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Two contrasting examples of protein-lipid interactions in the cell

I will present our recent work on two very different proteins that peripherally associate with cellular lipid surfaces. The first is perilipin 4, a mammalian protein that is highly expressed in adipocytes and contains a giant amphipathic helix. I will show that this helix is adapted to specifically interact with lipid droplets over a large surface area and that it can stabilize lipid particles both in cells and in vitro. Second, I will present our work on a yeast protein, Osh6, which transports phosphatidylserine from the endoplasmic reticulum to the plasma membrane in exchange for phosphatidylinositol 4-phosphate. I will discuss how Osh6 interacts with protein and lipid partners to transiently target the two cellular compartments