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TWINCORE – Seminar

Tuesday December 13th, 2016, 5 p.m.
TWINCORE Lecture Hall

New insights into the understanding of Hepatitis E Virus lifecycle

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Hepatitis E virus (HEV) is a major cause of enterically transmitted hepatitis worldwide. It is responsible for over 50% of acute viral hepatitis cases and approximately 2 billion people live in areas endemic for HEV and thus are at risk of infection. HEV is a small non-enveloped virus whose genome is a positive-strand RNA that encodes three open reading frames (ORFs) called ORF1, ORF2 and ORF3. Detailed analyses of HEV lifecycle have been for a long time hampered by the lack of an efficient viral culture system. Here, we describe a robust HEV cell culture system for which RNA, infectious viral particles and expression of ORF2/ORF3 proteins were detected very early in time-course experiments. We defined the ultrastructure of cell culture-produced HEV particles and analyzed the sequence of infectious particle-associated ORF2 capsid protein. Strikingly, our analyses also revealed that, in cell culture and in infected patients, HEV produces three forms of the ORF2 capsid protein named ORF2i, ORF2g and ORF2c. The ORF2i protein is associated with infectious particles whereas ORF2g and ORF2c proteins are massively produced glycoproteins that are not associated with infectious particles and are the major antigens present in HEV-infected patient sera.

Who is Laurence Cocquerel?

After her PhD thesis from the University of Paris VII, Laurence Cocquerel worked from 2001 to 2003 at the Stanford University (USA) on the interaction of HCV glycoproteins with the tetraspanin CD81. In 2003, she came back to France as a National Center for Scientific Research scientist. During 12 years, she has been working on cellular aspects of the entry step of HCV lifecycle. Since 2015, she studies molecular and cellular mechanisms of the hepatitis E virus lifecycle. Laurence Cocquerel is CNRS Research Director (CNRS-DR2) / Professor.

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