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Poster #35: Identification of host factors involved in cystovirus replication

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RNA viruses have compact genomes that require them to hijack host factors for successful replication. This is also true for RNA phages with single-stranded genomes, for which it is well established that they co-opt various host factors involved in translation to facilitate their infection cycles. By contrast, host factors co-opted by cystoviruses, i.e., RNA phages with tri-segmented double-stranded genomes, remain largely unknown. To globally identify these factors, we employed high-throughput transposon sequencing to a panel of diverse cystoviruses under a variety of infection conditions. Our approach reveals both host factors that are commonly used by the studied phages as well as such that are uniquely co-opted by only single phages in our panel. We further highlight host genes that appear to be conditionally required for cystovirus replication and suggest the hitherto unknown receptors the phages use for adsorption. Overall, our results establish a global overview of host factors co-opted by cystoviruses under a variety of conditions, thus providing a framework for future studies on the underlying molecular mechanisms.

Reference #1

Reference #2

Reference #3

Authors: Ms ROY, Aatreyi (Helmholtz Institute for RNA-based Infection Research (HIRI), Helmholtz Centre for Infection Research (HZI), Würzburg, Germany); Dr HÖR, Jens (Helmholtz Institute for RNA-based Infection Research (HIRI), Helmholtz Centre for Infection Research (HZI), Würzburg, Germany; Institute of Molecular Infection Biology (IMIB), Würzburg, Germany)

Presenter: Ms ROY, Aatreyi (Helmholtz Institute for RNA-based Infection Research (HIRI), Helmholtz Centre for Infection Research (HZI), Würzburg, Germany)

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