

Harnessing the potential of organoids to the study of infectious diseases

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Infectious diseases remain a challenge for public health and with the rise of antimicrobial resistance the scenario is likely to worsen. This situation stems research into host/pathogen interactions with the aim of revealing novel targets for vaccination and host-directed therapies that could complement antibiotherapy. Tuberculosis (TB) is a typical example illustrating this problematic, as it remains within the 10 top causes of death in the world, with app 30% of the deaths being due to multi-drug resistant strains. Research in TB, as well as in other infectious diseases, would does benefit from better experimental models.

Organoids are stem cell-derived in vitro-generated structures that display the three-dimensional architecture and physiology of intact organs. Organoids offer unique possibilities for modelling and studying normal development and disease processes and open up innovative approaches to medical research, drug discovery, and toxicology testing. Recent studies in different infections raise awareness for the fact that exploring organoids in the context of infections and host/pathogen interactions will pave the way for novel avenues of research.

This presentation will discuss the most recent advances and examples on the use of organoids to understand infection, as well as their still unexplored potential in this area.