Title:	Characterization of Vps18 Subunit of Mammalian Hops Complex
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Abstract:	Endocytic trafficking in eukaryots is regulated by various components of vesicle fusion machinery namely, small GTPases, tethering factors, SNAREs and motor proteins. Small GTPases, in their GTP-bound/ active state, recruit downstream tethering factors which in a SNARE-dependent manner regulate vesicle fusion. Tethering factors that function in vesicular trafficking were first discovered in yeast. One such tethering factor that is well characterized in model organism Saccharomyces cerevisiae and that plays a role at the late endosome-lysosome junction is HOPS (HOmotypic fusion and vacuole Protein Sorting) complex. Just like its yeast counterpart, mammalian HOPS complex is a multimer comprised of six subunits namely, Vps11, Vps16, Vps18, Vps33a, Vps39 and Vps41. These proteins have stayed highly conserved across evolution. HOPS complex plays an important role in mediating membrane fusion-events at late endosome-vacuole/lysosome. In yeast, this complex has been well- studied but the molecular mechanisms involved in HOPS complex recruitment to endo-lysosomes in mammals are yet not clear. During the course of this study we observed that HOPS Complex subunits interact with each other directly, in a yeast-two-hybrid system. Upon overexpression in mammalian cells, it was seen that hVps11, hVps16 and hvps18 localize to cytoplasm of these cells, while lysosomal recruitment of one of the subunit hVps18 is promoted by its interaction with hVps41. Together these results indicate that mammalian HOPS subunits assemble as a complex and in this fashion may function to bring about late endosome-lysosome fusion.
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