Syntaxin 5 determines Weibel-Palade body size and von Willebrand factor secretion by controlling Golgi architecture

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Supplementary Methods

Cell culture, transfection and lentiviral transduction

Pooled, cryo-preserved primary human umbilical vein endothelial cells (HUVECs) obtained from Promocell (Heidelberg, Germany) were cultured in endothelial cell growth medium (EGM-2, Promocell) supplemented with 18% fetal calf serum (FCS, Bodinco, Alkmaar, The Netherlands), 100 U/mL penicillin, and 100 ug/mL streptomycin (P/S, Gibco), henceforth this medium will be referred to as EGM-18. Lentiviral transduction was performed as previously described.[1] Lentiviral vectors were produced in human embryonic kidney 293T (HEK293T) cells (ATCC) using a 3rd generation lentiviral packaging system. Transduced HUVECs were used for experiments at passage 5.

DNA constructs

The lentiviral LVX-mEGFP-LIC vector has been described.[2] A synthetic human SEC22B fragment was generated by gene synthesis containing all 214 codons of the SEC22B coding sequence, flanked by *Bsr*GI and *Not*I sites, to facilitate cloning in frame behind mEGFP in LVX-mEGFP-LIC. The non-targeting, SEC22B-targeting, and STX5-targeting pLKO.1-puro shRNA vectors were obtained from the MISSION® shRNA library developed by TRC at the Broad Institute (**Table S2**).

Mass spectrometry analysis

SEC22B interactome

HUVECs were seeded in 3 separate wells of 6-well culture plates and lentivirally transduced with mEGFP or mEGFP-SEC22B to enable sample preparation in triplicate for each pulldown condition. After 3 days of confluency, cells were rinsed 2x in PBS and subsequently lysed in mass spectrometry (MS) grade lysis buffer (10 mM Tris-HCl pH 7.5, 150 mM NaCl, 0.5 mM EDTA, 0.5% NP40 (v/v)) supplemented with Halt protease and phosphatase inhibitor cocktail (Thermo Scientific). Lysates were centrifuged for 10 minutes at 16,000g and supernatants

were transferred to fresh tubes. Cleared lysates were incubated with GFP-Trap magnetic agarose beads or control (CTRL) beads (ChromoTEK) by rotation for 2 hours at room temperature (RT). For interactome analysis by MS, beads were collected on a magnetic stand and were washed 3 times with wash buffer (10 mM Tris-HCl pH 7.5, 150 mM NaCl, 0.5 mM EDTA) supplemented with Halt protease and phosphatase inhibitor cocktail (Thermo Scientific, Breda, The Netherlands) and two times with 1 ml PBS. Sample preparation, data acquisition and data analysis were performed according to.[3]

shSEC22B and shSTX5 whole proteome

HUVECs were seeded in 3 separate wells of 6-well plates and lentivirally transduced with shRNAs targeting SEC22B as described,[4] STX5, or non-targeting control shRNA. Untransduced cells were also included. After reaching confluency cells were lysed, samples were processed for mass spectrometry and analyzed as previously described in.[5]

MS Data analysis

MS raw files were processed with MaxQuant 1.6.2.10 using the human Uniprot database (downloaded February 2019).[6] MaxQuant output tables were analyzed using R/Bioconductor (version 4.1.0/3.13),[7] 'reverse', 'potential contaminants' and 'only identified by site' peptides were filtered out and label free quantification values were $\log_2$ transformed. Proteins quantified in 2/3 of an experimental group were selected for further analysis. Missing values were imputed by a normal distribution (width=0.3, shift = 1.8), assuming these proteins were close to the detection limit. Statistical analyses were performed using moderated t-tests in the LIMMA package.[8] A Benjamini-Hochberg adjusted P value <0.05 and absolute $\log_2$ fold change >1 was considered statistically significant and relevant. SNARE-complex annotation were obtained from GO-term 'SNARE complex' (GO:0031201). Overrepresentation analyses were performed using clusterprofiler.[9] Protein interactions with STRING-DB combined scores >0.9 were visualized in Cytoscape v3.8.2.The .raw MS files and search/identification files obtained

with MaxQuant have been deposited in the ProteomeXchange Consortium[10] via the PRIDE partner repository with the dataset identifier PXD027516.

Fluorescence microscopy

Immunofluorescence (IF) staining and imaging was performed as previously described[5] using a Leica SP8 confocal microscope (Leica, Wetzlar, Germany). Super resolution imaging of ER and Golgi stainings was performed on a Zeiss Airyscan (Zeiss, Breda, The Netherlands). All antibodies used for IF stainings have been specified in Table S1. WPBs were visualized using mouse monoclonal anti-VWF CLB-Rag20[11] or rabbit polyclonal anti-VWF (DAKO, A0058) as indicated in Figure legends. Nuclei were stained using Hoechst nuclear dye (Life Technologies; H-1399). Images were processed and analyzed using ImageJ (https://imagej.nih.gov/ij/). WPB length (major axis of cigar-shaped VWF positive structures) and TGN area (periphery of TGN46 staining) were measured in pixels and automatically converted to actual size in ImageJ.

VWF string assay

ECs were first transduced with shCTRL or shSTX5 and 75,000 cells per channel were seeded on day 0 in gelatin-coated 6-channel μ-slides VI 0.4 (#80606, IBIDI). The growth medium was replaced every morning and afternoon. After 4 days the VWF string assay was performed under flow conditions using 2.5 dynes/cm^2 and at 37°C. The cells were starved for 5 minutes using M-199 medium (Gibco) supplemented with 1% bovine serum albumin (BSA, Fraction V) and subsequently stimulated with 100 μM histamine (Sigma-Aldrich; H7125) added to the starvation medium for 5 minutes. To visualize VWF strings, an Alexa Fluor 488 (AF488)-conjugated anti-VWF antibody (DAKO), prepared using the Alexa Fluor 488 protein labeling kit (ThermoFisher Scientific, A10235), was added at 2 μM concentration to the medium for 5-10 minutes. Live imaging was performed on an Axiovert widefield microscope (Zeiss) using a 10x objective. Unstimulated conditions were fixed with 4% PFA for 5 minutes at RT. IF stainings for VWF, TGN46, Vascular Endothelial (VE) cadherin, and Hoechst, and confocal imaging were performed as previously described.[5]

Western blotting and VWF multimer analysis

Western blotting was performed as described.[4] For VWF multimer analysis EC media and lysates, prepared as described in the ''secretion assay'' section above, were loaded on 0.9% ultrapure agarose gels run at 75 V for 5 hours. VWF was reduced using β-mercaptoethanol and transfered onto a nitrocellulose membrane (GE Healthcare) overnight by cappilary suction. After blocking for 1 hour in 10% non-fat dry milk (Blotto, Chem Cruz) in PBS-0.05% Tween-20 (Sigma) and incubation with VWF-HRP (DAKO, #P0226, 1:1000) for 3 hours, the blot was visualized by enhanced chemiluminesence according to manufacturer's protocol (Supersignal West Pico Plus chemilumiescent substrate, ThermoFisher Scientific). VWF multimers profile plots were generated in ImageJ (Analyze>Profile plot). Relative amounts of different VWF multimer sizes were quantified as the area under the curve (AUC), as a percentage of the total AUC of the plot (Analyze>Gels>Plot lanes).

Electron microscopy

Transmission electron microscopy

ECs were processed for transmission electron microscopy essentially as described.[4] Briefly, HUVECs cultured in 10 cm petridishes were fixed (TEM: 1,5% glutaraldehyde (GA), 0,1 M cacodylate buffer, pH 7.4;) for 2 hours at RT, washed three times (0,1 M cacodylate), scraped and pelleted in 2% agar solution. Solidified pellets were cut into 1 x 1 mm^3 pieces, dehydrated in an ethanol series followed by a series of EPON (LX11, Leadd) to pure EPON. After polymerizing for 2 days at 70°C, ultrathin sections (80 µm) were cut parallel to the surface of the beem capsules using a Reichert Ultracut S (Leica Microsystems) and contrasted with uranylacetate and lead citrate. Sections were examined on a Fei Tecnai Twin transmission electron microscope (FEI, Eindhoven, Netherlands) at 120 kV, with a Gatan Oneview camera (Gatan, Pleasonton) on binning 2. Overlapping images were stitched together as previously described.[12] Image analysis was performed using Aperio Imagescope (Leica) and colored overlays were made in Adobe Illustrator.

Immuno electron microscopy

After fixation (2% PFA, 0.2% GA, 0.1 M PHEM) for 2 hours at RT HUVECs were rinsed with 0.1M PHEM buffer, scraped and pelleted in 10% gelatin. Pieces of the pellet (~0.5-1 mm^3) were cryoprotected by immersion in PBS / 2.3 M sucrose solution for 1 hour, mounted on a stub, and snapfrozen in liquid nitrogen. Ultrathin cryosections (90 nm) made with a Leica EM Ultracryotome were collected on grids and incubated with rabbit-anti-VWF (DAKO, 1:1000) followed by 10 nm Protein A gold particles (1:300) in 1% BSA in PBS as described.[13] The sections were embedded (methylcellulose, 0.3 % uranylacetate solution) and examined as described above.

Data statistical analysis

Student's t-test or one-way ANOVA with Dunnett's multiple comparisons test comparing to shCTRL were performed using GraphPad Prism 8 (Graphpad, La Jolla, CA, USA). Significance values are specified in the Figures and in Figure legends. Data are shown as mean ± standard error of the mean (SEM), median ± interquartile range (IR), or as contingency-stacked bar graphs.

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Supplementary Figures

A
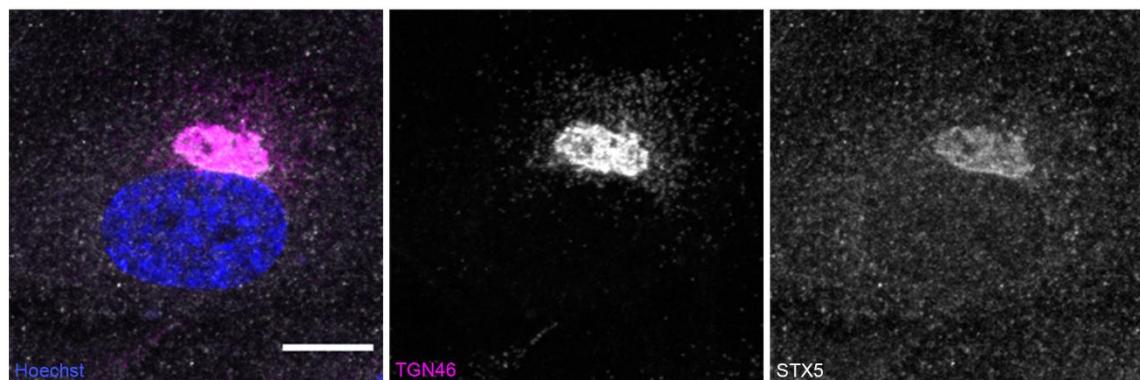
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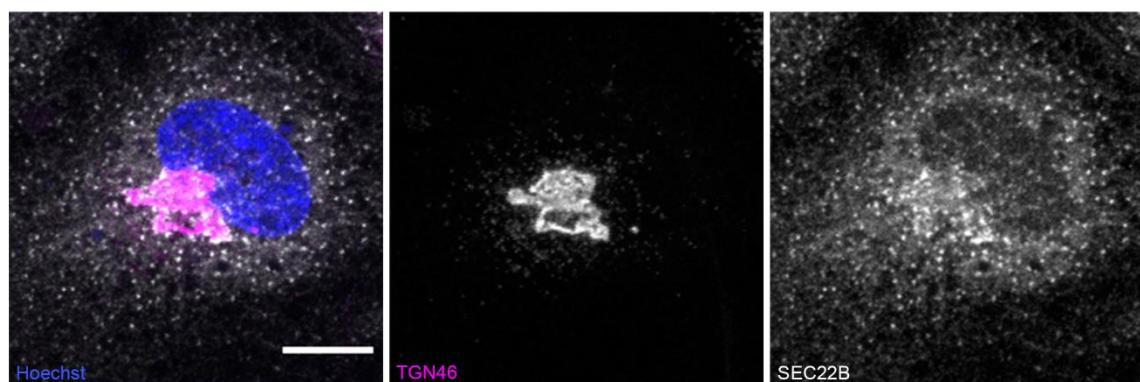
Figure S1. Endogenous SEC22B and STX5 localization. Immunofluorescent stainings of (A) STX5 and (B) SEC22B (both in gray) in HUVECs combined with *trans*-Golgi marker TGN46 (magenta) and nuclear staining Hoechst (blue). Scale bars indicate 10 µm.
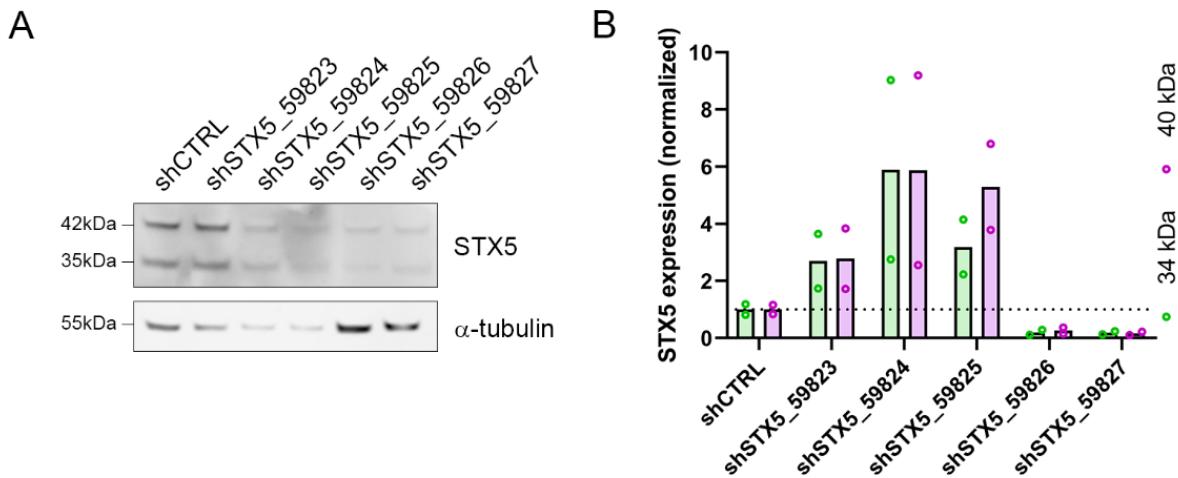
Figure S2. STX5 knockdown efficiency of single shRNAs. A) Western blot analysis of STX5 in shCTRL and shSTX5-transduced HUVECs (α-tubulin as loading control). B) Densitometry analysis of 34 and 40 kDa STX5 isoforms normalized to α-tubulin expression (mean, n=2 technical replicates).
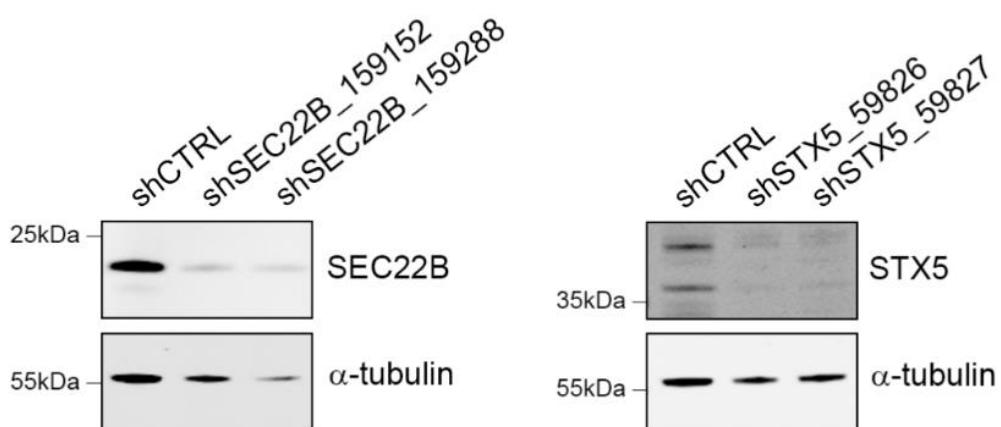
Figure S3. Efficient STX5 and SEC22B knockdown. Western blot analysis to confirm SEC22B and STX5 knockdown in SEC22B, respective STX5 shRNA-transduced HUVECs compared to shCTRL (α-tubulin as loading control).
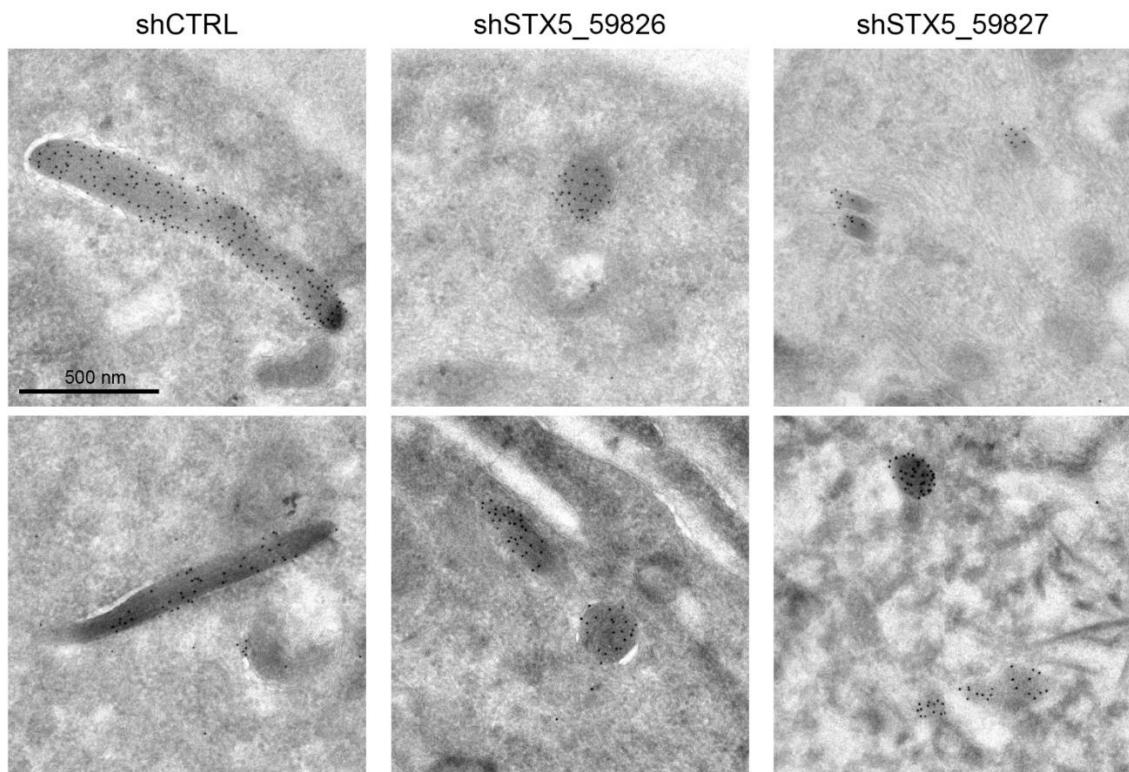
Figure S4. VWF positive structures in STX5 depleted cells resemble WPBs. Electron microscopy images of structures containing VWF immuno-gold labeling in shCTRL and shSTX5-transduced HUVECs. (scale bar: 500 nm).
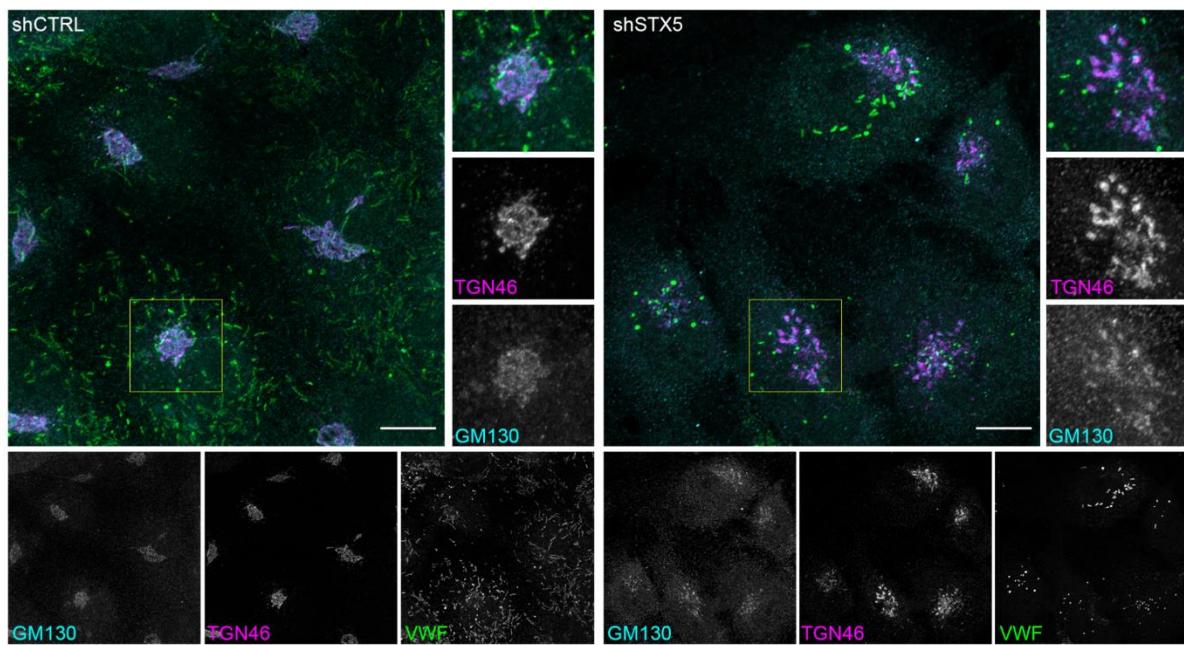
Figure S5. STX5 knockdown causes fragmentation of *cis*-Golgi. Immunofluorescent stainings of GM130 (cyan), TGN46 (magenta), and VWF (green) in shCTRL and shSTX5 transduced HUVECs (scale bar: 10 µm). Individual channels are shown below in gray scale. Boxed areas are magnified on the right.
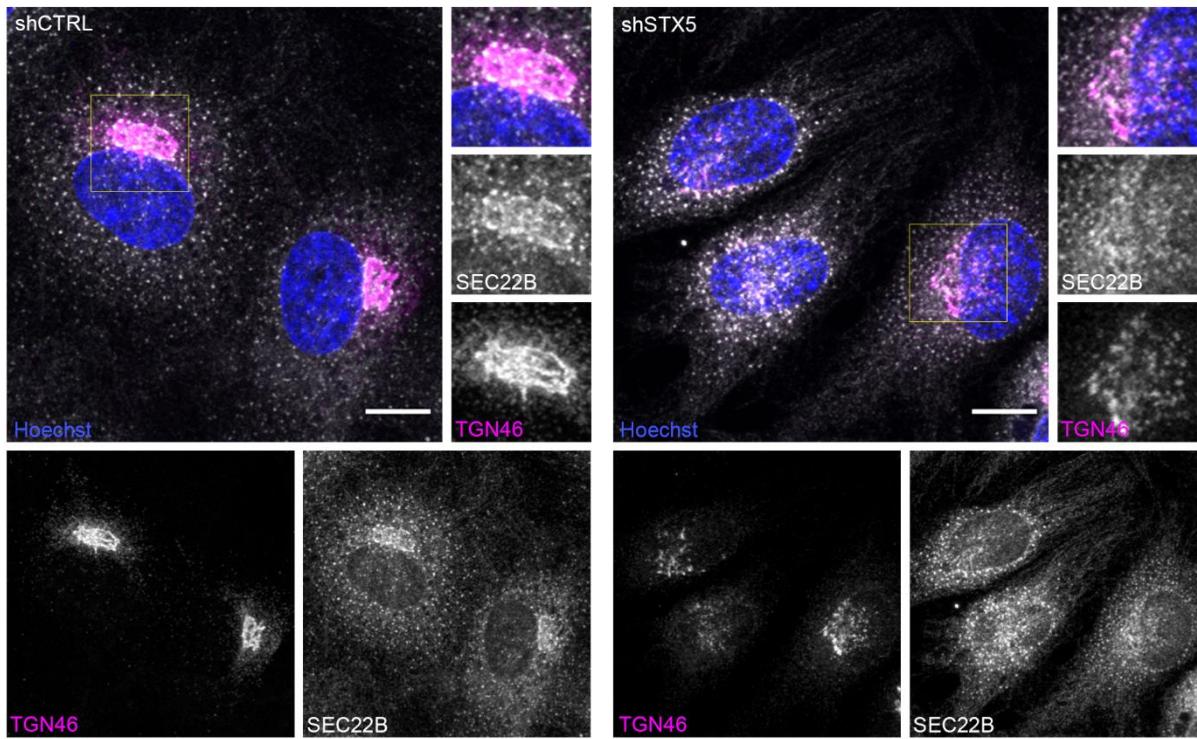
Figure S6. SEC22B localization is dispersed in STX5 depleted cells. Immunofluorescent stainings of TGN46 (magenta), SEC22B (gray), and nuclei (Hoechst, blue) in shCTRL and shSTX5 transduced HUVECs (scale bar: 10 µm). Individual channels are shown below in gray scale. Boxed areas are magnified on the right.
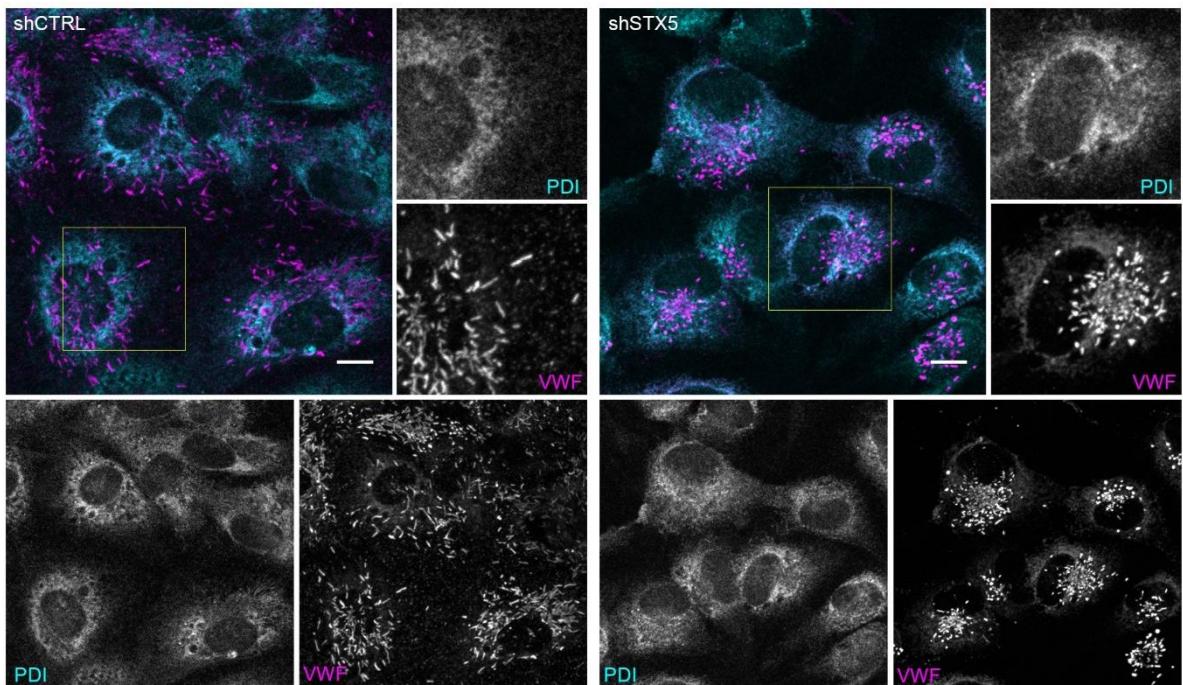
Figure S7. VWF retention in rough ER. Immunofluorescent staining of VWF (magenta) and PDI (cyan) in shCTRL and shSTX5 (scale bar: 10 μm). Individual channels are shown below and boxed area are magnified on the right.

Figure S8. ER dilation upon STX5 knockdown. Transmission electron microscopy image of a shSTX5 cell with dilated rER sheets highlighted in yellow (scale bar: 1 μm).
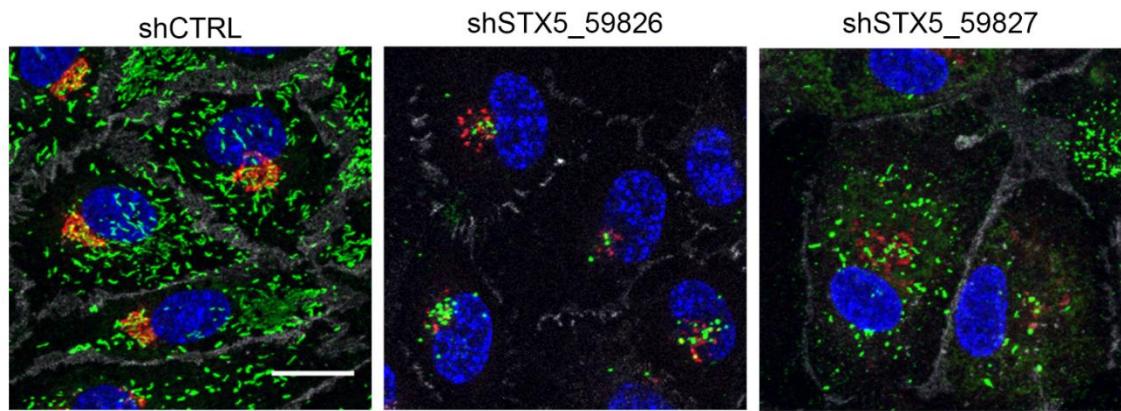
Figure S9. WPB content in unstimulated cells cultured for VWF string assay. Immunofluorescent stainings of VWF (green), vascular endothelial (VE) cadherin (gray), TGN46 (red), and nuclei (Hoechst, blue) in shCTRL and shSTX5 transduced HUVECs fixed in IBIDI channel (scale bar: 20 μm).
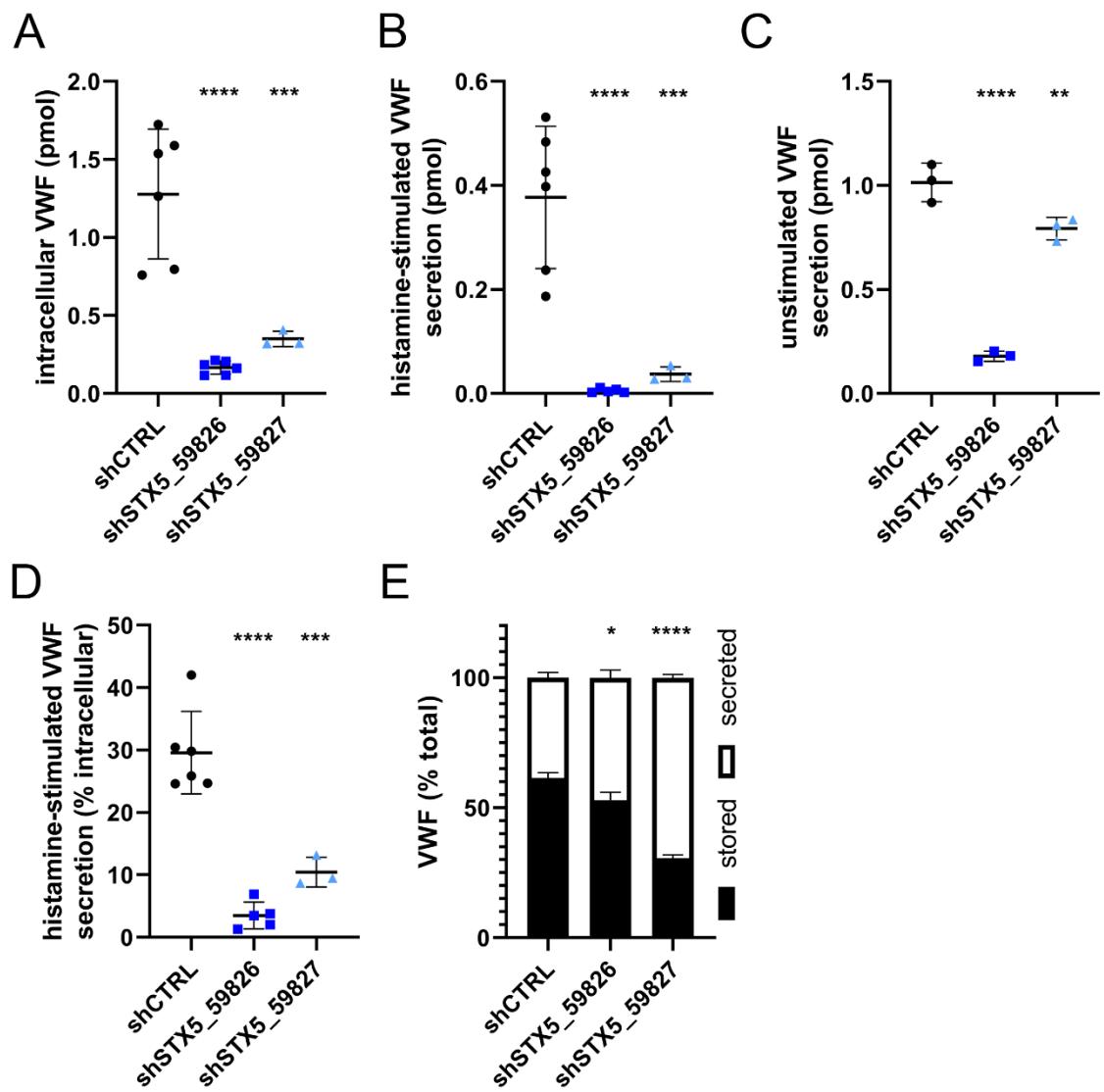
Figure S10. Reduced VWF secretion upon STX5 knockdown. A) Intracellular VWF levels in picomoles (pmol) as measured by ELISA in shCTRL and shSTX5 cells B) 1-hour histamine-induced VWF secretion pmol and C) as a percentage of intracellular VWF (of unstimulated cells). D) 48-hour unstimulated VWF release in pmol and E) calculated proportions of secreted versus stored VWF (mean±SEM, n=3-6, one way ANOVA, *P<0.05, **P<0.01, ***P<0.001, ****P<0.0001).

Supplementary Tables

Table S1. Antibody list.

Target	Species (isotype)	Company/article	Clone/Cat#	Application [dilution/conc]
STX5	Rabbit	Synaptic Systems	110 053	IF [1:100] WB [1:1000]
SEC22B	Rabbit	Synaptic Systems	186 003	IF [1:100]
TGN46	Sheep	Bio-rad	AHP500GT	IF [1:500]
GM130	Rabbit	Cell signaling	D6B1	IF [1:1000]
Calnexin	Rabbit	Abcam	ab22595	IF [1:100]
PDIA3	Mouse IgG1	Sigma-Aldrich	CL2444	IF [1:1000]
VE cadherin-AF647	Mouse IgG1	BD Pharmigen	55-7H1	IF [1:200]
Ang-2	Goat	R&D Systems	AF623	IF [1:200]
CD63	Mouse IgG1	CLB	CLB-gran/12	IF [1:100]
CD62P-AF488	Mouse IgG1	AbD Serotec	AK-6	IF [1:100]
Rab27A	Rabbit	Bierings et al.[14]	B2423	IF [1:50]
VWF	Rabbit	DAKO	A0085	IF [1:5000] WB [1:5000] ELISA [6 µg/ml]
VWF	Mouse IgG2B	CLB	CLB-Rag20	IF [1:5000]
VWF-HRP	Rabbit	DAKO	A0085	ELISA [2 µg/ml]
α-tubulin	Mouse IgG1	Sigma	DM1A	WB [1:10000]
GFP	Mouse IgG1	Clontech	JL-8	WB [1:2500]

Fluorophore-conjugated secondary antibodies (Molecular Probes) used for immuno-fluorescence microscopy were purchased from Invitrogen. Secondary antibodies conjugated with infrared dyes (680LT and 800CW) used for immunoblotting were from LI-COR.

Table S2. pLKO-shRNA sequences.

Target	TRCN	Short hairpin sequence (5'→3')
Non-targeting	shCTRL-C002	CAACAAGATGAAGAGCACCAA
SEC22B	TRCN0000159152	GCCATCAATGAGATTTAACTT
SEC22B	TRCN0000159288	GCCACAATTTGCTAACATTTA
STX5	TRCN0000059823	CCAGACAAATAAGCCAGCTTT
STX5	TRCN0000059824	GCAGTCGAAACTGGCTTCTAT
STX5	TRCN0000059825	CCATTCAGAGATCCTCAAGTA
STX5	TRCN0000059826	CCTTAGCAACACATTTGCCAA
STX5	TRCN0000059827	GCAGAACATTGAGTCGACAA

Table S3. Significant hits in endothelial SEC22B interactome screen.

