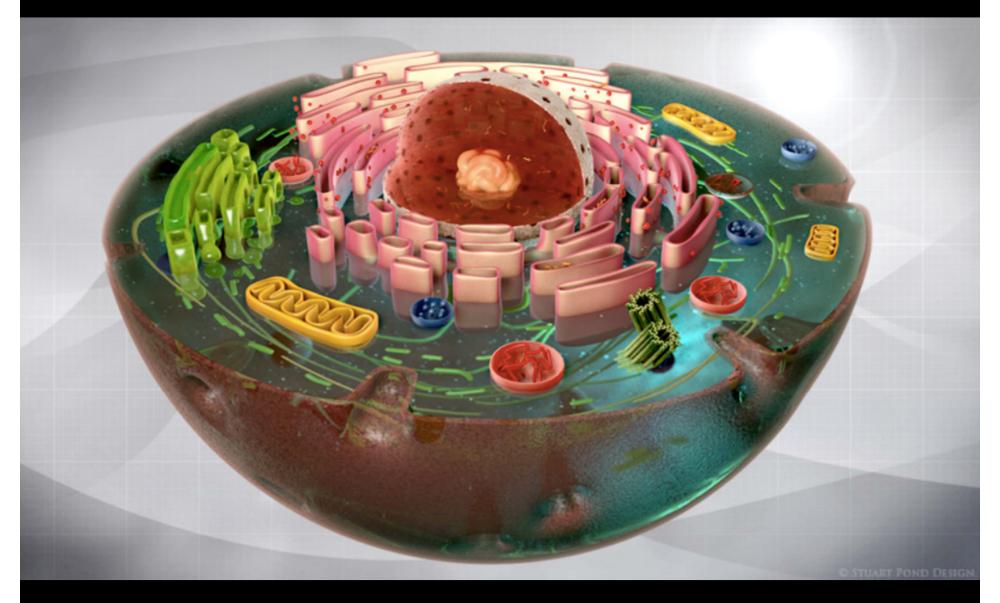
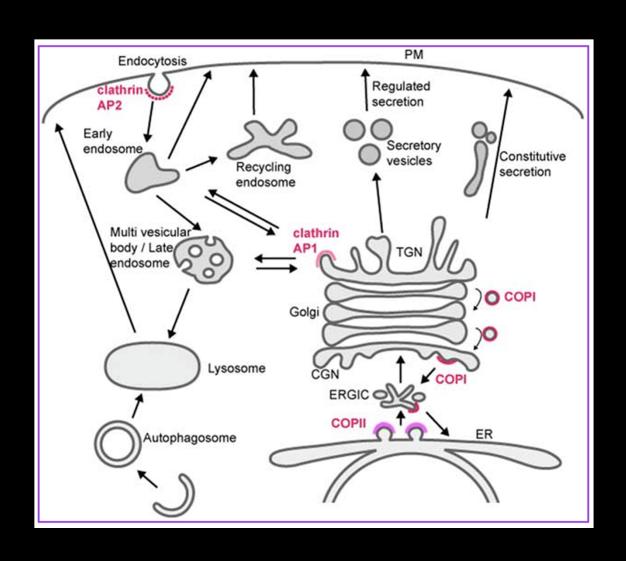


