**Biochemical screen for potential membrane fission catalysts**

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Eukaryotic cells are functionally compartmentalized in form of an elaborate endomembrane system comprising of intracellular organelles such as the endoplasmic reticulum, Golgi apparatus, endosomes and lysosome. Membrane budding and fission results in the generation of transport carriers that sort and distribute membrane lipids and proteins across these compartments, and in some cases contribute to their biogenesis. Membrane fission is a thermodynamically unfavorable event, which according to previous literature is catalyzed by specific proteins that hydrolyze nucleotides. Apart from the large GTPase dynamin, which mediates membrane fission at the plasma membrane, little is known about the identity of catalysts engaged in generating vesicles at intracellular organelles. Contemporary candidate-based approaches such as whole genome RNAi screens and genetic analysis require prior knowledge of a transport pathway in order to screen for such catalysts. We have devised a novel assay system of supported membrane tethers (SMrT) templates to directly probe membrane fission reactions. Using this assay, we report preliminary results from a biochemical screen that identifies robust PI4P- and ATP-dependent membrane fission activity present in brain cytosol.