

**TWO ANTIBODIES AGAINST MEMBRANE SKELETON PROTEINS:
EPIPLASMIN B (135kDa) AND FENESTRIN (64 kDa) ARE MARKERS
OF THE CELL POLARITY OF THE CILIATE *TETRAHYMENA*
*THERMOPHILA***

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Polarity is a common feature of many different cell types (budding yeasts, the *C. elegans* zygote, the *Drosophila* oocyte, mammalian epithelia cells). In these cells during a specific stage of cytoskeletal reorganization, the acquisition of cell polarity is associated with a transient immunostaining of the polar region with specific antibodies against either some types of microtubule or membrane skeletal proteins. In this study, the cells of *Tetrahymena thermophila* were immunostained throughout the cell cycle with an anti-epiplasm antibody directed against B protein, [Williams et al., *Development* **109** (1990) 935, Kaczanowska et al., *Dev Biol.* **212** (1999) 150] and with an antibody directed against the fenestrin which co-localizes with the epiplasm-microtubule contact zones in the cortex [Nelsen et al., *J. Eukaryot. Microbiol.* **41** (1994) 483]. During divisional morphogenesis of *T. thermophila*, these antibodies showed a number of cell cycle dependent changes in their patterns of cortical disposition of labeling. At late anaphase stage, the anti-fenestrin mAB specifically labeled the cortex of the apical poles of the prospective daughter cells with a weakening of the anti-B label in these areas. It suggested that these antibodies may serve as markers of cell polarity in *Tetrahymena*. Three lines of evidence indicate that these markers are specifically associated with the acquisition of cell polarity: 1) the anti-fenestrin marker of the apical region appeared during the reorganization of the cytoskeleton even in the absence of cell division, during the so-called oral replacement pathway; 2) it appeared in a proper stage in the phenotypes of a mouthless mutant *II8G* i.e. in the absence of the microtubular oral apparatus, which in *Tetrahymena* nearly co-localizes with the apex; and 3) the markers did not appear in phenotypes of the *cdaA1* mutant which showed defects in cell polarity. Taken together, these results confirmed that epiplasmin and fenestrin antibodies may serve as specific markers of cell polarity in *Tetrahymena thermophila*.

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