic resistant bacteria.

The study of bacterial and viral infection involves significant interdisciplinary collaborations across the University and with local NHS trusts, allowing recent developments of new research into vaccines, novel antimicrobials, and the application of whole genome sequencing to evolution and epidemiology projects.

Bacterial & Viral Infections, Pathogenesis, Antibiotic Resistance & Vaccine Development Groups

Antimicrobial Action, Resistance and Epidemiology (/research/activity/mds/domains/immunity-infection/bacterial-viral-infections/antimicrobial-action,-resistance-and-epidemiology/index.aspx)

Hepatitis C and Related Viruses (/research/activity/mds/domains/immunity-infection/bacterial-viral-infections/hepatitis-C-and-related-viruses/index.aspx)

Mechanisms of Bacterial Pathogenesis Research (/research/activity/mds/domains/immunity-infection/bacterial-viral-infections/mechanisms-of-bacterial-pathogenesis-research/index.aspx)

Microenvironmental Regulation of Antibody Response (/research/activity/mds/domains/immunity-infection/bacterial-viral-infections/microenvironmental-regulation-of-antibody-response/index.aspx)

Nosocomial Infections Research (/research/activity/mds/domains/immunity-infection/bacterial-viral-infections/nosocomial-infections-research/index.aspx)

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