

TWINCORE – Seminar

Thursday, February 16th, 2012, 3 p.m.
TWINCORE Lecture Hall

„When bacteria get the flu and sharpen their knives: a novel RNA maturation pathway to activate the CRISPR immune system“



Emmanuelle Charpentier

During their lifetime, all types of cellular life face the constant threat of parasite genome invaders. In Bacteria and Archaea, CRISPR/Cas has recently emerged as an RNA-mediated adaptive immune mechanism against exogenous genetic elements. The system also known as the prokaryotic RNA interference (RNAi) pathway is composed of CRISPR-associated (Cas) proteins and short RNA molecules (CRISPR RNAs:crRNAs). The crRNAs consist of unique repeat/spacer sequences and commonly guide the Cas protein(s) to cognate invading nucleic acids for their destruction. A key event in CRISPR activation is the maturation of crRNAs.

We recently focused on one particular CRISPR/Cas system in the severe human pathogen *Streptococcus pyogenes* and discovered a unique crRNA biogenesis pathway together with a novel biological function of the immune pathway. A short overview of other lab projects regarding regulatory processes in Gram-positive bacterial pathogenicity will also be presented.

Who is Emmanuelle Charpentier?

- Faculty Positions: Assoc. Prof. MIMS, UCMR, Dep. of Molecular Biology, Umeå University, Sweden; Assoc. Prof. Max F. Perutz Laboratories, Univ. of Vienna, Austria; Assist. Prof. Dep. of Microbiology and Immunobiology, Univ. of Vienna, Austria; Guest Prof., Inst. of Microbiology and Genetics, Univ. of Vienna, Austria.
- Docent Degrees: Privat-Dozent, Habilitation in Microbiology, University of Vienna, Austria (2006); Docent, Faculty of Medicine, Umeå University, Sweden (2012).

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