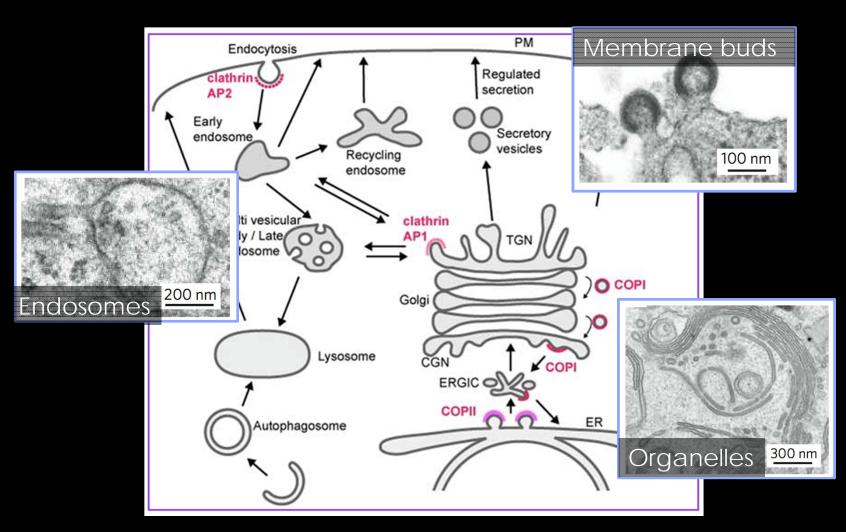
Cells are highly compartmentalized



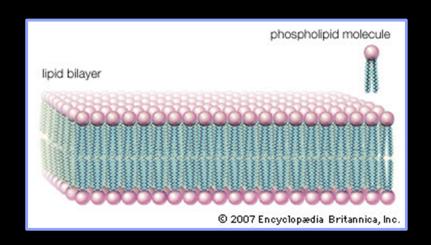
Cellular compartments communicate through membrane transfer

