

Table SI. Proteins involved in autophagy as reported in the Autophagy Project of the BioGRID repository accessed in October 2023.

Gene	Description	Role
ABL1	ABL proto-oncogene 1, non-receptor tyrosine kinase	Signal transduction
ACBD5	Acyl-CoA binding domain containing 5	Organellophagy
AMBRA1	Autophagy/beclin-1 regulator 1	Initiation complex
ANXA7	Annexin A7	Other/unknown
ARFIP2	ADP-ribosylation factor interacting protein 2	Membrane delivery
ATG10	Autophagy-related 10	ATG conjugation system
ATG101	Autophagy-related 101	Initiation complex
ATG12	Autophagy-related 12	ATG conjugation system
ATG13	Autophagy-related 13	Initiation complex
ATG14	Autophagy-related 14	Initiation complex
ATG16L1	Autophagy-related 16-like 1 (<i>Saccharomyces cerevisiae</i>)	ATG conjugation system
ATG16L2	Autophagy-related 16-like 2 (<i>Saccharomyces cerevisiae</i>)	ATG conjugation system
ATG2A	Autophagy-related 2A	Initiation complex
ATG2B	Autophagy-related 2B	Initiation complex
ATG3	Autophagy-related 3	ATG conjugation system
ATG4A	Autophagy-related 4A, cysteine peptidase	ATG conjugation system
ATG4B	Autophagy-related 4B, cysteine peptidase	ATG conjugation system
ATG4C	Autophagy-related 4C, cysteine peptidase	ATG conjugation system
ATG4D	Autophagy-related 4D, cysteine peptidase	ATG conjugation system
ATG5	Autophagy-related 5	ATG conjugation system
ATG7	Autophagy-related 7	ATG conjugation system
ATG9A	Autophagy-related 9A	Membrane delivery
ATG9B	Autophagy-related 9B	Membrane delivery
ATL3	Atlastin GTPase 3	ATG conjugation system
ATM	ATM serine/threonine kinase	Organellophagy
BECN1	Beclin 1, autophagy-related	Initiation complex
BECNIP1	Beclin 1, autophagy-related, pseudogene 1	Initiation complex
BNIP1	BCL2/adenovirus E1B 19 kDa interacting protein 1	Organellophagy
BNIP3	BCL2/adenovirus E1B 19 kDa interacting protein 3	Signal transduction
BNIP3L	BCL2/adenovirus E1B 19 kDa interacting protein 3-like	Organellophagy
C10orf10	Chromosome 10 open reading frame 10	Other/unknown
C12orf5	Chromosome 12 open reading frame 5	Organellophagy
C18orf8	Chromosome 18 open reading frame 8	Lysosome
C9orf72	Chromosome 9 open reading frame 72	Initiation complex
CALCOCO2	Calcium-binding and coiled-coil domain 2	Organellophagy
CCPG1	Cell cycle progression 1	Initiation complex
CD84	CD84 molecule	Xenophagy

