

Guest lecture

"RNA-mediated virulence gene regulation by meningitis pathogens"

5 October 2016

10 AM in Lykeion meeting room [V10-604-1](#)



Assistant Professor Edmund Loh

Department of MTC
Karolinska Institutet, Sweden

Abstract: Three respiratory tract pathogens: *Neisseria meningitidis*, *Streptococcus pneumoniae* and *Haemophilus influenzae*, are the dominant causative agents of bacterial meningitis in children. These three obligate human pathogens are common colonisers of the nasopharynx from where they may pass biological barriers and cause invasive diseases such as septicaemia and meningitis. When the bacteria move from the nasopharynx to the blood, they encounter a shift in temperature from ca 30°C to 37°C. Increased temperature during inflammation leads to immune evasive behaviour of *N. meningitidis*, allowing the bacterium to evade immune responses^{1,2}.

This first part of the seminar focuses on how *S. pneumoniae* and *H. influenzae* have developed similar regulatory mechanisms to evade the immune system. Capsular biosynthesis and the ability to bind human factor H of these two pathogens are temperature dependent and mediated through RNA thermosensors. At higher temperatures, the bacteria display an increased resistance to the complement system and evade immune responses by increasing their expression of the Factor H binding proteins PspC and LPH, respectively, allowing higher binding of human factor H.

The second part of the seminar will be on how a salinity sensing antisense RNA influences antigenic variation of the Type 4 Pili (Tfp) locus in *N. meningitidis*³. Tfp are important virulence factors for *N. meningitidis*, contributing to colonisation and disease especially adhesion to cells and acquisition of exogenous DNA.

Host: Associate Professor Birgitte H. Kallipolitis, Department of Biochemistry and Molecular Biology, SDU.