P012 Co-ordination of vesicle tethering and cargo arrival at the Golgi?

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Rud3p is a Golgi localised coiled-coil protein that was originally identified as a multi-copy suppressor of mutations in proteins (uso1 and sec34) known to be involved in vesicle tethering at the Golgi. We have identified a domain in the C-terminus of Rud3p (the GRAB domain) that is involved in Golgi targeting. This domain is conserved across species and is present in a number of other proteins including the human protein GMAP-210. The GRAB domain and a downstream "GA1 motif" are both required for Rud3p function, although the GA1 motif is not required for Golgi targeting. In addition we have identified the small GTPase Arf1p as a binding partner for the GRAB domain and using a genetic approach have shown that an ER-to-Golgi cargo receptor known as Erv14p is also required for Rud3p recruitment. These results suggest a bipartite mechanism for Rud3p targeting that requires both Arf1p and Erv14p. An interesting question that arises from these observations is why there is a need for such complex targeting. Since Rud3p may act as a vesicle tethering protein one possible idea is that requirement of an ER-to-Golgi cargo receptor as well as a small GTPase may provide a mechanism to link vesicle tethering with cargo arrival at the Golgi.