CISD2	CDGSH iron sulfur domain 2	Signal transduction
CLEC16A	C-type lectin domain family 16, member A	Organellophagy
CLTC	Clathrin, heavy chain	ATG conjugation system
COPB1	Coatomer protein complex, subunit β 1	Lysosome
DAP	Death-associated protein	Signal transduction
DRAM1	DNA damage-regulated autophagy modulator 1	Lysosome
DRAM2	DNA damage-regulated autophagy modulator 2	Initiation complex
EI24	Etoposide-induced 2.4	Ubiquitin-mediated cargo selection
EIF2AK4	Eukaryotic translation initiation factor 2 α kinase 4	Transcriptional regulation
EPG5	Ectopic P-granules autophagy protein 5 homolog (<i>Caenorhabditis elegans</i>)	Lysosome
EPM2A	Epilepsy, progressive myoclonus type 2A, Lafora disease (laforin)	Signal transduction
EVA1A	Eva-1 homolog A (<i>Caenorhabditis elegans</i>)	ATG conjugation system
FAM134B	Family with sequence similarity 134, member B	ATG conjugation system
FBXO7	F-box protein 7	Organellophagy
FBNP1L	Formin-binding protein 1-like	ATG conjugation system
FOXO1	Forkhead box O1	Transcriptional regulation
FUNDC1	FUN14 domain-containing 1	Organellophagy
FYCO1	FYVE and coiled-coil domain-containing 1	Lysosome
GABARAP	GABA(A) receptor-associated protein	ATG conjugation system
GABARAPL1	GABA(A) receptor-associated protein-like 1	ATG conjugation system
GABARAPL2	GABA(A) receptor-associated protein-like 2	ATG conjugation system
GABARAPL3	GABA(A) receptors associated protein-like 3, pseudogene	ATG conjugation system
GPR137	G protein-coupled receptor 137	Signal transduction
GPR137B	G protein-coupled receptor 137B	Signal transduction
GRAMD1A	GRAM domain-containing 1A	Initiation complex
HAP1	Huntingtin-associated protein 1	Lysosome
HDAC10	Histone deacetylase 10	Lysosome
HDAC6	Histone deacetylase 6	Lysosome
HMGB1	High mobility group box 1	Initiation complex
IFI16	Interferon, γ -inducible protein 16	Signal transduction
IFT20	Intraflagellar transport 20	ATG conjugation system
IFT88	Intraflagellar transport 88	ATG conjugation system
IRF8	Interferon regulatory factor 8	Transcriptional regulation
IRGM	Immunity-related GTPase family, M	Xenophagy
KIAA0226	KIAA0226	Initiation complex
KIAA0226L	KIAA0226-like	Lysosome
KIAA1324	KIAA1324	Other/unknown
LAMP2	Lysosomal-associated membrane protein 2	Lysosome

LRRK2	Leucine-rich repeat kinase 2	Other/unknown
LRSAM1	Leucine-rich repeat and sterile α motif containing 1	Ubiquitin-mediated cargo selection
MAP1LC3A	Microtubule-associated protein 1 light chain 3 α	ATG conjugation system
MAP1LC3B	Microtubule-associated protein 1 light chain 3 β	ATG conjugation system
MAP1LC3B2	Microtubule-associated protein 1 light chain 3 β 2	ATG conjugation system
MAP1LC3C	Microtubule-associated protein 1 light chain 3 γ	ATG conjugation system
MAP1S	Microtubule-associated protein 1S	Organellophagy
MEFV	Mediterranean fever	Organellophagy
MFN2	Mitofusin 2	Organellophagy
MITF	Microphthalmia-associated transcription factor	Transcriptional regulation
NBR1	Neighbor of BRCA1 gene 1	Ubiquitin-mediated cargo selection
NFE2L1	Nuclear factor, erythroid 2-like 1	Transcriptional regulation
NHLRC1	NHL repeat-containing E3 ubiquitin protein ligase 1	Ubiquitin-mediated cargo selection
NRBF2	Nuclear receptor binding factor 2	Initiation complex
OPTN	Optineurin	Organellophagy
PARK2	Parkin RBR E3 ubiquitin protein ligase	Organellophagy
PARK7	Parkinson protein 7	Organellophagy
PHF23	PHD finger protein 23	Ubiquitin-mediated cargo selection
PIK3C3	Phosphatidylinositol 3-kinase, catalytic subunit type 3	Initiation complex
PIK3CB	Phosphatidylinositol-4,5-bisphosphate 3-kinase, catalytic subunit β	Signal transduction
PIK3R4	Phosphoinositide-3-kinase, regulatory subunit 4	Initiation complex
PINK1	PTEN induced putative kinase 1	Organellophagy
PIP4K2A	Phosphatidylinositol-5-phosphate 4-kinase, type II, α	Initiation complex
PIP4K2B	Phosphatidylinositol-5-phosphate 4-kinase, type II, β	Initiation complex
PIP4K2C	Phosphatidylinositol-5-phosphate 4-kinase, type II, γ	Initiation complex
PLEKHM1	Pleckstrin homology domain containing, family M (with RUN domain) member 1	Lysosome
PRKAA1	Protein kinase, AMP-activated, α 1 catalytic subunit	Signal transduction
PRKAA2	Protein kinase, AMP-activated, α 2 catalytic subunit	Signal transduction
PTPN22	Protein tyrosine phosphatase, non-receptor type 22 (lymphoid)	Other/unknown
RAB12	RAB12, member RAS oncogene family	Signal transduction
RAB1A	RAB1A, member RAS oncogene family	Membrane delivery
RAB1B	RAB1B, member RAS oncogene family	Lysosome
RAB23	RAB23, member RAS oncogene family	Xenophagy
RAB24	RAB24, member RAS oncogene family	Lysosome
RAB33B	RAB33B, member RAS oncogene family	ATG conjugation system
RAB39A	RAB39A, member RAS oncogene family	Initiation complex
RAB39B	RAB39B, member RAS oncogene family	Signal transduction
RAB7A	RAB7A, member RAS oncogene family	Lysosome

