

S1. Table-I- List of antibodies used in this study

Target	Cat.No.	Vendor
CgA	sc-393941	Santa Cruz
CgB	sc-517541	Santa Cruz
Ulk1	68445-1-Ig	ptglab
Beclin	ab207612	Abcam
LC3B	ab192890	Abcam
ATG4	ab154843	Abcam
ATG5	ab108327	Abcam
ATG7	67341-1-Ig	ptglab
ATG9	ab108338	Abcam
ATG14	19491-1-AP	ptglab
ATG16L1	ab187671	ptglab
EPG5	27666-1-AP	ptglab
BIRC6	29760-1-AP	ptglab
GARSP55	66627-1-Ig	ptglab
SNAP29	12704-1-AP	ptglab
SNAP25	SMI8R	Covance
STX17	17815-1-AP	ptglab
YKT6	HPA030817	Sigma
VAMP8	AF5354	R&D systems
β -tubulin	10068-1-AP	ptglab
GAPDH	5174	CST
VPS39	16219-1-AP	ptglab
VPS41	13869-1-AP	ptglab
PLEKHM1	16202-1-AP	ptglab
VAMP2	67822-1-Ig	ptglab
VAMP3	66488-1-Ig	ptglab
Rab27a	R4655	Sigma
Rab3a	107 111	Synaptic Systems
Munc13-1	68483-1-Ig	ptglab
Munc13-2	126 203	Synaptic Systems
Munc13-3	126 303	Synaptic Systems
Munc13-4	67193-1-Ig	ptglab
Munc13-4	CF507267	Origene
STX7	AF5478	R&D systems
STX8	AF5448	R&D systems
Vti1B	SAB1410097	Sigma
GFP	G1544	Sigma
Flag	F3165	Sigma
Flag	70586	CST
Insulin	A0564	Dako

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Target	Cat.No.	Vendor
LAMP1	90917	CST
IA-2	MABS469	EMD Millipore

S2. Table- II – List of molecular constructs used in this study

Plasmids name	Description	Source /Gift from
EGFP-PLEKHM1 (WT)	N-terminal GFP-tagged full-length human PLEKHM1 (1–1,056 aa) cloned into the pEGFP-C1 vector	Mahak Sharma
Arl8b-EGFP	Sub-cloned from ptdTomato-N1-Arl8b (Mahak Sharma)	This study
LAMP2 -mCherry		Aparna Lakkaraju
CgA-EGFP		Ricardo Borges
CgA-Medium FT	Sub-cloned from CgA-EGFP	This study
NPY-tdtomato	Sub-cloned from NPY-EGFP Ron Emerson/Dick Mains	This study
LAMP1 -emiRFP670	Addgene	Vladislav Verkhusha
EGFP Rab27a		Masaki Yamaga
EGFP Rab27 a Q78L	Hifi assembly from g block IDT human sequence	This study
NPY-mCherry		This study
Phogrin-EGFP twin-Strep	Hifi assembly from	This study
LAMP1 -mScarlet-I twin Strep	Hifi assembly from addgene LAMP1-mScarlet I, Depositor: Dorus Gadella	This study
EGFP-hMunc13-4	Hifi assembly	This study
EGFP Rab27 T23N	Hifi assembly	This study
mApple Rab5	Addgene	Michael Davidson
mCherry Rab7	Addgene	Michael Davidson
mcherry Rab27a	Hifi assembly	This study
mApple Rab3a	Sub-clone from EGFP-Rab3a	This study
ANF-mApple	Sub-clone from ANF-EGFP, Ed Levitan	This study
Phogrin-EGFP		Lou Xuelin
Flag-Rab3a		Masaki Yamaga
Flag-Rab27a		Masaki Yamaga
mNeptune 2.0 -Rab2a	Hifi assembly/g block amplified and sub-clone from addgene plasmid #46779 Depositor Terry Hébert	
mApple Munc13-4	Hifi assembly	This study
myc/mCherry-Munc13-4 WT	Hifi assembly	This study

S2. Table- II – List of molecular constructs used in this study

Plasmids name	Description	Source /Gift from
myc/mCherry-Munc13-4 C2A*B*	Hifi assembly	This study
myc/mCherry-Munc13-4 L403P	Hifi assembly	This study
myc/mCherry-Munc13-4 L457M	Hifi assembly	This study
myc/mCherry-Munc13-4 R587H	Hifi assembly	This study
myc/mCherry-Munc13-4 R414L	Hifi assembly	This study
EGFP VPS41	Sub clone from HA VPS 41, Jacques Neefjes	This study
EGFP VPS16	Sub clone from HA VPS 16, Jacques Neefjes	This study
EGFP VPS39		Jacques Neefjes
EGFP VPS18		Jacques Neefjes
TRPML1 EGFP		Xiaochun Li
TRPML1 Y499A		Xiaochun Li
TRPML1 V432P	Hifi assembly generated from TRPML1 WT	
EGFP-PIKfyve		Assia C. Shisheva
EGFP- PIKfyveK1831E		Assia C. Shisheva
EGFP-YKT6	Sub-clone from pMRXIP-Myc-YKT6 via hifi assembly, addgene depositor Noboru Mizushima	This study
EGFP TSG101	Generated from CFP- TSG101, Paul D. Bieniasz	This study
EGFP VPS37B	Generated from CFP- VPS37B, Paul D. Bieniasz	This study
EGFP VPS37C	Generated from CFP- VPS37C, Paul D. Bieniasz	This study