Title:	Characterization of RUN domain interaction with small GTP ase arl8b
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Abstract:	Small GTPase Arl8b, mediate endocytic, autophagic, and phagocytic vesicle transport and fusion with lysosomes. PLEKHM1 binds Arl8b on the lysosome and Rab7 on the late endosome thereby mediating recruitment of HOPS complex for tethering. This leads to fusion and degradation of cargo in lysosomes. Arl8b mediates peripheral lysosomal distribution by recruiting PLEKHM2 that binds to kinesin-1. PLEKHM1 competes with PLEKHM2 for Arl8b binding. PLEKHM1 and PLEKHM2 interact with Arl8b via their RUN domain. Arl8b interacts with another RUN domain containing protein, RUFY1. This interaction is necessary for membrane localization of RUFY1. With the help of AlphaFold2 we were able to determine residues in RUN domain of these proteins which are responsible for interaction with Arl8b. Further mutating these residues helped us to identify the residues which are responsible for interaction with Arl8b.
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