Abstract

The dynamics and function of the actin cytoskeleton depends on polymerization and branching of actin filaments, an event that is stimulated by Arp2/3. Arp2/3-dependent branching is closely linked to the pentameric WASH complex which consists of WASH, strumpellin, SWIP, CCDC53 and FAM21. WASH complex is associated mainly with endosomes. It was traditionally localized to retromer-coated domains of early endosomes which enable sorting and recycling of endocytosed material. However, latest scientific data extend the role of WASH complex to other endosomal or even non-endosomal sites. Of all the subunits of the WASH complex, FAM21 is the most prominent hub for protein-protein interactions, thanks to its long unstructured C-terminal domain. In my diploma thesis FAM21 was localized to early and late endosomes and lysosomes of U2OS human cell line. Dictyostelium discoideum was then used as a model organism to investigate FAM21 protein interactions as well as the proteins associated specifically with the C terminal domain of FAM21. Results of the study shed new light on the complex network of FAM21 interactions and question the long-standing theories on the function of WASH complex in cells.