

# **Inhibition of ESCRT II-CHMP6 interactions impedes cytokinetic abscission and leads to cell death**

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## **Abstract**

The ESCRT membrane fission machinery has been recently designated as the driving force for scission of the intercellular bridge connecting two daughter cells at the end of cytokinesis. Yet, many of the mechanistic steps that lead to bridge scission have not been resolved. Here we establish a role for additional key ESCRT players (ESCRT II and CHMP6) in cytokinetic abscission. Using structured illumination microscopy (SIM) and live cell video recording we show that these proteins are acutely recruited to the intercellular bridge forming high ordered assemblies at the bridge membrane. Notably, exogenous expression of 52 amino acids taken from the N-terminus of CHMP6 arrived to the intercellular bridge, blocked abscission and subsequently led to cell death in an ESCRT specific manner. Our work advances the mechanistic understanding of ESCRT-mediated membrane fission in cells and introduces for the first time an easily applicable approach for upstream inhibition of the ESCRT pathway in live mammalian cells.