Genes	LFQ intensity EGFP_A	LFQ intensity EGFP_B	LFQ intensity EGFP_C	LFQ intensity EGFP-SEC22B_A	LFQ intensity EGFP-SEC22B_B	LFQ intensity EGFP-SEC22B_C	adjusted P-value
PCDH1	NA	NA	NA	32,17465327	32,02696559	32,07794632	1,2974E-08
SEC22B	26,93988513	27,10599496	27,47119269	36,12694078	36,36647366	36,25501042	2,62637E-07
ATP2B4	20,07300136	20,52238613	21,74345057	29,67099479	30,05749858	28,89844889	8,83709E-06
CHCHD3	20,91232509	20,86166246	20,45030512	28,49564183	28,2008823	28,27350985	2,8779E-07
ITGA6	21,02803284	21,22911218	21,21477919	27,83647409	28,2292644	27,88221194	5,31367E-06
STX18	21,50013581	NA	21,54703195	27,94720663	27,78269293	28,20820481	5,3174E-06
NBAS	24,6056902	23,15343019	23,60557718	30,66517712	30,55004584	29,63792644	2,59233E-05
ATP2B1	NA	NA	NA	26,57402467	26,54608702	26,45241508	9,65323E-06
SNAP29	NA	NA	NA	27,26820902	27,61224455	27,49868806	9,65323E-06
BNIP1	22,54578369	22,20484573	NA	28,37633501	28,37951963	28,45865455	5,3174E-06
SPNS1	NA	NA	NA	27,08080761	27,23343054	27,06907209	9,04492E-07
ATP1A1	24,28362083	24,2584654	24,07136547	30,37368269	30,46031568	30,37160717	6,20406E-07
SCFD2	21,19321973	21,80313627	23,29151135	27,95143725	28,33636953	28,37807295	2,21687E-05
PLXND1	20,90470223	NA	21,64803276	27,1773114	26,86466904	27,77950286	2,59233E-05
ANO6	NA	NA	23,29389818	28,47823156	28,51133705	28,37276983	7,70088E-06
RINT1	NA	NA	NA	27,17054645	27,07152914	27,13613971	1,61928E-05
NDUFA8	22,19700547	21,8347997	23,06223591	28,19568271	28,34375732	28,19591733	8,83709E-06
TMX1	NA	NA	NA	26,46699948	26,65799111	26,66451608	7,70088E-06
NAPA	NA	NA	NA	26,54364088	26,72741343	26,74624716	7,70088E-06
RMDN3	22,83190408	21,60720387	NA	27,14209381	28,61754375	27,24417929	0,000127272
TM9SF4	NA	NA	NA	27,00077664	27,53875091	26,90770304	8,83709E-06
ABCD3	21,70476317	21,13257504	21,98492323	27,61203359	27,24590256	26,93044102	8,99292E-06
C19orf25	NA	NA	23,74108591	27,82765874	27,75015075	27,84685044	6,13362E-05
NDUFB8	NA	NA	NA	26,10403608	26,3965635	26,39160615	7,70088E-06
TBC1D9B	20,57283713	21,91440703	20,36858319	26,17656976	27,00699424	26,10203448	2,33537E-05
ITGB1	NA	21,12993699	21,90179643	26,62212535	26,81311084	27,28859266	5,29522E-06
USE1	NA	NA	23,27241565	27,33449535	26,9627873	26,2114484	0,000427673
ATP13A1	22,34835428	22,6484278	22,23928852	27,76033976	27,82559809	27,70596032	5,39835E-05
CMTM6	NA	NA	NA	26,2247367	26,4482614	26,00688726	9,04492E-07
ABHD12	21,30452067	21,27832694	21,17292066	26,47924974	27,07060824	26,10133326	4,3446E-05
PPAP2B	NA	NA	NA	25,36623015	25,66152913	25,49710482	9,04492E-07
NDUFA2	22,33123187	NA	NA	26,74675971	26,95836863	26,86573119	9,65323E-06
HMOX2	NA	NA	NA	25,2435802	25,59246297	25,33425664	5,3174E-06
PKD2	NA	NA	NA	25,82902684	25,86926606	25,80727492	2,54086E-05
ARMC10	NA	22,25465036	22,66641907	26,74432348	27,66709075	26,90919195	3,46655E-05
DNAJB14	21,51335364	20,74984652	20,62140445	26,10615475	26,03848216	26,35136025	7,70088E-06
STX17	NA	22,40509575	NA	25,40327629	27,11366492	26,79066846	9,49271E-05
SLC38A10	20,39560944	21,37581156	NA	25,90524872	26,08925908	25,93400107	6,86269E-05
ATP2A2	24,92926744	24,89698348	25,04097092	30,03983164	30,10674383	30,17080907	1,2672E-05
UBAC2	NA	NA	NA	26,32565393	26,52731091	26,29972577	8,99292E-06
VTI1B	23,50978273	23,62131501	NA	28,07362456	27,99242659	27,81994653	6,75479E-05
ST6GALNAC3	NA	NA	NA	25,35736353	25,50342737	25,51968352	2,03895E-05
TRAM2	NA	NA	NA	26,18447995	26,28022591	26,30556471	0,000154763
TAP1	NA	NA	NA	25,62692216	26,30274406	26,07097667	5,3174E-06
AFG3L2	22,06746456	22,55257717	22,48951775	27,0456232	27,4996767	27,59341791	6,96968E-05
STX8	NA	NA	NA	26,24586631	25,87712946	26,00896113	3,58644E-05
PREB	21,8172991	21,85144253	20,37761301	26,16019489	26,32434964	26,43141446	2,59233E-05
NDUFV2	23,07561494	23,82201526	23,72598444	28,18777726	28,93072299	28,31189975	3,99891E-05
NDUFB5	NA	NA	NA	26,17396148	26,65635525	26,38520138	0,000146997
FAM49A	22,20260573	21,83834374	22,92134339	27,04531074	27,63013434	27,01722691	1,2672E-05
APMAP	NA	NA	23,10296757	26,55916082	26,57542476	26,5167715	0,000198146
UFL1	23,37345038	22,2600604	21,92379317	27,49906838	27,37558954	27,35581886	1,29104E-05
STOML2	24,32525933	23,20157416	NA	27,4182025	27,96162871	27,59981537	0,000913355
TREX1	NA	NA	NA	25,45892046	25,76524299	25,39950012	2,81005E-05
ARFGEF2	20,56866869	22,56153129	NA	26,2566851	26,02831534	26,2881878	6,95264E-05
LMAN2	22,59727968	NA	22,46968454	26,40374762	26,76837638	26,68765782	0,00014362
TMEM165	23,01680625	NA	22,89648467	26,9291997	27,15798076	27,04072015	0,000116936
JAGN1	NA	NA	NA	25,75228366	25,87527896	25,70706692	9,49271E-05
SLC39A7	24,66286044	24,32003367	24,49356671	29,23317908	29,20445491	29,3143871	1,2672E-05
GOLM1	NA	22,71707727	NA	25,74604209	25,99170244	25,54005258	0,000308298
SSR4	NA	NA	NA	25,94228128	26,23686426	25,87366076	0,00017757
NDUFS5	22,77591405	22,2299043	23,08268052	27,24517723	27,65812735	27,28956035	9,65323E-06
NDUFS4	22,45480431	22,01174867	22,26318781	27,19102939	27,47490978	26,12648298	4,3446E-05
GJA1	NA	24,24662754	24,12597086	27,45057572	27,73582868	27,5408212	0,00821971
ABCC1	NA	NA	NA	25,41693099	25,67960036	25,33977091	6,8711E-05
SPARC	NA	NA	NA	24,40256088	25,37348357	25,40856583	0,000138678
DERL2	25,45331033	NA	NA	27,27435441	27,43316694	26,86041261	0,005941123
DDRGK1	23,23947791	NA	NA	26,40542041	26,62575231	26,45406379	0,000248739
SLC1A1	NA	NA	NA	25,44401671	25,52402561	25,25017464	2,59233E-05
RHBDF1	NA	NA	NA	25,07867171	25,25111425	25,11127865	7,70088E-06
ATP9A	NA	NA	22,25965822	26,0984045	26,70134031	26,10265527	0,00012759
BSG	NA	NA	NA	25,36906266	25,26738765	25,12892289	0,000163874
NDUFV1	25,12289433	25,24045363	25,25194493	29,67226007	29,94572856	29,75303963	3,15854E-05
MARC2	22,38874257	22,63862947	22,47427236	26,93393355	27,42486364	26,83593224	8,99292E-06
TAPT1	NA	NA	NA	25,02542449	25,29309131	25,11016371	7,70088E-06
NAPG	NA	NA	NA	24,71523475	24,97136498	24,88371573	3,39091E-05
SLC1A5	NA	NA	NA	25,57873915	25,76065701	25,6227677	3,56703E-05
CAV1	27,13349643	26,52127214	26,75926059	31,39043653	31,2456986	31,42492369	5,3174E-06
TMED2	NA	NA	NA	25,30945581	25,58694902	25,85016947	3,50073E-05
DPY19L1	23,15403312	23,17056937	23,72889289	27,29333693	28,53997126	27,82705297	6,86269E-05
STX12	21,34808407	21,14836486	21,45843866	25,57715496	26,11836622	25,8355227	1,54532E-05
F2R	NA	NA	NA	25,01307864	25,28513888	25,10825038	1,94901E-05
ZW10	23,93606996	24,04818285	23,98102509	28,70777128	28,24386162	28,47545106	7,71869E-05
ATP11C	NA	NA	NA	25,42828656	25,42764738	25,26792338	3,88583E-05
TMEM192	NA	NA	NA	24,49466567	24,69991171	24,68421013	6,09575E-05
CHCHD6	NA	NA	NA	25,37099224	25,61616292	25,60724338	7,70088E-06
BCS1L	22,3105795	22,80516525	22,18434752	26,03328167	27,3659466	27,15817343	2,98081E-05
RHBDF2	NA	NA	NA	25,77690807	26,1491289	25,90334202	8,83709E-06
WFS1	23,35890656	23,21129243	NA	27,1580771	27,28542113	27,26579715	2,80912E-05
TM9SF2	NA	NA	NA	25,38475688	25,61974893	25,58792192	0,000247691
TIMMDC1	NA	NA	NA	24,98294067	25,82905104	25,09579169	2,59233E-05
CLN6	21,56555768	22,05198687	NA	25,92304506	26,0818439	25,90239922	1,2672E-05
CANT1	NA	NA	NA	25,15657351	25,01380279	25,13018059	0,000287566
SLC30A7	NA	NA	NA	25,17816667	25,2465913	25,33203819	2,98081E-05
SEPN1	NA	NA	NA	24,92429169	25,29186261	25,00735788	6,44802E-06
MLH1	23,07331197	NA	NA	25,69285384	25,68273768	25,7675179	0,002335535
CHP1	20,91473549	NA	21,60891895	25,35712858	25,90499617	25,79634901	3,52786E-05
TMEM161A	NA	NA	NA	24,68613544	24,69407685	24,63616392	1,47761E-05
ATP2C1	23,45274497	23,19859491	22,33821408	26,98174373	27,52902525	27,33577347	3,88583E-05
GGCX	22,48792441	22,26562191	22,05321398	26,74765623	26,10567533	26,80045284	5,18896E-05
PIGS	NA	NA	22,00020499	25,29077345	25,45676048	25,56340042	6,13362E-05
GALNT7	NA	NA	NA	24,98563559	25,15553164	25,55338602	0,000173246

UNC50	NA	NA	NA	24,8406696	25,08151887	25,56917882	0,000235541
PTDSS2	NA	NA	NA	25,25659513	25,34499341	25,27579345	6,43093E-05
TTYH3	NA	NA	NA	24,53296796	24,58583224	24,79084244	5,32202E-05
CCNYL1	NA	NA	NA	25,04117987	25,4427203	25,20108802	2,35359E-05
GPR180	NA	NA	NA	25,02850505	25,51893356	24,90559303	0,000141298
TCIRG1	NA	NA	NA	25,14697537	25,08933991	25,41670554	3,50073E-05
AGPAT9	NA	NA	NA	25,00045431	25,44780439	25,2399076	1,53802E-05
SPCS1	NA	NA	NA	25,25688302	25,0822907	24,69975289	7,473E-05
ABCD1	NA	NA	NA	25,30598212	25,49771396	25,29505507	5,3174E-06
ANO10	23,47963522	23,52157169	24,02757735	27,58835093	28,12908016	27,71587624	7,70088E-06
BCAP29	22,6478791	22,33388145	22,80595243	26,58348131	27,36711383	26,20810246	2,98081E-05
TMEM55B	NA	NA	NA	24,97066308	25,05759154	24,96018192	0,000458611
TUBA4A	NA	NA	NA	24,50051271	24,99312878	24,27440773	0,000308298
ABCA3	NA	NA	NA	24,70835689	24,88049642	24,53201675	4,61931E-05
IGF2R	NA	NA	NA	24,52235021	24,81494501	24,47326925	0,000226096
ROBO4	NA	NA	NA	24,87004257	24,80774168	24,37504261	4,48908E-05
SCD5	23,59252	23,29277546	23,68485219	27,47189038	27,70734344	27,62100752	6,32615E-05
LEMD2	24,56964241	24,4612646	24,04243289	28,3328321	28,65693483	28,23917924	2,70002E-05
TRAM1	24,15259494	23,70524848	23,9826796	27,79197275	28,22080363	27,98239673	9,30193E-06
NDUFS1	26,95537836	26,07379819	26,71122227	30,466066	30,86127082	30,55416953	0,006449597
ELOVL5	23,73034492	NA	NA	25,50542779	26,25614518	25,6763486	0,002042266
TMEM87B	NA	NA	NA	24,75877788	25,11227341	24,767139	3,41404E-05
MTX1	22,43905878	NA	23,18099874	26,22014861	25,91428841	25,7040877	0,001244259
B3GAT3	NA	NA	NA	24,74627279	24,99295596	24,89666019	0,000531359
CLPTM1	21,67158944	22,18752243	22,13561536	26,06381637	25,80850292	26,09250892	6,71513E-06
CDKAL1	NA	NA	NA	24,45450313	24,63306218	24,65020419	9,48922E-06
SOAT1	23,4290532	23,35863832	23,55672214	27,45630616	27,39050828	27,39034427	5,00488E-05
AGPAT6	23,32498477	NA	23,0054402	26,09488615	26,61329892	26,59063684	0,000936831
LEMD3	24,3461777	25,26713757	24,85856424	28,70186906	28,78078599	28,83195239	9,85415E-06
RNF126	NA	NA	NA	24,94181132	25,27095541	25,0534543	9,49271E-05
EXT2	22,44336549	NA	NA	26,11213418	26,25751258	25,05693038	0,000467954
GPR89B;GPR89A	NA	NA	NA	24,65730973	25,21737764	25,02850505	0,000190725
FLNA	NA	NA	NA	24,98702455	24,76339515	24,75241127	7,48015E-05
LBR	27,36218838	27,20815829	26,82432387	30,85675209	31,06599489	31,14643406	0,006990481
PHB	27,22692426	26,93055382	27,05185829	30,84692514	31,3009478	30,73141679	9,12318E-06
GPR126	22,1318218	NA	22,31617103	25,85640482	24,49509282	26,40608573	0,000623321
GALNT1	22,50554894	23,00111608	22,75293184	26,38348849	26,88145363	26,63574889	8,06141E-06
PIGK	24,18820186	23,88016942	NA	27,35178146	26,94022128	27,2141937	0,000350077
TMEM120A;TMPIT	NA	23,53183832	NA	25,29967338	26,13502425	25,97978295	0,001228015
ATP5J	NA	23,17834146	23,59616518	25,63430921	26,35228675	26,20114412	0,004816722
PNKD	NA	NA	NA	24,53771465	24,9361149	24,71219363	1,55072E-05
LNP	NA	NA	NA	24,86759397	25,21437901	24,77881388	0,000136249
SLC30A5	NA	NA	NA	24,95947457	24,76526829	24,8488571	7,54399E-05
STX16-NPEPL1;STX16	23,55145105	NA	NA	25,14324275	26,18616261	25,40606951	0,004686347
ACVR1	NA	NA	NA	23,93598007	23,97281155	24,08099054	0,000112945
NDUFA12	24,26040503	24,21859753	24,35507951	28,07673651	28,11381393	28,08542456	2,59233E-05
NDUFA7	24,30806734	24,21467545	24,40807987	28,01243938	28,29	28,04786054	2,21687E-05
SCFD1	23,03303376	NA	23,12784512	27,21576804	25,40840386	25,65447171	0,002492848
VPS45	22,91380467	23,0849686	22,99014483	26,83086506	26,73233907	26,73169192	1,23737E-05
SCAMP4	NA	21,83487684	22,16204829	25,30012741	25,85459887	25,49243634	3,46655E-05
SLC27A3	NA	22,46495749	NA	25,46488273	25,57323019	25,41218915	7,8555E-05
VAMP4	NA	NA	NA	24,25997423	24,62962032	24,3357905	5,62903E-05
DOCK1	23,14349968	23,15644235	NA	25,34112922	25,94775285	26,10389606	0,003598848
ATAD1	23,60184241	NA	22,99078539	25,84668309	26,68752434	25,41995504	0,003613003
BCAP31	26,01297211	25,25853728	26,15096945	29,41554553	29,62488128	29,54491604	7,48015E-05
USP30	NA	NA	NA	24,23680954	24,62811887	24,51074872	2,59233E-05
ATRIP	NA	NA	NA	24,70197479	24,23724731	24,37052672	6,75479E-05
CERS2	23,67260403	24,0548209	NA	25,94900059	27,36427749	26,48585043	0,003046206
NOTCH1	22,96352831	NA	NA	24,61924518	25,17157753	25,11382386	0,00254478
UBE2G2	NA	NA	NA	24,74493934	24,84311635	25,15730622	0,000239397
ACVRL1	23,20749936	NA	23,09611352	26,10495589	26,19044549	25,99168082	0,000507025
MAOA	22,46948582	23,00521745	22,06998988	25,65146387	27,17569451	25,78835512	0,000123897
VKORC1	25,31333645	NA	NA	25,40308122	26,1147573	25,4388558	0,02745435
SNAP23	NA	NA	NA	24,6348908	25,08602216	25,04701804	4,89712E-05
GPRC5B	NA	NA	NA	24,81680125	25,31575656	25,38426283	2,21687E-05
TMEM173	24,33585863	24,12675866	24,19768045	27,60463025	28,04749656	28,0126525	3,46655E-05
ASPH	26,61470355	26,04497737	26,10359597	29,95129828	30,00423714	29,78026974	0,000290741
LMF2	24,26656581	24,0997292	24,5318978	27,77089835	28,18333499	27,91193667	6,47356E-05
COMTD1	NA	NA	NA	23,95881111	24,31699961	24,10813071	7,48015E-05
TOR4A	22,64976578	NA	22,71311713	25,36111759	26,07093574	25,15356162	0,001139638
BAD	NA	NA	NA	24,20970204	24,95269291	24,4790184	3,0743E-05
MFF	22,28571038	NA	NA	25,80269759	24,63721478	24,52748989	0,000622345
PIGG	NA	NA	NA	25,31281733	25,67551432	25,54857312	0,001427927
TMED9	24,44063096	24,45550683	24,68158544	28,00158215	28,3271027	28,09677707	0,001708648
FAM134C	NA	NA	21,89385846	24,62689431	25,16146407	23,81616649	0,001378838
CCDC127	23,11592822	NA	NA	24,89841429	26,43315102	25,30577343	0,000941659
ABCC4	NA	NA	NA	24,54763214	24,67033641	24,56022553	0,000396224
DNAJC30	NA	24,39728189	NA	26,35338095	25,81034295	25,92107093	0,003198705
PON2	21,85014562	NA	NA	24,58669138	25,17721634	24,84775856	0,000112945
NDUFS6	24,71816493	25,00774283	24,82036052	28,19192361	28,70658618	28,42342167	0,000142246
PIEZO1	NA	NA	NA	24,7943175	24,37345038	24,92134339	8,34567E-05
YME1L1	23,08898423	22,24350757	23,29417872	26,13241814	26,7693857	26,44156521	5,622E-05
ATP5D	NA	NA	NA	24,36105063	25,17972386	24,31181316	2,59233E-05
PTPRF	NA	NA	NA	24,2155644	24,06595382	24,22515977	0,000136866
DAB2IP	23,50675986	22,66687411	22,81005851	26,45740255	26,24119953	26,95004697	6,95264E-05
ZDHHC13	22,33521805	NA	22,48608375	24,97801597	26,1239403	25,41125184	0,000214686
LETM1	25,1945654	24,89684494	25,27629056	28,5164935	28,7933999	28,66715844	7,87842E-05
COG1	24,11545203	23,73634495	23,05382714	27,23954347	27,1890507	27,08415764	5,32202E-05
GOLIM4	21,62377256	NA	20,7019325	24,72821823	25,0252555	24,71460608	5,04595E-05
GNA11	NA	NA	23,94073656	25,49704389	25,95155953	25,24630134	0,003297664
SLC16A3	23,34894855	23,44758372	23,7060921	27,24417929	27,40641017	26,40863061	0,000652051
TMEM35	22,81850885	NA	NA	24,73283071	25,26001013	24,7456575	0,002641913
ADAM9	22,34063359	22,20746957	21,98561822	24,82143145	26,64223727	25,60127569	0,000345619
FAF2	25,01252463	25,27643257	25,35860479	28,47950417	28,989073	28,6412383	8,99292E-05
GIMAP2	21,80691615	NA	NA	24,05133973	24,18381769	24,30089545	0,001139823
MPZL1	NA	NA	NA	24,00152846	24,09393976	24,14600427	0,000502241
COG5	23,76283781	NA	22,52921892	26,11721711	25,91624905	25,42191406	0,002045225
DNAJC11	24,16545663	24,22736505	24,16392234	27,17178748	27,87507971	27,90604052	1,90859E-05
DHRS7	24,15120178	NA	23,8196786	26,98609149	26,78031668	27,04218237	0,000364099
MGARP	NA	NA	NA	25,24561247	24,48376117	24,69842871	0,000156632
MT-CO2	NA	NA	NA	24,02225266	24,84570252	24,52175138	3,86828E-05
NOP9	NA	NA	22,84132248	24,29094917	24,03816815	24,44278357	0,003297664
TGOLN2	NA	NA	21,73888227	24,60365441	24,74990788	24,57646313	0,000136249

Gene							p-value
FADS2	24,07242901	NA	24,28869826	26,42452731	26,54002301	26,28280819	0,008364382
YIF1B	23,27341203	23,47122371	24,06603596	26,95847926	27,21038969	26,95958511	0,001835084
KIAA0100	21,46906344	21,85502204	23,06844898	25,66372921	25,3431304	25,69317299	0,000173754
TOMM22	23,09342401	NA	NA	25,3138208	25,78139273	25,56880204	0,000287566
CASC4	NA	NA	NA	24,21615673	23,92533349	24,10461603	2,21687E-05
RCN1	NA	NA	NA	24,7234868	24,47673385	24,83672689	0,000236932
FKBP8	23,60580322	23,45211654	23,59866592	26,83906016	27,17835666	26,917069	0,000214533
GJA5	22,64956845	22,28599252	22,56950334	26,01150129	25,91298744	25,85590603	7,44581E-05
CD93	22,90398552	23,52695288	21,85593454	25,94877786	26,2824017	26,31333645	0,000214686
PTK7	NA	NA	NA	24,70392934	25,14125587	24,96736841	9,65323E-06
HSDL1	22,62520049	22,33750649	NA	24,59246297	25,89647543	24,94337726	0,001548194
EIF2B3	22,13755531	21,89211735	21,76971357	25,00200083	25,37878407	25,59263405	2,59233E-05
PTTG1IP	NA	21,97938612	21,79673517	25,27156105	25,1215117	25,22177177	0,000732731
COX20	25,26474181	NA	25,07956714	27,47297499	28,00512106	27,44118524	0,003397624
TUBB2A;TUBB2B	25,74170315	NA	NA	26,22315371	26,72559447	26,240581	0,01651765
RNF121	NA	NA	NA	24,38119597	25,02660685	25,00127074	9,35679E-05
HLA-E	21,30067207	22,0573519	NA	24,66990407	24,91145672	24,64691286	0,000107597
PTPRM	NA	NA	NA	23,33087641	23,40353636	23,61548955	0,001769795
TMPPE	NA	NA	NA	23,5234873	24,23921567	23,52037314	9,56871E-05
EFNB1	NA	NA	NA	24,33313078	24,62811887	24,62639306	0,000451805
SEC61G	NA	NA	NA	23,84708947	23,82269608	24,97197885	0,002509307
STX4	21,86876228	21,61463616	21,79986024	24,57968883	25,45851375	25,26513542	0,000169963
CDK5RAP3	NA	NA	NA	24,21955792	24,23680954	24,01256726	0,000299615
TMED10	25,89864493	25,89087506	25,93129804	29,24372546	29,43199222	29,02207801	0,000177853
SLC27A4	24,65545473	24,22560109	24,14328169	27,57304235	27,86390145	27,54833794	2,88271E-05
PTDSS1	23,59593763	24,14125587	NA	26,57945866	26,30007503	26,36806359	0,002194698
ASPHD2	NA	NA	NA	24,59576694	24,2278057	24,30096525	0,00083458
DNAJB12	23,98979847	24,36666372	24,5542647	27,58770737	27,6007371	27,54421595	3,46655E-05
WLS	NA	23,84143766	24,0129082	25,51953356	27,32018865	25,82992205	0,008383831
TMEM115	22,16063346	NA	22,61488325	24,74468276	25,72061961	25,21637879	0,000247802
VTI1A	NA	NA	NA	24,52826523	24,49216126	24,69040472	8,39203E-05
ATP6V1A	NA	NA	NA	23,16761721	23,21089128	23,48296154	0,001110994
TMED4	NA	NA	NA	24,48818191	24,96723646	24,49344455	0,001183864
DOCK1	NA	NA	NA	24,5048219	24,49996556	24,53854371	0,000346197
SCO1	NA	NA	NA	23,46338667	24,17066105	23,51484694	0,003628764
AGPAT3	22,56162451	NA	NA	24,92406511	25,21874532	25,18495281	0,00117407
TMCO1	24,11028321	23,4287977	22,41668621	26,60272038	26,6699311	26,33963501	0,000176286
RTN4	NA	NA	24,21837581	25,3859748	26,17237898	25,87178231	0,011990461
STT3B	25,36649698	25,44783591	25,41128417	28,62278865	28,75983202	28,48734639	1,23737E-05
ALG1	23,93183905	23,85993889	24,26248545	27,05558646	27,46435305	27,16777415	0,000414255
UBE3B	NA	NA	NA	24,07952645	24,19640522	24,05944943	0,002140357
CHST14	NA	23,51605009	NA	24,71659593	25,15325235	25,07451291	0,002520668
NSF	25,40314625	25,45422071	25,02795694	28,40104759	28,5653267	28,53760358	0,00025333
RABL3	NA	24,13758657	24,11275065	26,42276429	25,79988493	26,76331916	0,007123838
PTRH2	24,89905999	24,12904085	25,00341703	27,39280243	28,2115041	28,02559346	0,000167832
ARMCX2	23,21043057	NA	23,59593763	26,2859502	25,31444329	25,00341703	0,014956473
TBC1D10B	23,13254366	NA	23,25200992	26,30328474	26,3900326	25,03006393	0,000941659
RPN2	26,51320604	26,20133111	26,6056902	29,45122448	29,83856436	29,54423437	0,00025017
SRPRB	25,98906217	25,44975747	26,09902686	28,61150604	29,31921975	29,11473249	0,001503284
SLC27A1	23,8438352	23,72910041	23,71061812	26,76850258	27,24163598	26,77580356	0,000123897
FADS3	24,2740522	24,01103202	23,21261394	26,32522502	27,33951609	27,31518647	0,00044422
CAPN5	NA	NA	NA	24,03380676	24,46413489	24,21970562	0,000324601
CERS5;LASS5	NA	NA	NA	23,66893085	24,06085159	23,44834018	0,00042248
MMP14	25,94637017	25,81159283	26,22387179	28,90227845	29,25739119	29,20464147	0,000237713
NDUFB4	25,43323063	25,62335396	25,4378087	28,43591088	28,92753353	28,50184174	3,2107E-05
GRAMD4	NA	NA	NA	23,83489612	24,21822797	23,93111766	0,000115479
FLRT2	23,85889617	23,55227227	23,67271192	26,71502522	26,82723473	26,90506505	0,000142352
HAX1	NA	NA	NA	24,08586013	24,7575068	24,17081384	9,02393E-05
TMEM126B	NA	NA	NA	23,54545378	24,02021902	23,66752392	3,2107E-05
NDUFS8	23,77996617	23,98311469	23,07443941	26,85078946	26,5869204	26,70477373	0,000198146
LCLAT1	23,30813679	23,18322708	23,60636816	26,37273662	26,69325276	26,32978211	0,000112945
CAMLG	22,91850733	NA	NA	25,03019025	24,79357354	25,2339973	0,00071295
MAVS	23,56010889	23,20879459	23,73376179	26,31920683	26,84756742	26,62296315	5,61599E-05
ATM	24,70672449	24,50573064	24,55853329	27,63588725	27,61526502	27,80513572	8,63978E-05
DOCK5	NA	NA	NA	23,96965352	23,68495917	23,92397447	0,000141481
XXYLT1	23,63754647	NA	23,58141392	25,65780035	25,77160371	25,76895682	0,006428887
TOMM70A	24,31554928	23,90591432	24,51761269	27,01966775	27,56985966	27,3740145	3,86828E-05
FLNA	NA	23,00545734	NA	24,79535838	24,93490095	24,68997836	0,003668647
CERS6	NA	NA	NA	23,42201034	23,7293079	23,58772167	0,000732731
EPHA2	24,75501224	24,80798729	25,36816353	27,86879524	28,41836338	27,84720897	0,000123897
CLCN3	NA	NA	NA	24,71502522	24,89573613	24,49984394	0,00037833
BRI3	22,6909588	NA	NA	24,39728189	24,85071793	24,61363616	0,000818879
FKBP11	24,73572541	24,15228546	24,41796116	27,37276983	27,82268392	27,28674345	3,46655E-05
PHB2	26,85970198	26,87829943	27,06095463	29,83202786	30,27253133	29,85816108	3,50073E-05
ABCB10	22,41933787	22,42388325	NA	24,29151135	25,43415377	25,68359456	0,001037392
MTX2	NA	NA	23,90921485	24,60969683	25,28651433	24,84062159	0,024411824
SSR1	22,54035416	22,8498403	22,98025814	25,99520093	26,05113225	25,43990214	0,000308298
ERLIN1	NA	NA	NA	24,84076563	24,91013032	24,91825254	0,022574487
SCAMP3	23,17250869	23,52097254	23,59616518	26,55296114	26,53431939	26,30667753	0,0002364
IQGAP3	21,41281584	21,82694875	NA	25,25439807	24,47704278	23,53860292	0,002657859
TMX3	NA	NA	NA	23,59968769	23,72961908	23,75572541	0,002256636
TECR	25,46326193	25,45556954	25,70292598	28,48703965	28,7252369	28,50028476	2,11966E-05
TRADD	23,46201392	NA	23,82648332	25,72502232	25,261338	25,39047548	0,023222926
EVI5L	NA	NA	23,97867066	25,07021924	25,03657609	25,59086524	0,031914555
JAG1	NA	NA	NA	24,79852599	24,82972854	24,57945866	3,18309E-05
AMFR	NA	NA	NA	24,08391426	24,16092577	24,0709562	0,000328472
CXCR4	NA	NA	NA	23,78954956	24,10980515	23,25059393	0,000777061
ALG2	23,52575879	NA	23,02408048	25,63353341	26,17839466	24,92129798	0,002256636
CYB5R1	25,46241964	24,62366094	24,780567	27,77303857	28,2341618	27,86260151	5,15001E-05
TEK	23,21408251	23,51929359	22,94595957	26,64416435	26,55672214	25,47035502	0,00190568
UQCRH;UQCRHL	25,58980862	24,82919624	25,35009587	27,91467619	28,6719565	28,16451707	0,000142352
STX5	25,780567	25,97939048	26,07612485	28,76002244	29,00747552	29,04280859	0,000251605
RAB35	23,93580027	23,66003333	23,1856032	26,43676084	26,69750106	26,58806494	0,000131103
ALG5	22,57706273	23,26155322	23,6462537	26,18954092	25,75350833	26,46461791	0,000116213
SSFA2	21,28076397	NA	21,94520948	24,20687366	24,29907942	24,15946364	0,000328472
PIGQ	NA	NA	NA	24,4388558	24,67244218	24,76324317	0,000202666
FAM162A	24,1918201	NA	24,03069542	26,43288032	26,2459932	25,5517444	0,009633647
ABCB8	NA	NA	NA	23,83441395	24,3688629	24,00178614	0,000364053
TMPO	NA	NA	NA	23,63920379	23,90802386	23,87502111	5,37201E-05
CCDC47	22,68649882	22,58950577	22,40054281	25,17843265	26,10193433	25,21107701	0,000123747
NDUFA6	25,60585972	25,56917882	25,31219413	28,39050828	28,58992289	28,29994407	0,000433049
TMEM2	NA	NA	NA	23,63754647	23,94788659	23,83749705	0,000199159
GBF1	24,12020686	24,35944288	24,51544864	27,25124069	27,27444328	27,25015657	0,0002245

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GNG12	24,24691742	NA	23,98485371	25,53079708	25,9856573	25,65984285	0,031726265
IMMT	NA	NA	NA	23,74314235	24,07585972	23,66600724	0,000262856
BCAM	NA	NA	NA	23,74232013	23,81009775	24,07054682	0,002003026
ESAM	NA	NA	NA	23,52444415	23,60896405	23,57276776	9,02393E-05
DNAJC1	23,98407141	23,50348803	23,78476582	26,68418337	26,63075926	26,72168895	0,000125733
NDC1	NA	NA	24,19437754	25,31699961	25,66106696	25,22681404	0,017999846
TMEM41A	NA	NA	NA	23,52838448	24,10980515	23,61335514	0,000188716
HMOX1	23,84642007	23,71114348	24,33504082	26,79054418	26,89214978	26,93954891	2,98081E-05
CKAP4	30,30834514	30,42031252	30,22366009	33,20844903	33,20868158	33,24968766	8,63978E-05
EMC3	NA	NA	23,46898889	25,28943723	25,433931	25,46372965	0,000778967
TMEM209	22,5415835	22,49806715	23,0792009	25,14693654	26,21297009	25,45434624	0,000169963
YIPF6	NA	NA	NA	24,32759102	24,58583224	24,07700148	0,00068567
GNAI2	23,83151756	23,76850258	24,36372626	26,7494476	26,93977307	26,92660076	0,000926761
EI24	NA	NA	NA	24,14685887	24,36125148	24,27234445	0,002689207
CCDC109B	NA	NA	NA	23,99057767	24,26047682	24,08537391	0,000321963
COG3	NA	23,41454589	NA	25,15676636	24,65053291	25,36813021	0,0018531
GALNT2	25,92503915	26,0650499	25,90120259	28,81537264	28,89951528	28,7444518	3,36549E-05
AUP1	24,66654909	24,24836598	24,50221365	27,25682904	27,46193589	27,25565909	7,28248E-05
ROMO1	23,29838034	NA	NA	24,24641008	24,84172557	24,34516265	0,009780605
SLC2A1	NA	NA	22,01665325	24,34062001	23,99808835	24,03178936	0,002692804
SLC30A6	NA	NA	NA	23,6156018	23,65654619	23,78935056	0,000142352
PRAF2	NA	NA	NA	23,74919183	24,25068066	23,75796452	0,000157144
FUT8	NA	21,70282032	22,16432141	24,49551984	24,52957639	24,60907681	0,000652051
PTPRK	NA	22,06121428	NA	24,32608271	24,71999328	24,23666358	0,002224731
TMTC3	25,20579295	25,54801449	25,95575525	28,41025731	28,52309092	28,25741367	0,000103829
ARFGEF1	24,60557718	24,38198804	25,03753992	27,45175506	27,54877888	27,47220035	3,18309E-05
EMD	26,31573929	26,15990628	26,29886974	28,94355053	29,19540112	29,0673035	0,005591359
SLC16A1	26,85138534	26,70714593	26,80980345	29,49707055	29,76872341	29,52411904	0,00129615
SMPD4	23,78476582	23,75154324	23,49728759	25,7533553	26,98272312	26,69218873	0,000178564
GPR124	24,70872524	24,27625506	22,88859165	26,92942548	26,52994866	26,78793184	0,000649381
MCAM	24,2985901	23,26927966	23,3253966	26,17847065	26,37712976	26,69922337	0,000433049
GPX8	26,82310927	26,55539155	26,85340951	29,43037789	29,56795755	29,58461067	6,86269E-05
SRPR	26,68070054	27,11406224	26,93663165	29,35741387	30,36807192	29,33112422	0,034483071
EVI5	21,89877407	NA	22,36900939	24,49368886	23,67206444	24,53362156	0,003480559
RFTN1	NA	22,81930828	NA	23,57945866	24,06365182	23,6530506	0,008175036
SLC29A1	NA	NA	NA	24,274621	24,07585972	23,94583458	0,000694442
NDUFS3	25,68592164	25,510628	25,77848806	28,28467128	28,50233507	28,47772992	0,000198146
GIMAP1-GIMAP5	NA	NA	NA	23,62800759	23,61526502	23,73334805	0,00033803
TMEM87A	NA	NA	NA	23,6612301	24,16161783	23,71030281	0,00017814
CHMP6	NA	21,97683678	NA	24,36992796	23,63333939	24,33864934	0,001318654
TP53I11	NA	22,43824667	22,1285847	24,94140838	24,12801824	25,05920185	0,003833175
CYP27A1	NA	NA	NA	23,90664842	24,30089545	23,88604408	0,001571837
NDUFS2	23,94975762	24,37145762	24,99701163	27,07907879	27,22995195	27,19788663	0,000407503
STX6	NA	NA	NA	24,12155122	24,10245505	24,09522831	0,000829919
CTSZ	NA	NA	NA	23,46213877	23,47914178	23,4230369	0,000289241
USO1	NA	NA	NA	23,74683657	24,01954051	24,28503302	0,002689409
TMEM11	NA	NA	NA	24,11330723	24,80395411	23,96895079	0,000913355
ITGA3	NA	NA	NA	23,22999228	23,29949871	23,40249583	0,000184933
SYNJ2BP-COX16;COX16	NA	NA	NA	22,93266821	23,44670068	23,59160726	0,003493435
HADHB	26,49743988	26,54995407	26,42579215	28,68311263	29,78045749	29,1360419	0,000112945
RNF5	NA	NA	NA	23,33415433	24,13602234	23,87605224	0,000423088
TMEM30A	NA	NA	NA	23,5406143	23,42700791	23,54049606	0,002074831
GLT8D1	22,96246961	23,11638838	23,29487984	25,62800759	26,26262881	25,55414757	9,02393E-05
HADHA	27,48008226	26,72974872	27,2127104	29,72535068	30,16350972	29,60052445	0,023613438
UBE3C	23,96560816	23,05963096	23,44215078	26,0889155	26,32771093	26,10777164	9,35414E-05
TMEM245	NA	NA	NA	24,35937585	24,6087949	24,22398224	0,003627469
COA3	23,04478564	22,91031334	22,4525439	25,17291303	25,78915152	25,47766045	0,003100361
SEC22A	23,1084817	23,53516524	23,33905729	25,82065267	26,26209112	25,92910938	0,000178304
RRAS	22,4767462	NA	NA	24,07103806	24,40021705	24,08529285	0,001540242
	21,72621317	NA	21,53331262	24,27127608	24,36979487	24,1467812	0,000144042
GPR107	NA	NA	NA	24,0282521	24,17073745	24,20247122	0,001096343
RPN1	28,56358225	28,46244305	28,54679357	31,12743287	31,26718223	31,17218104	5,17469E-05
ERMP1	22,92784884	NA	NA	24,32154831	24,32086003	24,85533578	0,002137932
ACTA1;ACTC1;ACTG2;A...	26,04703885	25,37202251	26,16802292	28,35085463	28,82602258	28,36202112	0,000326129
ZMPSTE24	22,84149525	23,17180656	23,16614653	25,67984194	25,73347736	25,71248229	0,002520668
CLU	23,32827609	NA	23,16822956	25,59880787	25,51857344	24,65638253	0,00426223
NDUFA13	25,32213308	25,51358256	25,54415698	27,86814762	28,51949607	27,90173199	0,000422986
TACSTD2	NA	NA	NA	24,50209222	24,2137118	24,0796892	0,000710653
ANKLE2	24,09514781	24,25031924	23,19413703	26,37638469	26,69630749	26,34685401	0,00027115
VAPA	24,73474393	24,83354564	24,8632989	27,25754855	27,61400141	27,43864961	0,00033405
RDH14	24,02799911	NA	24,05944943	25,62948136	25,26706612	25,34384201	0,033654786
UBE4A	NA	NA	NA	22,86101873	23,83759329	22,881869	0,000556695
MBOAT7	27,49891627	27,2622166	27,3600125	30,0077161	30,05504337	29,91612944	4,15196E-05
COG2	24,01503726	23,22864257	24,14172362	26,25582114	26,49556559	26,484714	0,003246836
CDS2	NA	NA	NA	23,63167532	24,07716451	23,77011701	0,002193416
DHRS7B	NA	22,87702645	NA	24,27099104	24,75948919	24,68859182	0,003903027
TMCO3	NA	NA	NA	24,00795664	23,59627895	23,59023707	0,00306744
LRBA	NA	NA	NA	23,28743058	23,05715355	23,55870844	0,000483387
SOS1	NA	NA	NA	23,37238792	23,07246172	23,03800065	0,000245999
CALCRL	22,77237418	22,8346647	23,33183324	25,60501193	25,66589884	25,46173297	0,000734242
TIE1	25,17039364	25,13218277	25,2005643	27,63878964	27,83827882	27,81616649	0,000160894
OCIAD2	24,75174753	24,72530842	24,9060061	27,43101587	27,5724642	27,1669127	0,000202666
SH3TC1	NA	NA	NA	23,17613601	23,59160726	23,99196188	0,001926119
ICAM2	25,96684056	25,18635155	25,68029814	28,06486494	28,48143023	28,06886715	0,000123897
TBC1D15	NA	NA	NA	23,50675986	23,89208028	23,55520136	0,000328472
SACM1L	NA	NA	NA	23,19973344	23,38152605	22,98653857	0,000214686
MAN1A2	23,48738472	23,65512713	22,71845762	26,17094752	25,4639167	25,90449093	0,001950308
FLT4	23,82036052	23,85861167	23,52288894	26,46726386	26,24081753	26,17148209	0,000903738
SYVN1	NA	NA	NA	23,59809795	23,27198841	23,20466666	0,000599391
RABGAP1	NA	NA	21,974458	23,11824343	23,72046305	23,60410706	0,002509307
PNPLA2	NA	NA	24,06208765	24,11632492	24,48848841	24,23855985	0,03855599
ATP5B	26,18569015	25,81941061	26,44173932	28,40932684	28,93258261	28,70865947	7,39215E-05
HK1	24,08529285	23,22642434	23,90646493	26,08737851	26,76141813	25,96569623	0,000422986
TBL2	27,50650263	27,49358198	27,20787912	29,59573138	30,5388064	29,63633681	0,000507025
TMEM205	NA	NA	NA	23,68131735	23,66438044	23,4093754	0,000287566
ZDHHC5	22,16432141	NA	NA	24,27305626	24,47004465	23,68923192	0,007776862
MARCH6	NA	NA	NA	22,53071971	22,65883558	22,8931919	0,000328472
GPD2	NA	NA	NA	22,68694757	23,27540274	23,35002841	0,000648325
CUX1	NA	NA	NA	23,69816373	23,68303229	23,71030281	0,002128441
LRPPRC	NA	NA	NA	23,00035974	23,86551883	22,9624343	0,000469469
DNAJC25;hCG_1994888	23,18974072	NA	22,91801591	24,64960134	24,90839042	25,01546269	0,003606109
SLC3A2	NA	NA	NA	24,05573125	23,83045408	23,6946614	0,000136249
TPST2	NA	22,20338266	NA	24,1435931	23,33456354	23,41763931	0,002024124

