

SFB 900 and CiiM PRESENT Consortium Seminar

ALL GUESTS ARE WELCOME

TITLE

Coronaviral use of lysosomes for egress and its implications for the immune system

SPEAKER

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LOCATION

Video Conference



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» Research of Nihal Altan-Bonnet

In particular, my lab has revealed novel roles for host membranes in mediating successful viral replication and transmission. These include amongst others: 1) Elucidating the panviral role host PI4P lipids and cholesterol play in viral RNA replication (Hsu et al., Cell 2010; Illynska et al., Cell Host and Microbe 2013). 2) Discovering a novel form of viral transmission between hosts whereby viruses transport themselves in clusters packaged inside extracellular vesicles. We have shown that this, in contrast to moving around as single free viral particles, enhances viral infectivity and protects viruses from host immune responses (Chen et al., Cell 2015; Santana et al., Cell Host and Microbe 2018). Our ongoing studies indicate that vesicle-cloaked viral clusters are a unique viral form showing behavior that is apart from typical non-enveloped or enveloped viral particles. 3) Discovering the cellular exit pathway used by Coronaviruses including SARS-CoV2. How coronaviruses got out of cells was a mystery. We have found that these viruses harness lysosomes and use the lysosomal exocytotic pathway to egress from cells and spread to others. Use of this pathway by Coronaviruses ends up disrupting the acidification of lysosomes and leads to perturbation of important lysosomal functions including antigen presentation (Ghosh et al., Cell 2020). Now knowing the pathway by which these viruses get out is leading us to develop targeted antivirals.

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