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| Title: | Sendai virus recruits cellular villin to remodel actin cytoskeleton during fusion with hepatocytes |
| Authors: | Sarkar, D.P. (/jspui/browse?type=author&value=Sarkar%2C+D.P.) |
| Keywords: | virosomes Sendai virus cytoskeleton hepatocytes |
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| Citation: | Molecular Biology of the Cell, 28 (26) |
| Abstract: | Reconstituted Sendai viral envelopes (virosomes) are well recognized for their promising potential in membrane fusion-mediated delivery of bioactive molecules to liver cells. Despite the known function of viral envelope glycoproteins in catalyzing fusion with cellular membrane, the role of host cell proteins remains elusive. Here, we used two-dimensional differential in-gel electrophoresis to analyze hepatic cells in early response to virosome-induced membrane fusion. Quantitative mass spectrometry together with biochemical analysis revealed that villin, an actin-modifying protein, is differentially up-regulated and phosphorylated at threonine 206-an early molecular event during membrane fusion. We found that villin influences actin dynamics and that this influence, in turn, promotes membrane mixing through active participation of Sendai viral envelope glycoproteins. Modulation of villin in host cells also resulted in a discernible effect on the entry and egress of progeny Sendai virus. Taken together, these results suggest a novel mechanism of regulated viral entry in animal cells mediated by host factor villin. |
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