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RDH11	24,3970207	24,45173935	24,41873331	26,87537271	26,94726238	26,91752432	0,001215017
FAM20B	22,29504806	NA	NA	23,74345057	23,93183905	23,67594498	0,001863161
RALA	25,34621153	26,14024189	25,67529895	27,85335001	28,56804819	28,18517972	0,002094389
FRMD8	NA	22,27580055	NA	23,44265704	23,48369968	23,57922846	0,004203224
TIMM21	22,468094	22,65186893	NA	24,9355755	25,00906795	24,6863492	0,001368744
TFRC	NA	NA	NA	22,92634474	22,87425197	23,08074663	0,001694286
NDUFA9	25,24103583	25,40905163	25,29803067	27,67754535	28,03208092	27,61659764	0,000299615
NDUFB10	22,61288289	NA	23,38007312	24,52037314	25,33316491	24,69524571	0,003301955
STX7	23,5167715	23,38798049	23,14960573	25,30931703	25,76986488	26,34372344	0,009799821
REEP4	22,60867084	21,95659736	22,51390779	24,61009125	24,94194561	24,88613714	0,000160894
GOLGA5	23,14368651	22,84571209	23,79441666	25,74098301	25,98015353	25,4193443	0,000292446
ITPRIPL2	NA	NA	NA	23,05817806	23,85661853	23,2479026	0,002627986
C2CD2	22,04216567	21,88114085	22,21676362	24,79099154	24,40308122	24,2690656	0,00033803
STT3A	25,3859748	25,26810191	25,60441817	27,77599189	27,79699255	27,97415819	3,88583E-05
FAM198B	23,08856376	23,28008429	22,84674525	25,48664847	25,46472696	25,51815319	0,000198146
RIC1	23,26026145	NA	NA	24,01546269	24,83778575	24,22574817	0,013042526
SLC33A1	NA	NA	NA	23,31962031	23,60025504	23,15539267	0,011832855
MARCH5	21,55407729	21,18894132	22,68583611	24,16384558	24,41415874	24,08456317	0,00257168
GNB2	NA	NA	23,19340023	24,4630748	25,15502973	24,45381268	0,002568671
NBEAL1	23,53160039	NA	NA	24,29831042	24,26313048	24,05647565	0,011228974
CMIP	NA	22,1577688	NA	23,42624018	24,11949464	24,1434374	0,00186348
TMEM109	26,95881111	26,60016995	27,19338143	29,39774702	29,37191869	29,18824904	0,022934101
SCARF2	NA	NA	22,99834664	23,56546472	23,23317085	0,001178155
NLRX1	22,7293079	NA	NA	23,78366731	24,60331484	24,30959459	0,001531387
IARS2	NA	NA	NA	22,98071139	23,0380174	23,09168202	0,001599822
EFNB2	NA	NA	NA	21,98471467	22,71776761	21,97547296	0,000178564
RAB5C	23,93219961	24,2790925	24,078631	26,6073845	26,50476129	26,34507803	0,000295799
ERLIN2	NA	NA	NA	23,85014562	23,80360929	23,92813809	0,001096343
TMEM43	23,04799987	23,1965553	23,18171158	25,50787906	25,5584749	25,5187235	0,002779591
RAB33B	22,19787538	NA	NA	24,40431626	24,33463174	23,82522201	0,002116125
RALB	23,08563324	23,88660233	23,13523958	25,74142028	25,81426052	25,68048594	0,000724666
CD46	NA	NA	NA	22,94148898	22,67040124	22,67191332	0,001139823
DNAJC19	25,12159074	23,76172246	24,07545173	26,71554898	26,78456616	26,5791709	0,003834596
ZDHHC3	NA	NA	NA	23,16260154	23,28362083	23,19628514	0,00162019
CISD1	23,46612825	22,62927568	NA	24,3383093	25,64298088	24,56871508	0,022485163
SLC25A1	27,20359176	26,83665467	26,50218329	28,91846298	29,73410109	28,99792689	0,003046206
ITPRIP	NA	NA	NA	24,08423875	24,63682771	23,90113353	0,006466495
NNT	NA	NA	NA	23,03768234	23,47060327	23,34921859	0,00113699
PPP2R5A	NA	NA	NA	23,89365482	24,39381725	24,15081455	0,001873908
SUN2	26,27120482	26,20017139	26,25131294	28,5280938	28,58132772	28,63304832	0,002841251
YIPF3	NA	NA	NA	22,35466262	22,57380804	22,65696073	0,001629727
UBE2J1	NA	NA	NA	24,02909509	23,3357905	23,20396508	0,006466495
NUP188	NA	NA	NA	24,46954792	24,42265202	24,13868053	0,000106203
NUP93	26,15562814	26,15288501	26,25988446	28,4229006	28,63114102	28,51690672	8,54054E-05
LPCAT1	22,87775668	23,24851076	23,20176857	25,10245505	25,69840222	25,52429469	0,000142661
SLC9A1	NA	NA	NA	23,26942235	23,36706382	23,42175359	0,001244259
TMEM57	24,58388296	24,4671239	24,79585378	26,92388382	26,91627184	26,98032788	0,000467954
ATP5I	24,16783156	23,93615985	24,14024189	26,11288981	26,78967393	26,30591256	0,002074831
PPAPDC2	NA	NA	NA	22,91247129	23,11072925	22,94984665	0,000904019
RAB2A	NA	NA	NA	24,1662998	24,37934611	23,79233277	0,00113699
CYC1	22,99734765	23,23641542	23,56174103	25,24506839	25,95969565	25,5499247	0,001430486
EPHX4	NA	NA	NA	23,80479119	23,99239418	23,76617867	0,001421094
HCCS	21,75429872	NA	NA	23,31548018	24,12478836	22,86230591	0,002947384
PDXDC1	NA	NA	NA	23,36051491	23,46201392	22,9480114	0,017312668
LRRC59	29,64620906	29,62472444	29,74871213	31,82835506	32,24623678	31,86975143	6,96968E-05
ST6GAL1	22,16081808	NA	22,455557	24,18865464	24,18010341	23,83180746	0,002140357
BGN	NA	NA	NA	23,80872384	23,77725933	23,68163906	0,001477996
RHOT2	24,36105063	23,99351753	24,26026145	26,2535688	26,90035054	26,36897943	0,000711822
AAAS	NA	22,93493693	23,6314533	24,81382033	24,33953308	24,40373137	0,039814401
EPG5	23,94190085	24,0924081	24,30772001	26,33406906	26,34915108	26,55939425	5,39198E-05
PDHB	22,77683781	22,45364943	22,51412457	24,42636816	25,30716411	24,91136529	0,001202764
DNAJB2	20,99975783	NA	NA	22,70294711	23,22485076	23,08066531	0,002779591
TTC27	23,14060076	NA	NA	23,52492234	23,63455849	23,46861609	0,019374947
UTP6	NA	NA	NA	22,99875982	23,27454992	23,37371588	0,007733216
RAB3D	22,65086155	NA	NA	23,34272361	23,54651394	23,43071287	0,010402162
AGPAT4	NA	NA	NA	22,83304372	23,22171278	22,96128647	0,000196131
EBAG9	NA	NA	NA	22,96956569	23,36546275	23,20702266	0,001139823
EMC10	22,93851283	22,97040856	23,16186382	25,15271097	25,43370819	25,28376211	0,000829919
MGST3	24,35528119	23,98580929	24,29165187	26,17058465	26,79191067	26,46549006	0,002335585
ZWILCH	NA	NA	NA	22,33043879	22,38287201	22,40875369	0,003035272
SDF2L1	NA	NA	23,54132353	23,3694621	23,81352679	23,68720394	0,040612674
ADAM15	NA	23,41686658	NA	25,14293127	24,68367487	24,50712294	0,003880013
TMEM9B	NA	NA	NA	23,46238844	23,58817934	23,51869349	0,008960851
MGST1	NA	NA	NA	23,05304821	23,74806588	23,29670116	0,000240116
TNFRSF10C	NA	NA	NA	23,72691993	23,39427532	23,11938381	0,002140357
MYCT1	22,50489462	21,97098775	22,59846147	24,43440833	24,92347584	24,49106038	0,001173318
STIM1	24,10301561	23,69720939	23,84230123	26,1392272	26,21324828	26,0489935	7,54399E-05
SNX4	22,75625497	NA	NA	23,77223321	24,14047595	23,80420036	0,029559929
APP	22,88455437	22,86953435	23,16574796	25,26785196	25,14580997	25,23746615	8,34567E-05
VIMP	24,44170766	24,07781647	24,25205325	26,60865392	26,44671645	26,44097939	0,006381745
COG6	24,29466954	23,778463	24,11941548	26,1720928	26,27891532	26,4312072	0,000112581
MCU	25,62354932	25,67823068	26,11967273	27,8334612	28,41086381	27,85180231	0,013211096
MLST8	24,89245091	24,39434075	24,77409492	26,90391659	26,80279618	27,02612136	0,000454529
STX3	NA	NA	NA	22,86453681	23,13113099	22,96287554	0,038872973
BET1;DKFZp781C0425	23,41247992	23,9685993	23,65173757	25,64416435	26,27065249	25,76070777	0,000299756
BAX	NA	NA	NA	NA	23,92605778	23,36185384	0,030501486
VAPB	24,79728947	24,7905939	24,64273305	26,87126531	27,10319575	26,88460095	0,006890636
GOSR2	25,529904	23,99877703	24,23637163	26,61133014	26,87712946	26,90115655	0,002210901
WRB	21,36677043	NA	21,61921159	22,42859326	23,61728451	23,2467435	0,008175036
SLC35F6	23,67389822	23,47975856	23,8146028	25,54698487	25,62086773	26,40366637	0,000242602
ARVCF	22,41575827	NA	NA	23,76769469	23,39113134	23,28728965	0,004556996
GIMAP1	26,35098948	26,47572935	26,04878285	28,29644737	28,62780587	28,52204334	0,038754646
VEZT	NA	NA	NA	23,26813761	23,66579044	23,46563017	0,02631263
ECE1	22,82425102	22,7226533	23,1061188	25,44496456	24,29031646	25,47559021	0,000960489
ILVBL	25,00812766	25,09063258	25,21989021	27,17464732	27,33739079	27,35691038	0,003383823
EMC1	24,39976086	24,38916286	24,68720394	26,69099076	26,66207267	26,65799111	0,000350077
COX4I1	NA	NA	NA	22,47367801	22,8265609	22,58157483	0,02378839
TTI2	NA	NA	NA	22,83888229	23,03101527	22,14895441	0,006215236
ITGB4	NA	NA	NA	22,67292769	23,11619799	22,96560816	0,000521236
SCCPDH	25,95151506	25,66765926	25,72614039	27,73466642	28,28850466	27,80501268	0,000123747
PPM1F	25,45192795	25,51198564	25,52136201	27,42973964	28,04510364	27,47212286	0,046629198
EMC7	23,89374739	23,50978273	24,09160132	25,8138937	26,33944813	25,79921798	0,00595173
C19orf52	22,51188292	22,59281651	23,17867579	24,79039503	25,23117957	24,71764212	0,022136364

CCDC132	24,20754404	23,27113357	23,95358121	25,83103426	25,9730087	26,07632877	0,003425418
FADS1	NA	NA	NA	23,18980104	23,20016764	23,39309713	0,002841251
NUP205	25,47475509	25,38446047	25,75052136	27,6434764	27,73292126	27,65758232	0,008532031
DCBLD1	NA	NA	NA	23,08514695	22,88987303	23,1260339	0,017857376
SLC25A51	23,04503571	NA	NA	24,05183756	23,87773796	23,84928673	0,025348721
ATP5J2	25,16442116	25,30319713	25,27607754	27,25844742	27,60116232	27,30295318	0,016649925
BZW2	24,65244894	25,2327172	25,06669296	26,97015839	27,07387989	27,31630916	0,000248736
GLCE	23,7691082	23,83277338	23,92732442	26,139559	26,07905844	25,71109096	0,003944726
ARHGEF1	22,20131989	22,20111046	23,00005022	24,66887676	24,59080814	24,53984557	0,000875979
HSPB1	29,83942064	29,36778039	29,54085814	31,47072738	31,97394615	31,68704038	0,00019131
COG4	24,01384537	23,23734944	24,42348578	26,15913638	26,19277967	25,70495837	0,010769992
SFXN4	NA	NA	22,77064131	23,63588725	24,29628106	23,66589884	0,014317191
	24,95978408	24,51044692	24,8766612	26,84433817	27,2680305	26,6073845	0,000711822
FAM96B	23,47778395	NA	23,62989819	24,61868526	24,8825035	24,409958	0,049382544
SLC30A1	NA	NA	NA	22,91825254	23,07417806	23,20955332	0,000701702
DCAF8	22,96227543	23,39073786	NA	24,22037006	24,33613114	24,65283185	0,028361384
TBC1D20	NA	NA	NA	22,92453635	23,19224164	23,14622185	0,009662543
TMEM63B	NA	NA	NA	23,74888484	23,50008717	23,76151958	0,026438232
RRAS2	NA	NA	NA	22,74833209	23,5149673	22,76510639	0,032105295
SLC35E1	24,24829359	23,74868014	24,26184012	26,06747277	26,42527994	26,04301727	0,001677634
STEAP3	NA	NA	NA	23,75358484	23,92397447	23,5553184	0,000731272
JAG2	24,33851334	24,25031924	24,3457041	26,28029672	26,50166714	26,38824332	0,000116936
NBEAL2	27,42494371	27,35892332	27,59633582	29,48229612	29,50468554	29,62186343	0,000504318
CISD2	23,74693906	23,41312585	24,55561096	26,06663138	25,98943036	25,88550889	0,000911863
NDUFA5	25,57441452	25,19955374	25,39809781	27,38977009	27,53482399	27,45732426	0,000512842
GEMIN4	NA	NA	NA	22,3418554	22,81333106	22,95606556	0,005530631
C2orf47	22,34564997	NA	22,88061785	24,19663034	24,31333645	24,24495955	0,002332152
SEC61B	26,51953356	26,62505553	26,96024822	28,78727802	28,78531477	28,71561444	0,007947095
RAB14	24,36699715	23,9314784	24,15954063	25,96717049	26,46106159	26,21124415	0,000611397
OSBPL5	NA	23,67292769	23,21294041	24,61386094	24,54916092	24,65195649	0,037438648
RDH13	NA	NA	NA	23,10990078	22,9311357	23,11998532	0,008596158
CYBA	NA	NA	NA	23,25681105	23,58083912	23,0924081	0,012214
CPT1A	27,79792023	27,50112042	27,74188313	29,58471818	29,95143725	29,66817344	0,000483066
RAB10	22,07933113	NA	NA	23,66795697	23,75215602	23,02621002	0,003754515
DAAM1	22,5299576	NA	NA	24,2801551	23,66362064	23,62265601	0,002509307
RAB18	22,45475412	22,98829081	22,99279177	24,4612646	25,20947895	24,87516176	0,000501791
TMEM41B	24,33572236	24,48080647	25,00748621	26,47628577	26,86372425	26,5803216	0,007143436
EIF2B5	22,4888316	NA	NA	23,26298717	24,07724602	23,23520321	0,004523062
VAMP3	22,02712172	21,99862211	21,58297622	24,23110631	23,60975318	23,84172557	0,000549953
TELO2	NA	NA	22,78020653	23,417253	23,92469944	24,25371305	0,006466495
MFN2	23,81860636	24,26363198	24,05150569	26,04972061	26,15855869	25,98498406	0,006438722
ACSL3	27,47606941	27,00731511	27,15605267	29,11909385	29,31693489	29,2590763	0,000307615
SCAMP1	NA	NA	NA	23,08857993	23,3027092	23,21708916	0,00060148
PTPN2	NA	NA	NA	22,68786602	22,7005574	22,92012602	0,003122699
EXOC7	27,80820829	27,89833355	27,89394407	29,87613423	29,80448965	29,95393638	0,004166123
ALDH3A2	NA	NA	NA	22,86508456	23,0931177	23,1568435	0,00060148
STOM	27,64361402	27,50521576	27,64931353	29,30942979	29,64454258	29,85090865	0,000153132
CYB5R3	22,07724602	NA	21,79910926	23,25183661	23,8422053	23,59046553	0,002764089
TMEM126A	24,56034216	24,44018737	24,48689393	26,19826143	26,85233824	26,42668807	0,011024986
MGAT1	25,17047005	24,40529055	24,76004783	26,73298594	26,5579639	27,02231616	0,000705879
TMX2	NA	23,38706019	23,59696134	24,66248019	25,05833498	24,41267373	0,023199817
TSC2	22,97494807	23,31948249	23,48320763	25,13680467	25,52924871	25,06710344	0,006215236
APOOL	24,09087482	24,11973208	24,15344565	26,0393192	26,28536821	25,98276663	0,000270556
VPS51	24,57594404	24,04568568	24,11925715	26,0775109	26,24103583	26,36449458	0,003627469
SCARF1	24,72935977	24,77213251	24,66291476	26,66519407	26,68725735	26,75378884	0,008441992
STX10	NA	NA	NA	22,6661373	23,14681227	22,92936678	0,004039838
EXOC8	26,58405506	26,16342334	26,16417177	28,277905	28,1749806	28,35909094	0,000248739
ABHD16A	25,05916058	24,95619853	25,03052705	26,77994113	27,13428013	27,02390288	0,001845708
SLC25A15	NA	NA	NA	21,77245473	22,30457637	22,34410624	0,021725262
TCEA3	NA	NA	NA	24,02140566	24,09498679	23,96886293	0,014996883
STUB1	NA	NA	NA	22,76813908	22,7963391	22,41263497	0,008960851
COL13A1	NA	NA	21,9729167	22,79046464	22,80057133	22,63440339	0,010958864
MAGT1	26,32678564	26,34326597	26,39394814	28,24049912	28,51720717	28,17688358	0,000623321
MAP2K2	22,98194837	23,18895641	NA	24,76769469	24,21423077	24,7485266	0,009386002
SEMA6B	23,28559751	23,06941633	NA	24,43466284	24,45650983	24,43879236	0,026959684
DHRSX	NA	NA	NA	22,80177545	23,5798039	23,49350563	0,004452287
WDFY3	26,65894451	26,76014938	26,90230721	28,7871223	28,62125212	28,74579853	0,000682569
PDS5B	22,49458023	22,94329677	23,17397291	24,85109935	24,78725933	24,78126765	0,00634236
INF2	26,02932683	25,85193334	26,0305481	27,86171452	28,04233895	27,81341669	0,000188716
UBXN4	21,78148779	21,61234299	22,04756728	23,81313531	23,73758322	23,683889	0,000467954
CEPT1	24,57928601	NA	22,56975828	25,10561539	25,14763535	25,27884445	0,024938434
PIGN	NA	NA	NA	22,80335309	22,90903168	22,83992036	0,012214
NGLY1	NA	NA	NA	22,51948557	22,6707254	22,57653232	0,002548793
SPCS2	25,96730244	26,09162149	25,96655456	27,87882561	28,02527662	27,88814801	0,000460802
TMCC1	22,42851659	22,44705396	21,83945909	25,15286567	23,60433333	23,72359096	0,04228797
POMT1	NA	NA	NA	22,88390214	23,17575542	22,93358693	0,002874032
MIA2	NA	NA	NA	23,03890493	22,6967426	22,31986834	0,002479503
CTPS2	23,10149357	NA	23,29024614	24,36972832	24,64801081	24,39119691	0,010125568
SLC35B2	23,94699477	23,09958475	23,25925593	25,26406169	25,26087159	25,48916246	0,000753252
PLD1	24,45180222	23,73355493	24,8727688	26,17245528	26,45519325	26,13567015	0,001314272
CLCC1	NA	NA	NA	22,84001643	22,4927236	22,55681568	0,000892548
MGAT2	24,51225677	24,4604524	24,25385729	26,1891827	26,38205403	26,35292654	0,030727942
SUCLA2	21,46811886	NA	NA	22,64456046	22,88935319	22,72980576	0,008435773
VRK2	26,52224543	26,46009301	26,80193329	28,42842235	28,61922419	28,39856268	0,000750921
ERGIC1	24,87586482	24,07895668	24,85452753	26,32159991	26,72663415	26,41165593	0,001666705
ARMCX1	24,73164014	24,69991171	24,54008215	26,49612965	26,75149216	26,34672834	0,001400207
CD46	NA	NA	NA	22,58968863	22,77404463	22,654865	0,000685815
HIP1R	27,08151887	26,94993568	27,06404259	28,94976875	28,90690069	28,8688541	0,000659095
MAPRE2	NA	NA	NA	22,68799413	22,77719912	22,81936676	0,008532031
PBXIP1	24,85771035	25,15603338	24,79114063	26,74406679	26,8854158	26,78206798	0,000398399
TPP1	26,37845336	26,43766586	26,4348696	28,16825251	28,44805655	28,23644462	0,000546203
TAP2	22,1154679	23,68238943	23,34299482	24,75938759	24,98328869	24,98997166	0,01435588
HACD2	NA	NA	NA	22,9146625	23,44316311	22,50789721	0,002808754
SLC39A11	NA	NA	NA	23,20282989	23,86069676	23,26613684	0,001539991
ROBO1	NA	NA	NA	23,26713757	22,73450621	23,12815988	0,001821957
DNAJC16	25,00440325	24,39270418	24,22736505	26,40259341	26,47756782	26,31390727	0,000623321
TMEM39B	NA	NA	NA	23,06370118	22,36091672	23,33456354	0,001194645
EXOC6	26,45274497	26,31356135	26,75340632	28,40641017	28,31708589	28,33688025	0,006286855
IKBIP	22,48192751	NA	NA	23,14782164	23,18998196	23,413255	0,017445109
USMG5	25,03858682	24,8029687	25,22136616	26,75544528	27,04082464	26,7912897	0,046629198
TBC1D5	25,46007738	25,0116719	25,31014955	27,10099255	27,1447214	27,05641363	0,002024195
TRABD	NA	NA	NA	22,99548562	24,2365906	23,67335911	0,018355824
LPGAT1	23,17949608	23,88147697	22,77739981	25,13899294	25,30138399	24,91415152	0,003834596

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TBC1D22B	23,61706026	23,60783598	23,75154324	25,59063684	25,4592645	25,43784044	0,002201487
RAB27A	NA	NA	21,97683678	23,20594952	22,91672286	23,05928438	0,014854056
NDUFAF2	23,35944288	22,93792046	23,19049447	24,9652999	25,2093302	24,80272224	0,000416304
PYGB	24,52898056	24,30250004	24,05308137	26,02985337	26,2925473	26,02930576	0,000806115
HLTF	NA	NA	NA	22,59149313	22,52571101	22,49194115	0,002159725
SEC11A	25,00782835	24,35709501	24,93355091	26,6768059	26,56024011	26,50954114	0,002102009
SELK	22,39827399	22,59482209	22,73032418	24,26148148	24,62153859	24,28234867	0,001737142
ARL1	NA	NA	NA	22,28948648	22,57161101	22,86832898	0,010603097
SPTLC1	24,33060291	24,50227436	24,54232768	26,27303847	26,20024624	26,3352794	0,000623321
SYMPK	23,32443549	NA	NA	24,28340888	23,61380475	23,64713252	0,025957979
SMN1;SMN2	22,03365556	21,47105001	21,16177158	23,42828656	23,45035547	23,19801032	0,002799114
NSDHL	24,92029869	25,2507168	25,24811259	26,60215401	27,03485638	27,17540899	0,020866462
TMED7-TICAM2;TMED7	24,62578018	24,79183616	25,11727657	25,87981898	27,23999862	26,7948876	0,01552091
FRMD5	NA	NA	21,62283472	23,33429075	23,4947267	23,5553184	0,000938125
TMEM120B	NA	NA	NA	22,71355769	23,66394632	22,91201437	0,001540242
OCIAD1	24,67260403	24,27859635	24,41918354	26,25747661	26,26653007	26,2203147	0,01619879
OGFR	22,95496588	22,57475519	22,30946969	24,17256973	24,65987006	24,37980879	0,032073028
QSOX1	22,3953741	22,44760894	NA	23,83557089	23,49326129	23,35769911	0,026806268
LEPREL4;P3H4	NA	NA	NA	22,7411888	22,99482989	22,83010587	0,028810693
RAB29	24,08642717	23,55180306	23,90168597	25,44078935	25,74752819	25,70930388	0,001183378
TMEM106B	NA	NA	NA	22,97405532	23,44050423	23,08259932	0,020379684
UQCRQ	25,43186075	24,98858553	24,91533746	26,59875109	27,46302801	26,61400141	0,007610809
ST6GALNAC4	NA	NA	NA	22,68671253	23,14458917	22,5022015	0,037424859
IRAK1	NA	NA	NA	22,65896629	23,11313233	22,63205268	0,000906428
SLC25A19	22,71852033	22,07564758	22,79546738	24,01750304	24,78461608	24,10501586	0,002224731
UMPS	22,55950219	22,52518528	22,74935553	24,33469992	24,34238452	24,46793236	0,001074128
PTPRB	25,02301453	25,04880646	25,11941548	26,92716615	26,72961908	26,83966091	0,005591359
JUP	24,58588953	24,4058099	24,83658244	26,34980913	26,23609786	26,54126444	0,041389482
TMEM131	24,12020686	23,93012515	24,07716451	25,87902434	25,73528641	25,81198473	0,0002364
EMC8	24,5579493	24,42162519	25,03875425	26,4826231	26,37120833	26,46001487	0,001907016
CTDNEP1	22,91613969	22,50751013	22,54366152	23,88585795	25,4266241	23,94859965	0,009419542
RHOT1	24,20471143	23,95171514	23,85148066	25,51761269	26,11086065	25,65452634	0,001375644
DHCR24	22,83283131	22,44705396	23,3340179	24,45888918	24,55549394	24,87140633	0,004554412
SEC63	NA	NA	NA	22,70364424	22,743656	22,43150373	0,002253125
PPP2R5E	22,87712009	NA	22,41201466	23,73954166	23,89411759	23,96815982	0,027980925
PTPN1	24,52025323	24,19843005	24,44366901	25,89873718	26,383851	26,09359729	0,005218333
RAB34	23,14250286	23,57830727	NA	24,30820625	24,55104027	24,45519325	0,047658873
PAM16;CORO7-PAM16	24,52282909	25,160695	25,16350012	26,48718536	27,134408424	26,43447196	0,002166222
VPS4A	24,09675697	23,93678888	24,05639296	25,68303229	26,01586674	25,59602297	0,001515589
EXOC2	25,92322646	25,72788079	25,78154282	27,50831743	27,49663256	27,6243584	0,001525715
NUP35	21,83124693	NA	21,22670382	23,23363898	23,46861609	22,4245241	0,016649925
GALNT6	NA	NA	NA	22,93140626	23,19276838	22,95631376	0,008070106
FZD8	NA	NA	NA	22,97542048	22,77076228	22,66349035	0,001555445
EXD2	24,54368512	24,18593585	24,83956481	26,09315398	26,41357783	26,22273006	0,0024656
LPCAT4	NA	NA	NA	22,55688582	22,81372249	22,5711712	0,004139228
DOCK4	30,04791253	30,72077614	30,64727322	32,20411088	32,09490376	32,25172038	0,00514457
STAT2	NA	23,13517694	23,31755173	24,05498646	24,11664221	24,18495281	0,03855599
TOMM40	22,69366221	22,97161933	22,53388291	24,12549798	24,6865095	24,50579121	0,003555585
SLC25A3	26,83520944	26,33815626	27,06732915	28,45238366	28,76673473	28,13887579	0,030421219
TUBB8	27,92422372	27,0155265	27,93038462	29,10119298	29,49830763	29,38337725	0,025194224
CTNNB1	25,19027592	24,80346149	25,29302113	26,62142681	26,92660076	26,83050244	0,003194167
NDUFB6	NA	NA	NA	22,58228718	23,17926827	22,3965243	0,005102965
CRYBG3	NA	NA	NA	22,73022051	22,88427488	22,81911334	0,020574954
SFXN3	28,27644144	28,3478172	27,57484757	29,56214514	30,05711119	29,63509153	0,003637798
PEX5	NA	NA	NA	23,36479512	23,34921859	23,16793873	0,028926715
METTL7A	23,55403044	23,58359608	23,96013772	25,15911713	25,4252159	25,51809314	0,01882603
VPS8	NA	NA	NA	22,6319195	22,59627895	22,52637984	0,008435773
VAC14	25,93981789	26,02286642	26,09065277	27,74611899	27,5644184	27,708791	0,000367308
YWHAQ	24,1586935	24,089744	24,40249583	25,71379364	25,99425157	25,89296038	0,000472586
TTC17	22,53692067	23,00691294	NA	23,69614827	24,13961755	23,74437481	0,031610035
TUBB6	29,55380346	29,21576804	29,78492491	31,10774172	31,30012959	31,09074614	0,009601348
CRIM1	22,949722	23,16810711	22,24222861	24,35890656	24,68645607	24,24966845	0,003397624
ATP5A1	28,76430038	28,64571103	28,63346412	29,99010154	30,7139116	30,26360512	0,000777061
TIMM10	NA	NA	NA	22,54729089	22,73287211	22,65110251	0,019374947
ZFPL1	23,88753226	24,20224701	24,04460223	25,50124193	25,87452872	25,67473343	0,000820737
TTC28	24,12793955	24,57016377	24,53575853	25,97705523	25,99931483	26,16697014	0,000711822
PHKA1	23,21295525	22,97281155	23,5731146	24,79054418	24,86556602	25,00406029	0,003627469
PECAM1	24,10629456	23,98320169	24,36793032	25,7645092	25,75322777	25,82708932	0,001153493
FAM69B	24,31920683	24,48885611	24,41254452	26,02827318	26,00643789	26,07175416	0,000493025
CUL4A	NA	NA	21,12949685	22,38094506	22,21646761	21,95928883	0,021383396
EXOC6B	25,85733068	25,75307471	25,84756742	27,42101517	27,43920466	27,47699644	0,001596805
APOL2	22,78280789	23,12128245	23,53338392	24,62299107	24,76253371	24,92646504	0,00368695
FARSA	27,48200755	27,12435453	27,53675174	28,81787483	29,20347508	28,99482881	0,022802811
TBC1D10A	NA	22,77725933	NA	24,19828016	23,84814075	23,71732834	0,006144988
EXOC4	26,33502378	26,13449557	26,14100244	27,76014938	27,88913499	27,81720394	0,006908778
HSPA12B	NA	NA	NA	22,66490122	22,94302843	22,67521279	0,001655102
GNAQ	NA	NA	NA	22,32113538	22,41160098	22,28717691	0,02282024
CLCN7	NA	NA	NA	22,98072882	22,87578984	22,59896117	0,025343699
TTC13	22,89459872	22,83980505	23,04383499	24,59428678	24,58290734	24,41286751	0,00033803
B4GALT7	NA	NA	NA	22,6507301	23,41286751	22,97956056	0,002039808
NCEH1	NA	NA	21,30791453	22,39516487	23,30131421	22,21445312	0,016775776
NCLN	25,30580821	25,23209502	25,23629863	26,68137097	26,95947457	26,93719312	0,002948997
ATR	25,14666469	24,84618093	24,93310062	26,59120776	26,41099317	26,72455403	0,000575523
ZDHHC24	NA	NA	NA	22,6949164	23,48615742	23,02160898	0,016353668
LRRC8C	25,06262295	24,91255352	25,07496199	26,66302338	26,52049304	26,64402679	0,039657963
SLC25A22	24,32855003	24,54096896	24,4373325	25,77816217	26,18072944	26,12192663	0,00748928
SLC4A2	NA	NA	NA	23,00542307	23,00971724	23,18783954	0,009019741
MGRN1	NA	NA	NA	22,48674666	22,2629585	21,99355209	0,012781607
MIA3	NA	NA	NA	22,66431533	22,47447043	22,66912555	0,025348721
SPCS3	24,29775088	24,36131842	24,51665129	25,93265019	26,16065654	25,83489612	0,000531651
RETSAT	22,86614168	22,20442786	23,85319532	24,66041423	24,50269926	24,49661732	0,010652086
CNP	26,79995902	26,77583056	26,65348801	28,13824109	28,51927109	28,29162552	0,000465699
CSGALNACT1	NA	NA	NA	22,56353425	22,88879601	22,48853744	0,014038482
RHOG	26,31461616	26,54591033	26,33851334	27,84062159	28,10908777	27,94514249	0,012155628
LTN1	23,63455849	23,12943396	23,92370251	24,84804521	25,12730986	25,38827617	0,002210901
RAB13	25,76547065	25,54568944	25,53789234	27,2023778	27,18826167	27,13398629	0,003209812
QSOX2	NA	NA	NA	22,44874346	23,05620973	22,96522062	0,020658564
S100A16	23,55485018	23,35581886	23,38126199	24,76991531	25,23019023	24,93737274	0,028444564
COPG2	22,88280199	23,42790308	22,81080381	24,78286787	24,58777889	24,39486405	0,001845402
KNTC1	22,19002719	NA	NA	23,40600461	23,73252022	23,64504444	0,02378839
ACADM	23,68528006	23,20767808	23,27156105	24,5676103	25,39581207	24,8347997	0,003099117
HSP90AB1	27,06465939	27,16288577	27,42822265	28,36582148	29,06090311	28,8459836	0,001400207
RASIP1	29,03209951	28,99676926	28,89015028	30,49342928	30,59396992	30,44164039	0,00897884