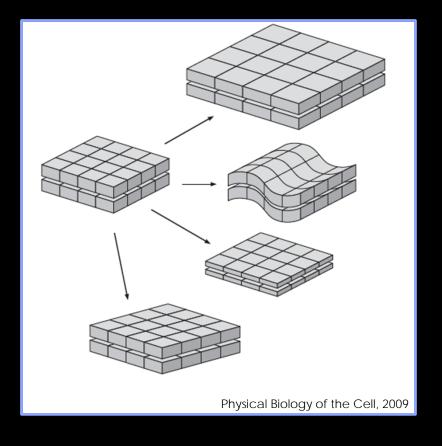


Cellular compartments communicate through membrane transfer

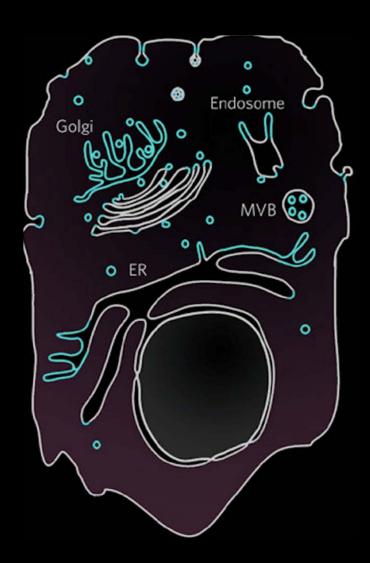


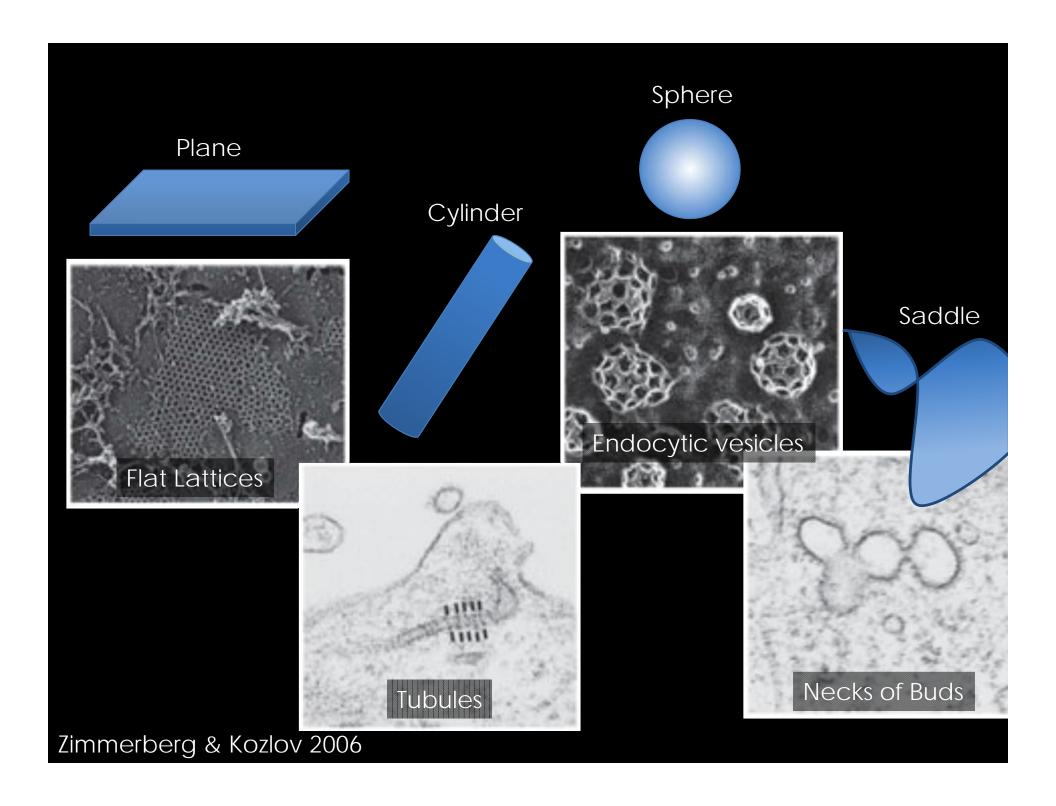
Biological membranes are fluid planar bilayers



