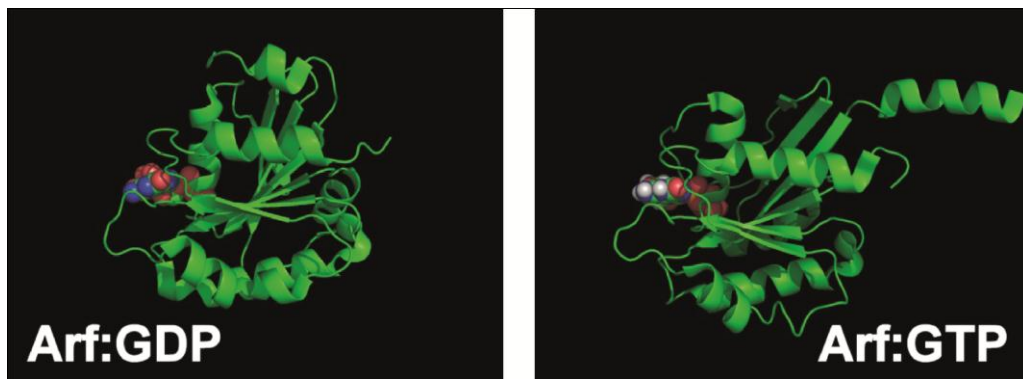


Chapter 10
Web Text Box 1

Arf's sticky finger

We describe in the book (book page 167) how the exchange of GDP for GTP in the GTPase Arf causes Arf to extend an α helix at the N terminal, which not only has the effect of anchoring Arf to the membrane, but also increases the area of the cytosolic face of the membrane, causing it to buckle outwards to form the bud.



Arf GDP and Arf GTP

Here we show ribbon diagrams of Arf in its GDP and GTP loaded states. At the middle left, we see the molecules of GDP and GTP themselves. At the top right of the GTP:Arf diagram is the N terminal α helix that has swung out ready to insert into the donor membrane.

The N terminal α helix is amphipathic: on one side the amino acid residues are hydrophilic while on the other side they are hydrophobic. The helix therefore floats at the top of the donor membrane like a log in a river, with its hydrophobic aspect inside the membrane and its hydrophilic aspect facing the cytosol. To read more on how the N terminal helix acts to curve the membrane, see Lundmark et al. 2008. *Biochem J.* 414:189.

The ribbon diagram images were created by Geraint Thomas of the Department of Cell and Developmental Biology, University College London, using data on Protein Data Bank <http://www.rcsb.org/pdb>. The GDP:Arf structure is by Amor et al. 2001. *J. Biol. Chem.* 276:42477. The GTP:Arf structure is by Liu et al. 2010. *Nat. Struct. Mol. Biol.* 17:876.