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RAB6A	24,56511603	23,91168529	24,61610682	26,13987122	25,83980505	25,69991171	0,025348721
CDH5	24,99040455	25,26881581	25,26942235	26,57301344	26,85792387	26,67559508	0,022277449
PIKFYVE	21,63338374	NA	NA	22,14960573	22,56239337	22,14985377	0,021342803
LRRC8A	26,03088482	26,18427184	26,04597724	27,53689992	27,67155165	27,61372046	0,02378839
MAN1B1	24,11052218	24,30848402	24,4684918	25,86747614	25,77021785	25,79213415	0,001314272
PEX6	23,84517608	23,61313028	23,3754404	25,59662018	25,07806088	24,70054682	0,011842761
TBRG4	NA	NA	NA	22,90350752	22,99232502	22,58497259	0,026478342
SLC25A11	28,4410269	28,16442116	28,32932876	29,57342163	30,168659	29,69521252	0,001152601
HEATR3	22,78626245	22,04536907	22,38498079	23,68431716	24,00923884	24,0232684	0,001756141
S100A6	27,25502871	27,12563592	27,24181779	28,287228	28,91530326	28,89530277	0,001401403
SGPL1	25,64366906	25,35857126	25,64647345	27,05786005	26,95404735	27,10159375	0,001244259
GLS	NA	22,3589602	NA	22,50579121	22,8681594	22,71305419	0,040721041
MON2	24,66968786	24,34353708	24,63056487	25,865094	26,11402252	26,11094028	0,002148142
CDC2;CDK1	25,00097	24,55613742	25,1215117	26,3578501	26,47812353	26,27120482	0,019116371
DDX20	23,5149673	23,56523227	23,57265212	25,26985035	24,79168715	25,01864947	0,001148652
LPCAT2	25,27873813	25,15147277	25,05378572	26,64044553	26,5862046	26,68177308	0,004970342
IDH2	28,67023509	28,30630379	28,57582145	29,75542936	30,35237095	29,86696938	0,031448416
RAB32	23,7509302	23,24353662	23,89652162	24,9788452	25,25082521	25,07802014	0,0278232
RAB5A	22,95881111	22,74546261	22,47409903	24,12959118	24,23000695	24,22736505	0,000778727
ATP5H	25,11814836	25,38715882	25,50020876	26,72832205	27,02495972	26,65812735	0,008310832
ACSL1	21,88751367	NA	22,01984588	22,72750172	23,58680589	23,15741417	0,006947519
EXOC1	25,54548324	25,36753046	25,54079164	26,92998976	26,88051977	27,00806353	0,003039528
PPP2R5D	24,31755173	24,54132353	24,77565288	25,92585411	26,01327036	26,05465532	0,029928407
GPR56;ADGRG1	NA	NA	NA	22,70252444	22,9995686	22,66817344	0,032843387
LRRC8D	23,32072234	23,14293906	23,25209657	24,69365157	24,64157596	24,70567035	0,001285544
ADAM10	24,24887264	24,54527701	24,6719565	25,98578757	26,02068532	25,77766066	0,024828045
MTCH2	25,84809298	25,64226482	25,53418579	27,02538224	27,36669707	26,92546932	0,010610048
ARF1;ARF3	25,17945812	24,65053291	25,2492706	26,48597324	26,48651038	26,37421355	0,013180716
TAMM41	25,34523034	23,34921859	24,65605514	25,48683257	26,20635204	25,92456354	0,035972439
COG7	25,381295	25,18457453	25,35043315	26,86171452	26,68805818	26,632147	0,001524978
RAB11B;RAB11A	23,40262593	23,37729527	23,51038655	24,66811933	25,42997902	24,44846621	0,011546131
THEM6	26,89804518	25,61214611	25,54518862	27,44150189	27,4239826	27,44063096	0,033652924
RNF123	NA	NA	NA	22,31307345	22,06193938	22,1388055	0,005476931
STAT1	26,28790609	25,94911194	25,91779745	27,44237229	27,34908357	27,57996211	0,007610809
MT-ATP8	24,76283781	24,40360137	24,34353708	25,70245046	26,08529285	25,93613738	0,002140357
HSD17B12	27,85204053	27,38747111	27,7997738	28,7093499	29,60284425	28,93612614	0,007216199
RANBP6	NA	22,42141974	NA	23,39073786	23,79143875	23,42123994	0,015952693
DNAAF5	23,92886098	23,57045333	23,74057134	25,14802343	25,2127846	25,05250105	0,004554412
RPTOR	24,69083095	24,91141101	24,88338946	25,99660227	26,3579843	26,30340619	0,010450864
RAB22A	NA	NA	NA	23,07237994	22,94858183	23,05854143	0,002520668
CUL4B	NA	NA	NA	22,71584221	22,56523227	22,64934916	0,018071901
FUNDC2	21,26985035	NA	NA	22,43659566	22,41361657	22,97573534	0,014951723
EMC2	24,74658034	24,8624478	24,91852553	26,13322203	26,26801264	26,26968987	0,015821752
GNB1	24,28933168	24,51382348	23,34854339	25,3146853	25,49237522	25,47540467	0,010952083
BAG2	NA	NA	21,73036565	23,37901552	22,83535885	22,84682175	0,014994316
NDUFC2	24,53498721	24,85709334	24,87286272	26,65662802	26,4239826	25,30155843	0,027616238
TMEM33	24,88822932	24,80764343	25,33302838	26,15238218	26,50292683	26,48331528	0,002008383
GCDH	24,66302338	24,81567802	24,57675143	25,88550889	26,29084374	25,98378881	0,006672978
RAC1;RAC3	24,21955792	24,14234705	24,33796918	25,58296474	25,51580954	25,70242404	0,030488169
ELMO2	28,14345686	28,28034098	28,13828993	29,58478985	29,49321929	29,5650906	0,001691478
PANK4	23,09971315	23,1305184	22,95659736	24,42059763	24,48049834	24,35944288	0,00454604
ACTB;ACTG1	30,63875512	30,63961782	30,87554848	31,92351551	32,17352194	32,10842737	0,001375644
EIF2AK3	NA	NA	NA	22,21859753	22,8464392	22,54222139	0,046629198
WNK1	21,65796386	NA	22,97706396	23,21557921	23,49497079	23,39623684	0,026667557
NOMO1	NA	NA	NA	23,31506551	23,06340496	23,07043218	0,004383602
DCAKD	24,39126247	24,25695498	24,25306379	25,57045333	25,86284977	25,48588113	0,007039273
VDAC2	26,93044102	26,48758406	27,1270146	27,9699389	28,58373236	27,99614968	0,004383602
FHOD1	25,59129337	25,84038148	25,9276409	27,12030576	27,09968907	27,10888844	0,006038569
OSBPL8	24,99602034	25,19861739	24,70128742	26,28728965	26,2761308	26,28651433	0,006058234
MTDH	26,24056281	26,23469174	26,1614064	27,60703169	27,42686399	27,54951349	0,001030974
ACAD9	24,7194189	24,58938004	24,70956682	25,72538644	26,35361651	25,87907109	0,038037952
NFXL1	26,31195171	26,36659703	26,1477906	27,65601421	27,51487703	27,55800771	0,001825212
STK25	NA	22,84441001	23,28728965	23,56092519	23,64460446	24,35655782	0,048572741
C3orf58	24,6549633	24,80356003	24,56645221	25,94806489	26,00579568	25,97064115	0,011832855
CLEC14A	26,15410268	26,10860932	26,13684377	27,40584236	27,35447431	27,52857823	0,011891317
NDUFA11	22,89659553	22,36236231	23,45199082	24,10693348	24,2898945	24,18237859	0,014854056
NOS3	26,11424101	26,02572017	26,32333629	27,38212001	27,44986765	27,48998928	0,006488801
CTPS1	26,08285916	25,84969238	26,20888387	27,19037013	27,57419795	27,225454	0,003407435
CNTNAP3;CNTNAP3B	24,12376273	23,70229192	23,75979393	25,16061807	25,11310848	25,14763535	0,003209812
PARL	NA	NA	NA	22,66116484	23,1730732	23,10932694	0,010881236
TIMM44	25,40590726	25,66294191	25,75026577	26,91809328	27,22811775	26,48793667	0,003534119
NF1	22,53328885	22,50110827	22,52382227	24,57398134	23,24176325	23,5406143	0,039744669
LRRC41	NA	NA	NA	22,99337932	22,86819709	22,47778395	0,011822399
SFXN1	27,98321256	27,53504656	28,09380882	28,93999719	29,68970849	28,72660167	0,009814723
RNF213	27,92552592	27,98554874	27,95360341	29,16662543	29,16079597	29,26760643	0,022097707
SLC25A13	27,61673784	27,64044553	27,88069491	28,69985216	29,18718732	28,96694504	0,00863886
PI4KA	25,69654629	25,57476097	25,61113312	26,70081136	27,02125738	26,84876161	0,003160893
ATP5O	26,68992505	26,63505692	26,55398651	27,64547055	28,05693038	27,82165041	0,010414429
ARL8A;ARL8B	NA	22,03429388	22,14886134	22,58927716	23,09740013	22,75344202	0,034959986
VEPH1	NA	NA	NA	22,2776461	21,99458823	22,29686917	0,00821971
ATF6	NA	NA	NA	22,78676098	22,17289014	22,43451014	0,035934548
DHRS1	23,72961908	23,83913227	23,63843061	24,30716411	25,60221066	24,91515507	0,017342931
NFIX	NA	NA	NA	22,69981642	22,60584842	21,98919213	0,030673937
ARMCX3	24,36979487	24,57871036	24,46138952	25,66370207	25,62301898	25,71313811	0,015740186
ARF5	24,67093065	24,4019102	24,83050244	25,85031257	25,90398552	25,73130349	0,020922351
PDS5A	25,35940936	25,3086576	25,25778231	26,38332368	26,59149313	26,5145761	0,001991154
ACSL4	23,85443242	24,00958037	24,13766474	25,11016371	24,40399135	25,03992575	0,004748446
MMRN2	26,89087506	27,08648792	26,44837169	27,57217504	28,07065941	28,31630916	0,020658564
COX6C	24,4732073	24,83113093	24,95668598	25,65181967	26,54443707	25,59815475	0,044595692
FMNL3	27,51435035	27,77479872	27,5744867	28,74970333	28,82089	28,79417493	0,004166123
PNPLA6	25,17020259	25,07993329	24,91720561	26,36043119	26,18850373	26,11459846	0,047090649
PEX1	24,19475325	24,09345625	24,22110797	25,30924763	25,3232332	25,36205457	0,010914623
EHD4	29,75015075	29,85217451	29,69365157	30,86016097	31,03400362	30,88561944	0,00231509
RAB8A	23,76941092	23,73820196	24,28256077	25,16652966	24,96146312	25,14074897	0,00460468
XPOT	23,6027487	23,54002301	24,18820186	24,67432936	25,09852498	25,01427116	0,018218662
KIAA0355	25,02369142	25,01013571	24,89161685	26,11024338	26,14367094	26,12336807	0,008435773
MAGED1	25,102415	25,11921756	25,44135941	26,29904448	26,47804636	26,32808773	0,041395769
DNAJB6	22,34196395	22,11762535	22,56404619	23,32882391	23,71931445	23,39060667	0,007216199
STAB1	24,3778248	24,68741755	24,92016237	25,76554652	25,83968493	25,78616272	0,007743766
DDOST	24,26406169	25,36806359	24,51707198	25,42755147	25,8791646	26,23680954	0,037451441
MTG2	NA	NA	NA	21,71452224	21,81750033	21,74377925	0,006963342
TRIM4	25,15853943	25,33715256	25,19381379	26,34168915	26,35156244	26,3824169	0,009178643
SLC25A29	24,15730622	24,15915563	23,98979847	25,1562263	25,26237791	25,25425388	0,004877392

ELMO1	28,23196689	28,30708592	27,92682694	29,27659674	29,26228381	29,28786647	0,038459149
COG8	23,77776098	23,5843992	23,24190869	24,18108976	24,90554713	24,87591167	0,049045448
SFXN2	24,09192409	24,34840831	24,21044543	25,12206491	25,67656382	25,1669127	0,032313466
CTNNA1	25,35039942	25,32433247	25,91179956	26,91239362	26,0535993	26,91182242	0,021385268
HM13	NA	NA	NA	22,70186906	22,72014988	22,51542458	0,041040287
HYOU1	22,96171039	22,40914229	22,58836237	23,31824158	23,97971755	23,92858994	0,016791221
SLC25A12	27,04666425	26,97585339	26,83134842	27,68992505	28,39737982	28,02226324	0,036946623
WDR61	24,33449535	24,17584677	24,29691117	25,47342409	25,44774134	25,14156772	0,003649987
GALK1	24,80459427	24,70197479	24,46369848	25,54474658	25,95881111	25,6748681	0,029597961
SH3BP4	26,11812855	26,00945243	26,1176729	27,18196174	27,17111937	27,07856993	0,005254074
OXA1L	24,8146517	25,60902043	25,37931305	26,28211886	26,46163931	26,23128945	0,028960271
GEMIN5	25,56104177	25,70888307	25,79116547	26,88180367	26,62016858	26,71764212	0,014994316
TIMM50	26,64718743	26,35368381	26,62044828	27,26865521	27,8754899	27,62373071	0,022436251
NDUFAF4	25,98561388	24,91756985	25,20172371	26,24758756	26,70147251	26,27478094	0,033062078
EIF4A1	28,7362159	28,782318	29,0589697	29,9433549	29,86973672	29,83018507	0,026806268
THBS1	30,89489819	30,85630686	30,62400972	31,7779992	31,82937622	31,81989325	0,00469906
ACBD5	NA	NA	NA	22,35987179	22,56818159	22,32077742	0,010883419
UNC45A	29,19387487	29,2420223	29,47875231	30,51163866	30,35877664	30,04557113	0,040459904

Table S4. GO term enrichment analysis of SEC22B interactome hits.

#term ID	ONTOLOGY	Description	Gene Ratio	Background Ratio	FDR	matching proteins in your network (gene ID)	Count
GO:0034220	BP	ion transmembrane transport	119/765	182/2446	1,13513E-06	ATP11C/MAGT1/VDAC2/SFXN3/PEX1/TAP1/PARL/SLC33A1/TMEM120B/PEX5/ATP2C1/SLC30A6/ACSL1/WNK1/PHB2/SLC3A2/TRAM	119
GO:0055085	BP	transmembrane transport	129/765	210/2446	4,90579E-05	ATP11C/MAGT1/VDAC2/SFXN3/PEX1/TAP1/PARL/SLC33A1/TMEM120B/PEX5/ATP2C1/SLC30A6/ERLIN2/ACSL1/WNK1/PHB2/	129
GO:0098656	BP	anion transmembrane transport	66/765	92/2446	5,885342028	VDAC2/SFXN3/PEX1/TAP1/PEX5/ACSL1/SLC3A2/TRAM1/CLCN7/SLC25A11/SLC16A3/ABCC4/TIMM44/PRAF2/SLC25A12/TOMM40/S	66
GO:0010257	BP	NADH dehydrogenase complex assembly	33/765	35/2446	43,12245308	NDUFB6/NDUFA6/NDUFV2/NDUFB5/TMEM126B/NDUFB8/NDUFV1/NDUFB10/OXA1L/NDUFS8/NDUFS4/NDUFA2/NDUFS5/NDUFS2	33
GO:0032981	BP	mitochondrial respiratory chain complex I assembly	33/765	35/2446	43,12245308	NDUFB6/NDUFA6/NDUFV2/NDUFB5/TMEM126B/NDUFB8/NDUFV1/NDUFB10/OXA1L/NDUFS8/NDUFS4/NDUFA2/NDUFS5/NDUFS2	33
GO:0033108	BP	mitochondrial respiratory chain complex assembly	36/765	40/2446	88,86767114	NDUFB6/NDUFA6/NDUFV2/NDUFB5/TMEM126B/NDUFB8/NDUFV1/NDUFB10/OXA1L/SCO1/NDUFS8/NDUFS4/NDUFA2/NDUFS5/N	36
GO:0061024	BP	membrane organization	121/765	224/2446	923,4742391	ATP11C/APOOL/DOCK1/VDAC2/STX3/TAP1/GOSR2/STX12/VPS8/CHCHD3/STX18/REEP4/TMCC1/RFTN1/TRAM1/ABCA3/RH	121
GO:0006812	BP	cation transport	75/765	122/2446	14562,96722	MAGT1/SFXN3/PARL/CTNNB1/SLC33A1/ATP2C1/SLC30A6/WNK1/PHB2/SLC3A2/TMEM63B/COX4I1/NSF/SLC39A11/TMCO1/SNAP2	75
GO:0007005	BP	mitochondrion organization	87/765	150/2446	21518,86147	APOOL/NDUFB6/VDAC2/NDUFA6/PARL/TSC2/CHCHD3/NDUFV2/NDUFB5/TMEM126B/NDUFB8/PHB2/FAM162A/NDUFV1/NDUFB1	87
GO:0009101	BP	glycoprotein biosynthetic process	44/765	59/2446	40703,22827	MAGT1/ST6GALNAC3/DDOST/DPY19L1/CTNNB1/ST6GALNAC4/SOAT1/GALNT7/GLCE/MAN1A2/FAM20B/B3GAT3/RPN1/RPN2/ST6	44
GO:1901137	BP	carbohydrate derivative biosynthetic process	72/765	118/2446	57656,63192	MAGT1/ST6GALNAC3/DDOST/DPY19L1/PIGN/CTNNB1/CTPS1/ST6GALNAC4/SOAT1/PIGQ/ACSL1/PIGG/GALNT7/GLCE/DCAKD/MAN	72
GO:0015849	BP	organic acid transport	36/765	45/2446	99373,31572	SFXN3/ACSL1/SLC3A2/SLC25A11/SLC16A3/ACSL4/PRAF2/SLC25A12/GLS/ACSL3/ITGB1/THBS1/SLC2A1/GJA1/ABCD3/ABCC1/ABCD1/	36
GO:0009100	BP	glycoprotein metabolic process	49/765	70/2446	10718,45284	MAGT1/ST6GALNAC3/NGLY1/DDOST/RNF5/DPY19L1/CTNNB1/ST6GALNAC4/SOAT1/GALNT7/GLCE/MAN1A2/FAM20B/B3GAT3/RPN	49
GO:1903825	BP	organic acid transmembrane transport	29/765	34/2446	478420,8706	SFXN3/ACSL1/SLC3A2/SLC25A11/SLC16A3/PRAF2/SLC25A12/ITGB1/THBS1/SLC2A1/ABCD3/ABCC1/ABCD1/SLC1A1/CPT1A/SLC25A1	29
GO:1905039	BP	carboxylic acid transmembrane transport	29/765	34/2446	478420,8706	SFXN3/ACSL1/SLC3A2/SLC25A11/SLC16A3/PRAF2/SLC25A12/ITGB1/THBS1/SLC2A1/ABCD3/ABCC1/ABCD1/SLC1A1/CPT1A/SLC25A1	29
GO:0070085	BP	glycosylation	36/765	47/2446	749043,498	MAGT1/ST6GALNAC3/DDOST/DPY19L1/ST6GALNAC4/GALNT7/MAN1A2/B3GAT3/RPN1/RPN2/ST6GAL1/MGAT1/STT3A/COG7/MGA	36
GO:0045333	BP	cellular respiration	39/765	53/2446	957518,8435	NDUFB6/NDUFA6/SUCLA2/NDUFV2/NDUFB5/NDUFB8/NDUFV1/COX4I1/NDUFB10/OXA1L/NDUFS8/UQCRQ/NDUFS4/NDUFA2/NDU	39
GO:0140352	BP	export from cell	119/765	239/2446	1185118,291	SCAMP1/MAGT1/APOOL/RAB18/STX3/DDOST/EXOC6B/JAGN1/WLS/BRI3/SPARC/MGST1/PTPRB/MIA2/RIC1/METTL7A/RAB27A/RH	119
GO:0006486	BP	protein glycosylation	35/765	46/2446	1650621,963	MAGT1/ST6GALNAC3/DDOST/DPY19L1/ST6GALNAC4/GALNT7/MAN1A2/B3GAT3/RPN1/RPN2/ST6GAL1/MGAT1/STT3A/COG7/MGA	35
GO:0043413	BP	macromolecule glycosylation	35/765	46/2446	1650621,963	MAGT1/ST6GALNAC3/DDOST/DPY19L1/ST6GALNAC4/GALNT7/MAN1A2/B3GAT3/RPN1/RPN2/ST6GAL1/MGAT1/STT3A/COG7/MGA	35
GO:0098655	BP	cation transmembrane transport	60/765	98/2446	1942333,786	MAGT1/SFXN3/PARL/SLC33A1/ATP2C1/SLC30A6/WNK1/PHB2/SLC3A2/TMEM63B/COX4I1/NSF/SLC39A11/TMCO1/LETM1/ATP1A1/APP/	60
GO:0010876	BP	lipid localization	45/765	66/2446	2065016,411	ATP11C/STX12/SOAT1/ACSL1/ABCA3/APOL2/ABCC4/ACSL4/PRAF2/ATP9A/SLC25A12/GLS/ACSL3/CDS2/ITGB1/THBS1/CLU/SLC2A1/	45
GO:0006119	BP	oxidative phosphorylation	31/765	39/2446	2450621,208	NDUFB6/NDUFA6/NDUFV2/NDUFB5/NDUFB8/NDUFV1/COX4I1/NDUFB10/NDUFS8/UQCRQ/NDUFS4/NDUFA2/NDUFS5/NDUFS2/NI	31
GO:0046903	BP	secretion	120/765	244/2446	2459470,665	SCAMP1/MAGT1/APOOL/RAB18/STX3/DDOST/EXOC6B/JAGN1/WLS/BRI3/SPARC/MGST1/PTPRB/MIA2/RIC1/METTL7A/RAB27A/RHO	120
GO:0006120	BP	mitochondrial electron transport, NADH to ubiquinone	24/765	27/2446	2575744,266	NDUFB6/NDUFA6/NDUFV2/NDUFB5/NDUFB8/NDUFV1/NDUFB10/NDUFS8/NDUFS4/NDUFA2/NDUFS5/NDUFS2/NDUFS3/N	24
GO:0022904	BP	respiratory electron transport chain	32/765	41/2446	2799766,579	NDUFB6/NDUFA6/NDUFV2/NDUFB5/NDUFB8/NDUFV1/COX4I1/NDUFB10/NDUFS8/UQCRQ/NDUFS4/NDUFA2/NDUFS5/NDUFS2/NI	32
GO:0042773	BP	ATP synthesis coupled electron transport	28/765	34/2446	3440295,491	NDUFB6/NDUFA6/NDUFV2/NDUFB5/NDUFB8/NDUFV1/COX4I1/NDUFB10/NDUFS8/UQCRQ/NDUFS4/NDUFA2/NDUFS5/NDUFS2/NI	28
GO:0042775	BP	mitochondrial ATP synthesis coupled electron transport	28/765	34/2446	3440295,491	NDUFB6/NDUFA6/NDUFV2/NDUFB5/NDUFB8/NDUFV1/COX4I1/NDUFB10/NDUFS8/UQCRQ/NDUFS4/NDUFA2/NDUFS5/NDUFS2/NI	28
GO:0044255	BP	cellular lipid metabolic process	90/765	170/2446	3780209,776	ST6GALNAC3/NCEH1/CEPT1/LPCAT4/ABHD16A/PON2/CLN6/PIGN/PNPLA6/ILVBL/ST6GALNAC4/SOAT1/ACBD5/ACADM/PIGQ/ERLIN	90
GO:0022900	BP	electron transport chain	35/765	47/2446	3846724,863	NDUFB6/NDUFA6/NDUFV2/NDUFB5/NDUFB8/NDUFV1/COX4I1/NDUFB10/NDUFS8/UQCRQ/NDUFS4/NDUFA2/NDUFS5/NDUFS2/NI	35
GO:0036503	BP	ERAD pathway	27/765	33/2446	8859069,762	HM13/RNF5/ERLIN2/STUB1/ERLIN1/WFS1/DNAJB2/BCAP31/SEC61B/UBE2G2/CAV1/UBE4A/SYVN1/UBAC2/DNAJB14/STT3B/UBXN	27
GO:0032940	BP	secretion by cell	114/765	233/2446	9158850,054	SCAMP1/MAGT1/APOOL/RAB18/STX3/DDOST/EXOC6B/JAGN1/WLS/BRI3/SPARC/MGST1/PTPRB/MIA2/RIC1/METTL7A/RAB27A/RH	114
GO:0034976	BP	response to endoplasmic reticulum stress	54/765	88/2446	10933645,31	HM13/HYOU1/DDRGK1/RNF5/GOSR2/TPP1/SSR1/EIF2B5/ERLIN2/ERMP1/TBL2/STUB1/TMCO1/ERLIN1/WFS1/UFL1/VAPB/THBS1/C	54
GO:0006629	BP	lipid metabolic process	109/765	221/2446	1174956,819	ST6GALNAC3/DHCR24/NCEH1/CEPT1/LPCAT4/ABHD16A/PON2/CLN6/PIGN/TPP1/PNPLA6/ILVBL/ST6GALNAC4/SOAT1/ACBD5/ACAL	109
GO:0098660	BP	inorganic ion transmembrane transport	53/765	86/2446	1212055,17	MAGT1/PARL/SLC33A1/ATP2C1/SLC30A6/WNK1/PHB2/SLC3A2/CLCN7/COX4I1/SLC39A11/TMCO1/LETM1/ATP1A1/ITGB1	53
GO:0015711	BP	organic anion transport	32/765	43/2446	19196799,68	SFXN3/SLC33A1/SLC3A2/SLC25A11/SLC16A3/ABCC4/PRAF2/SLC25A12/GLS/SLC4A2/ITGB1/SLC2A1/GJA1/ABCC1/SLC1A1/SLC25A1/S	32
GO:0048284	BP	organelle fusion	36/765	51/2446	21814290,56	STX3/TAP1/GOSR2/STX12/VPS8/CHCHD3/STX10/SNAP23/STX7/STX6/USO1/VAMP4/SEC22B/MFN2/SNAP29/TFRC/RAB13/STX17/RA	36
GO:0006869	BP	lipid transport	40/765	60/2446	39796789,44	ATP11C/STX12/SOAT1/ACSL1/ABCA3/APOL2/ABCC4/ACSL4/PRAF2/ATP9A/SLC25A12/GLS/ACSL3/ITGB1/THBS1/CLU/SLC2A1/GJA1/	40
GO:0030433	BP	ubiquitin-dependent ERAD pathway	24/765	29/2446	39806217,91	RNF5/ERLIN2/STUB1/ERLIN1/WFS1/DNAJB2/BCAP31/SEC61B/UBE2G2/CAV1/UBE4A/SYVN1/DNAJB14/STT3B/UBXN4/CCDC47/FAF2	24
GO:1901135	BP	carbohydrate derivative metabolic process	96/765	193/2446	59986032,61	MAGT1/ST6GALNAC3/NGLY1/DDOST/CLN6/RNF5/DPY19L1/PIGN/CTNNB1/SUCLA2/CTPS1/ST6GALNAC4/SOAT1/PIGQ/ACSL1/PIGG/	96
GO:0046942	BP	carboxylic acid transport	26/765	33/2446	64685366,8	SFXN3/SLC3A2/SLC25A11/SLC16A3/ABCC4/PRAF2/SLC25A12/GLS/ITGB1/GJA1/ABCC1/SLC1A1/SLC25A1/SLC16A1/SLC1A5/SLC25A2/S	26
GO:0010256	BP	endomembrane system organization	74/765	139/2446	7852177,251	RAB18/COG4/JAGN1/ARL1/COG2/STX18/REEP4/TMCC1/TRAM1/RAB27A/NUP93/SMPD4/CTDNEP1/EMC10/STX25/RAB29/ZW10/E	74
GO:0061025	BP	membrane fusion	36/765	53/2446	9768050,573	STX3/TAP1/GOSR2/STX12/VPS8/STX18/NSF/STX10/SNAP23/STX7/STX6/USO1/VAMP4/SEC22B/SNAP29/TIE1/RAB13/NAPA/STX17/R	36
GO:0007029	BP	endoplasmic reticulum organization	24/765	30/2446	129158410,9	RAB18/JAGN1/STX18/REEP4/TMCC1/TRAM1/SMPD4/EMC10/EMC8/VAPB/TMEM33/RAB10/LMAN2/RNF5/EMC2/TMEM2/TMM2/	24
GO:0006839	BP	mitochondrial transport	46/765	75/2446	141769652,2	VDAC2/SFXN3/PARL/RHOT1/OXA1L/HAX1/TIMM44/HIP1R/MTX2/SLC25A12/MFN2/LETM1/TOMM40/CNP/SLC9A1/YWHAQ/CPT1A	46
GO:0098662	BP	inorganic cation transmembrane transport	47/765	79/2446	3727776261,1	MAGT1/PARL/SLC33A1/ATP2C1/SLC30A6/WNK1/PHB2/SLC3A2/COX4I1/SLC39A11/TMCO1/LETM1/ATP1A1/ITGB1/COX6C/ATP2A2/	47
GO:0048278	BP	vesicle docking	24/765	31/2446	383411050,5	STX3/EXOC6B/STX12/NSF/STX10/STX7/STX6/USO1/RAB3D/RALB/RAB13/STX17/RAB8A/RAB10/STX4/STX5/VAMP3/EXOC6/SCFD2/S	24
GO:0006865	BP	amino acid transport	20/765	24/2446	4958157538,8	SFXN3/SLC3A2/PRAF2/SLC25A12/GLS/ITGB1/GJA1/SLC1A1/SLC1A5/SFXN4/LRRC8D/LRRC8A/SLC25A29/LRRC8C/SFXN2/SLC25A22/S	20
GO:0003333	BP	amino acid transmembrane transport	17/765	19/2446	5400217491,5	SFXN3/SLC3A2/PRAF2/SLC25A12/ITGB1/SLC1A1/SLC1A5/SFXN4/LRRC8D/LRRC8A/SLC25A29/LRRC8C/SFXN2/SLC25A22/SFXN1/SLC38A10/S	17
GO:1902600	BP	proton transmembrane transport	18/765	21/2446	90771713,13	SLC33A1/ATP2C1/PHB2/COX4I1/ATP1A1/COX6C/ATP2A2/SLC9A1/ATP6V1A/CLCN3/SLC25A3/NNT/TCIRG1/TMCO3/SLC30A5/DNAJC	18
GO:0006887	BP	exocytosis	88/765	182/2446	1120379074	SCAMP1/MAGT1/APOOL/RAB18/STX3/DDOST/EXOC6B/JAGN1/BRI3/SPARC/MGST1/PTPRB/METTL7A/RAB27A/NSF/SNAP23/QSOX1	88
GO:0015980	BP	energy derivation by oxidation of organic compounds	41/765	68/2446	1347773247	NDUFB6/NDUFA6/SUCLA2/PHKA1/NDUFV2/NDUFB5/NDUFB8/NDUFV1/COX4I1/NDUFB10/OXA1L/NDUFS8/UQCRQ/NDUFS4/NDUF	41
GO:0048193	BP	Golgi vesicle transport	74/765	147/2446	1347773247	SCAMP1/HYOU1/COG4/EXOC6B/GOSR2/MON2/NBAS/COG8/COG2/SEC22B/STX18/MIA2/NSF/SNAP23/SCAMP3/ZW10/STX6/USO1	74
GO:0010232	BP	vascular transport	12/765	12/2446	204640061	ABCC4/TFRC/SLC2A1/GJA1/ATP2B4/ABCC1/SLC1A1/SLC16A1/SLC1A5/SLC27A4/SLC27A1/SLC29A1	12
GO:0007006	BP	mitochondrial membrane organization	28/765	41/2446	242173023,3	APOOL/VDAC2/CHCHD3/RHOT1/OXA1L/CHCHD6/HIP1R/MTX2/MFN2/LETM1/CNP/TMEM11/SLC9A1/YWHAQ/ROMO1/TIMM10/BA	28
GO:0090174	BP	organelle membrane fusion	28/765	41/2446	242173023,3	STX3/TAP1/GOSR2/STX12/VPS8/STX10/SNAP23/STX7/STX6/USO1/VAMP4/SEC22B/SNAP29/RAB13/STX17/RAB8A/STX4/BNIP1/STX5	28
GO:0006906	BP	vesicle fusion	27/765	39/2446	2463883124	STX3/TAP1/GOSR2/STX12/VPS8/STX10/SNAP23/STX7/STX6/USO1/VAMP4/SEC22B/SNAP29/RAB13/STX17/RAB8A/STX4/STX5/VAMI	27
GO:0050801	BP	ion homeostasis	52/765	95/2446	2686472038	TM9SF4/CLN6/ATP2C1/WNK1/SCO1/TMCO1/WFS1/GLS/LETM1/VAPB/TFRC/GNAI2/SLC4A2/ATP1A1/APP/HMOX1/ATP2A2/SLC	52
GO:0030001	BP	metal ion transport	38/765	64/2446	5509878870	MAGT1/PARL/CTNNB1/ATP2C1/SLC30A6/PHB2/SLC3A2/SLC39A11/TMCO1/ZMPSTE24/WFS1/LETM1/GNAI2/ATP1A1/ATP2A2/GJA1	38
GO:0046471	BP	phosphatidylglycerol metabolic process	13/765	14/2446	5785407424	LPCAT4/PHB2/ABCA3/HADHA/CDS2/HADHB/SLC27A1/LCLAT1/LPCAT1/TAMM41/DNAJC19/STOML2	13
GO:0150104	BP	transport across blood-brain barrier	11/765	11/2446	5966218253	ABCC4/TFRC/SLC2A1/ATP2B4/ABCC1/SLC1A1/SLC16A1/SLC1A5/SLC27A4/SLC27A1/SLC29A1	11
GO:0055065	BP	metal ion homeostasis	43/765	76/2446	6926524661	ATP2C1/SCO1/TMCO1/WFS1/LETM1/VAPB/TFRC/GNAI2/ATP1A1/APP/HMOX1/ATP2A2/GJA1/SLC9A1/ATP2B1/ATP2B4/F2R/HMOX	43
GO:0055080	BP	cation homeostasis	48/765	89/2446	1,10344E+14	TM9SF4/CLN6/ATP2C1/SCO1/TMCO1/WFS1/LETM1/VAPB/TFRC/GNAI2/SLC4A2/ATP1A1/APP/HMOX1/ATP2A2/GJA1/SLC9A1/ATP2	48
GO:0098771	BP	inorganic ion homeostasis	48/765	89/2446	1,10344E+14	TM9SF4/CLN6/ATP2C1/SCO1/TMCO1/WFS1/LETM1/VAPB/TFRC/GNAI2/SLC4A2/ATP1A1/APP/HMOX1/ATP2A2/GJA1/SLC9A1/ATP2	48
GO:1990542	BP	mitochondrial transmembrane transport	23/765	33/2446	1,17913E+13	SFXN3/TIMM44/SLC25A12/LETM1/TOMM40/CPT1A/SLC25A1/ROMO1/TIMM50/SFXN4/SLC25A29/MCU/DNAJC19/DNAJC30/SFXN2	23
GO:0016192	BP	vesicle-mediated transport	186/765	466/2446	1,40855E+14	SCAMP1/MAGT1/APOOL/HYOU1/RAB18/DOCK1/SCARF2/COG4/JAGN1/EXOC6B/TAP1/STX3/GOSR2/MON2/TSC2/JA	186
GO:0035966	BP	response to topologically incorrect protein	41/765	73/2446	1,40855E+14	HYOU1/DDRGK1/RNF5/GOSR2/TPP1/SSR1/ERMP1/TBL2/STUB1/RNF126/WFS1/UFL1/MFN2/VAPB/HSPB1/THBS1/HSP90AB1/CLU/P	41
GO:0072348	BP	sulfur compound transport	12/765	13/2446	1,5638E+14	SLC33A1/SLC25A11/GJA1/ABCC1/ABCD1/SLC1A1/SLC27A1/LRRC8D/LRRC8A/SLC35B2/LRRC8C/SLC25A19	12
GO:0046034	BP	ATP metabolic process	45/765	83/2446	1,73602E+14	NDUFB6/NDUFA6/NDUFV2/NDUFB5/NDUFB8/AAAS/NDUFV1/COX4I1/NDUFB10/NDUFS8/UQCRQ/NDUFS4/NDUFA2/NDUF5	45
GO:1901698	BP	response to nitrogen compound	89/765	196/2446	2,08517E+14	HM13/BSG/RNF5/CTNNB1/TSC2/EIF2B5/ERLIN2/VKORC1/SPARC/SLC3A2/MGST1/RFTN1/SOS1/STUB1/ABCC4/NDUFS4/USO1/ERLIN	89
GO:0006487	BP	protein N-linked glycosylation	17/765	22/2446	2,17293E+13	MAGT1/DDOST/RPN1/RPN2/ST6GAL1/MGAT1/STT3A/MGAT2/STT3B/EXT2/ALG1/FUT8/ALG2/TMEM165/B4GALT7/UBE2J1/ALG5	17
GO:0006875	BP	cellular metal ion homeostasis	40/765	72/2446	2,464688E+14	ATP2C1/TMCO1/WFS1/LETM1/VAPB/TFRC/ATP1A1/APP/HMOX1/ATP2A2/GJA1/SLC9A1/ATP2B1/ATP2B4/F2R/HMOX2/CDH5	40
GO:0015908	BP	fatty acid transport	19/765	26/2446	2,48624E+14	ACSL1/ACSL4/PRAF2/SLC25A12/GLS/ACSL3/ITGB1/THBS1/SLC2A1/GJA1/ABCD3/ABCD1/SLC1A1/CPT1A/SLC27A3/SLC27A4/SLC27A1/	19
GO:0007007	BP	inner mitochondrial membrane organization	13/765	15/2446	2,557E+13	APOOL/CHCHD3/CHCHD6/MTX2/LETM1/TMEM11/ROMO1/TIMM10/MTX1/IMMT/DNAJC11/NDUFA13/AFG3L2	13
GO:0008610	BP	lipid biosynthetic process	65/765	134/2446	2,557E+13	ST6GALNAC3/DHCR24/CEPT1/LPCAT4/PIGN/ST6GALNAC4/PIGQ/ERLIN2/ACSL1/PIGG/PTDSS2/FADS3/ABCA3/SMPD4/CTDNEP1/ALD	65
GO:0006873	BP	cellular ion homeostasis	45/765	85/2446	3,65834E+14	TM9SF4/CLN6/ATP2C1/SCO1/TMCO1/WFS1/LETM1/VAPB/TFRC/SLC4A2/ATP1A1/APP/HMOX1/ATP2A2/GJA1/SLC9A1/ATP2B1/ATP	45
GO:0030003	BP	cellular cation homeostasis	45/765	85/2446	3,65834E+14	TM9SF4/CLN6/ATP2C1/SCO1/TMCO1/WFS1/LETM1/VAPB/TFRC/SLC4A2/ATP1A1/APP/HMOX1/ATP2A2/GJA1/SLC9A1/ATP2B1/ATP	45
GO:0003013	BP	circulatory system process	39/765	71/2446	4,30453E+14	ECE1/ACVRL1/ABCC4/ZMPSTE24/CYB5R3/TFRC/GNAI2/ATP1A1/HMOX1/SLC2A1/JUP/ATP2A2/GJA1/SLC9A1/ATP2B1/FLNA/ATP2B4	39
GO:0048878	BP	chemical homeostasis	67/765	141/2446	4,32756E+14	TM9SF4/CLN6/JAGN1/SOAT1/ATP2C1/WNK1/ABCA3/SCO1/TMCO1/WFS1/GLS/LETM1/VAPB/TFRC/GNAI2/SLC4A2/ATP1A1/APP/H	67
GO:1905897	BP	regulation of response to endoplasmic reticulum stress	15/765	19/2446	4,379E+14	DDRGK1/WFS1/UFL1/CLU/PTPN/PTPN1/ATF6/BCAP31/TMEM33/CAV1/BAX/TMED2/DAB2IP/SYVN1/EIF2AK3	15
GO:0007030	BP	Golgi organization	29/765	48/2446	4,42112E+14	COG4/ARL1/COG2/STX18/STK25/RAB29/ZW10/STX6/USO1/VAMP4/MAP2K2/TMED10/STX17/RAB2A/COG7/LMAN2/STX5/TMED2/	29
GO:0015748	BP	organophosphate ester transport	16/765	21/2446	4,93448E+14	ATP11C/SLC33A1/ABCA3/ABCC4/ATP9A/GJA1/ABCC1/ABCD1/ANO6/SLC35B2/OSBPL8/OSBPL5/SLC25A5/SLC25A19/EPG5/TMEM3	16
GO:0042147	BP	retrograde transport, endosome to Golgi	21/765	31/2446	5,08691E+14	EVI5/GOSR2/ARL1/STX10/RNF126/RAB29/STX6/RAB6A/STX5/VAMP4/TBC1D10B/TMEM87A/GBF1/TBC1D5/VTI1A/TMEM87B/	21
GO:0051205	BP	protein insertion into membrane	17/765	23/2446	5,21519E+14	TRAM1/OXA1L/EMC10/EMC8/WHAQ/ROMO1/TIMM10/BAX/EMC2/TRAM2/EMC1/BAD/EMC7/TOMM22/EMC3/NDUFA13/BCS1L	17
GO:0016485	BP	protein processing	18/765	25/2446	5,32068E+14	HM13/SPCS2/ECE1/SEC11A/ADAM10/ZMPSTE24/BAG2/THBS1/MMP14/SPCS3/ASPH/BAD/YME1L1/TBC1D10A/CTSZ/STOML2/AFG3	18
GO:1903522	BP	regulation of blood circulation	18/765	25/2446	5,32068E+14	ECE1/ZMPSTE24/ATP1A1/JUP/ATP2A2/GJA1/SLC9A1/ATP2B1/FLNA/ATP2B4/F2R/GJA5/SLC1A1/CAV1/ASPH/TIMM33/DOCK4/DOCK5	18
GO:0140029	BP	exocytic process	19/765	27/2446	5,32068E+14	STX3/EXOC6B/SNAP23/SNX4/RAB3D/SNAP29/RALB/RAB13/NAPA/RAB8A/RAB10/STX4/VAMP3/EXOC6/SCFD2/SCFD1/EXOC4/VPS45	19
GO:0018196	BP	peptidyl-asparagine modification	12/765	14/2446	6,50864E+14	MAGT1/DDOST/RPN1/RPN2/ST6GAL1/MGAT1/STT3A/MGAT2/STT3B/FUT8/UBE2J1/ALG5	12
GO:0018279	BP	protein N-linked glycosylation via asparagine	12/765	14/2446	6,50864E+14	MAGT1/DDOST/RPN1/RPN2/ST6GAL1/MGAT1/STT3A/MGAT2/STT3B/FUT8/UBE2J1/ALG5	12
GO:0072503	BP	cellular divalent inorganic cation homeostasis	33/765	58/2446	6,52692E+14	ATP2C1/TMCO1/WFS1/LETM1/VAPB/APP/ATP2A2/GJA1/ATP2B1/ATP2B4/F2R/CDH5/SLC1A1/BCAP31/CXCR4/GNB1/CAV1/BAX/TCI	33
GO:0072507	BP	divalent inorganic cation homeostasis	33/765	58/2446	6,52692E+14	ATP2C1/TMCO1/WFS1/LETM1/VAPB/APP/ATP2A2/GJA1/ATP2B1/ATP2B4/F2R/CDH5/SLC1A1/BCAP31/CXCR4/GNB1/CAV1/BAX/TCI	33
GO:0006091	BP	generation of precursor metabolites and energy	57/765	117/2446	6,77983E+13	NDUFB6/NDUFA6/SUCLA2/PHKA1/NDUFV2/NDUFB5/NDUFB8/PHB2/AAAS/NDUFV1/COX4I1/NDUFB10/NUP93/OXA1L/NDUFS8/UQ	57
GO:0006631	BP	fatty acid metabolic process	32/765	56/2446	7,54071E+14	PON2/ILVBL/ACBD5/ACADM/ERLIN2/ACSL1/FADS3/HADHA/ALDH3A2/FADS1/ACSL4/ERLIN1/SGPL1/ACSL3/FADS2/ABCD3/ABCD1/C	32
GO:0006643	BP	membrane lipid metabolic process	23/765	36/2446	8,25179E+14	ST6GALNAC3/CLN6/PIGN/ST6GALNAC4/PIGQ/PIGG/SMPD4/ALDH3A2/SPTLC1/VAPB/SGPL1/BAX/PDXDC1/HACD2/CERS6/SC	23
GO:0032527	BP	protein exit from endoplasmic reticulum	13/765	16/2446	8,41211E+14	HM13/TM9SF4/BCAP31/SEC61B/UBE2G2/SYVN1/UBAC2/FAF2/DERL2/PREB/TMEM30A/UBE2J1/AUP1	13
GO:0042157	BP	lipoprotein metabolic process	13/765	16/2446	8,41211E+14	PIGN/PIGQ/PIGG/ZDHHC3/APOL2/ATM/RABL3/ZDHHC24/ZDHHC13/ABHD12/PIGK/PIGS/ZDHHC5	13
GO:0010243	BP	response to organonitrogen compound	81/765	181/2446	8,42217E+14	HM13/BSG/RNF5/CTNNB1/TSC2/EIF2B5/ERLIN2/VKORC1/SPARC/MGST1/SOS1/STUB1/ABCC4/NDUFS4/USO1/ERLIN1/WFS1/UFL1/C	81
GO:0098742	BP	cell-cell adhesion via plasma-membrane adhesion molecules	15/765	20/2446	1,08865E+14	ROBO1/BSG/SCARF2/ATP2C1/ARVCF/PTPRM/WNK1/PTPRF/ITGB1/PECAM1/CDH5/ACVR1/PCDH1/ROBO4/ESAM	15
GO:0046467	BP	membrane lipid biosynthetic process	18/765	26/2446	1,12444E+14	ST6GALNAC3/PIGN/ST6GALNAC4/PIGQ/PIGG/SMPD4/ALDH3A2/SPTLC1/VAPB/SGPL1/HACD2/CERS6/SCCPDH/PIGK/CERS2/PIGS/EL	18
GO:0015718	BP	monocarboxylic acid transport	17/765	24/2446	1,13612E+14	SLC16A3/ABCC4/PRAF2/SLC25A12/GLS/ITGB1/GJA1/SLC1A1/SLC16A1/SLC1A5/SLC27A4/SLC27A1/LRRC8D/LRRC8C/SLC25A	17
GO:0071806	BP	protein transmembrane transport	17/765	24/2446	1,13612E+14	PEX1/PEX5/TRAM1/TIMM44/TOMM40/CLU/TMED10/SEC61G/SEC61B/ROMO1/PEX6/TRAM2/TIMM50/DNAJC19/TIMM21/TOMM2	17
GO:0046486	BP	glycerolipid metabolic process	46/765	91/2446	1,14542E+14	CEPT1/LPCAT4/ABHD16A/PIGN/PNPLA6/PIGQ/ACSL1/PIGG/PTDSS2/PHB2/ABCA3/HADHA/SMPD4/CTDNEP1/ACSL4/ACSL3/CDS2/R	46
GO:0006892	BP	post-Golgi vesicle-mediated transport	24/765	39/2446	1,27747E+14	SCAMP1/EXOC6B/GOSR2/MON2/SNAP23/SCAMP3/RAB10/RAB8A/STX3/VAMP3/EXOC8/EXOC6/SCFD1/GBF1/KLC4/VGF/VTI1A	24
GO:0055082	BP	cellular chemical homeostasis	51/765	104/2446	1,29324E+14	TM9SF4/CLN6/JAGN1/ATP2C1/SCO1/TMCO1/WFS1/LETM1/VAPB/TFRC/SLC4A2/ATP1A1/APP/HMOX1/ATP2A2/GJA1/HK1/SLC9A1/	51
GO:0016050	BP	vesicle organization	52/765	107/2446	1,46948E+14	STX3/TAP1/GOSR2/STX12/VPS8/TMCC1/RAB27A/NAPA/RAB29/STX7/STX6/USO1/VAMP4/SEC22B/VAPB/SNAP29/F2R	52
GO:0015807	BP	L-amino acid transport	11/765	13/2446	1,60756E+14	SLC3A2/PRAF2/SLC25A12/ITGB1/SLC1A1/SLC1A5/SLC25A29/SLC25A22/SFXN1/SLC25A15	11
GO:0006874	BP	cellular calcium ion homeostasis	29/765	51/2446	1,75044E+14	ATP2C1/TMCO1/WFS1/LETM1/VAPB/APP/ATP2A2/GJA1/ATP2B1/ATP2B4/F2R/CDH5/BCAP31/CXCR4/GNB1/CAV1/BAX/TCIRG1/PKI	29
GO:0055074	BP	calcium ion homeostasis	29/765	51/2446	1,75044E+14	ATP2C1/TMCO1/WFS1/LETM1/VAPB/APP/ATP2A2/GJA1/ATP2B1/ATP2B4/F2R/CDH5/BCAP31/CXCR4/GNB1/CAV1/BAX/TCIRG1/PKI	29
GO:0045055	BP	regulated exocytosis	66/765	145/2446	2,13423E+14	SCAMP1/MAGT1/APOOL/RAB18/STX3/DDOST/BRI3/SPARC/MGST1/PTPRB/METTL7A/RAB27A/SNAP23/QSOX1/ADAM10/ABCC4/SN	66
GO:0006835	BP	dicarboxylic acid transport	13/765	17/2446	2,26947E+14	SLC25A11/PRAF2/SLC25A12/GLS/ITGB1/GJA1/SLC1A1/SLC1A5/LRRC8D/LRRC8A/LRRC8C/SLC25A22/SLC25A13	13
GO:0006984	BP	ER-nucleus signaling pathway	13/765	17/2446	2,26947E+14	ERLIN2/TMCO1/ERLIN1/WFS1/ATP2A2/PTPN1/ATF6/TMEM33/TMED2/CCDC47/EIF2AK3/AMFR	13
GO:0098739	BP	import across plasma membrane	13/765	17/2446	2,26947E+14	ACSL1/WNK1/SLC3A2/ATP1A1/ITGB1/THBS1/SLC2A1/SLC9A1/ATP2B4/SLC1A1/SLC1A5/SLC27A1/SLC30A1	13
GO:1902001	BP	fatty acid transmembrane transport	13/765	17/2446	2,26947E+14	ACSL1/PRAF2/SLC25A12/ITGB1/THBS1/SLC2A1/ABCD3/ABCD1/SLC1A1/CPT1A/SLC27A1/SLC25A22/SLC25A13	13
GO:0006891	BP	intra-Golgi vesicle-mediated transport	17/765	25/2446	2,31311E+14	GOSR2/COG8/COG2/NSF/RAB6A/NAPA/CUX1/GOLGA5/COG1/VTI1A/COG3/NAPG/RAB33B/COPG2/VTI1B/COG5/COG6	17