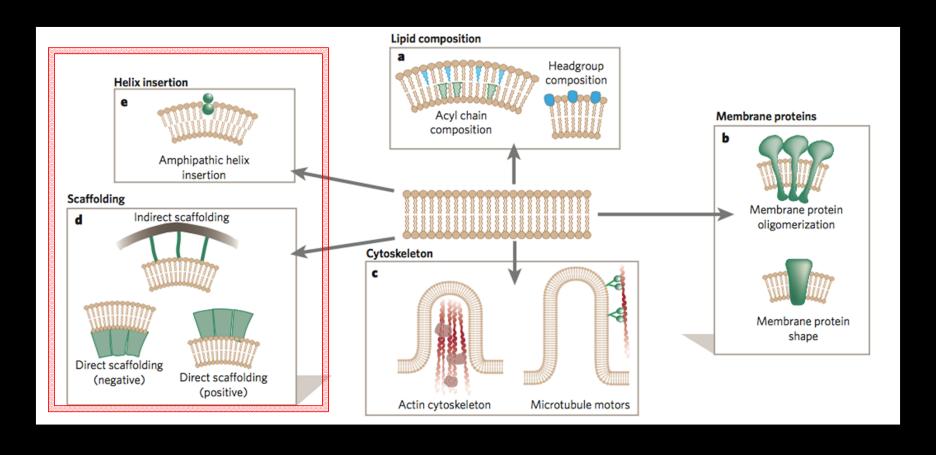


Highly curved membranes are transient/highly regulated

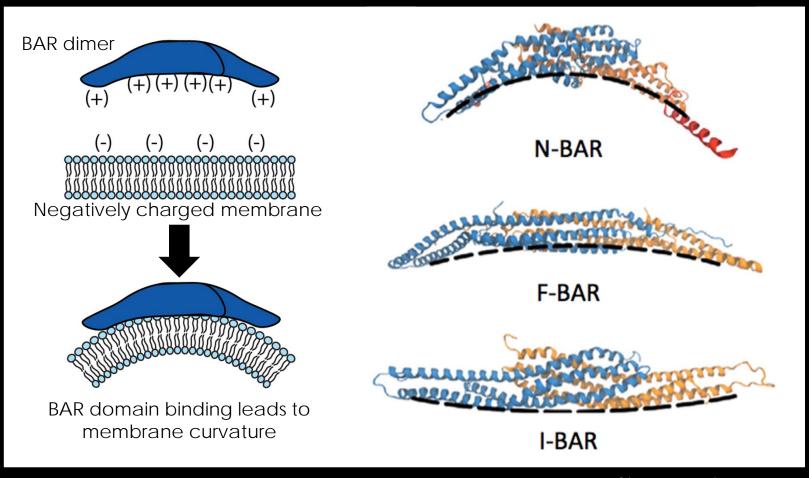




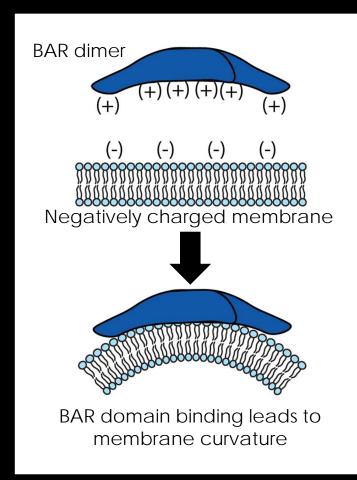
Cellular mechanisms of regulating membrane curvature

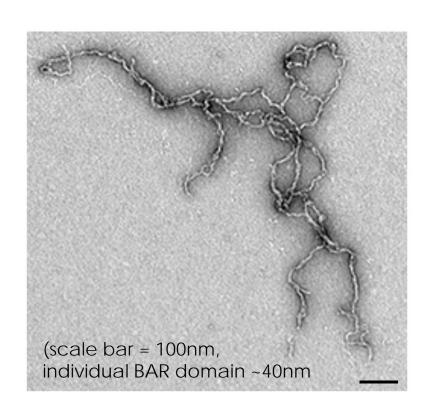


The BAR domain protein family – key regulators of membrane curvature



The BAR domain protein family - key regulators of membrane curvature

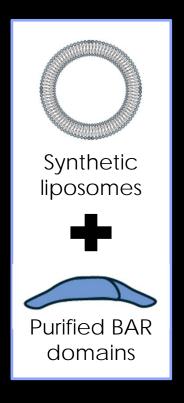


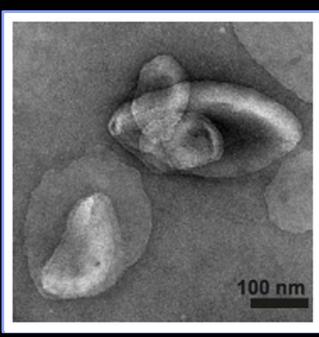


McDonald 2015

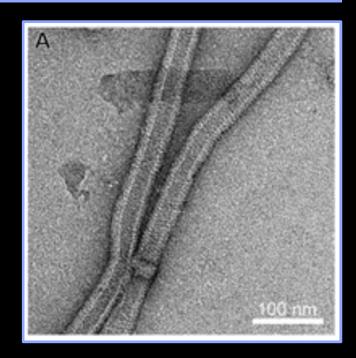
Purified BAR domains deform synthetic membranes

