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90 kDa ribosomal S6 Kinase 1 influences endosomal acidification during Influenza A virus infection

Inhalt

RSK kinases belong to the downstream targets of the classical MAPK/ERK pathway, which contributes to the release of the influenza virus (IV) genome via endosomal acidification. Here we show for the first time, that the kinase isoform RSK1 is also involved in this process.

Inhibition of RSK with the inhibitor BI-D1870 or siRNA mediated knockdown of RSK1 resulted in a decreased internalization of VSV-pseudotyped H1N1 viruses as well as endosomal acidification (EA). Super resolution microscopy (STED) and proximity ligation assays (PLA) revealed that not only ERK but also RSK1 colocalizes with the late endosomal marker CD63.

EA is controlled by v-ATPases which are phosphorylated by ERK or PI3K. We hypothesized that RSK1 also takes part in this process and found colocalization of RSK1 with the v-ATPase subunit A.

In conclusion, this work demonstrates, that RSK1 is misused by human IV and HPAIV in an isoform specific manner to promote the release of the viral genomes in the cytoplasm.

Keywords

Influenza A virus, RSK, MAPK, endosome, vATPase

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PhD Student

Junior Scientist Status

Yes, I am a Junior Scientist.

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