GO ID		Description	Count	BgRatio	p-value	Genes	Count
GO:0003018	BP	vascular process in circulatory system	23/765	38/2446	2,38061E+14	ECE1/ABCC4/TFRC/SLC2A1/GJA1/ATP2B1/ATP2B4/F2R/NOS3/CDH5/ABCC1/GJA5/SLC1A1/SLC16A1/TEK/CAV1/SLC1A5/SLC27A4/SL	23
GO:0015698	BP	inorganic anion transport	14/765	19/2446	2,38061E+14	VDAC2/CLCN7/SLC25A11/SLC4A2/SLC1A1/CLCN3/SLC25A3/ANO6/LRRC8D/LRRC8A/LRRC8C/CLCC1/TTYH3/ANO10	14
GO:0035967	BP	cellular response to topologically incorrect protein	32/765	59/2446	2,49382E+14	HYOU1/DDRGK1/RNF5/GOSR2/TPP1/SSR1/ERMP1/TBL2/STUB1/RNF126/WFS1/UFL1/VAPB/PTPN2/PTPN1/ATF6/TMEM33/BAX/TM	32
GO:0051049	BP	regulation of transport	106/765	256/2446	2,64481E+13	TM9SF4/PARL/CTNNB1/TSC2/JAGN1/STX18/ACSL1/WLS/WNK1/PHB2/AAAS/ABCA3/RIC1/RAB27A/RHOT1/NSF/HAX1/RAB29/ACSL4	106
GO:0006986	BP	response to unfolded protein	34/765	64/2446	2,66663E+14	HYOU1/DDRGK1/GOSR2/TPP1/SSR1/ERMP1/TBL2/STUB1/WFS1/UFL1/MFN2/VAPB/HSPB1/THBS1/HSP90AB1/PTPN2/PTPN1/ATF6/	34
GO:1900101	BP	regulation of endoplasmic reticulum unfolded protein response	9/765	10/2446	2,74079E+14	DDRGK1/WFS1/UFL1/PTPN2/PTPN1/ATF6/TMEM33/BAX/DAB2IP	9
GO:0032879	BP	regulation of localization	173/765	451/2446	3,24883E+14	ROBO1/DOCK1/DDRGK1/TM9SF4/STX3/DNAJB6/PARL/CTNNB1/TSC2/JAGN1/FRMD5/STX18/ACSL1/PTPRM/RRAS2/WLS/WNK1/SPA	173
GO:0006816	BP	calcium ion transport	30/765	55/2446	3,35791E+14	PARL/CTNNB1/ATP2C1/PHB2/SLC3A2/TMCO1/ZMPSTE24/WFS1/LETM1/GNAI2/ATP2A2/GJA1/ATP2B1/ATP2B4/F2R/PHB/C	30
GO:0051046	BP	regulation of secretion	41/765	82/2446	3,35791E+14	JAGN1/WLS/RIC1/RAB27A/RHOT1/NSF/ACSL4/HIP1R/SNX4/ACSL3/RAB3D/GNAI2/HMOX1/SLC2A1/RALA/ATP2A2/GJA1/RAB5A/F2R	41
GO:0030166	BP	proteoglycan biosynthetic process	10/765	12/2446	3,85661E+14	CTNNB1/GLCE/FAM20B/B3GAT3/BGN/CHST14/CSGALNACT1/CANT1/EXT2/B4GALT7	10
GO:0030970	BP	retrograde protein transport, ER to cytosol	10/765	12/2446	3,85661E+14	HM13/BCAP31/SEC61B/UBE2G2/SYVN1/UBAC2/FAF2/DERL2/UBE2J1/AUP1	10
GO:1902475	BP	L-alpha-amino acid transmembrane transport	10/765	12/2446	3,85661E+14	SLC3A2/PRAF2/SLC25A12/ITGB1/SLC1A1/SLC1A5/SLC25A29/SLC25A22/SLC25A13/SLC25A15	10
GO:1903513	BP	endoplasmic reticulum to cytosol transport	10/765	12/2446	3,85661E+14	HM13/BCAP31/SEC61B/UBE2G2/SYVN1/UBAC2/FAF2/DERL2/UBE2J1/AUP1	10
GO:0032787	BP	monocarboxylic acid metabolic process	49/765	103/2446	3,91474E+12	BSG/PON2/ILVBL/ACBD5/ACADM/ERLIN2/ACSL1/FADS3/AAAS/HADHA/NUP93/ALDH3A2/SLC16A3/FADS1/ACSL4/ERLIN1/SLC25A12	49
GO:0030968	BP	endoplasmic reticulum unfolded protein response	26/765	46/2446	3,95227E+14	HYOU1/DDRGK1/GOSR2/TPP1/SSR1/ERMP1/TBL2/STUB1/WFS1/UFL1/VAPB/PTPN2/PTPN1/ATF6/TMEM33/BAX/TMED2/DAB2IP/SY	26
GO:0051604	BP	protein maturation	22/765	37/2446	4,34695E+14	HM13/SPCS2/ECE1/SEC11A/STUB1/ADAM10/ZMPSTE24/WFS1/BAG2/THBS1/MMP14/SPCS3/GALNT2/ASPH/BAD/YME1L1/LMF2/TI	22
GO:0008217	BP	regulation of blood pressure	11/765	14/2446	4,62645E+14	ECE1/ACVRL1/ATP1A1/HMOX1/GJA1/ATP2B1/F2R/NOS3/GJA5/EXT2/CTSZ	11
GO:0065002	BP	intracellular protein transmembrane transport	14/765	20/2446	5,09579E+14	PEX1/PEX5/TRAM1/TIMM44/TOMM40/SEC61G/SEC61B/ROMO1/PEX6/TRAM2/TIMM50/DNAJC19/TIMM21/SEC63	14
GO:0000041	BP	transition metal ion transport	13/765	18/2446	5,11009E+13	ATP2C1/SLC30A6/SLC39A11/TFRC/ATP6V1A/TCIRG1/STEAP3/SLC30A7/SLC30A5/SLC39A7/TMEM165/ATP13A1/SLC30A1	13
GO:0140056	BP	organelle localization by membrane tethering	27/765	49/2446	5,11009E+13	STX3/EXOC6B/STX2/NSF/STX10/STX7/STX6/USO1/VAPB/RAB3D/SNAP29/RALB/RAB13/STX17/RAB8A/RAB10/TUBA4A/STX4/STX5/	27
GO:1903530	BP	regulation of secretion by cell	39/765	79/2446	6,04817E+14	JAGN1/WLS/RIC1/RAB27A/RHOT1/NSF/ACSL4/SNX4/RAB3D/GNAI2/HMOX1/SLC2A1/RALA/ATP2A2/GJA1/RAB5A/F2R/NOTCH1/IDH	39
GO:0006888	BP	endoplasmic reticulum to Golgi vesicle-mediated transport	42/765	87/2446	6,73633E+14	HYOU1/COG4/GOSR2/COG8/COG2/SEC22A/STX18/MIA2/NSF/ZW10/USO1/SEC22B/VAPB/TMED10/BCAP31/NAPA/STX17/COG7/TN	42
GO:0016042	BP	lipid catabolic process	22/765	38/2446	6,8814E+14	NCEH1/ABHD16A/PNPLA6/ILVBL/ACBD5/ACADM/HADHA/SMPD4/ALDH3A2/SGPL1/ABCD3/ABCD1/CPT1A/HADHB/CYP27A1/PLD1/	22
GO:0048771	BP	tissue remodeling	18/765	29/2446	6,92519E+14	TPP1/ACVRL1/RAB3D/TFRC/GJA1/FLNA/NF1/BGN/F2R/EPHA2/NOS3/TIE1/FLT4/MMP14/JAG1/CAV1/BAX/TCIRG1	18
GO:0043269	BP	regulation of ion transport	73/765	171/2446	8,83884E+14	TM9SF4/PARL/CTNNB1/JAGN1/ACSL1/WLS/WNK1/PHB2/ABCA3/HAX1/RAB29/ACSL4/ZMPSTE24/WFS1/B3GAT3/SNX4/ACSL3/GNA	73
GO:0002443	BP	leukocyte mediated immunity	56/765	125/2446	9,23083E+14	SCAMP1/MAGT1/RAB18/DDOST/JAGN1/BRI3/MGST1/PTPRB/RFTN1/MLH1/METTL7A/RAB27A/SNAP23/QSOX1/ADAM10/STX7/SNX	56
GO:0006650	BP	glycerophospholipid metabolic process	40/765	83/2446	9,23083E+14	CEPT1/LPCAT4/ABHD16A/PIGN/PNPLA6/PIGQ/PIGG/PTDSS2/PHB2/ABCA3/HADHA/SMPD4/ACSL3/CDS2/RAB5A/PI4KA/PTDSS1/HAI	40
GO:0006641	BP	triglyceride metabolic process	9/765	11/2446	9,23083E+14	ACSL1/CTDNEP1/ACSL4/CPT1A/CAV1/SLC27A1/LPGAT1/PNPLA2/MBOAT7	9
GO:0098661	BP	inorganic anion transmembrane transport	9/765	11/2446	9,23083E+14	CLCN7/SLC25A11/SLC1A1/CLCN3/SLC25A3/ANO6/CLCC1/TTYH3/ANO10	9
GO:0140354	BP	lipid import into cell	9/765	11/2446	9,23083E+14	ACSL1/ACSL3/ITGB1/THBS1/SLC2A1/SLC1A1/SLC1A5/SLC27A4/SLC27A1	9
GO:0006904	BP	vesicle docking involved in exocytosis	14/765	21/2446	9,8403E+13	STX3/EXOC6B/RAB3D/RALB/RAB13/RAB8A/RAB10/VAMP3/EXOC6/SCFD2/SCFD1/EXOC4/VPS45/VTI1B	14
GO:0008016	BP	regulation of heart contraction	14/765	21/2446	9,8403E+13	ZMPSTE24/ATP1A1/JUP/ATP2A2/GJA1/SLC9A1/ATP2B1/FLNA/ATP2B4/GJA5/SLC1A1/CAV1/ASPH/STIM1	14
GO:0033866	BP	nucleoside bisphosphate biosynthetic process	14/765	21/2446	9,8403E+13	ACSL1/DCAKD/ACSL4/ACSL3/PDHB/SLC25A1/HSD17B12/HACD2/SCD5/SLC35B2/GCDH/PANK4/ELOVL5/TECR	14
GO:0034030	BP	ribonucleoside bisphosphate biosynthetic process	14/765	21/2446	9,8403E+13	ACSL1/DCAKD/ACSL4/ACSL3/PDHB/SLC25A1/HSD17B12/HACD2/SCD5/SLC35B2/GCDH/PANK4/ELOVL5/TECR	14
GO:0034033	BP	purine nucleoside bisphosphate biosynthetic process	14/765	21/2446	9,8403E+13	ACSL1/DCAKD/ACSL4/ACSL3/PDHB/SLC25A1/HSD17B12/HACD2/SCD5/SLC35B2/GCDH/PANK4/ELOVL5/TECR	14
GO:0044272	BP	sulfur compound biosynthetic process	19/765	32/2446	1,00123E+14	ACSL1/MGST1/GLCE/MGST3/ACSL4/ACSL3/PDHB/BGN/SLC25A1/HSD17B12/HACD2/SCD5/CHST14/SLC35B2/CSGALNACT1/GCDH/E	19
GO:0006497	BP	protein lipidation	10/765	13/2446	1,02281E+14	PIGN/PIGQ/PIGG/ZDHHC3/RABL3/ZDHHC24/ZDHHC13/PIGK/PIGS/ZDHHC5	10
GO:0015909	BP	long-chain fatty acid transport	10/765	13/2446	1,02281E+14	ACSL1/ACSL3/THBS1/SLC2A1/ABCD3/ABCD1/CPT1A/SLC27A3/SLC27A4/SLC27A1	10
GO:0042158	BP	lipoprotein biosynthetic process	10/765	13/2446	1,02281E+14	PIGN/PIGQ/PIGG/ZDHHC3/RABL3/ZDHHC24/ZDHHC13/PIGK/PIGS/ZDHHC5	10
GO:0046949	BP	fatty-acyl-CoA biosynthetic process	10/765	13/2446	1,02281E+14	ACSL1/ACSL4/ACSL3/SLC25A1/HSD17B12/HACD2/SCD5/GCDH/ELOVL5/TECR	10
GO:0061337	BP	cardiac conduction	13/765	19/2446	1,02281E+14	ZMPSTE24/ATP1A1/JUP/ATP2A2/GJA1/SLC9A1/ATP2B1/FLNA/ATP2B4/GJA5/CAV1/ASPH/STIM1	13
GO:0006937	BP	regulation of muscle contraction	15/765	23/2446	1,06272E+14	ATP1A1/JUP/ATP2A2/SLC9A1/ATP2B1/F2R/GJA5/CAV1/CALCRL/DOCK4/DOCK5	15
GO:0015800	BP	acidic amino acid transport	11/765	15/2446	1,06272E+14	PRAF2/SLC25A12/GLS/ITGB1/GJA1/SLC1A1/LRRC8D/LRRC8A/LRRC8C/SLC25A22/SLC25A13	11
GO:0044242	BP	cellular lipid catabolic process	18/765	30/2446	1,11456E+13	ABHD16A/PNPLA6/ILVBL/ACBD5/ACADM/HADHA/SMPD4/ALDH3A2/SGPL1/ABCD3/ABCD1/CPT1A/HADHB/SLC27A4/PDXDC1/ABHD	18
GO:0006665	BP	sphingolipid metabolic process	17/765	28/2446	1,26616E+14	ST6GALNAC3/CLN6/ST6GALNAC4/FADS3/SMPD4/ALDH3A2/SPTLC1/VAPB/SGPL1/BAX/PDXDC1/HACD2/CERS6/CERS2/ELOVL5/TECR	17
GO:0098657	BP	import into cell	17/765	28/2446	1,26616E+14	ACSL1/WNK1/SLC3A2/ACSL3/ATP1A1/ITGB1/THBS1/SLC2A1/SLC9A1/ATP2B4/SLC1A1/SLC1A5/SLC27A4/SLC27A1/ATAD1/SLC29A1/	17
GO:0022406	BP	membrane docking	28/765	54/2446	1,26964E+13	STX3/EXOC6B/STX12/NSF/STX10/STX7/STX6/USO1/VAPB/RAB3D/SNAP29/RALB/RAB13/STX17/RAB8A/RAB10/TUBA4A/STX4/STX5/	28
GO:0044281	BP	small molecule metabolic process	105/765	264/2446	1,30742E+14	BSG/SFXN3/DHCR24/NCEH1/PON2/CLN6/SUCLA2/CTPS1/ILVBL/SOAT1/ACBD5/ACADM/ERLIN2/ACSL1/VKORC1/FADS3/AAAS/HADF	105
GO:0006644	BP	phospholipid metabolic process	42/765	90/2446	1,41183E+14	CEPT1/LPCAT4/ABHD16A/PIGN/PNPLA6/PIGQ/PIGG/PTDSS2/PHB2/ABCA3/HADHA/SMPD4/FADS1/ACSL3/CDS2/RAB5A/PI4KA/PTDS	42
GO:0009260	BP	ribonucleotide biosynthetic process	22/765	40/2446	1,54581E+14	CTPS1/ACSL1/DCAKD/ACSL4/SLC25A12/ACSL3/UMPS/PDHB/ATP6V1A/SLC25A1/HSD17B12/HACD2/SCD5/SLC35B2/GCDH/DNAJC30	22
GO:0090407	BP	organophosphate biosynthetic process	53/765	120/2446	1,68016E+14	CEPT1/LPCAT4/PIGN/CTPS1/PIGQ/ACSL1/PIGG/PTDSS2/DCAKD/FADS1/ACSL4/SLC25A12/ACSL3/CDS2/UMPS/PDHB/RAB5A/NOS3/A	53
GO:0001568	BP	blood vessel development	58/765	134/2446	1,82687E+14	ROBO1/BSG/RNF213/CTNNB1/PTPRM/SPARC/PTPRB/ACVRL1/SOS1/EMC10/SGPL1/HSPB1/ITGB1/THBS1/HMOX1/RRAS/JUP/PECAN	58
GO:0043436	BP	oxoacid metabolic process	66/765	156/2446	1,82687E+14	BSG/PON2/SUCLA2/CTPS1/ILVBL/ACBD5/ACADM/ERLIN2/ACSL1/FADS3/AAAS/HADHA/NUP93/ALDH3A2/MGST3/SLC16A3/FADS1/A	66
GO:0019637	BP	organophosphate metabolic process	81/765	198/2446	1,84289E+14	CEPT1/LPCAT4/ABHD16A/PIGN/SUCLA2/PNPLA6/CTPS1/PIGQ/ACSL1/PIGG/PTDSS2/PHB2/AAAS/ABCA3/HADHA/NUP93/SMPD4/DC	81
GO:0035637	BP	multicellular organismal signaling	13/765	20/2446	1,95207E+14	ZMPSTE24/ATP1A1/JUP/ATP2A2/GJA1/SLC9A1/ATP2B1/FLNA/ATP2B4/GJA5/CAV1/ASPH/STIM1	13
GO:0006890	BP	retrograde vesicle-mediated transport, Golgi to endoplasmic reticulum	25/765	48/2446	2,02615E+14	COG4/NBAS/STX18/NSF/ZW10/ATP9A/SEC22B/RAB6A/TMED10/NAPA/COG7/ARF5/TMEM115/LMAN2/BNIP1/TMED2/RINT1/SCFD	25
GO:0048514	BP	blood vessel morphogenesis	53/765	121/2446	2,0421E+14	ROBO1/BSG/RNF213/CTNNB1/PTPRM/SPARC/PTPRB/ACVRL1/SOS1/EMC10/SGPL1/HSPB1/ITGB1/THBS1/HMOX1/RRAS/JUP/FLNA/	53
GO:0030148	BP	sphingolipid biosynthetic process	12/765	18/2446	2,09218E+14	ST6GALNAC3/ST6GALNAC4/SMPD4/ALDH3A2/SPTLC1/VAPB/SGPL1/HACD2/CERS6/CERS2/ELOVL5/VAPA	12
GO:0006658	BP	phosphatidylserine metabolic process	8/765	10/2446	2,09218E+14	LPCAT4/ABHD16A/PTDSS2/PTDSS1/SLC27A1/ABHD12/OSBPL8/OSBPL5	8
GO:0008053	BP	mitochondrial fusion	8/765	10/2446	2,09218E+14	CHCHD3/MFN2/TFRC/BAX/USP30/MFF/STOML2/AFG3L2	8
GO:0009581	BP	detection of external stimulus	8/765	10/2446	2,09218E+14	CTNNB1/JUP/GNA11/GNAQ/CXCR4/GNB1/PKD2/PIEZO1	8
GO:0009582	BP	detection of abiotic stimulus	8/765	10/2446	2,09218E+14	CTNNB1/JUP/GNA11/GNAQ/CXCR4/GNB1/PKD2/PIEZO1	8
GO:0017004	BP	cytochrome complex assembly	8/765	10/2446	2,09218E+14	OXA1L/SCO1/CYBA/HCCS/COX20/TIMM21/BCS1L/COA3	8
GO:0019915	BP	lipid storage	8/765	10/2446	2,09218E+14	SOAT1/CDS2/PTPN2/CPT1A/CAV1/PNPLA2/OSBPL8/AUP1	8
GO:0086003	BP	cardiac muscle cell contraction	8/765	10/2446	2,09218E+14	ATP1A1/JUP/ATP2A2/GJA1/SLC9A1/FLNA/GJA5/CAV1	8
GO:1903725	BP	regulation of phospholipid metabolic process	8/765	10/2446	2,09218E+14	PHB2/ABCA3/ACSL3/SLC27A1/LPCAT1/DNAJC19/CHP1/STOML2	8
GO:0002274	BP	myeloid leukocyte activation	51/765	116/2446	2,15742E+14	SCAMP1/MAGT1/RAB18/DDOST/BRI3/MGST1/PTPRB/METTL7A/RAB27A/SNAP23/QSOX1/ADAM10/SNX4/NDUFC2/RAB3D/SNAP29	51
GO:0006638	BP	neutral lipid metabolic process	11/765	16/2446	2,15742E+14	ABHD16A/ACSL1/CTDNEP1/ACSL4/CPT1A/CAV1/SLC27A1/ABHD12/LPGAT1/PNPLA2/MBOAT7	11
GO:0006639	BP	acylglycerol metabolic process	11/765	16/2446	2,15742E+14	ABHD16A/ACSL1/CTDNEP1/ACSL4/CPT1A/CAV1/SLC27A1/ABHD12/LPGAT1/PNPLA2/MBOAT7	11
GO:0035384	BP	thioester biosynthetic process	11/765	16/2446	2,15742E+14	ACSL1/ACSL4/ACSL3/PDHB/SLC25A1/HSD17B12/HACD2/SCD5/GCDH/ELOVL5/TECR	11
GO:0071616	BP	acyl-CoA biosynthetic process	11/765	16/2446	2,15742E+14	ACSL1/ACSL4/ACSL3/PDHB/SLC25A1/HSD17B12/HACD2/SCD5/GCDH/ELOVL5/TECR	11
GO:0002444	BP	myeloid leukocyte mediated immunity	48/765	108/2446	2,16713E+14	SCAMP1/MAGT1/RAB18/DDOST/JAGN1/BRI3/MGST1/PTPRB/METTL7A/RAB27A/SNAP23/QSOX1/ADAM10/SNX4/NDUFC2/RAB3D/S	48
GO:0001944	BP	vasculature development	59/765	138/2446	2,19864E+14	ROBO1/BSG/RNF213/CTNNB1/PTPRM/SPARC/PTPRB/ACVRL1/SOS1/EMC10/SGPL1/HSPB1/ITGB1/THBS1/HMOX1/RRAS/JI	59
GO:0045017	BP	glycerolipid biosynthetic process	32/765	66/2446	2,19974E+14	CEPT1/LPCAT4/PIGN/PIGQ/ACSL1/PIGG/PTDSS2/CTDNEP1/ACSL4/ACSL3/CDS2/RAB5A/PI4KA/PTDSS1/RAB14/VAC14/ATM/PLD1/SL	32
GO:0044743	BP	protein transmembrane import into intracellular organelle	9/765	12/2446	2,20034E+14	PEX1/PEX5/TIMM44/TOMM40/ROMO1/PEX6/TIMM50/DNAJC19/TIMM21	9
GO:0048661	BP	positive regulation of smooth muscle cell proliferation	10/765	14/2446	2,20683E+14	IRAK1/ABCC4/MFN2/GNAI2/THBS1/HMOX1/GJA1/PHB/STAT1/CALCRL	10
GO:0034620	BP	cellular response to unfolded protein	26/765	51/2446	2,26858E+13	HYOU1/DDRGK1/GOSR2/TPP1/SSR1/ERMP1/TBL2/STUB1/WFS1/UFL1/VAPB/PTPN2/PTPN1/ATF6/TMEM33/BAX/TMED2/DAB2IP/SY	26
GO:0006082	BP	organic acid metabolic process	66/765	158/2446	2,43099E+14	BSG/PON2/SUCLA2/CTPS1/ILVBL/ACBD5/ACADM/ERLIN2/ACSL1/FADS3/AAAS/HADHA/NUP93/ALDH3A2/MGST3/SLC16A3/FADS1/A	66
GO:0002576	BP	platelet degranulation	15/765	25/2446	2,5282E+14	APOOL/SPARC/QSOX1/ABCC4/APP/THBS1/CLU/PECAM1/FLNA/TUBA4A/SCCPDH/TMX3/TOR4A/VTI1B/CYB5R1	15
GO:0019725	BP	cellular homeostasis	59/765	139/2446	2,6083E+14	TM9SF4/CLN6/JAGN1/ATP2C1/RHOT1/SCO1/TMCO1/WFS1/LETM1/VAPB/TFRC/SLC4A2/ATP1A1/APP/HMOX1/CYBA/ATP2A2/GJA1,	59
GO:0003015	BP	heart process	18/765	32/2446	2,61847E+14	ZMPSTE24/GNAI2/ATP1A1/JUP/ATP2A2/GJA1/SLC9A1/ATP2B1/FLNA/ATP2B4/GJA5/SLC1A1/CXCR4/CAV1/ASPH/STIM1/EXT2/TREX	18
GO:0001525	BP	angiogenesis	48/765	109/2446	2,62286E+14	ROBO1/BSG/RNF213/CTNNB1/PTPRM/SPARC/PTPRB/ACVRL1/EMC10/HSPB1/ITGB1/THBS1/HMOX1/RRAS/JUP/FLNA/NF1/ATP2B4/	48
GO:0019752	BP	carboxylic acid metabolic process	64/765	153/2446	2,66023E+14	BSG/PON2/SUCLA2/CTPS1/ILVBL/ACBD5/ACADM/ERLIN2/ACSL1/FADS3/AAAS/HADHA/NUP93/ALDH3A2/MGST3/SLC16A3/FADS1/A	64
GO:0033865	BP	nucleoside bisphosphate metabolic process	17/765	30/2446	3,01728E+14	SUCLA2/ACSL1/DCAKD/ACSL4/TPST2/ACSL3/PDHB/ABCD1/SLC25A1/HSD17B12/HACD2/SCD5/SLC35B2/GCDH/PANK4/ELOVL5/TECR	17
GO:0033875	BP	ribonucleoside bisphosphate metabolic process	17/765	30/2446	3,01728E+14	SUCLA2/ACSL1/DCAKD/ACSL4/TPST2/ACSL3/PDHB/ABCD1/SLC25A1/HSD17B12/HACD2/SCD5/SLC35B2/GCDH/PANK4/ELOVL5/TECR	17
GO:0034032	BP	purine nucleoside bisphosphate metabolic process	17/765	30/2446	3,01728E+14	SUCLA2/ACSL1/DCAKD/ACSL4/TPST2/ACSL3/PDHB/ABCD1/SLC25A1/HSD17B12/HACD2/SCD5/SLC35B2/GCDH/PANK4/ELOVL5/TECR	17
GO:0070585	BP	protein localization to mitochondrion	22/765	42/2446	3,01728E+14	PARL/OXA1L/HAX1/TIMM44/MFN2/TOMM40/HK1/YWHAQ/BCAP31/ROMO1/TIMM10/MGARP/BAD/DNAJC19/TIMM	22
GO:2001234	BP	negative regulation of apoptotic signaling pathway	22/765	42/2446	3,01728E+14	HYOU1/VDAC2/TMEM161A/NDUFS3/HSPB1/GNAI2/THBS1/HMOX1/CLU/PTPN1/ITGA6/NOS3/CTNNA1/PTTG1IP/ACVR1/BAX/TRAD	22
GO:0009306	BP	protein secretion	28/765	57/2446	3,01728E+14	JAGN1/WLS/MIA2/ACSL4/RAB3D/SLC2A1/GJA1/F2R/IDH2/TMED10/CPT1A/RAB13/SLC16A1/RAB8A/RAB10/STX4/ADAM9/TCIRG1/N	28
GO:0035592	BP	establishment of protein localization to extracellular region	28/765	57/2446	3,01728E+14	JAGN1/WLS/MIA2/ACSL4/RAB3D/SLC2A1/GJA1/F2R/IDH2/TMED10/CPT1A/RAB13/SLC16A1/RAB8A/RAB10/STX4/ADAM9/TCIRG1/N	28
GO:0006893	BP	Golgi to plasma membrane transport	13/765	21/2446	3,18299E+14	EXOC6B/NSF/ACSL3/RAB10/VAMP3/EXOC8/EXOC6/EXOC4/EXOC2/RAB34/OSBPL5/EXOC1/ARFGEF2	13
GO:0051048	BP	negative regulation of secretion	13/765	21/2446	3,18299E+14	JAGN1/GNAI2/HMOX1/GJA1/F2R/NOTCH1/IDH2/VAMP3/RHBDF2/PNKD/RHBDF1/RAB33B/SLC30A1	13
GO:1903531	BP	negative regulation of secretion by cell	13/765	21/2446	3,18299E+14	JAGN1/GNAI2/HMOX1/GJA1/F2R/NOTCH1/IDH2/VAMP3/RHBDF2/PNKD/RHBDF1/RAB33B/SLC30A1	13
GO:0009152	BP	purine ribonucleotide biosynthetic process	19/765	35/2446	3,30976E+14	ACSL1/DCAKD/ACSL4/SLC25A12/ACSL3/PDHB/ATP6V1A/SLC25A1/HSD17B12/HACD2/SCD5/SLC35B2/GCDH/DNAJC30/PANK4/ELOV	19
GO:1901568	BP	fatty acid derivative metabolic process	12/765	19/2446	3,564E+14	ABHD16A/ACSL1/ACSL4/ACSL3/ABCD1/SLC25A1/HSD17B12/HACD2/SCD5/GCDH/ELOVL5/TECR	12
GO:0006814	BP	sodium ion transport	11/765	17/2446	3,92662E+14	WNK1/SLC3A2/ATP1A1/SLC9A1/ATP2B4/STOM/PKD2/NDUFA9/ANO6/CHP1/SLC38A10	11
GO:0006998	BP	nuclear envelope organization	11/765	17/2446	3,92662E+14	REEP4/NUP93/CTDNEP1/ZMPSTE24/EMD/ANKLE2/LEMD2/TMEM44/SUN2/VPS4A/LEMD3	11
GO:0035337	BP	fatty-acyl-CoA metabolic process	11/765	17/2446	3,92662E+14	ACSL1/ACSL4/ACSL3/ABCD1/SLC25A1/HSD17B12/HACD2/SCD5/GCDH/ELOVL5/TECR	11
GO:0048659	BP	smooth muscle cell proliferation	11/765	17/2446	3,92662E+14	CTNNB1/IRAK1/ABCC4/MFN2/GNAI2/THBS1/HMOX1/GJA1/PHB/STAT1/CALCRL	11
GO:0048660	BP	regulation of smooth muscle cell proliferation	11/765	17/2446	3,92662E+14	CTNNB1/IRAK1/ABCC4/MFN2/GNAI2/THBS1/HMOX1/GJA1/PHB/STAT1/CALCRL	11
GO:0040017	BP	positive regulation of locomotion	45/765	103/2446	3,94004E+14	DOCK1/DDRGK1/STX3/RRAS2/WNK1/SPARC/EMC10/ADAM10/HSPB1/ITGB1/THBS1/HMOX1/RRAS/PECAM1/FLNA/ITG/	45
GO:0002790	BP	peptide secretion	28/765	58/2446	3,94741E+14	JAGN1/WLS/MIA2/ACSL4/RAB3D/SLC2A1/GJA1/F2R/IDH2/TMED10/CPT1A/RAB13/SLC16A1/RAB8A/RAB10/STX4/ADAM9/TCIRG1/N	28
GO:0001894	BP	tissue remodeling	20/765	38/2446	4,01595E+14	TPP1/ABCA3/RAB3D/TFRC/HSPB1/ITGB1/GJA1/PECAM1/GJA1/NF1/F2R/NOS3/CDH5/SLC1A1/NOTCH1/CLCN3/BAX/TCIRG1/LPCA	20
GO:0002275	BP	myeloid cell activation involved in immune response	46/765	106/2446	4,10379E+14	SCAMP1/MAGT1/RAB18/DDOST/BRI3/MGST1/PTPRB/METTL7A/RAB27A/SNAP23/QSOX1/ADAM10/SNX4/NDUFC2/RAB3D/SNAP29	46
GO:0032880	BP	regulation of protein localization	76/765	190/2446	4,19395E+14	DDRGK1/TM9SF4/STX3/DNAJB6/PARL/CTNNB1/JAGN1/WLS/ZDHHC3/STX10/HAX1/ADAM10/RAB29/STX7/STX6/ACSL4/B3GAT3/UF	76
GO:0006029	BP	proteoglycan metabolic process	10/765	15/2446	4,19395E+14	CTNNB1/GLCE/FAM20B/B3GAT3/BGN/CHST14/CSGALNACT1/CANT1/EXT2/B4GALT7	10
GO:0006493	BP	protein O-linked glycosylation	10/765	15/2446	4,19395E+14	ST6GALNAC4/GALNT7/ST6GAL1/GALNT2/GALNT1/POMT1/TMTC3/XXYLT1/GALNT6/SDF2L1	10
GO:1901570	BP	fatty acid derivative biosynthetic process	10/765	15/2446	4,19395E+14	ACSL1/ACSL4/ACSL3/SLC25A1/HSD17B12/HACD2/SCD5/GCDH/ELOVL5/TECR	10
GO:0016197	BP	endosomal transport	34/765	74/2446	4,25615E+14	EVI5/GOSR2/ARL1/TMCC1/RAB35/RIC1/STX10/RNF126/RAB29/STX6/VAMP4/SNX4/RAB6A/RAB13/RAB8A/RAB10/RAB4/STX5/VAN	34
GO:0019216	BP	regulation of lipid metabolic process	29/765	61/2446	4,31977E+13	ACADM/ERLIN2/ACSL1/PHB2/ABCA3/STUB1/CTDNEP1/FADS1/ERLIN1/ZMPSTE24/ATP1A1/ABCD1/CPT1A/TEK/CAV1/PPP2R5	29
GO:0034394	BP	protein localization to cell surface	9/765	13/2446	4,42634E+14	TM9SF4/STX3/CTNNB1/HSP90AB1/FLNA/STX4/PTPRK/GBF1/PIGK	9
GO:0046470	BP	phosphatidylcholine metabolic process	9/765	13/2446	4,42634E+14	CEPT1/LPCAT4/PNPLA6/ABCA3/ACSL3/SLC27A1/LPCAT2/LPCAT1/MBOAT7	9
GO:0006851	BP	mitochondrial calcium ion transmembrane transport	8/765	11/2446	4,53968E+14	PARL/PHB2/LETM1/PHB/MCU/YME1L1/STOML2/AFG3L2	8
GO:0051788	BP	response to misfolded protein	8/765	11/2446	4,53968E+14	RNF5/STUB1/RNF126/CLU/DNAJB14/SDF2L1/DNAJB12/AUP1	8
GO:1901342	BP	regulation of vasculature development	25/765	51/2446	4,54126E+14	CTNNB1/PTPRM/SPARC/EMC10/ADAM10/HSPB1/ITGB1/THBS1/HMOX1/RRAS/JUP/NF1/ATP2B4/EPHA2/NOS3/CDH5/TIE1/STAT1/C	25