Negative Stain Electron Microscopy



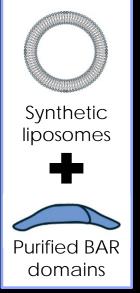


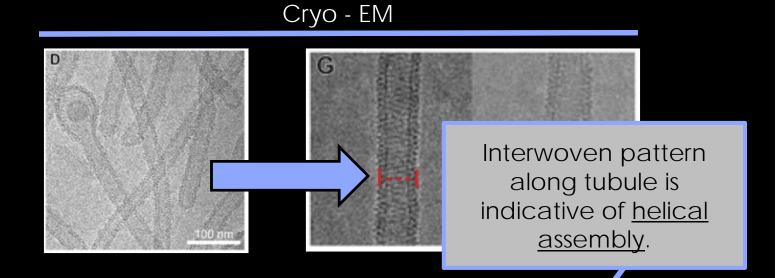




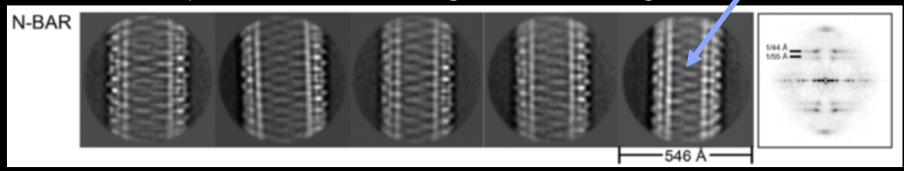
liposomes + BAR

BAR domains form helical scaffold around membrane tubules

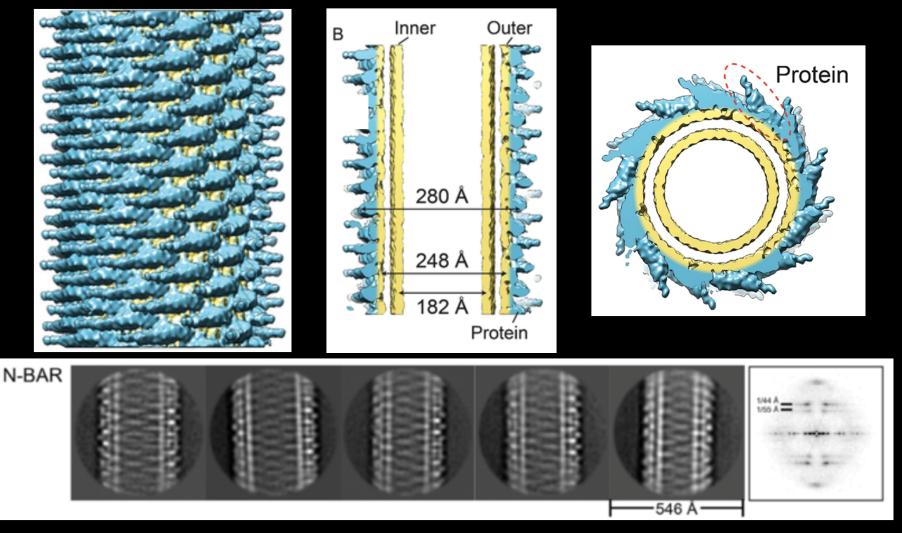




Representative 2D averages of remodeling tubules

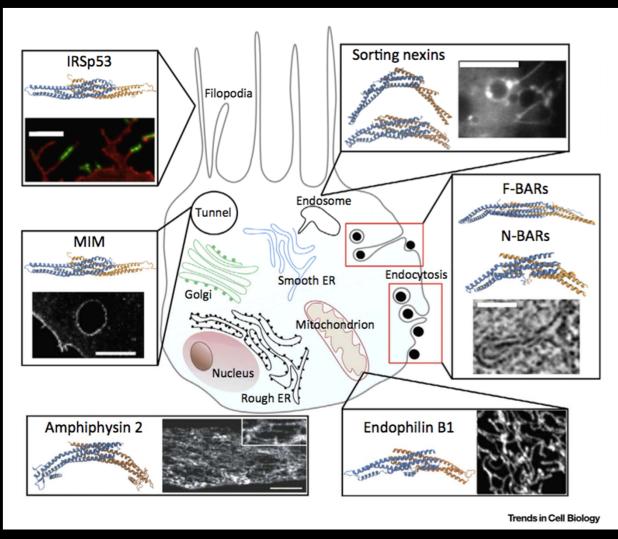


3D reconstructions reveal tightly packed higher-order assembly of BAR dimers





Different modes of assembly may explain diverse activities



Using cell biology to understand the role of membrane dynamics

- What cellular processes require membrane remodeling proteins?
- What roles do their membrane binding and remodeling activities play?
- What characteristics are important for their in vivo roles?

srGAP2 – neuronal migration (epilepsy/schizophrenia)

Supplementary Movie 1
F-BAR-EGFP-expressing COS7 Cells
Imaged at 48 HIV
1 frame every 10 seconds
Total duration: 10 minutes

