

**P045** Paxillin regulates cytokineses in *Schizosaccharomyces pombe*

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*Schizosaccharomyces pombe* Rho GTPases regulate actin cytoskeleton organization and cell integrity. We studied the fission yeast gene SPBC4F6.12 based on its ability to suppress the thermosensitivity of *cdc42-1625* mutant strain. This gene, named *pxl1+*, is regulated by the cytokinesis transcription factors Sep1/Ace2p, and encodes a protein that contains three LIM domains and is similar to paxillin. Pxl1 does not interact with Cdc42 but it interacts with Rho1, and negatively regulates this GTPase. Pxl1 is required for cytokinesis in fission yeast and forms a contractile ring in the cell division region. The N-terminal region of Pxl1 is required and sufficient for its localization to the medial ring whereas the LIM domains are necessary for its function. Pxl1 localization requires actin polymerization and the actomyosin ring but is independent of the septation initiation network (SIN) function. Pxl1 colocalizes and interacts with the actomyosin ring proteins Myosin II and Cdc15, a FCH domain-containing protein, suggesting that Pxl1 is also part of the ring. Moreover, Pxl1 is required for proper actomyosin ring formation in the division area, and the actomyosin ring contraction is delayed in cells lacking Pxl1. All together these data suggest that Pxl1 functions as an inhibitor of Rho1GTPase signaling during cytokinesis, and regulates the formation and contraction of the actomyosin ring.