GO:0043299	BP	leukocyte degranulation	45/765	104/2446	4,55116E+14	SCAMP1/MAGT1/RAB18/DDOST/BRI3/MGST1/PTPRB/METTL7A/RAB27A/SNAP23/QSOX1/ADAM10/SNX4/NDUFC2/RAB3D/SNAP29/	45
GO:0072655	BP	establishment of protein localization to mitochondrion	21/765	41/2446	4,61483E+14	PARL/OXA1L/HAX1/TIMM44/MFN2/TOMM40/HK1/YWHAQ/BCAP31/ROMO1/TIMM10/BAX/TIMM50/MGARP/BAD/DNAJC19/TIMM	21
GO:0008015	BP	blood circulation	28/765	59/2446	4,90801E+14	ECE1/ACVRL1/ZMPSTE24/CYB5R3/ATP1A1/HMOX1/JUP/ATP2A2/GJA1/SLC9A1/ATP2B1/FLNA/ATP2B4/F2R/NOS3/CDH5/GJA5/STAT	28
GO:0060047	BP	heart contraction	16/765	29/2446	4,90801E+14	ATP2A2/ATP1A1/JUP/ATP2A2/GJA1/SLC9A1/ATP2B1/FLNA/ATP2B4/GJA5/SLC1A1/CXCR4/CAV1/ASPH/STIM1/EXT2	16
GO:0098876	BP	vesicle-mediated transport to the plasma membrane	16/765	29/2446	4,90801E+14	STX3/EXOC6B/NSF/ACSL3/SLC1A1/RAB8A/RAB10/VAMP3/EXOC8/EXOC6/EXOC4/EXOC2/RAB34/OSBPL5/EXOC1/ARFGEF2	16
GO:1903409	BP	reactive oxygen species biosynthetic process	13/765	22/2446	4,92599E+14	RAB27A/CYB5R3/HSP90AB1/CLU/CYBA/ATP2B4/NOS3/ABCD1/CLCN3/CAV1/PKD2/GBF1/PIKFYVE	13
GO:0031984	CC	organelle subcompartment	303/765	440/2446	8,63494E-56	ATP11C/HM13/SCAMP1/MAGT1/SPCS2/BSG/ST6GALNAC3/NOMO1/RAB18/DDRGK1/DHCR24/NCEH1/DHRS7B/DDOST/CEPT:	303
GO:0042175	CC	nuclear outer membrane-endoplasmic reticulum membrane network	222/765	306/2446	2,90079E-40	ATP11C/HM13/MAGT1/SPCS2/BSG/NOMO1/RAB18/DDRGK1/DHCR24/NCEH1/DHRS7B/DDOST/CEPT1/LPCAT4/CLN6/TAP1/RNF5/P	222
GO:0005789	CC	endoplasmic reticulum membrane	218/765	298/2446	2,90079E-40	ATP11C/HM13/MAGT1/SPCS2/BSG/NOMO1/RAB18/DDRGK1/DHCR24/NCEH1/DHRS7B/DDOST/CEPT1/LPCAT4/CLN6/TAP1/RNF5/P	218
GO:0098827	CC	endoplasmic reticulum subcompartment	219/765	301/2446	5,73344E-40	ATP11C/HM13/MAGT1/SPCS2/BSG/NOMO1/RAB18/DDRGK1/DHCR24/NCEH1/DHRS7B/DDOST/CEPT1/LPCAT4/CLN6/TAP1/RNF5/P	219
GO:0005783	CC	endoplasmic reticulum	273/765	444/2446	8,73614E-32	ATP11C/HM13/MAGT1/SPCS2/BSG/HYOU1/NOMO1/RAB18/DDRGK1/DHCR24/NCEH1/DHRS7B/DDOST/CEPT1/LPCAT4/CLN6/TAP1/	273
GO:0098588	CC	bounding membrane of organelle	270/765	459/2446	9,81286E-26	ATP11C/ROBO1/SCAMP1/MAGT1/BSG/ST6GALNAC3/APOOL/RAB18/VDAC2/COG4/DHCR24/PEX1/STX3/DDOST/TAP1/GOSR2/SLC3:	270
GO:0031300	CC	intrinsic component of organelle membrane	96/765	123/2446	2,93544E-11	HM13/APOOL/SFXN3/TAP1/ECE1/STX12/CHCHD3/PIGG/TBL2/WLS/RAB35/TRAM1/RHOT1/OXA1L/UNC50/SCO1/CHCHD6/TMCO1/S	96
GO:0031966	CC	mitochondrial membrane	136/765	204/2446	5,89861E-11	APOOL/NDUFB6/VDAC2/SFXN3/NDUFA6/RNF5/PARL/ACADM/CHCHD3/ACSL1/NDUFV2/NDUFB5/TMEM126B/NDUFB8/PHB2/MGS1	136
GO:0005740	CC	mitochondrial envelope	136/765	206/2446	2,38983E-10	APOOL/NDUFB6/VDAC2/SFXN3/NDUFA6/RNF5/PARL/ACADM/CHCHD3/ACSL1/NDUFV2/NDUFB5/TMEM126B/NDUFB8/PHB2/MGS1	136
GO:0031301	CC	integral component of organelle membrane	91/765	116/2446	2,90101E-10	HM13/APOOL/SFXN3/TAP1/STX12/CHCHD3/PIGG/TBL2/WLS/TRAM1/RHOT1/OXA1L/UNC50/SCO1/CHCHD6/TMCO1/STX10/EMC10	91
GO:0031967	CC	organelle envelope	191/765	335/2446	1,41222E-09	APOOL/NDUFB6/VDAC2/SFXN3/NDUFA6/CEPT1/RNF5/DPY19L1/PARL/TMEM120B/ACADM/RNF123/CHCHD3/ACSL1/NDUFV2/NDU	191
GO:0031975	CC	envelope	191/765	335/2446	1,41222E-09	APOOL/NDUFB6/VDAC2/SFXN3/NDUFA6/CEPT1/RNF5/DPY19L1/PARL/TMEM120B/ACADM/RNF123/CHCHD3/ACSL1/NDUFV2/NDU	191
GO:0098796	CC	membrane protein complex	156/765	257/2446	1,23962E-08	HM13/MAGT1/SPCS2/APOOL/NDUFB6/VDAC2/STX3/NDUFA6/DDOST/TAP1/GOSR2/CTNNB1/COL13A1/STX12/PIGG/CHCHD3/STX1:	156
GO:0005887	CC	integral component of plasma membrane	81/765	102/2446	3,31233E-08	ATP11C/ROBO1/MAGT1/BSG/BCAM/SLC33A1/COL13A1/PTPRM/PTPRB/ACVRL1/PTPRF/SLC25A11/ICAM2/SLC16A3/FLRT2/MPZL1/F	81
GO:0031226	CC	intrinsic component of plasma membrane	82/765	105/2446	1,24957E-07	ATP11C/ROBO1/MAGT1/BSG/BCAM/SLC33A1/COL13A1/PTPRM/PTPRB/ACVRL1/PTPRF/SLC25A11/ICAM2/SLC16A3/FLRT2/MPZL1/F	82
GO:0000139	CC	Golgi membrane	121/765	184/2446	2,24839E-07	SCAMP1/BSG/ST6GALNAC3/COG4/DHCR24/GOSR2/SLC33A1/ST6GALNAC4/STX12/COG8/ARL1/ATP2C1/SLC30A6/COG2/STX18/GAL	121
GO:0098791	CC	Golgi apparatus subcompartment	132/765	211/2446	1,49717E-06	ATP11C/SCAMP1/BSG/ST6GALNAC3/COG4/DHCR24/GOSR2/SLC33A1/ST6GALNAC4/STX12/COG8/ARL1/ATP2C1/SLC30A6/COG2/ST:	132
GO:0019866	CC	organelle inner membrane	106/765	157/2446	6,85363E-06	APOOL/NDUFB6/SFXN3/NDUFA6/DPY19L1/PARL/TMEM120B/CHCHD3/NDUFV2/NDUFB5/TMEM126B/NDUFB8/PHB2/NDUFV1/HAI	106
GO:0005794	CC	Golgi apparatus	181/765	331/2446	1,8829E-05	ATP11C/SCAMP1/BSG/ST6GALNAC3/RAB18/COG4/DHCR24/TM9SF4/CEPT1/UNC45A/GOSR2/TSC2/TPP1/SLC33A1/ST6GALNAC4/ST	181
GO:0005743	CC	mitochondrial inner membrane	95/765	141/2446	0,00136051	APOOL/NDUFB6/SFXN3/NDUFA6/PARL/CHCHD3/NDUFV2/NDUFB5/TMEM126B/NDUFB8/PHB2/NDUFV1/HADHA/COX4I1/NDUFR10	95
GO:0030176	CC	integral component of endoplasmic reticulum membrane	44/765	54/2446	191,55035	HM13/TAP1/PIGG/TBL2/TRAM1/TMCO1/EMC10/EMC8/ZMPSTE24/WFS1/SGPL1/HLA-E/ATF6/BCAP31/TMEM33/BNIP1/PKD2/STIM	44
GO:0031227	CC	intrinsic component of endoplasmic reticulum membrane	45/765	56/2446	245,3941004	HM13/TAP1/PIGG/TBL2/TRAM1/TMCO1/EMC10/EMC8/ZMPSTE24/WFS1/SGPL1/HLA-E/ATF6/DNAJB2/BCAP31/TMEM33/BNIP1/PK	45
GO:0098800	CC	inner mitochondrial membrane protein complex	44/765	55/2446	636,37632277	APOOL/NDUFB6/NDUFA6/CHCHD3/NDUFV2/NDUFB5/TMEM126B/NDUFB8/PHB2/NDUFV1/COX4I1/NDUFB10/CHCHD6/NDUFS8/UQCRQ/NDUF:	44
GO:0005739	CC	mitochondrion	168/765	349/2446	682,608815	BSG/APOOL/NDUFB6/VDAC2/SFXN3/NDUFA6/RNF5/PARL/SUCLA2/ACADM/CHCHD3/ACSL1/NDUFV2/NDUFB5/TMEM126B/NDUFB:	168
GO:0031201	CC	SNARE complex	23/765	23/2446	1653,204893	STX3/GOSR2/STX12/STX18/STX10/SNAP23/STX7/STX6/VAMP4/SEC22B/SNX4/SNAP29/NAPA/STX17/STX4/BNIP1/STX5/VAMP3/VTI1	23
GO:0019867	CC	outer membrane	50/765	70/2446	22857,1383	APOOL/VDAC2/CHCHD3/ACSL1/PHB2/MGST1/SMPD4/RHOT1/CHCHD6/HAX1/ACSL4/MTX2/MFN2/ACSL3/TOMM40/CYB5R3/CNP/C	50
GO:0031968	CC	organelle outer membrane	50/765	70/2446	22857,1383	APOOL/VDAC2/CHCHD3/ACSL1/PHB2/MGST1/SMPD4/RHOT1/CHCHD6/HAX1/ACSL4/MTX2/MFN2/ACSL3/TOMM40/CYB5R3/CNP/C	50
GO:0140534	CC	endoplasmic reticulum protein-containing complex	41/765	53/2446	29646,57064	HM13/MAGT1/SPCS2/HYOU1/DDOST/TAP1/NBAS/PIGG/SEC11A/EMC10/SPTLC1/ZW10/EMC8/RPN1/RPN2/STT3A/SSR4/SEC61G/SE	41
GO:0030667	CC	secretory granule membrane	45/765	61/2446	42972,24959	SCAMP1/MAGT1/BSG/RAB18/STX3/DDOST/BRI3/SPARC/MGST1/PTPRB/ABCA3/RAB27A/SNAP23/ADAM10/RAB3D/SNAP29/SNX4/S	45
GO:0005741	CC	mitochondrial outer membrane	44/765	61/2446	240059,9714	APOOL/VDAC2/CHCHD3/ACSL1/PHB2/MGST1/RHOT1/CHCHD6/HAX1/ACSL4/MTX2/MFN2/ACSL3/TOMM40/CYB5R3/CNP/GJA1/HK:	44
GO:0005747	CC	mitochondrial respiratory chain complex I	24/765	26/2446	537817,5524	NDUFB6/NDUFA6/NDUFV2/NDUFB5/NDUFB8/NDUFV1/NDUFB10/NDUFS8/NDUFS4/NDUFA2/NDUFS5/NDUFS2/NDUFS6/NDUFS3/N	24
GO:0030964	CC	NADH dehydrogenase complex	24/765	26/2446	537817,5524	NDUFB6/NDUFA6/NDUFV2/NDUFB5/NDUFB8/NDUFV1/NDUFB10/NDUFS8/NDUFS4/NDUFA2/NDUFS5/NDUFS2/NDUFS6/NDUFS3/N	24
GO:0045271	CC	respiratory chain complex I	24/765	26/2446	537817,5524	NDUFB6/NDUFA6/NDUFV2/NDUFB5/NDUFB8/NDUFV1/NDUFB10/NDUFS8/NDUFS4/NDUFA2/NDUFS5/NDUFS2/NDUFS6/NDUFS3/N	24
GO:0005746	CC	mitochondrial respirasome	30/765	36/2446	623397,1734	NDUFB6/NDUFA6/NDUFV2/NDUFB5/NDUFB8/NDUFV1/COX4I1/NDUFB10/OXA1L/NDUFS8/UQCRQ/NDUFS4/NDUFA2/NDUFS5/ND	30
GO:0070469	CC	respirasome	30/765	36/2446	623397,1734	NDUFB6/NDUFA6/NDUFV2/NDUFB5/NDUFB8/NDUFV1/COX4I1/NDUFB10/OXA1L/NDUFS8/UQCRQ/NDUFS4/NDUFA2/NDUFS5/ND	30
GO:0009986	CC	cell surface	52/765	80/2446	1376053,753	HM13/ROBO1/BCAM/ECE1/CAPN5/SPARC/PHB2/SLC3A2/ACVRL1/ADAM10/TNFRSF10C/ABCC4/VAMP4/MPZL1/CLPTM1/TFRC/APP/	52
GO:0098803	CC	respiratory chain complex	28/765	34/2446	3440295,491	NDUFB6/NDUFA6/NDUFV2/NDUFB5/NDUFB8/NDUFV1/COX4I1/NDUFB10/NDUFS8/UQCRQ/NDUFS4/NDUFA2/NDUFS5/NDUFS2/NI	28
GO:1990204	CC	oxidoreductase complex	31/765	40/2446	6679556,338	NDUFB6/NDUFA6/NDUFV2/NDUFB5/NDUFB8/NDUFV1/NDUFB10/NDUFS8/UQCRQ/NDUFS4/NDUFA2/NDUFS5/NDUFS2/NDUFS6/N	31
GO:0012506	CC	vesicle membrane	84/765	160/2446	21814290,56	SCAMP1/MAGT1/BSG/RAB18/STX3/DDOST/TAP1/GOSR2/STX12/WLS/BRI3/SPARC/RAB35/MGST1/PTPRB/ABCA3/RAB27A/STX10/SI	84
GO:0030659	CC	cytoplasmic vesicle membrane	82/765	156/2446	30431909,63	SCAMP1/MAGT1/BSG/RAB18/STX3/DDOST/TAP1/GOSR2/STX12/WLS/BRI3/SPARC/RAB35/MGST1/PTPRB/ABCA3/RAB27A/STX10/SI	82
GO:0005802	CC	trans-Golgi network	43/765	67/2446	61021592,05	ATP11C/SCAMP1/COG4/COG8/ARL1/ATP2C1/COG2/WLS/RIC1/SMPD4/STX10/ADAM10/SCAMP3/RAB29/TGOLN2/STX6/ATP9A/VAM	43
GO:0098573	CC	intrinsic component of mitochondrial membrane	29/765	39/2446	93966143,04	APOOL/SFXN3/CHCHD3/RHOT1/OXA1L/SCO1/CHCHD6/MTX2/MFN2/TOMM40/TMEM11/CPT1A/SLC25A3/MTX1/IMMT/SFXN4/RHO	29
GO:0032588	CC	trans-Golgi network membrane	24/765	30/2446	129158430,9	SCAMP1/COG4/COG8/ARL1/COG2/RIC1/STX10/SCAMP3/STX6/VAMP4/APP/IGF2R/RAB6A/RAB8A/COG7/VAMP3/COG1/SCAMP4/V	24
GO:0099503	CC	secretory vesicle	86/765	171/2446	172498802,9	SCAMP1/MAGT1/BSG/APOOL/RAB18/VDAC2/STX3/DDOST/ECE1/STX12/EBAG9/BRI3/SPARC/RAB35/MGST1/PTPRB/VEZT/ABCA3/M	86
GO:0032592	CC	integral component of mitochondrial membrane	28/765	38/2446	215410155,2	APOOL/SFXN3/CHCHD3/RHOT1/OXA1L/SCO1/CHCHD6/MTX2/MFN2/TOMM40/TMEM11/CPT1A/SLC25A3/MTX1/IMMT/SFXN4/RHOT2	28
GO:0031410	CC	cytoplasmic vesicle	187/765	454/2446	1212653992	ATP11C/SCAMP1/MAGT1/BSG/APOOL/HYOU1/RAB18/VDAC2/TM9SF4/STX3/DDOST/CLN6/TAP1/GOSR2/TPP1/STX12/VPS8/T	187
GO:0098798	CC	mitochondrial protein-containing complex	49/765	86/2446	1212653992	APOOL/NDUFB6/NDUFA6/CHCHD3/NDUFV2/NDUFB5/NDUFB8/PHB2/NDUFV1/HADHA/COX4I1/NDUFB10/CHCHD6/NDUFS8/UQCR:	49
GO:0097708	CC	intracellular vesicle	187/765	455/2446	1416216708	ATP11C/SCAMP1/MAGT1/BSG/APOOL/HYOU1/RAB18/VDAC2/TM9SF4/STX3/DDOST/CLN6/TAP1/GOSR2/TPP1/STX12/VPS8/T	187
GO:0008021	CC	synaptic vesicle	24/765	33/2446	2451992956	SCAMP1/VDAC2/STX3/STX12/RAB35/STX10/ADAM10/STX7/STX6/VAMP4/SEC22B/RAB3D/APP/RAB5A/RAB13/CLCN3/RAB8A/RAB1	24
GO:0070382	CC	exocytic vesicle	26/765	37/2446	2485650355	SCAMP1/VDAC2/STX3/STX12/RAB35/RAB27A/STX10/ADAM10/STX7/STX6/VAMP4/SEC22B/RAB3D/APP/RAB5A/RAB6A/RAB13/CLC	26
GO:0030141	CC	secretory granule	75/765	152/2446	2862866358	SCAMP1/MAGT1/BSG/RAB18/STX3/DDOST/ECE1/EBAG9/BRI3/SPARC/MGST1/PTPRB/VEZT/ABCA3/METTL7A/RAB27	75
GO:0035579	CC	specific granule membrane	13/765	14/2446	5785407424	SCAMP1/PTPRB/SNAP23/ADAM10/CYBA/STOM/HMOX2/CKAP4/PLD1/ANO6/CD93/TMEM30A/CMTM6	13
GO:0005773	CC	vacuole	72/765	148/2446	8738224294	ATP11C/SCAMP1/DDOST/TSC2/TPP1/ECE1/TMEM106B/LRBA/BRI3/SLC3A2/MGST1/CLCN7/RAB27A/NSF/SNAP23/RAB29/STX7	72
GO:0033116	CC	endoplasmic reticulum-Golgi intermediate compartment membrane	18/765	23/2446	9433588405	ROBO1/TAP1/GOSR2/SEC22B/TMED10/BCAP31/STX17/RAB2A/LMAN2/STX5/TMED2/YIF1B/PIEZO1/ERGIC1/TBC1D20/TMED9/CTSZ	18
GO:0035577	CC	azurophil granule membrane	14/765	16/2446	1,0455BE+14	MAGT1/DDOST/BRI3/MGST1/NDUFC2/RAB3D/SNAP29/STOM/RAB5C/CKAP4/LPCAT1/TMEM30A/CMTM6/NAPA	14
GO:0031304	CC	intrinsic component of mitochondrial inner membrane	19/765	25/2446	1,05693E+14	APOOL/SFXN3/CHCHD3/OXA1L/SCO1/CHCHD6/MTX2/TMEM11/SLC25A3/MTX1/IMMT/SFXN4/MCU/SFXN2/SFXN1/SLC25A19/DNAJ	19
GO:0031305	CC	integral component of mitochondrial inner membrane	19/765	25/2446	1,05693E+14	APOOL/SFXN3/CHCHD3/OXA1L/SCO1/CHCHD6/MTX2/TMEM11/SLC25A3/MTX1/IMMT/SFXN4/MCU/SFXN2/SFXN1/SLC25A19/DNAJ	19
GO:0005774	CC	vacuolar membrane	49/765	92/2446	1,38649E+14	ATP11C/MAGT1/DDOST/ECE1/TMEM106B/BRI3/SLC3A2/MGST1/CLCN7/NSF/STX7/NDUFC2/RAB3D/SNAP29/RPN2/HSP90AB1/STOI	49
GO:0005795	CC	Golgi stack	24/765	36/2446	2,27085E+14	COG2/GOLIM4/NSF/USO1/ST6GAL1/BCAP31/RAB14/MGAT2/GALNT2/GALNT1/TMEM115/TMED2/RASIP1/LPCAT2/TMEM87A/GOLI	24
GO:0009925	CC	basal plasma membrane	24/765	36/2446	2,27085E+14	BSG/CTNNB1/SLC3A2/SLC16A3/ABCC4/TFRC/SLC4A2/ATP1A1/HSP90AB1/TACSTD2/SLC2A1/ITGB4/SLC9A1/ATP2B1/ATP2B4/ITGA3/	24
GO:0030133	CC	transport vesicle	43/765	79/2446	2,35244E+14	SCAMP1/VDAC2/STX3/GOSR2/STX12/YIPF3/RAB35/GOLIM4/RAB27A/STX10/ADAM10/STX7/TGOLN2/STX6/USO1/VAMP4/SEC22B/	43
GO:0016324	CC	apical plasma membrane	30/765	50/2446	3,95686E+14	RAB18/STX3/SLC3A2/RAB27A/HAX1/SLC16A3/ABCC4/HIP1R/SLC4A2/ATP1A1/HSP90AB1/SLC2A1/GJA1/SLC9A1/ATP2B1/ABCC1/AT	30
GO:0005811	CC	lipid droplet	22/765	33/2446	4,90069E+14	RAB18/IRAK1/METTL7A/CTDNEP1/ZW10/ACSL4/ACSL3/CYB5R3/RAB5C/BCAP31/UBE2G2/CAV1/CKAP4/NSDHL/LPCAT2/SCCPDH/LPI	22
GO:0044232	CC	organelle membrane contact site	13/765	16/2446	8,41211E+14	TMCC1/ACSL4/TOMM40/BCAP31/STX17/RAB32/TMEM106B/MBOAT7/CLCC1/RMDN3/OSBPL5/SACM1L/TMX2	13
GO:0042581	CC	specific granule	21/765	32/2446	9,6041E+14	SCAMP1/STX3/PTPRB/RAB27A/SNAP23/QSOX1/ADAM10/CYBA/JUP/STOM/HMOX2/CLCN3/CKAP4/SRX4/PLD1/ANO6/CANT1/CD93/	21
GO:0009897	CC	external side of plasma membrane	14/765	18/2446	9,89461E+14	BCAM/ECE1/ABCC4/CLPTM1/TFRC/THBS1/HLA-E/ITGA3/CDH5/MCAM/CLCN3/CXCR4/ADAM9/CLEC14A	14
GO:0045177	CC	apical part of cell	33/765	59/2446	9,89461E+14	RAB18/STX3/SLC3A2/MGST1/RAB27A/HAX1/SLC16A3/ABCC4/HIP1R/SLC4A2/ATP1A1/HSP90AB1/SLC2A1/GJA1/SLC9A1/ATP2B	33
GO:0005765	CC	lysosomal membrane	43/765	84/2446	1,32645E+14	ATP11C/MAGT1/DDOST/ECE1/TMEM106B/BRI3/SLC3A2/MGST1/CLCN7/NSF/STX7/NDUFC2/RAB3D/SNAP29/HSP90AB1/STOM/GN	43
GO:0098852	CC	lytic vacuole membrane	43/765	84/2446	1,32645E+14	ATP11C/MAGT1/DDOST/ECE1/TMEM106B/BRI3/SLC3A2/MGST1/CLCN7/NSF/STX7/NDUFC2/RAB3D/SNAP29/HSP90AB1/STOM/GNJ	43
GO:0000323	CC	lytic vacuole	62/765	134/2446	1,9324E+14	ATP11C/MAGT1/STX3/DDOST/TSC2/TPP1/ECE1/TMEM106B/LRBA/BRI3/SLC3A2/MGST1/CLCN7/RAB27A/NSF/SNAP23/STX7/VAMP=	62
GO:0005764	CC	lysosome	62/765	134/2446	1,9324E+14	ATP11C/MAGT1/STX3/DDOST/TSC2/TPP1/ECE1/TMEM106B/LRBA/BRI3/SLC3A2/MGST1/CLCN7/RAB27A/NSF/SNAP23/STX7/VAMP=	62
GO:0016323	CC	basolateral plasma membrane	19/765	29/2446	2,07739E+14	BSG/CTNNB1/SLC3A2/SLC16A3/ABCC4/TFRC/SLC4A2/ATP1A1/HSP90AB1/SLC2A1/SLC9A1/ATP2B1/ATP2B4/ITGA3/ABCC1/SLC16A1,	19
GO:0031985	CC	Golgi cisterna	17/765	25/2446	2,31311E+14	GOLIM4/ST6GAL1/BCAP31/GALNT2/GALNT1/TMEM115/TMED2/TMEM87A/GOLGA5/CSGALNACT1/SCFD1/CANT1/YIPF6/COG3/FU1	17
GO:0030670	CC	phagocytic vesicle membrane	16/765	23/2446	2,38061E+14	TAP1/SNAP23/SEC22B/CYBA/HLA-E/RAB5A/RAB8A/RAB10/STX4/TCIRG1/RAB32/VAMP3/RAB34/RAB22A/PIKFYVE/TAP2	16
GO:0017119	CC	Golgi transport complex	9/765	10/2446	2,74079E+14	COG4/COG8/COG2/COG7/TMEM115/COG1/COG3/COG6	9
GO:0044233	CC	mitochondria-associated endoplasmic reticulum membrane	9/765	10/2446	2,74079E+14	ACSL4/TOMM40/BCAP31/STX17/RAB32/TMEM41B/MBOAT7/CLCC1/TMX2	9
GO:0048471	CC	perinuclear region of cytoplasm	72/765	163/2446	3,15906E+14	DNAJB6/UNC45A/CTNNB1/TSC2/ECE1/PTPRM/BRI3/STX10/ADAM10/RAB29/STX7/STX6/USO1/ATP9A/HIP1R/ACSL3/TFRC/APP/ITGI	72
GO:0055037	CC	recycling endosome	27/765	48/2446	3,47061E+14	ATP11C/SCAMP1/TPP1/STX12/RAB35/SCAMP3/RAB29/STX7/DPY19L1/HLA-E/SLC1A1/RAB13/CLCN3/RAB8A/RAB10/	27
GO:0043235	CC	receptor complex	21/765	35/2446	4,93846E+14	PTPRB/ACVRL1/TFRC/APP/ITGB1/HSP90AB1/ITGB4/ITGA6/ITGA3/EPHA2/TIE1/FLT4/NOTCH1/TEK/ACVR1/TRADD/CALCRL/ABHD12/	21
GO:0098797	CC	plasma membrane protein complex	32/765	61/2446	5,09579E+14	CTNNB1/COL13A1/SLC3A2/ACVRL1/TFRC/GNAI2/ATP1A1/ITGB1/CYBA/HLA-E/JUP/ITGB4/GJA1/ITGA6/ITGA3/GNA11/CDH5/CTNNA	32
GO:0032580	CC	Golgi cisterna membrane	14/765	20/2446	5,09579E+14	GOLIM4/ST6GAL1/BCAP31/GALNT2/GALNT1/TMEM115/TMED2/TMEM87A/CSGALNACT1/SCFD1/CANT1/YIPF6/COG3/FUT8/B4GALT7	14
GO:0045178	CC	basal part of cell	24/765	42/2446	5,17781E+14	BSG/CTNNB1/SLC3A2/SLC16A3/ABCC4/TFRC/SLC4A2/ATP1A1/HSP90AB1/TACSTD2/SLC2A1/ITGB4/SLC9A1/ATP2B1/ATP2B4/ITGA3/	24
GO:0005768	CC	endosome	83/765	196/2446	5,32655E+14	ATP11C/SCAMP1/BSG/TM9SF4/CLN6/GOSR2/TPP1/ECE1/STX12/VPS8/TMEM106B/IRAK1/WLS/RAB35/GOLIM4/RFTN1/GPR107/RAI	83
GO:0031965	CC	nuclear membrane	41/765	84/2446	5,93816E+14	CEPT1/DPY19L1/TMEM120B/RNF123/EI24/AAAS/NUP93/SMPD4/CTDNEP1/UNC50/HAX1/SLC3A2/ZMPSTE24/ITGB4/DNAJB2/CDH	41
GO:0005793	CC	endoplasmic reticulum-Golgi intermediate compartment	23/765	40/2446	5,97407E+14	ROBO1/TAP1/GOSR2/SEC22B/PTPN2/TMED10/BCAP31/STX17/RAB2A/LMAN2/STX5/TMED2/YIF1B/TMED9/ERGIC1/T	23
GO:0001669	CC	acrosomal vesicle	9/765	11/2446	9,23083E+14	BSG/VDAC2/VEZT/CD46/CTNNA1/NOTCH1/CAV1/ADAM15/POMT1	9
GO:0030173	CC	integral component of Golgi membrane	9/765	11/2446	9,23083E+14	UNC50/QSOX1/GALNT2/YIF1B/QSOX2/SLC35B2/CSGALNACT1/ERGIC1/TBC1D20	9
GO:0031228	CC	intrinsic component of Golgi membrane	9/765	11/2446	9,23083E+14	UNC50/QSOX1/GALNT2/YIF1B/QSOX2/SLC35B2/CSGALNACT1/ERGIC1/TBC1D20	9
GO:0031306	CC	intrinsic component of mitochondrial outer membrane	9/765	11/2446	9,23083E+14	RHOT1/MFN2/TOMM40/CPT1A/RHOT2/MGARP/FUNDC2/MFF/ARMCX3	9
GO:0098799	CC	outer mitochondrial membrane protein complex	9/765	11/2446	9,23083E+14	APOOL/CHCHD3/CHCHD6/MTX2/TOMM40/MTX1/IMMT/TOMM22/DNAJC11	9
GO:0070821	CC	tertiary granule membrane	10/765	13/2446	1,02281E+13	PTPRB/SNAP23/ADAM10/CYBA/STOM/RAB14/PLD1/ANO6/NBEAL2/CD93	10
GO:0030666	CC	endocytic vesicle membrane	22/765	39/2446	1,02281E+14	TAP1/WLS/SNAP23/SEC22B/CYBA/HLA-E/RAB5A/NOS3/RAB8A/RAB10/RAB14/STX4/TCIRG1/RAB32/SCARF1/VAMP3/TBC1D5/RAB34	22
GO:0030139	CC	endocytic vesicle	40/765	84/2446	1,14776E+14	HYOU1/TAP1/STX12/WLS/SPARC/RAB35/GOLIM4/SNAP23/STX7/STX6/SEC22B/RALA/IGF2R/CYBA/HLA-E/RAB5A/NOS3/RAB5C/RAB	40
GO:0099023	CC	vesicle tethering complex	23/765	42/2446	1,32174E+14	COG4/EXOC6B/NBAS/COG8/COG2/VPS8/ZW10/STX17/RAB10/COG7/TMEM115/RINT1/EXOC8/EXOC6/COG1/EXOC4/COG3/EXOC2/	23
GO:0005635	CC	nuclear envelope	59/765	136/2446	1,58321E+14	CEPT1/DPY19L1/TMEM120B/RNF123/EI24/AAAS/NUP93/SMPD4/CTDNEP1/UNC50/HAX1/SLC3A2/XPO7/ZMPSTE24/APP/S	59
GO:1990351	CC	transporter complex	14/765	22/2446	1,7895E+14	ATP1A1/SLC9A1/TIMM10/PKD2/ANO6/LRRC8D/LRRC8A/ABHD12/MCU/LRRC8C/CLCC1/TTYH3/ABCB8/TMEM30A	14
GO:0030134	CC	COPII-coated ER to Golgi transport vesicle	18/765	31/2446	1,81245E+14	GOSR2/USO1/SEC22B/APP/HLA-E/TMED10/STX17/LMAN2/STX5/TMED4/ERGIC1/VTI1A/YIPF6/TMED9/CTSZ/VTI1B	18
GO:0098552	CC	side of membrane	33/765	68/2446	1,97981E+14	HM13/BCAM/ECE1/ABCC4/CLPTM1/TFRC/GNAI2/S100A6/THBS1/HLA-E/JUP/ATP2A1/ATP2B1/RAB5A/ITGA3/GNA11/CDH5/	33
GO:0031307	CC	integral component of mitochondrial outer membrane	8/765	10/2446	2,09218E+14	RHOT1/TOMM40/CPT1A/RHOT2/MGARP/FUNDC2/MFF/ARMCX3	8
GO:0005637	CC	nuclear inner membrane	11/765	16/2446	2,15742E+14	DPY19L1/TMEM120B/UNC50/ZMPSTE24/LRPRRC/EMD/LBR/LEMD2/TMEM43/SUN2/LEMD3	11
GO:0045121	CC	membrane raft	30/765	61/2446	2,2351E+14	BSG/CLN6/TPP1/STX12/ERLIN2/RFTN1/GNAI2/ATP1A1/APP/ITGB1/HMOX1/SLC2A1/PECAM1/GJA1/HK1/SLC9A1/ATP2B1/RAB5A/A1	30
GO:0098857	CC	membrane microdomain	30/765	61/2446	2,2351E+14	BSG/CLN6/TPP1/STX12/ERLIN2/RFTN1/GNAI2/ATP1A1/APP/ITGB1/HMOX1/SLC2A1/PECAM1/GJA1/HK1/SLC9A1/ATP2B1/RAB5A/A1	30
GO:0055038	CC	recycling endosome membrane	15/765	25/2446	2,5282E+14	SCAMP1/STX12/RAB35/SCAMP3/HLA-E/SLC1A1/RAB13/RAB8A/RAB10/VAMP3/SCAMP4/EHD4/CMTM6/VTI1B	15
GO:0045335	CC	phagocytic vesicle	22/765	42/2446	3,01728E+14	TAP1/STX12/SNAP23/STX6/SEC22B/CYBA/HLA-E/RAB5A/CLCN3/RAB8A/RAB10/RAB14/STX4/TCIRG1/RAB32/VAMP3/RAB34/ZDHHC	22
GO:0030135	CC	coated vesicle	42/765	94/2446	3,29894E+14	SCAMP1/GOSR2/ECE1/RAB35/GPR107/RAB27A/HAX1/ADAM10/TGOLN2/STX6/USO1/HIP1R/VAMP4/SEC22B/TFRC/APP/IGF2R/HLA	42
GO:1902495	CC	transmembrane transporter complex	12/765	19/2446	3,56408E+14	ATP1A1/SLC9A1/TIMM10/PKD2/ANO6/LRRC8D/LRRC8A/MCU/LRRC8C/CLCC1/TTYH3/ABCB8	12
GO:0098590	CC	plasma membrane region	70/765	172/2446	3,74559E+14	BSG/RAB18/STX3/CTNNB1/COL13A1/WLS/SLC3A2/RAB35/VEZT/RAB27A/ICAM2/HAX1/SLC16A3/ABCC4/HIP1R/SNAP29/T	70
GO:0005766	CC	primary lysosome	20/765	38/2446	4,01595E+14	MAGT1/STX3/DDOST/BRI3/MGST1/SNAP23/STX7/NDUFC2/RAB3D/SNAP29/CYB5R3/PYGB/STOM/RAB5C/CKAP4/LPCAT1/FAF2/TME	20
GO:0042582	CC	azurophil granule	20/765	38/2446	4,01595E+14	MAGT1/STX3/DDOST/BRI3/MGST1/SNAP23/STX7/NDUFC2/RAB3D/SNAP29/CYB5R3/PYGB/STOM/RAB5C/CKAP4/LPCAT1/FAF2/TME	20

