Title:	Characterizing the role of Arl8 and its interaction partner in lysosomal cargo trafficking.
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Keywords:	Characterizing the role of Arl8. interaction partner in lysosomal cargo trafficking. he role of Arl8 and its interaction partner lysosomal cargo trafficking.
Issue Date:	May-2024
Publisher:	IISER Mohali
Abstract:	Intracellular vesicular trafficking is governed by small GTP-binding (G) proteins including Rabs, Arfs, and Arf-like (Arl) proteins. Rabs acting as molecular switches, undergo conversion from GDP-bound inactive to GTP-bound active states via guanine nucleotide exchange factors (GEFs), and vice versa through GTP hydrolysis by GTPase-activating proteins (GAPs), ensuring precise cargo delivery and membrane fusion. One of the small G proteins, Arl8b plays a role in regulating lysosome motility and fusion with other compartments. Arl8b regulates bidirectional movement of lysosomes via interacting with SKIP to regulate anterograde lysosome movement and with RUFY3 for retrograde movement. Additionally, it interacts with HOPS and PLEKHM1 to regulate late endosomes/autophagosomes and lysosome fusion. Elucidating novel interaction partners of Arl8b is crucial for enhancing our understanding of lysosomal biology. This study aims to characterize a potential interaction partner of Arl8b and its role in lysosomal cargo trafficking. Our investigation identified a novel interaction partner of Arl8b. This protein is a member of ArfGEF family. Our observations reveal that ArfGEF protein function as an interaction partner of Arl8b. GST pull-down assay confirmed interaction between ArfGEF family member and Arl8b. RNAi mediated depletion of ArfGEF family member resulted in delayed trafficking of lysosomal cargos in EGFR trafficking assays. Furthermore, Rab2a has been found to be an interaction partner of ArfGEF protein and is known to be involved in LAMP1 delivery to late endosomes. Our observations also align with this finding, suggesting a potential role for ArfGEF family member in lysosomal cargo sorting at sorting/recycling endosomes.
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