

**P046** Final stages of cytokinesis and midbody ring formation are controlled by BRUCE

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Cytokinesis involves the formation of a cleavage furrow, followed by abscission, the cutting of the midbody channel, the final bridge between dividing cells. Recently, the midbody ring became known as central for abscission, but its regulation remains enigmatic. Here, we identify BRUCE, a 528 kDa multi-functional protein, which processes ubiquitin-conjugating activity, as a major regulator of abscission. During cytokinesis, BRUCE moves from the vesicular system to the midbody ring and serves as a platform for the membrane delivery machinery and mitotic regulators. Depletion of BRUCE causes defective abscission and cytokinesis-associated apoptosis, accompanied by a block of vesicular targeting and defective formation of the midbody and the midbody ring. We propose that BRUCE coordinates multiple steps required for abscission, and that ubiquitylation may be a crucial trigger.