GO:0042470	CC	melanosome	24/765	48/2446	4,10258E+14	BSG/STX3/TPP1/SLC3A2/RAB35/RAB27A/RAB29/SEC22B/TFRC/RPN1/ATP1A1/ITGB1/HSP90AB1/CNP/SLC2A1/RAB5A/STOM/TMED:	24
GO:0048770	CC	pigment granule	24/765	48/2446	4,10258E+14	BSG/STX3/TPP1/SLC3A2/RAB35/RAB27A/RAB29/SEC22B/TFRC/RPN1/ATP1A1/ITGB1/HSP90AB1/CNP/SLC2A1/RAB5A/STOM/TMED:	24
GO:0005778	CC	peroxisomal membrane	14/765	24/2446	4,41353E+14	PEX1/PEX5/ACBD5/ACSL1/MGST1/ALDH3A2/ACSL4/ACSL3/ABCD3/ABCD1/MAP2K2/PEX6/MAVS/ATAD1	14
GO:0031903	CC	microbody membrane	14/765	24/2446	4,41353E+14	PEX1/PEX5/ACBD5/ACSL1/MGST1/ALDH3A2/ACSL4/ACSL3/ABCD3/ABCD1/MAP2K2/PEX6/MAVS/ATAD1	14
GO:0030672	CC	synaptic vesicle membrane	8/765	11/2446	4,53968E+14	SCAMP1/STX12/RAB35/STX10/STX6/VAMP4/RAB5A/VAMP3	8
GO:0099501	CC	exocytic vesicle membrane	8/765	11/2446	4,53968E+14	SCAMP1/STX12/RAB35/STX10/STX6/VAMP4/RAB5A/VAMP3	8
GO:0005769	CC	early endosome	42/765	96/2446	4,68937E+14	TM9SF4/CLN6/STX12/VPS8/WLS/RFTN1/GPR107/MGRN1/RAB29/STX7/STX6/ATP9A/SNX4/TFRC/APP/IGF2R/HLA-E/GJA1/PTPN1/RA	42

Table S5. Differentially regulated proteins in shSEC22B and shSTX5 endothelial cells.

shCTRL A	shCTRL B	shCTRL C	shSEC22B 159152 A	shSEC22B 159152 B	shSEC22B 159152 C	shSEC22B 159288 A	shSEC22B 159288 B	shSEC22B 159288 C	shSTX5 59826 A	shSTX5 59826 B	shSTX5 59826 C	shSTX5 59827 A	shSTX5 59827 B	shSTX5 59827 C	Untransduced A	Untransduced B	Untransduced C	Gene name	Correlation cluster	Regulated by
30.23008943	30.38555934	30.14479433	29.57287977	29.94893377	29.6503754	30.24524524	30.21754868	29.94251621	28.3301413	28.4172369	28.5327451	29.3750923	29.0812649	29.2628662	30.2067619	29.97951041	29.99293976	ACAT1	1	STX5
27.34053512	27.24717103	27.51209096	27.24445152	27.47351699	27.09727956	26.48319225	NA	26.78144276	NA	NA	26.6499302	NA	NA	NA	NA	NA	26.75506319	CD63	1	STX5
25.47540467	25.61837721	25.84340393	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	26.05465532	25.48105293	26.18012238	CREB1	1	SEC22B, STX5
30.26472392	30.32635278	30.26852137	27.14180156	26.81787483	27.3900162	31.36202112	30.90591145	31.1369342	29.2740878	28.7231548	28.8434698	27.7101714	27.5546453	27.6247767	30.74518945	31.03091638	30.77266111	EFEMP1	1	STX5
35.47311898	35.10968873	35.34314576	33.92768893	33.50403196	33.59890191	36.90477264	36.94251184	37.17849469	34.1093774	33.6472089	33.7954644	33.6540559	33.2716968	33.2479915	35.1943608	35.14910981	35.08079967	FN1	1	STX5
28.81231531	28.4909839	28.36765543	28.08542456	26.57022169	27.02104553	27.03611491	27.3786518	27.59704662	26.9813082	26.920594	27.3281734	26.3464652	26.4090516	26.5085139	28.67033641	28.40944824	28.58373236	GRN	1	SEC22B, STX5
26.32697417	26.46151442	26.2247551	NA	NA	24.49234465	31.94363436	31.93266004	31.99742223	24.8451761	25.2486917	24.0279148	NA	NA	NA	27.22370611	27.71279712	27.80636554	IGFBP7	1	STX5
29.30014051	28.99023682	29.12045408	28.15450834	28.04207798	28.01179984	30.03249367	30.39130755	30.17080907	28.0818236	27.4581069	27.8037201	25.922	25.9329655	26.1534843	28.47908009	28.69252132	28.46349581	LTBP1	1	STX5
26.32890949	26.36668039	26.52169149	NA	NA	27.4540324	27.2654395	27.57195813	NA	NA	24.9483769	NA	NA	NA	NA	26.8062426	26.63159207	26.57369249	LTBP2	1	STX5
28.06686743	27.78044185	27.92212641	26.53506139	26.82262315	26.31342295	28.29824049	27.91090802	28.18517972	26.7610376	26.5333096	26.4451225	26.8595835	26.7960024	26.6205881	27.43205197	28.01105335	27.66044143	MAOA	1	STX5
30.81191738	30.76864455	30.75827593	29.33212785	29.32425091	29.63709729	30.41780025	30.39519511	30.40446245	28.4027154	28.2655289	28.1147077	29.7845506	29.9215307	29.5615626	31.10017801	30.88554671	30.80470504	MMRN2	1	STX5
25.64839489	26.49596198	26.10860932	25.30949051	NA	25.56508697	25.38162506	24.90504209	NA	NA	25.5858036	NA	NA	NA	25.57441452	25.59089378	25.83093758		1	STX5
28.05346466	28.42642415	28.21618449	27.9686762	27.5896372	27.65724157	27.75206668	27.81200922	28.13775267	26.6142823	26.6281189	26.4426254	27.0034599	26.8075943	26.9667526	27.69869365	27.3711086	27.59077959	NIPSNAP1	1	STX5
25.30758106	25.03006393	25.10976531	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	25.88201365	25.30260462	25.95599907	NTN4	1	STX5
25.20254595	25.53747768	25.61647144	25.4567918	25.40801507	25.412383	25.85357608	25.84302048	26.11628526	24.9937335	NA	24.6481754	NA	24.6003685	NA	25.96974133	26.03309259	26.09105648	PCDH10	1	STX5
25.36359259	25.48726204	25.37471104	25.76759367	25.35444068	25.47385755	25.40447869	25.02791477	25.15090073	NA	NA	NA	24.496922	24.9685993	NA	24.92474474	25.04789173	24.9812429	PIP5K1C	1	STX5
28.22999778	28.03773889	28.17944862	27.37285284	27.39607348	27.33602895	29.25745863	28.9760993	28.65263357	26.7490639	26.7261144	26.7774349	26.2804206	26.1567856	26.4819922	28.08050267	28.28330289	28.42930068	PYCR1	1	STX5
25.88310974	25.77386862	26.07632877	25.88683487	26.07742941	25.77484898	27.44007645	26.82310927	26.81225409	24.2971211	NA	24.6805664	NA	NA	NA	26.5927766	26.74265421	26.28714872	PYCR2	1	STX5
24.92474474	25.52880176	25.68461145	NA	NA	24.79436708	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	24.54073253	24.93701347	QSOX2	1	STX5
25.84496067	26.17420918	25.62731189	25.36101716	NA	25.54008215	26.02455821	26.32993604	25.83414869	NA	24.8892046	NA	NA	NA	NA	26.02312032	25.66383777	25.66955271	RIF1	1	STX5
30.85549025	31.06618741	30.75771978	31.43966044	31.27169684	31.36416266	30.62121718	30.45454235	30.49667065	29.6001522	29.5743423	29.4256441	29.2104594	29.2373567	29.3695911	30.16734349	30.11458357	30.24547194	SH3BGRL	1	STX5
26.43264142	26.3948477	25.66133884	25.43096803	25.81984911	25.75608187	NA	NA	NA	NA	NA	24.4008034	NA	NA	NA	25.94937915	26.04693481	25.7464522	SYNM	1	STX5
25.91754709	25.37607	25.55496725	NA	NA	NA	NA	NA	NA	24.607836	NA	NA	NA	NA	NA	25.52886136	25.02808345	25.24796777	TACSTD2	1	SEC22B, STX5
NA	NA	NA	26.78094239	26.4322591	26.52602754	NA	NA	NA	NA	NA	26.6758642	26.4562121	26.1908411	NA	NA	NA	NA	AFAP1L1	2	SEC22B
NA	NA	NA	26.71161615	26.80636554	26.5567806	25.79012155	26.05355788	NA	25.7594638	25.7243198	25.6999911	26.2406174	26.095027	25.8210664	NA	NA	NA	AGO1	2	SEC22B, STX5
NA	NA	NA	26.38066768	26.95925345	25.7665831	25.74995901	26.04393509	NA	NA	NA	25.9040315	NA	NA	NA	NA	NA	NA	AGPAT1	2	SEC22B
28.84828405	29.13560166	28.97254317	29.85196609	30.14297021	30.05452595	30.30606808	30.09471504	29.1713819	29.6102919	29.3922088	29.5156667	29.3602637	29.321974	28.94519831	29.29756286	29.11063169		AK3	2	SEC22B
26.27923423	26.03795877	26.25880682	27.02886332	27.89029527	27.54752919	27.3378161	27.3069556	27.97185829	26.6512996	25.893053	26.7219497	28.4663722	27.7863123	27.8898893	NA	26.30293576	26.39067227	APOC3	2	SEC22B
NA	NA	NA	25.99392777	NA	25.53198701	25.60002813	24.66394632	26.458326	26.9721323	26.7439384	25.7485522	25.8411017	25.2630588	25.18196174	NA	25.80769256		APPL2	2	SEC22B, STX5
29.33287478	29.22953946	29.71337086	30.81596807	30.45032006	30.49018061	30.5995671	30.77462594	30.71947113	29.9145621	30.0905569	30.1305047	30.0749518	30.1836426	30.1781904	30.53296796	30.02194568	30.33031226	ARPC3	2	SEC22B
NA	NA	NA	27.7079358	NA	27.44442752	27.00955922	26.92592201	NA	NA	NA	NA	28.8186064	27.7002822	27.6351953	NA	NA	NA	ATP6AP2	2	SEC22B
27.39140999	25.81999524	26.15216939	29.04609177	29.97541611	29.14011997	28.96375208	28.51634321	28.90592579	28.0694819	28.4083553	28.4378563	28.0130786	28.2921523	27.839721	26.60978136	26.30975069	26.63878964	BICD2	2	SEC22B, STX5
25.29263506	NA	25.47707367	26.90138676	26.71135357	26.85174275	27.18876781	27.28859266	26.65526364	27.0051746	27.2644555	26.8964292	27.3028661	27.4669995	27.2991144	27.67485463	27.92223985	27.68618888	BIN1	2	SEC22B, STX5
25.18570905	24.8811035	NA	25.87112428	25.81369803	25.55042385	25.59789911	25.09663635	26.0100503	26.2004146	26.064166	25.7366288	25.7421659	25.5143955	25.15915563	NA	NA	NA	BNIP1	2	STX5
24.39185244	24.64921758	NA	25.76817443	25.95251518	26.02780934	25.77210733	25.74783547	26.10795119	26.1028154	26.0830215	26.1389148	24.9367889	25.2087351	25.1152536	25.98997166	25.69763362	25.88778789	BRD4	2	SEC22B
26.30535596	26.15830828	26.39275331	27.72292684	27.76407888	27.70272786	27.74406679	27.73918109	28.31704275	28.2673162	27.9691155	28.1575472	27.0437474	26.9496018	26.7781872	26.71332169	27.56005056	27.39737982	CBX1	2	SEC22B
30.6462434	30.61745617	30.58530935	31.7876828	31.73976857	31.81130496	32.01733976	31.98243753	31.83424516	32.0443013	31.6486452	32.0638434	30.9174816	30.729068	30.9988685	30.46626053	30.67109605	30.48577367	CD9	2	SEC22B
NA	NA	NA	25.51337172	24.8381225	25.33101313	25.06755483	26.08107183	NA	NA	25.0703011	24.7958538	25.336063	25.1454602	25.2991493	27.23708316	26.96422046	26.82711356	CDH1	2	SEC22B, STX5
NA	NA	NA	28.49533685	28.3600125	26.85174275	27.19131183	28.62968284	28.07423727	27.6707416	27.6753932	27.5832661	28.2582677	28.7268615	29.0962744	28.0403021	28.63554134	27.57036647	CFDP1	2	SEC22B, STX5
NA	NA	NA	25.84677872	25.73127759	25.79317661	25.76564768	25.68955187	NA	NA	NA	NA	25.5630221	25.7411631	25.3757718	NA	NA	NA	CHMP4A	2	SEC22B
27.73130349	28.15822159	27.96515676	28.94218059	29.25421783	28.78861649	29.31170491	29.34747931	29.53963854	28.2826403	28.225454	27.9913997	28.6470502	28.9561542	28.9575109	29.02427286	28.9054381	28.93691241	CIRBP	2	SEC22B
NA	NA	NA	28.24213591	28.71943849	28.75579544	27.52065788	27.64951911	27.64485197	27.1674871	NA	27.5320019	27.8613596	27.8186064	NA	NA	NA	NA	CNIH4	2	SEC22B, STX5
NA	NA	NA	25.8499548	NA	28.73075304	28.73062349	28.78338006	27.1497685	27.78706	26.1673148	27.2166008	26.7287113	26.5750207	NA	NA	NA	NA	COL6A3	2	STX5
NA	NA	25.63464158	26.71109096	26.83701575	26.79525928	26.78668621	26.62310273	26.81750893	25.932515	NA	26.1631162	26.3854318	26.2789862	NA	27.01924356	27.07398201	27.28162375	CSTF1	2	SEC22B
27.91461917	27.04447717	27.77925236	28.76739793	28.85549025	28.49933455	28.70833057	28.94066936	29.22124168	28.330013	27.8956784	28.1528657	27.2755093	27.3242295	27.6887252	27.87249876	27.92013965	27.75665455	CUTA	2	SEC22B
25.14328169	25.22460792	24.97897608	26.48721603	26.63823725	26.50800001	26.42322929	26.67976142	26.26527852	26.0053674	26.0549451	26.134476	26.0866904	26.0020867	25.9445394	25.84040549	25.60772312	25.42940444	DHRS1	2	SEC22B
26.60667878	26.72987835	26.29108974	28.09270045	28.38968805	28.00190422	27.96046919	28.39296616	28.17212142	28.4595928	28.7188182	28.4737492	27.7158108	27.6038525	27.6302038	27.58262026	27.74104733	27.55545006	DNAJC7	2	SEC22B, STX5
25.72148036	25.57065599	25.71866143	27.26212697	27.22315371	27.41675385	25.86495236	26.02591022	26.38756971	27.1243545	27.2052709	27.2763083	27.7667979	27.5932754	27.5114125	26.0173756	26.00705842	26.2335951	EFNB1	2	STX5
NA	NA	NA	25.83004299	25.25400152	25.86057837	25.80855201	25.70701424	25.60481403	26.0141647	25.8774337	26.4064264	NA	25.0741862	NA	NA	NA	25.58106907	EIF1AD	2	SEC22B, STX5
26.63394907	NA	NA	26.54467289	26.72974872	26.3595099	26.62072793	26.53497237	NA	27.0759209	26.7843165	26.9522708	26.6420995	26.8190938	27.2734654	26.93966099	26.44540668	26.80020595	EIF2B3	2	STX5
26.48083728	26.53734437	26.10835009	27.69218873	27.46037428	27.6681058	27.46995153	27.52163159	27.74611899	27.7635724	27.7905442	27.8624242	27.2721308	27.1695911	27.2713295	27.32748823	27.60116232	27.33790115	EIF4G3	2	SEC22B
NA	NA	NA	28.05393069	28.23329338	28.12602996	NA	28.17426634	28.15995439	NA	NA	27.6643126	NA	NA	NA	NA	NA	NA	ELOVL1	2	SEC22B
28.51054501	28.78012892	28.49876413	29.8483139	29.91541724	29.93382102	30.20862345	30.11768281	30.25282024	29.9528262	29.9562927	30.0596918	28.0556899	27.7795029	27.824688	28.17331343	28.15339733	28.14850839	EPHA2	2	SEC22B
NA	NA	NA	27.86354704	27.44340027	27.76154494	27.23662709	27.46388553	27.56884552	26.7349248	27.2698147	27.2775503	NA	26.1737328	26.4011615	27.10149357	27.32671708	26.57758718	EPN1	2	SEC22B, STX5
NA	NA	NA	27.62470701	27.8803446	27.90964977	25.86735831	26.2168783	26.41438459	26.6965728	25.9181615	26.1717875	26.5107035	NA	26.1186237	24.38561282	NA	NA	FAS	2	SEC22B
25.63588725	26.24241762	26.01775788	27.79841474	27.89261304	28.1841394	27.82784042	27.38681358	27.325774	28.0865891	27.9538254	27.9261483	27.1971367	27.2018172	27.0616757	27.88046138	27.49381099	27.69025817	FKBP15	2	SEC22B, STX5
26.14670353	NA	26.05262543	27.63961782	28.20443159	27.74983118	26.91182242	27.19403931	26.95038076	26.081275	26.1256359	25.9905128	27.5135976	27.2191886	27.6090768	26.55996307	26.70990858	26.78656159	GBP2	2	SEC22B, STX5
NA	25.91825254	NA	25.46145197	25.9514706	25.82614384	26.37471104	25.48833517	25.42934059	25.9978946	26.6317308	26.0600063	NA	NA	NA	23.93093725	NA	NA	GIGYF1	2	SEC22B
NA	NA	NA	27.91050778	27.92767481	27.86514121	28.67367586	28.48945343	28.53006777	27.6320083	27.7614181	27.6080899	27.4119953	27.2551188	27.513974	27.44181846	27.49304746	27.47753694	GOLGA4	2	SEC22B, STX5
27.21632328	27.61680794	27.57845124	28.47529643	28.71571262	28.51765774	28.97555277	28.9749787	28.83584191	27.2770182	27.722536	27.3762522	27.7609742	28.0784172	27.6780829	28.3248303	28.11679091	28.28343537	GOLGB1	2	SEC22B
NA	NA	25.44059928	26.65116274	26.8793516	26.68431716	26.42051732	26.34207928	26.20234043	26.6965728	26.7550632	26.6634306	26.5836248	25.8736373	26.3263056	26.39886436	26.00077664	26.18601144	GRIPAP1	2	SEC22B, STX5

																		Gene		Category
NA	NA	NA	26.31480629	26.58477193	26.07979091	26.20306895	26.13961755	25.89010969	26.3745618	26.2175625	26.5457483	NA	NA	NA	26.14376824	26.24119953	NA	GTF2E1	2	SEC22B
25.24212682	25.29949871	24.75414577	27.02538224	27.09093538	26.70951424	26.73673202	26.4526036	25.84071762	25.5255497	NA	24.639811	27.0451024	27.1183266	27.016377	NA	NA	NA	GXYLT1	2	SEC22B
26.77366744	26.73505394	26.4696566	29.66227645	29.93480536	29.63991102	28.69604212	29.54336801	29.32223196	32.1053394	32.1839383	32.261505	27.2950025	26.7425257	26.494391	30.05736946	29.97404876	29.86792678	HMOX1	2	SEC22B
30.54701429	30.64400959	30.42171748	31.8177605	31.55041287	31.7292301	31.22112642	32.1277096	31.87540201	31.8855467	31.8960538	32.0192303	30.32206	30.2590089	30.2997476	30.40202409	30.49228352	30.52729226	HSPA1B;HSPA1A	2	SEC22B
NA	NA	NA	25.20445025	25.31267886	25.38221898	25.11890085	25.01852213	25.21793226	24.9172511	24.7813677	25.0352341	25.1336336	25.0179278	25.0372466	24.63173082	25.6901649	NA	IFITM2;IFITM3;IFITM1	2	SEC22B, STX5
30.23546345	30.38277968	30.33564571	31.49609917	31.540424	31.58866367	31.47716054	31.4889844	31.62714488	31.5714519	31.8368427	31.9299122	31.2597947	31.1994086	31.1418746	30.14807194	30.10086727	30.17605134	IGF2BP1	2	SEC22B
NA	NA	NA	24.74051988	25.29014066	NA	25.3967268	25.41425554	25.20638931	NA	25.0244525	25.0178004	NA	NA	NA	24.66237153	NA	NA	IRF2BPL	2	SEC22B
NA	25.04410191	24.91556541	NA	NA	NA	26.00868336	25.45854504	NA	26.6028619	26.5940589	26.7655971	25.9258315	25.2972611	26.1326927	26.00223696	25.61175225	25.97373134	IRF6	2	STX5
25.21018529	26.13686332	25.38564573	26.55904409	26.81445612	26.57744312	27.01616439	26.99194026	26.56955549	NA	NA	NA	26.3823674	25.8146028	25.9710141	25.71581079	25.63161982	25.10593504	KDELC1	2	SEC22B
24.03800065	NA	NA	25.68731075	26.03363875	25.80963175	24.69386423	25.48732338	25.36074932	24.4263682	25.0562276	24.825222	NA	24.382252	NA	NA	NA	NA	KDELR1;KDELR2	2	SEC22B
24.76855306	23.86315708	25.49246691	26.62198566	26.90035054	26.65157336	27.25979469	27.13320243	26.83364215	28.01132	28.3643192	28.3399832	26.4293885	26.6110487	26.4410269	25.64735214	25.10952621	25.77738476	KIAA1598	2	SEC22B, STX5
NA	NA	NA	27.48223841	26.82505213	27.15990628	27.08669037	27.10199442	26.46054614	25.9261935	NA	NA	NA	NA	NA	NA	26.79004696	NA	LSM1	2	SEC22B
NA	NA	24.97316202	25.76372439	25.14339847	25.70812004	25.6002834	26.16175237	25.7927548	NA	25.2807923	NA	NA	NA	24.3116746	NA	NA	NA	LSM14B	2	SEC22B
NA	26.19880471	25.69181613	26.69338571	26.59733084	26.62784065	26.69391738	26.87044242	26.47639394	26.9199124	27.4461643	26.9879353	26.344858	26.1586935	25.9764435	26.42675205	26.63311763	26.54942535	MBD2	2	SEC22B
26.74226872	NA	NA	27.30365005	27.29017582	27.08547521	27.76597641	27.5241751	27.50180378	26.8484035	NA	27.5206579	NA	NA	27.13633532	27.14899318	26.69232178	NA	MIEN1	2	SEC22B
25.81124983	NA	NA	26.14084646	27.02717657	26.36779705	26.14295074	26.03307158	26.12238094	26.5583143	26.6820411	26.5929191	26.1727223	26.1543538	25.1668361	26.82541613	26.45455019	26.22387179	MSRA	2	SEC22B
24.6880048	24.91328425	24.62834141	25.76068239	25.87696558	25.68086147	26.04743415	26.11084074	25.9789979	24.3336085	24.6707686	NA	25.3779241	25.3434693	25.6796809	25.64812055	25.54848493	25.78186794	MSTO1	2	SEC22B
NA	NA	NA	26.90046571	27.42965984	27.38376862	27.2665122	27.4490805	27.4843145	NA	25.722497	26.0114586	NA	NA	NA	NA	26.42273221	NA	MTHFD2	2	STX5
26.86242416	26.64581409	26.61708829	27.77536403	27.89937121	27.81090675	28.03322915	28.00608471	27.67835159	27.46295	27.7193406	27.651847	26.8529335	26.8914546	26.8090674	26.86242416	27.23617087	26.87244005	MUT	2	SEC22B
27.43125503	27.06927701	27.08233131	28.38195505	29.09861031	28.69617481	28.10294555	28.37127481	28.4806216	28.7987855	28.3215655	28.5406734	28.3545584	28.4633789	28.5808247	27.48769139	26.99841121	27.31484085	MYCBP	2	SEC22B, STX5
27.80501268	27.80519724	27.72325243	29.51990843	29.64018692	29.54826443	28.6836481	28.53036549	28.47332345	29.5199647	29.7172826	29.7577675	29.0832448	29.0356693	29.0128656	28.457559	28.76856568	28.85409351	NCEH1	2	STX5
25.40288611	25.44256213	26.67572966	27.0454149	26.81592228	26.16530327	26.28985933	25.920753	25.8642203	26.0772868	25.9712334	26.2514755	26.2933018	26.2628259	26.7810675	27.00838417	26.96939003	NA	NEK9	2	SEC22B, STX5
26.33548386	26.02774607	26.46780801	27.27666329	27.25457828	27.25394744	27.34375732	27.50301785	27.39974456	27.2793228	27.8179968	27.5895658	27.4734396	27.1815827	27.3663636	27.20853043	27.17169205	27.33330142	NEMF	2	STX5
NA	NA	NA	24.89495021	NA	25.07030114	25.8099506	26.04038572	25.97596269	NA	NA	NA	NA	NA	NA	24.60308841	25.69866716	24.72951536	NF2	2	SEC22B
24.89536634	25.24027164	25.5249821	26.97454115	27.59462849	27.4144975	26.79563087	26.80808552	26.28404463	26.3330625	26.2840976	25.4506701	26.4018451	26.4021217	26.0585414	25.27625506	25.24008963	26.06960481	NFS1	2	SEC22B
NA	25.82301206	NA	26.28963071	26.34033137	26.70569671	NA	26.29045709	26.4103301	26.6228235	26.7749244	26.8112743	26.2950025	26.2776567	26.3356883	25.79109093	25.77256044	25.57039542	NOL4L	2	SEC22B, STX5
30.42802293	30.37160717	30.40334538	31.96612683	32.15587178	31.95750402	31.81459364	31.82209886	31.70775483	31.6258394	31.6863308	31.701489	31.0056431	31.0706722	31.1115398	31.36833216	31.21974254	31.3516867	NPEPPS	2	SEC22B
25.33412022	25.18888098	NA	28.37442915	28.69272084	28.39791019	27.35396978	27.4308564	27.39132804	25.4939026	27.0014211	26.7904199	27.0411381	27.3440114	27.4775369	26.06260237	26.73866584	26.95803668	NRP2	2	SEC22B, STX5
26.36297424	26.51800307	26.46998257	27.82092042	28.13584625	27.59027991	27.82231924	27.52723633	27.37807295	26.3631581	26.4525565	27.3036501	27.3726038	27.1951664	26.70226549	26.14230809	26.53185319	NT5DC2	2	SEC22B, STX5
26.38819404	NA	26.51005448	27.20134981	27.33985585	27.28824061	27.09988969	26.96960961	27.24445152	27.0747987	27.31389	27.6666168	27.4121568	27.026438	26.7829428	27.33048324	26.93517081	26.87981898	NUDT2	2	SEC22B, STX5
NA	NA	NA	25.26004604	25.28227796	25.60978136	25.89015608	25.92526557	NA	25.9868293	26.1516663	26.1671616	25.6245815	25.8934697	25.6663866	NA	NA	NA	OTUD4	2	STX5
28.49963869	28.61400141	28.49922049	31.04596162	30.92309042	31.06721373	30.15786033	30.23728835	30.06368267	30.3048688	30.0604651	30.052584	30.3921269	30.1463734	30.3832948	28.87214645	28.43447991	28.42129613	PBXIP1	2	SEC22B, STX5
27.92925615	28.06763688	28.05863432	28.88739281	29.28431827	29.07890071	29.29158161	29.21671644	29.27117365	29.2024245	29.0635284	28.9691155	28.8383991	28.9042038	28.8869279	29.36348398	29.52413773	29.22048077	PDAP1	2	SEC22B
25.76448389	NA	26.64278813	27.37840375	27.66600724	27.34638063	27.44521722	26.92297704	26.87114778	NA	NA	26.4166089	26.6510258	26.8654952	26.70358616	26.44414313	25.82264746	NA	PDPR	2	SEC22B
26.36140209	26.04255814	26.19330622	26.68899192	26.90184706	26.32943997	27.43053741	26.9446958	27.0964755	27.4102169	27.4196497	27.7328566	27.3405351	27.2655289	27.4157067	27.08760107	26.78755827	26.98934374	PEX11B	2	STX5
23.15123275	NA	23.33442715	NA	NA	NA	24.41235069	NA	24.41235069	23.23466241	23.7806671	23.6082873	NA	NA	NA	23.17586199	27.99425004	NA	PIP5K1A	2	SEC22B
26.11107962	25.91424278	NA	27.12376273	27.36794698	27.38492152	26.58075288	27.24181779	26.00778559	26.986634	27.1302592	27.1893335	25.7641801	25.4162223	25.3955506	26.85863538	26.24427004	26.57758718	PITHD1	2	SEC22B
25.40509575	24.67890226	25.50651776	27.7365385	27.93635083	27.87003081	28.12652237	28.43025824	28.06763688	27.7635091	27.9636143	28.1583661	26.9114796	26.6039939	26.4507487	26.00191496	24.47747518	26.06728811	PLXNB2	2	SEC22B, STX5
NA	NA	NA	NA	NA	NA	24.84928673	25.06212884	NA	24.6594346	24.9825491	NA	NA	NA	NA	24.02284526	24.32209869	24.30354554	POLR1E	2	STX5
NA	27.01286558	NA	28.08156966	28.55738698	28.37736975	28.02543505	28.42406272	27.87197027	27.4831615	27.2230616	27.573175	27.6710792	27.5040793	27.3167407	NA	26.54489394	NA	PRAF2	2	SEC22B, STX5
NA	NA	NA	25.7648888	25.88432146	25.80456965	25.9671265	26.00823455	25.66592594	25.425408	25.5388101	25.3296453	NA	NA	24.27795819	NA	NA	NA	PRKCD	2	SEC22B
25.73407201	25.78451624	NA	27.74599082	28.04967907	28.1125717	26.51851341	26.92942548	26.64265043	26.8554308	27.2211264	27.3710255	25.9883038	26.1777296	26.2674055	25.96382373	26.1125717	26.11816817	PSME4	2	SEC22B
NA	NA	26.56759859	26.62728406	26.76900728	26.54277046	26.00975141	NA	NA	NA	26.5587814	26.4337082	NA	NA	NA	NA	NA	NA	PTBP3	2	SEC22B
NA	25.19163187	NA	26.91193667	27.13310442	26.6486966	27.58885129	28.00056176	27.51773282	26.1130091	26.2686731	26.5796025	NA	NA	NA	NA	NA	NA	QSOX1	2	SEC22B
NA	NA	25.50112042	26.74995901	27.19760546	26.81115182	25.72798463	26.26047682	26.21066837	26.8337628	26.483838	26.448671	26.0845429	26.0428712	26.4390144	NA	NA	NA	RAB12	2	SEC22B, STX5
NA	NA	28.02078068	28.84469734	28.76891267	28.85655917	28.08253435	28.48050604	28.39750223	27.9264877	28.0568787	27.9190031	28.6269361	28.473246	28.385909	28.45430701	28.54932987	28.16700844	RABEP1	2	SEC22B, STX5
NA	NA	26.10391606	25.77235908	26.05019824	26.16215588	25.85095633	25.96932416	25.6502316	25.8386996	25.9971409	25.4354579	24.9976147	25.68984509	NA	25.41796116	NA	NA	RABL6	2	SEC22B, STX5
NA	NA	25.84988324	NA	25.68554742	26.56140601	26.64141059	26.2570989	25.9307794	NA	26.6540073	26.087682	26.3747442	25.6318418	NA	NA	NA	NA	RALGAPB	2	STX5
27.0403021	27.22296953	NA	28.0401453	28.16906537	27.72468412	28.04379954	27.98250553	28.30247389	27.7463112	27.9343836	27.7897361	28.4921689	27.9358452	27.8731444	27.69305332	27.22296953	27.53207621	RAP2B	2	SEC22B, STX5
NA	NA	26.76875495	27.12238094	27.02432571	26.60031176	26.84577429	26.46153003	26.3762688	26.3360119	26.39906	26.2620373	26.6986936	26.4364432	25.87645044	26.44382707	26.25037346	NA	RIC8A	2	SEC22B, STX5
26.40103131	NA	NA	26.65962512	27.17607512	26.67168661	25.88709062	25.69667893	26.54548547	27.0660976	26.7271537	26.6707416	26.4704792	26.5609981	26.24805829	26.10547552	26.66139321	NA	RIPK1	2	STX5
NA	NA	NA	25.68664308	25.53299768	25.31931021	25.2005643	25.4919167	25.1362571	NA	NA	NA	NA	NA	NA	NA	NA	NA	RND3	2	SEC22B
NA	NA	26.22809939	26.53741844	26.32445265	NA	25.9726582	25.79736369	25.5469849	25.9588332	25.2153792	24.9364744	25.1421523	25.1019744	27.39901109	27.42854215	27.06136674	NA	RPA2	2	SEC22B, STX5
NA	26.29331939	NA	26.69059121	26.00002442	26.05856207	26.48314611	26.41494905	26.19172599	26.8652592	25.7191577	26.6544444	26.6225443	26.1595406	26.5770109	26.06406316	26.35756489	26.12742795	RPL37A	2	SEC22B, STX5
NA	NA	26.81885012	26.65020419	26.81738694	26.28943723	26.41617399	26.05080023	26.2740522	25.9161579	26.0130786	NA	NA	NA	NA	NA	NA	NA	SESN2	2	SEC22B
27.60279116	NA	NA	27.19338143	27.77906445	27.22094198	27.30269177	27.62553428	27.84326015	27.4275035	28.0996389	27.8261438	27.4126414	27.4375389	27.5991769	28.04280859	27.77448456	28.02422001	SF3B6	2	SEC22B, STX5
NA	25.03305057	25.27351875	26.93280785	26.93077938	27.09113721	26.28153532	26.2849095	26.5639095	26.0308006	26.2504638	25.8790477	26.3497416	26.3778413	26.4677769	24.99451055	25.31312882	25.15112434	SGPL1	2	SEC22B
NA	26.1006718	NA	25.88502007	26.6945817	25.91816154	27.36151923	27.62477672	27.4291011	NA	27.1214919	27.8056893	27.3004242	NA	NA	NA	NA	NA	SIL1	2	SEC22B
25.5524775	NA	NA	26.57960252	26.47201437	26.84541539	26.46199832	27.12524176	26.51273902	27.1286869	26.9493792	26.8147006	26.3968411	26.4190228	26.3584539	25.68161225	25.80331367	25.77296309	SLC33A1	2	SEC22B, STX5
24.51713207	24.69173628	NA	25.96745636	26.10739254	25.69468796	25.38010616	25.66866039	25.48495979	NA	NA	24.4219462	24.6635664	24.5422686	NA	25.57427014	25.28725442	25.55121634	SLC35B2	2	SEC22B
25.01945567	NA	24.87988907	26.34160433	25.68330007	26.31848296	26.57192921	26.24775052	26.4804367	26.8729097	26.5966202	27.1368242	24.7630912	25.544098	25.8574019	25.44123275	25.92992206	25.24706234	SMARCC1	2	SEC22B
NA	23.58920857	NA	25.14020288	NA	24.89559747	NA	24.88683487	NA	24.6210914	25.1643061	25.0038459	24.9474853	24.7451446	24.2042637	24.10269532	24.85171893	24.6428432	SOS1	2	SEC22B, STX5