RAB8A	RAB8A, member RAS oncogene family	Other/unknown
RB1CC1	RB1-inducible coiled-coil 1	Initiation complex
RGS19	Regulator of G-protein signaling 19	Signal transduction
RNF166	Ring finger protein 166	Ubiquitin-mediated cargo selection
RNF185	Ring finger protein 185	Organellophagy
RNF41	Ring finger protein 41, E3 ubiquitin protein ligase	Organellophagy
RPTOR	Regulatory-associated protein of MTOR, complex 1	Signal transduction
RTN3	Reticulon 3	ATG conjugation system
RUFY4	RUN and FYVE domain-containing 4	Initiation complex
S100A8	S100 calcium-binding protein A8	Organellophagy
S100A9	S100 calcium-binding protein A9	Organellophagy
SBF2	SET binding factor 2	Lysosome
SESN2	Sestrin 2	Signal transduction
SH3GLB1	SH3 domain GRB2-like endophilin B1	Initiation complex
SIRT2	Sirtuin 2	Ubiquitin-mediated cargo selection
SMCR8	Smith-Magenis syndrome chromosome region, candidate 8	Initiation complex
SNAP29	Synaptosomal-associated protein, 29 kDa	Lysosome
SOGA1	Suppressor of glucose, autophagy associated 1	Signal transduction
SPOP	Speckle-type POZ protein	Ubiquitin-mediated cargo selection
SQSTM1	Sequestosome 1	Ubiquitin-mediated cargo selection
STBD1	Starch binding domain 1	ATG conjugation system
STK11	Serine/threonine kinase 11	Signal transduction
STX17	Syntaxin 17	Lysosome
SUPT20H	Suppressor of Ty 20 homolog (<i>Saccharomyces cerevisiae</i>)	Membrane delivery
TAX1BP1	Tax1 (human T cell leukemia virus type I) binding protein 1	Ubiquitin-mediated cargo selection
TBC1D14	TBC1 domain family, member 14	Membrane delivery
TBC1D17	TBC1 domain family, member 17	Organellophagy
TBC1D25	TBC1 domain family, member 25	Lysosome
TBC1D5	TBC1 domain family, member 5	Membrane delivery
TBK1	TANK-binding kinase 1	Xenophagy
TECPR1	Tectonin β -propeller repeat containing 1	Lysosome
TECPR2	Tectonin β -propeller repeat containing 2	ATG conjugation system
TEX264	Testis-expressed 264	Organellophagy
TFE3	Transcription factor binding to IGHM enhancer 3	Transcriptional regulation
TFEB	Transcription factor EB	Transcriptional regulation
TM9SF1	Transmembrane 9 superfamily member 1	Other/unknown
TMBIM6	Transmembrane BAX inhibitor motif-containing 6	Signal transduction
TMEM150B	Transmembrane protein 150B	Other/unknown
TMEM173	Transmembrane protein 173	Initiation complex
TMEM208	Transmembrane protein 208	Ubiquitin-mediated cargo selection

