

## Localization and role of Tes during mitosis

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### Abstract

The actin cytoskeleton is an important system in health and disease. Deregulated cell migration occurs during metastasis and it is thought that proteins regulating actin assembly are involved in promoting or halting invasion. Tes is a LIM domain protein which has been described as a potential tumor suppressor. Tes is also a scaffold protein and has partners such as zyxin, talin and other actin regulatory proteins. Tes localizes to focal adhesions and stress fibers, where it participates in the regulation of the actin cytoskeleton, thereby playing a role in cell spreading and motility.

Here, we describe a novel cellular localization of Tes. We show that during early stages of mitosis Tes localizes to centrosomes and in late telophase and cytokinesis Tes localizes to the central part of the midbody which corresponds to an intercellular bridge composed of overlapping and antiparallel microtubules. Originating from the mitotic spindle, this bridge results from the tightening of the contractile, actin filament ring.

RNAi experiments were used to assess the role of Tes during mitosis. Cells lacking Tes show perturbed nuclei and a decrease in the mitotic population. Immunofluorescence and electronic microscopy on cells knocked down for Tes reveal a strong perturbation of the microtubule structure of the midbody.