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Daughters keep to themselves

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In the 13 October *Science* Takizawa *et al.* use array analysis to identify a transmembrane protein that, combined with a septin barrier, may keep proteins in the daughter cells of budding yeast (*Science* 2000, **290**:341-344). The messenger RNA for transcription factor *Ash1p* is already known to be transported to the bud tip of the daughter yeast cell by an *actomyosin* system; once the protein is translated in the daughter cell it represses mating-type switching. Takizawa *et al.* look for other transported RNAs by immunoprecipitating tagged versions of the known transport proteins and analyzing bound RNAs with a whole-genome array. The RNA for the transmembrane protein *Ist2p* (increased sodium tolerance) is enriched, and localized to the bud tip. The protein is localized to the bud plasma membrane, and moves freely within this membrane. *Ist2p* spreads to the mother cell plasma membrane only upon loss of septin function. The septin neck filaments may form a barrier at the plasma membrane themselves, or recruit other proteins to form a barrier. Association with *Ist2p*, meanwhile, may restrict certain cytoplasmic proteins to the daughter cell.

References

1. *Science*, [<http://www.sciencemag.org/>]
2. Identification of asymmetrically localized determinant, *Ash1p*, required for lineage-specific transcription of the yeast *HO* gene.
3. Localization of *ASH1* mRNA particles in living yeast.