TMEM39A	Transmembrane protein 39A	Lysosome
TMEM41B	Transmembrane protein 41B	Other/unknown
TMEM59	Transmembrane protein 59	ATG conjugation system
TMEM74	Transmembrane protein 74	ATG conjugation system
TOLLIP	Toll-interacting protein	Ubiquitin-mediated cargo selection
TP53INP1	Tumor protein p53 inducible nuclear protein 1	ATG conjugation system
TP53INP2	Tumor protein p53 inducible nuclear protein 2	ATG conjugation system
TRIM17	Tripartite motif-containing 17	Initiation complex
TRIM21	Tripartite motif-containing 21	Organellophagy
TRIM5	Tripartite motif-containing 5	Xenophagy
TSC2	Tuberous sclerosis 2	Signal transduction
UBQLN1	Ubiquilin 1	Lysosome
UBQLN2	Ubiquilin 2	Lysosome
UBQLN4	Ubiquilin 4	Lysosome
ULK1	Unc-51 like autophagy activating kinase 1	Initiation complex
ULK2	Unc-51 like autophagy activating kinase 2	Initiation complex
ULK3	Unc-51 like kinase 3	Initiation complex
USP10	Ubiquitin-specific peptidase 10	Initiation complex
USP13	Ubiquitin-specific peptidase 13 (isopeptidase T-3)	Initiation complex
UVRAG	Ultraviolet radiation resistance-associated	Initiation complex
VAMP8	Vesicle-associated membrane protein 8	Lysosome
VCP	Valosin-containing protein	Lysosome
VMP1	Vacuole membrane protein 1	Initiation complex
VPS11	Vacuolar protein sorting 11 homolog (<i>Saccharomyces cerevisiae</i>)	Lysosome
VPS16	Vacuolar protein sorting 16 homolog (<i>Saccharomyces cerevisiae</i>)	Lysosome
VPS18	Vacuolar protein sorting 18 homolog (<i>Saccharomyces cerevisiae</i>)	Lysosome
VPS33A	Vacuolar protein sorting 33 homolog A (<i>Saccharomyces cerevisiae</i>)	Lysosome
VPS39	Vacuolar protein sorting 39 homolog (<i>Saccharomyces cerevisiae</i>)	Lysosome
VPS41	Vacuolar protein sorting 41 homolog (<i>Saccharomyces cerevisiae</i>)	Lysosome
VPS51	Vacuolar protein sorting 51 homolog (<i>Saccharomyces cerevisiae</i>)	Lysosome
WASH1	WAS protein family homolog 1	Initiation complex
WASH2P	WAS protein family homolog 2 pseudogene	Initiation complex
WASH3P	WAS protein family homolog 3 pseudogene	Initiation complex

WDFY3	WD repeat and FYVE domain-containing 3	Initiation complex
WDFY4	WDFY family member 4	Other/unknown
WDR24	WD repeat domain 24	Signal transduction
WDR41	WD repeat domain 41	Initiation complex
WDR45	WD repeat domain 45	Initiation complex
WDR45B	WD repeat domain 45B	Initiation complex
WIP11	WD repeat domain, phosphoinositide interacting 1	Initiation complex
WIP12	WD repeat domain, phosphoinositide interacting 2	Initiation complex
XBP1	X-box binding protein 1	Transcriptional regulation
ZFYVE1	Zinc finger, FYVE domain-containing 1	Initiation complex
ZKSCAN3	Zinc finger with KRAB and SCAN domains 3	Transcriptional regulation