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Gene	N	Category
24.18071047	NA	NA	24.81382033	24.83773764	24.74309098	24.92750527	24.96075639	NA	24.696785	24.4754356	24.6868301	24.2977509	24.1507371	24.5897801	25.28160606	25.21504591	24.99049111	SPATS2	2	SEC22B
NA	24.69948816	25.07058777	25.51282942	25.24328964	25.6960952	NA	25.25234205	25.8723461	25.9328079	26.0538686	26.0829403	25.5903227	25.8506702	25.6620727	26.41612565	26.08031968	26.17706423	SREK1	2	STX5
26.98630854	26.69019155	26.97136498	28.31630916	28.44264913	28.36314975	28.15913638	28.09692784	27.69172297	28.773636	29.0255407	28.7253344	27.7557636	27.4370626	27.5236518	28.05553474	28.28374445	28.17840416	SRSF4	2	SEC22B
NA	NA	NA	25.31996478	25.48830452	25.47410522	25.75325328	25.52650521	25.45923323	NA	NA	NA	NA	NA	24.59696134	NA	NA	NA	SSSCA1	2	SEC22B
NA	NA	NA	26.72663415	26.74033973	26.83110676	26.57701085	26.64705015	26.05635161	26.7891764	26.9838106	27.0547588	26.8695014	26.3994838	26.5577594	26.33058581	26.03485638	NA	SYAP1	2	SEC22B, STX5
24.67476037	NA	NA	26.26350662	25.52656491	25.77841286	25.72541244	25.83930049	25.70717227	25.5066388	25.7790143	25.4758685	26.0310742	26.0599651	25.6714707	25.25753057	NA	NA	SYNJ1	2	SEC22B, STX5
27.6621406	27.90397403	27.82656817	28.91866201	29.16199737	29.44251071	32.14628231	32.61787211	32.35129179	NA	NA	25.7979079	25.2803675	25.5859755	26.24572126	26.99334477	26.90138676	NA	TAGLN	2	SEC22B, STX5
NA	NA	NA	NA	NA	NA	25.40979619	25.72184538	25.61857325	25.6667387	25.9495795	25.8095091	26.2657256	26.0878641	26.2935825	26.30985475	26.58391165	26.38853895	TBC1D4	2	STX5
NA	NA	25.08998639	25.85621483	25.64825773	25.85619108	25.44865525	25.48049834	25.64303594	25.9731839	26.0131852	26.0416812	26.3911477	26.2307216	25.8403335	24.49661732	NA	NA	TGFBRAP1	2	STX5
NA	NA	NA	27.44931668	27.57801928	27.25898648	27.19055852	27.55105495	27.43999722	NA	NA	27.7563364	28.2616339	NA	NA	NA	NA	NA	TMED4	2	SEC22B
26.59804114	25.98800036	26.39573037	27.998734	28.04197358	27.62191582	27.76236896	27.78113005	27.62268393	26.570656	26.7722836	26.5193986	28.2582677	27.956265	28.2617684	26.94815403	26.76711373	26.90023536	TMEM2	2	SEC22B
29.19413327	29.18084798	29.06237077	30.60893586	30.72427754	30.75724291	30.22101115	30.14126561	30.17200216	28.9330894	28.9441372	29.2463331	29.2694803	29.0241143	28.9578153	28.70698132	28.53274508	28.56260007	TP53I3	2	SEC22B
NA	NA	NA	25.93303306	NA	26.36404366	25.2128588	25.43837994	25.412383	25.8282521	25.3303636	25.9446735	NA	25.2812169	NA	25.67976142	24.94154271	NA	TRAPPC12;CGI-87	2	
NA	NA	NA	24.94176656	24.74545235	24.99386301	NA	NA	24.6442194	24.9910969	24.6243863	NA	NA	NA	24.12257842	NA	NA	NA	TSC2	2	SEC22B
NA	NA	26.12242044	27.08222978	26.15230481	26.04462308	26.06778047	26.06422766	26.0072509	25.7294116	25.8016373	NA	NA	NA	NA	25.51890355	25.79434229	25.79498672	TSPAN14	2	SEC22B
24.38922852	24.68560089	24.83537813	26.18374198	26.39188521	26.2807215	26.88378563	26.64965615	26.07306267	24.7958538	25.2318754	25.4000867	25.4111225	25.7917865	25.5291295	NA	NA	NA	TTLL5	2	SEC22B
NA	NA	NA	25.40054281	25.57963129	25.72009768	26.63034268	26.62407946	26.52620669	NA	NA	NA	24.9725486	25.0444355	NA	NA	25.00594555	NA	TWSG1	2	SEC22B
27.21076125	27.3011223	27.34028043	28.89177328	28.61375558	28.56598033	28.66003333	28.49205426	27.8513853	28.1349655	28.0793332	28.060697	27.8787087	27.8709715	28.28784446	28.25304575	28.27905707	NA	UGP2	2	SEC22B
NA	NA	NA	26.59960257	26.79476368	26.62811887	27.25078907	26.62156654	26.65403459	26.5494254	26.3976736	26.7853148	NA	NA	NA	NA	NA	26.31207293	UQCR10	2	SEC22B
27.00560296	26.82359523	27.7881186	28.70572967	28.78353618	28.73918109	28.3948477	28.02701834	28.45151927	28.4329679	28.1285395	28.4137312	27.7850653	28.1323201	28.050302	27.58427016	26.98836883	27.77994113	VPS18	2	SEC22B
25.76339515	26.300878	26.4017963	27.87443491	27.93145585	27.73214496	27.3390063	27.40786924	27.28920854	26.9196852	27.1270146	27.2102968	27.612807	27.2972786	27.1010928	26.46240404	26.78369229	26.55436717	VPS26B	2	SEC22B
NA	NA	NA	26.91718284	26.83665467	NA	26.68083465	26.66600724	26.78081727	26.4505757	26.6500672	26.4905708	26.6549906	26.8166548	26.7528961	26.15792296	26.28305556	26.46273166	VTI1B	2	SEC22B, STX5
NA	NA	NA	26.69723591	26.08586013	26.29572074	25.08342739	25.79857543	24.72899665	25.3233363	25.9754817	25.5490434	25.3597445	24.9945969	25.8598678	NA	NA	NA	VWA5A	2	STX5
25.27141857	NA	NA	25.68760443	25.86360611	25.48980559	25.42454333	25.73184727	25.65228481	25.7674926	25.6042202	25.8674054	25.4278072	25.3563227	25.4373325	25.88187367	25.70139319	25.53644051	WDR33	2	SEC22B
NA	NA	NA	NA	NA	NA	NA	NA	NA	25.7344597	25.6173966	26.6712817	25.420437	NA	NA	25.90841333	26.03172627	25.93618232	WDR70	2	STX5
NA	25.1832498	NA	26.07314441	26.59135045	26.00960193	26.13055375	26.53215055	26.61526502	25.2839034	25.6010773	25.4763939	NA	NA	NA	25.72689396	25.9583465	25.49265026	XPC	2	SEC22B
NA	NA	NA	26.77781113	26.91113667	26.41552941	25.08253435	26.60178575	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	XPNPEP3	2	SEC22B
25.17915435	25.17314184	NA	25.28764193	25.23534932	25.10129318	26.79773474	26.29848523	26.92241001	25.9738189	25.880403	25.8065376	25.5216316	25.8248822	25.837088	26.12561621	26.18504736	26.3215311	ZNF512	2	STX5
NA	NA	NA	26.90907747	26.92524293	27.19215884	27.00378158	26.67006621	26.54755861	26.826837	26.4706808	26.6063964	25.9823532	26.2146754	26.4646802	26.6434764	26.60766669	26.603711	ZZEF1	2	SEC22B, STX5
26.91615792	27.23899709	27.17959099	24.92297704	25.66976894	26.38160856	25.13010201	25.37600374	23.10872097	25.6992234	25.7440925	26.1113782	27.0791805	27.036639	26.8725575	29.5262664	29.91541724	29.22068833	ABLIM1	3	SEC22B
29.48924287	29.5113559	29.642375	26.27730202	26.07130408	NA	NA	NA	NA	26.3477496	25.6149562	26.5803216	30.0930784	30.0741862	30.0237972	30.36640526	30.74278269	30.56019637	ACE	3	SEC22B
26.95803668	26.97169387	26.96433064	25.3069556	NA	24.89924443	25.70635563	25.21300719	25.4508903	26.1409634	25.9149955	25.8282037	26.1967804	26.4274236	26.3596942	27.07490076	26.54589561	26.70635563	AGA	3	SEC22B
28.70833057	28.77099284	28.8819495	27.62331209	27.61960902	27.6921222	25.79872373	26.55398651	25.55584496	26.0750844	25.9976793	25.5481321	28.4371817	28.300206	28.1794012	26.41028167	26.111	25.96492549	AK4	3	SEC22B
28.34870378	28.4703783	28.48515947	NA	NA	NA	NA	NA	24.3061212	25.6469678	25.1723027	26.3438251	26.1308287	25.9565974	25.71298074	NA	NA	26.06058363	ANGPT2	3	SEC22B, STX5
27.33185032	27.33116694	27.81616649	25.31858639	25.24190869	25.3874218	NA	25.24890882	NA	25.5843419	25.4820383	NA	NA	NA	26.3156529	26.54113148	26.95548922	26.66438044	ARVCF	3	SEC22B, STX5
28.1844232	28.02258074	28.25520885	26.61386094	27.30338877	26.70754492	26.53799599	27.09063258	26.25003003	26.2841859	26.5814714	25.9693242	27.8161665	27.9622357	28.0343317	27.32825897	27.38187256	27.01403699	ASAH1	3	SEC22B
29.29653489	29.24204503	29.22267018	27.93100491	27.81017131	28.11137816	28.09073352	27.82183285	27.97207749	27.9780378	28.6902582	28.3550627	29.1262023	29.1206765	29.4105202	28.9379227	29.20673862	28.78016021	ATOX1	3	SEC22B
30.34857716	30.30519503	30.36650949	28.57762319	28.40944824	28.50627562	26.9375299	27.65533189	27.68518648	29.8429755	29.8742883	29.8319977	30.2363762	30.1024951	30.0555606	29.54907277	29.71392799	29.59930106	ATP2B4	3	SEC22B
25.83723235	26.13410383	25.8707011	NA	NA	NA	23.84364354	23.75521604	NA	NA	NA	NA	25.5954255	25.5192936	25.5431541	24.5167114	24.65310529	25.07602288	BACE2	3	SEC22B
26.46881804	26.18144999	25.85635732	NA	NA	NA	25.35669214	26.5289696	25.46911314	24.3767656	NA	24.7423715	24.5974729	24.8882293	24.6378228	27.24308985	27.21595514	26.70530122	BCAM	3	STX5
29.11073124	28.92334549	29.03480392	NA	NA	NA	28.52622908	28.04004075	28.27697382	NA	NA	27.7953212	27.9216725	27.7965594	29.16240562	29.55870114	29.22333787	NA	BGN	3	STX5
25.15112434	25.25641517	24.6623172	NA	NA	NA	24.05581398	NA	NA	24.992178	24.3944716	25.2329001	NA	24.9162491	NA	25.38758615	NA	NA	BLOC1S4	3	SEC22B
26.52534063	26.8312276	27.39018024	NA	NA	NA	NA	NA	NA	NA	NA	26.5739091	26.7224709	27.3972166	NA	26.67276587	26.71109096	26.94100532	CAMSAP2	3	SEC22B
29.9969847	30.02498613	30.12213405	28.79776565	29.04385168	28.59576694	27.91826392	28.10184418	27.88331953	26.4209509	24.7666842	26.5823331	30.2746432	30.1708091	30.0267018	30.11118668	30.21662394	30.19483777	CD109	3	SEC22B
25.97633424	26.12687679	25.7285037	24.9693022	24.31699961	24.57282557	24.24365283	24.21623075	24.21504591	NA	25.3934572	25.5921207	25.879632	25.3283103	25.64586905	25.33237971	25.80358466	NA	CD99	3	SEC22B
26.39875021	26.81714293	26.70173689	NA	NA	25.13296719	NA	NA	25.0361988	NA	NA	NA	26.6896585	26.5066842	26.4808835	26.36223855	26.74534976	26.59291914	CDC42BPA	3	SEC22B
30.23134897	30.22262412	30.210947	29.10971052	29.12240562	29.13447599	29.40261374	29.21909627	29.24499584	29.0633227	28.9821247	28.859228	29.0505875	29.1424347	29.2846051	29.79771928	29.68899192	29.34470988	CDH13	3	STX5
28.52114482	28.3595099	28.24377085	27.07265389	27.06773944	27.27817094	25.9503585	NA	26.7124194	26.7527685	27.1429702	27.9744317	27.7163997	27.7880563	27.09748051	27.34545032	27.40673454	NA	CDK17	3	SEC22B
26.3833072	26.60470094	25.9673904	NA	NA	NA	NA	26.4677458	26.9106793	25.9291545	26.5323587	26.9120509	26.615686	25.77600444	25.68024447	26.03288247	NA	NA	CMTM6	3	SEC22B
26.70754092	26.88750902	27.12119549	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	26.2681555	26.5073801	27.31311152	27.05248032	27.00560296	COL12A1	3	SEC22B
32.65469619	32.69644016	32.60915609	31.34239088	31.50852523	31.27052774	31.37885847	31.43738012	31.360923	31.756408	31.8967757	32.001354	33.0081671	32.8950066	33.0751591	32.42589917	32.51516851	32.47050921	CTNNA1	3	SEC22B
26.35326315	26.58663412	26.49321547	24.79892145	NA	24.98263609	NA	NA	24.614872	NA	25.1500785	26.2691191	26.9725706	26.7591336	NA	NA	NA	NA	CXCR4	3	SEC22B
26.94648173	26.60356953	26.24517723	24.87272184	24.95264848	25.23699196	24.81308637	24.39976086	NA	26.4967392	26.1049159	25.4025934	25.9621695	25.8060705	25.4265281	27.15005915	27.18404478	27.01499471	DAG1	3	SEC22B
27.60272038	28.04723652	27.77511281	NA	NA	NA	NA	NA	NA	25.093295	24.7848157	NA	28.7055319	28.9479312	28.4814687	27.60597272	27.38755328	27.55288787	DCHS1	3	SEC22B
25.31962031	25.57732786	25.83958883	24.69492702	NA	24.79704204	NA	NA	25.1587705	NA	25.1688646	25.4556636	25.1168405	25.2773552	26.48916246	26.36733049	25.95816947	NA	DDB2	3	SEC22B
25.17329437	24.92270489	24.75128784	NA	NA	NA	NA	NA	NA	24.5288018	24.8603179	25.7073303	25.9897335	24.8192888	24.81181329	NA	NA	NA	DHRS7B	3	SEC22B
26.72390338	26.67841875	26.43088829	25.98139534	25.15065963	NA	NA	NA	25.8344622	25.0763084	25.3098721	27.2479859	26.9925887	26.9974424	25.15332967	25.59482779	25.56110005	NA	DIAPH2	3	SEC22B
25.85095633	25.90007409	25.91702346	NA	NA	25.3496573	NA	25.15865499	NA	25.6246373	26.0157392	25.9215477	25.832049	25.626588	25.6772899	25.58723524	25.89407132	25.5276092	DIP2B	3	SEC22B
26.6500124	25.9369461	25.83968493	NA	25.36125148	NA	NA	NA	NA	25.3771629	NA	26.3639601	26.5043067	26.0986655	25.94147555	25.91179956	25.52737057	NA	DOCK9	3	SEC22B
25.4271678	25.64262289	25.33292598	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	24.749243	25.329611	25.75072579	25.63599792	26.03615684	EEF2K	3	SEC22B
32.67598198	32.61280698	32.65544682	31.36332732	31.26013131	31.29575795	30.76982705	31.15200736	30.9511593	32.3282001	32.3287351	32.4513277	32.0717912	31.93361	32.0158123	32.7199771	32.89989337	32.80593522	EHD2	3	SEC22B
26.14442969	26.28718395	26.1998158	25.13402547	NA	NA	NA	NA	NA	NA	25.99423	26.5844852	26.619609	26.00154993	26.35548284	26.6957767	NA	NA	ENPP4	3	SEC22B
28.1297189	27.3788998	27.63685536	26.55841651	26.30676443	26.24459669	26.06737018	NA	NA	26.399826	26.7679977	26.2818536	27.4744457	27.5769388	27.3310815	28.43876857	28.39235208	28.46707725	ENTPD1	3	SEC22B

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	Gene	n	Interactor
25.90667136	26.1200684	26.08484698	NA	NA	NA	NA	NA	24.6159385	26.0401767	25.3318332	25.2953004	25.2929158	25.5919211	25.1265224	25.46232603	25.41231839	25.2649923	EPHB2	3	SEC22B
28.50453401	28.51972101	28.54572626	27.41981041	26.96554201	27.9714198	26.36937889	25.76329383	26.22324579	26.7184263	27.951604	27.8918602	27.7754896	28.1633658	28.3540118	28.74762422	28.7884298	28.64003173	ERG	3	SEC22B
28.38619688	28.37418037	28.31919821	26.4230369	26.47529643	NA	NA	NA	NA	26.8656132	NA	26.9468163	28.8142422	28.5631094	28.8118255	28.79745646	28.14331088	28.22015784	ESAM	3	SEC22B
30.57452279	30.15605267	30.35520976	25.04922206	NA	NA	NA	NA	27.3671138	26.6106264	26.8106616	30.8567521	31.0207542	30.5051211	30.57109017	31.06670066	30.7713235		FABP4	3	SEC22B
32.65795705	32.57081882	32.22357379	31.43589102	31.07233445	31.21824183	29.89197602	29.79971205	29.73669977	31.248755	31.0992376	31.2876904	33.2241778	32.8060697	33.1296299	31.9062341	31.65215486	31.83156739	FABP5	3	SEC22B
28.7430396	28.51337172	28.69919027	NA	23.4652565	NA	28.87730501	29.14513457	29.13589517	27.7768077	27.3615192	27.3173447	27.5798902	27.4486868	27.5663796	29.01363775	28.64879944	28.76670314	FBN2	3	STX5
29.61243791	29.64113492	29.47554769	28.30699904	28.48273848	28.456502	28.39766543	28.23480135	28.5862404	29.4730331	29.43251	29.5294163	29.4095089	29.2067153	29.2972567	29.46750487	29.30486877	29.20897222	FERMT2	3	SEC22B
25.45236794	25.44937966	25.38962241	NA	NA	NA	NA	NA	NA	25.3989133	25.1410999	25.549866	25.2864791	NA	25.9286577	25.49619062	25.65916234		FLYWCH2	3	SEC22B
26.15514558	26.08867293	26.34243539	NA	NA	25.23110631	24.76410419	24.3789494	NA	25.0411381	25.3263914	25.1844989	25.0625406	25.5114426	25.5220808	25.67441018	25.37311845	25.80503729	FSD1	3	SEC22B
26.19236582	26.36436099	26.50266891	25.65329666	NA	NA	NA	NA	NA	24.9652999	25.2477867	24.9985188	25.961154	26.213137	25.3220299	26.60583147	26.86041261	26.24159961	GIPC2	3	SEC22B
28.12593146	28.02828372	28.31501367	26.08865271	26.63394907	26.75174753	26.95038076	27.02115146	27.44498036	27.9060405	27.8584575	27.8491793	28.1022448	28.1030456	28.2458572	27.90758845	27.78886537	27.41989076	GNAQ	3	SEC22B
25.58691018	25.76146886	25.16177158	NA	NA	NA	NA	NA	NA	25.0707106	25.469579	25.7517731	25.4638544	NA	25.09139955	25.00615963			GPX7	3	SEC22B
25.65856322	25.27923423	25.64600643	24.45870148	NA	NA	24.1662998	24.31437414	NA	24.5733458	24.6970503	24.7902956	25.2419814	24.9405125	25.9269852	25.83802629	25.23651761	25.05564851	GSKIP	3	SEC22B
25.77743493	25.40778822	25.31202098	NA	24.39519103	NA	NA	NA	NA	24.1665297	24.650752	NA	24.0406783	24.859228	24.7091987	24.85500303	25.81558031	25.75271751	HSPA12B	3	SEC22B
25.04335109	25.16959109	25.04339281	NA	NA	NA	NA	NA	NA	NA	24.6479559	24.6476266	24.8845544	NA	24.61745267	24.06907209			ICOSLG	3	SEC22B
25.2662441	25.62828577	25.55946719	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	24.95571092	NA	25.5995742		IDH3G	3	SEC22B, STX5
25.5669457	26.28894462	26.30811943	NA	25.09627441	24.67868739	25.37122495	25.21322973	24.36385991	25.2068737	25.6045596	25.4666573	26.7206457	26.7795655	26.1574026	26.42761541	26.41911923	26.40887352	IDI1	3	SEC22B
26.17611318	26.59149313	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	27.2963161	27.0986856	27.502942	26.03900537	NA	IGFBP2	3	NA
29.88483381	30.01438291	29.9294537	28.60438282	28.92019646	28.75177945	27.65095739	27.79686881	27.97306346	30.1068686	30.1114777	30.2240052	30.017041	29.8102939	29.6843673	29.34633836	29.37606586	29.38442753	ITGA2	3	SEC22B
26.89284461	26.89284461	26.56411308	25.07614524	NA	NA	NA	NA	26.3494211	26.3589233	26.344384	28.1710716	27.5955535	27.7988473	28.23753909	27.8945224	27.73666752		ITGA6	3	SEC22B
29.81688363	29.74632726	29.78195859	28.90592579	28.63273639	28.38092359	28.65095739	28.65819546	28.45281565	28.4416206	28.4972038	28.3779489	29.7637149	29.6842001	29.7908704	29.7769911	29.42574414	29.73992144	JUP	3	SEC22B
26.49408577	26.60399391	26.57556902	NA	NA	NA	NA	NA	27.6121039	27.9192305	27.7618619	26.234911	26.5624836	26.0301902	25.39940232	26.21432342	26.23693723		KHDRBS3	3	SEC22B
32.06059394	31.88489202	32.08714579	29.3873273	29.12168954	29.58953006	30.37513378	30.52495969	30.34857716	29.6436828	29.7576244	29.6599313	32.4178254	32.2819553	32.2871124	31.02075419	30.90196211	30.97151573	LAMA4	3	SEC22B
31.73351938	31.73194273	31.68995837	29.93170945	29.97978295	29.97951041	30.7008279	30.69004165	30.54802552	29.2174562	29.3011223	29.1829326	31.8357516	31.9648195	32.0341677	31.19724221	31.02828372	31.00068263	LAMB1	3	SEC22B
32.25363755	32.1102023	32.15665548	30.59912368	30.53602914	30.83416979	30.90289657	30.88845288	30.3691126	30.4118539	30.3044336	32.5009495	32.5117093	32.5055944	31.39825686	31.22773915	31.28322561		LAMC1	3	SEC22B
28.77426462	28.77737222	28.93851171	27.33261873	27.08851119	27.57701085	28.01945567	27.76186193	27.48116074	NA	25.5392836	25.6533787	28.8711478	28.6285013	29.0097194	28.77407606	28.97314559	28.84212136	LPP	3	SEC22B
26.21233934	25.93262766	26.18116561	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	26.37772553	26.50127231	26.03250418	LTBP4	3	SEC22B, STX5
26.53109466	26.81689888	26.28741296	NA	NA	NA	25.37305205	NA	NA	27.2253621	27.1412169	26.8978144	NA	25.263811	25.0353599	26.58362477	27.23817715	26.84050154	MAK16	3	SEC22B
32.09468358	32.08156966	32.07041631	30.7971472	30.83084996	31.04381258	30.60470094	30.88649186	30.78316147	32.144447	32.2254712	32.0805535	32.5964602	32.5021596	32.5907171	31.85005916	31.63005621	31.54190137	MAP1B	3	SEC22B
32.22937329	32.23680383	32.03642937	30.63460696	30.37036042	30.80532026	30.00597767	30.30497753	30.12361475	30.4852938	30.1677024	30.2684098	32.6910823	32.7112879	32.6910615	31.87693924	31.91972067	32.00175661	MCAM	3	SEC22B
25.78394202	26.04178563	25.98474509	NA	NA	NA	NA	NA	NA	NA	NA	NA	25.0022584	26.08832921	NA	NA			MEMO1	3	SEC22B
26.40282107	26.23730203	25.9538254	NA	NA	25.4737647	NA	NA	NA	NA	NA	25.8043235	25.5211223	25.5722473	26.55733585	26.12601026	26.13772336		METAP2	3	SEC22B
24.84244511	25.12234144	25.25328024	24.53082684	NA	24.05266688	NA	NA	NA	NA	NA	NA	24.1826817	24.98115578	25.10593504	24.92397447			MICAL1	3	STX5
26.07614524	26.14693654	26.19053968	NA	NA	NA	25.02749299	NA	25.4739505	25.2578902	25.3449934	26.4530905	26.2930738	26.1259906	26.26703039	26.22624445	26.26137388		MLLT4	3	SEC22B
33.21956946	33.1421486	33.46319371	30.48471784	30.48682873	30.43589102	32.26932983	32.2681867	32.23552051	31.4234217	31.2308911	31.1674033	31.8951149	32.0102198	31.7453898	32.84927629	32.91929445	32.8720657	MMRN1	3	SEC22B, STX5
27.68705707	27.2780823	27.47599213	26.18757907	26.68230905	26.55920459	26.23222314	26.04310073	NA	26.4085172	26.3448411	26.5221856	27.653283	27.8400212	27.6803652	27.64485197	27.97339197	27.86673362	MPI	3	SEC22B
25.5920637	26.02751408	26.00947379	NA	NA	NA	NA	NA	NA	26.0918636	26.0237337	26.5027751	26.96675257	27.30059876	27.22866826				MRC2	3	SEC22B
24.91779745	25.24517723	24.91574775	NA	NA	NA	NA	NA	NA	25.3641606	25.5082116	25.4111872	24.350568	24.4228445	24.5534446	25.32844731	25.42882964	25.10149357	NAA35	3	SEC22B
26.01869191	25.83270095	26.4143362	NA	NA	25.3414686	NA	NA	NA	NA	NA	25.2140084	NA	NA	25.51095994	25.7164651	25.55420614		NDUFA3	3	SEC22B
26.31361324	26.385547	26.24407039	25.09976932	NA	NA	NA	NA	NA	25.6844509	NA	26.1992167	26.3477158	NA	NA	26.12121505			NDUFB3	3	SEC22B
26.86702832	26.92965122	26.89284461	25.35991199	25.57925723	25.23950705	25.24343493	25.13887579	25.07879385	25.5047007	25.6796272	25.6062834	26.3586383	26.0077001	26.3094385	26.05633094	26.70648738	26.29049224	NDUFB8	3	SEC22B
25.95708468	26.37754351	26.17985671	25.11735584	24.88030957	NA	25.53255188	NA	NA	NA	NA	24.9649916	25.220001	24.9259673	25.95690749	NA	25.542859		NEDD4	3	SEC22B
31.15206782	30.97923782	31.17486158	28.21752556	27.76490145	28.01674887	26.12553739	27.98065474	27.48362281	27.6798285	28.269993	28.6479765	30.5148394	30.4898936	30.6457282	30.37129558	30.15822159	30.14843566	NID1	3	SEC22B
26.84170158	26.55651751	26.89781444	25.49771396	25.90788638	25.28785326	NA	25.5088161	25.8400933	25.7783627	26.5451886	26.7635724	26.7358287	25.49548934	26.09946827	26.12405866			PALM	3	SEC22B
28.96826421	29.01147997	28.84664125	27.1379969	27.25781827	26.46243525	27.05393069	26.59405893	27.49289471	28.2274293	28.3460847	28.2263271	28.504193	28.6887585	28.6279102	28.93190666	29.01315852	28.56772188	PAPSS2	3	SEC22B
27.4809297	27.74541388	27.49579429	25.19227174	NA	NA	26.14129485	26.44737877	26.14267813	27.2295853	27.1432622	27.2055506	26.9113653	26.8252948	26.7659764	27.16624232	27.36101716	27.0558967	PLIN2	3	SEC22B
26.55739428	26.45480118	26.37373247	NA	NA	NA	NA	NA	NA	26.2630947	26.1673148	26.0684777	26.53555091	26.35665856	26.44384287				PPIF	3	SEC22B
25.35019706	25.51761269	25.632147	NA	NA	NA	NA	NA	NA	25.0638575	25.1779006	25.5488964	25.241836	24.7954575	NA	25.88725335	26.11263135	25.83958883	PSPH	3	SEC22B
27.70450991	27.47204537	27.76268576	NA	NA	NA	25.92091197	25.64729724	NA	25.2674591	26.0288001	NA	26.6232423	26.4232453	26.6261702	27.32997025	27.728841	28.18697488	PTK7	3	SEC22B
27.74451596	27.76319251	27.80851519	NA	NA	NA	NA	26.35314534	NA	26.1907846	26.82893	26.5267141	27.5125431	26.9025372	27.0952686	28.42498374	28.33150867	28.21488848	PUS7	3	SEC22B
31.67934197	31.75186722	31.8073947	30.43807451	30.51493345	30.46246255	30.53417465	30.72468412	30.41749848	28.6704715	28.4404725	28.3682385	31.8904837	31.8342828	31.9054094	30.44233274	30.66186887	30.63157472	RAB3D	3	SEC22B
27.23224144	27.18177223	27.18215123	25.82070135	25.6082027	25.68517311	25.57827847	NA	25.5512163	25.4653499	NA	26.6581273	26.3605986	26.4102492	26.68418337	26.89816054	26.69564397		RAPH1	3	SEC22B
26.36924575	26.28778282	26.23737497	NA	NA	NA	NA	25.45910813	NA	25.9810469	26.1170387	26.0657073	25.9879353	NA	26.0799333	26.20045205	26.05343358	26.33068838	RBP1	3	SEC22B
26.11036287	25.79832822	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	25.9659824	26.49713528	26.3684633			3	STX5
27.23863273	27.0383147	27.27497639	26.60978136	25.94737386	25.82381386	25.54495288	25.90062694	25.81124983	27.181867	27.6400317	27.4925891	27.9865255	28.1415092	28.0400408	27.51239242	27.70391614	27.62470701	ROCK1	3	SEC22B
25.14464362	25.12273638	25.55200836	NA	NA	NA	NA	NA	NA	24.9782342	NA	24.7970915	NA	25.18381769	NA	24.84186951			SCLY	3	SEC22B
27.9281268	28.18584136	27.90850495	25.95945246	26.41475555	26.17495204	26.13676556	25.69147006	NA	27.9193442	27.8126825	27.5126938	26.909192	27.0957716	26.2930562	28.42270014	27.8660261	27.91364948	SDHB	3	SEC22B
30.03773889	30.0889155	30.09358218	28.05004251	27.83376277	27.95858988	28.00083035	27.7518752	27.61736859	29.7754111	29.8159681	29.9508813	30.1372397	30.0741862	29.9544912	29.95670813	29.87597317	30.01916401	SEC22B	3	SEC22B
25.68648279	25.06870318	25.31222876	NA	NA	NA	NA	NA	24.7170668	24.6733052	NA	24.5585917	24.5527225	25.1095262	25.47044812	25.94628092	25.47206087		SELENBP1	3	SEC22B
25.88562526	26.14384607	25.83675096	NA	NA	NA	NA	NA	NA	NA	25.7350281	25.6672261	25.6739252	25.96811586	26.12608906	25.73311527			SEMA6B	3	SEC22B
26.39914152	26.93977307	26.73182138	25.05386856	25.32909775	NA	25.10805092	NA	24.89744518	25.8963599	25.8190695	25.7012081	26.2965961	26.5466317	26.3874382	26.34340153	26.61372046	26.3202403	SEPT6	3	SEC22B
25.84866611	25.59348915	25.62848047	NA	NA	NA	NA	NA	NA	NA	25.6677946	25.6978457	25.8860906	25.82230708	26.03693236	26.2399258			SIRPA	3	SEC22B
26.46078046	26.58462859	26.41998717	NA	NA	25.74288546	NA	NA	NA	25.4599211	NA	NA	27.1336924	26.8167768	27.2506987	NA	NA	25.30619078	SLC4A7	3	SEC22B

																		Gene	Group	Annotation
28.04072015	27.71423923	27.69849495	NA	25.70790948	26.04859862	27.16298178	26.13662868	NA	28.444072	28.0521175	28.4857737	27.7235128	27.2164158	27.7705203	28.29469583	28.21771044	28.35068605	SNRPC	3	SEC22B
28.9643031	28.90339948	28.59985083	NA	NA	NA	26.11457861	26.20267672	NA	26.9919403	27.2729317	26.9238838	26.3316624	26.3124192	25.4535615	27.45159787	27.59903497	26.90058088	SORBS2	3	SEC22B, STX5
31.75585114	31.83492324	31.44997585	29.48275771	29.2657748	29.54333113	30.20314832	30.49609917	30.18742332	29.4272837	29.4349173	29.4617798	31.6487309	31.7801915	31.7846052	30.48941515	30.64581409	30.58190232	SPARC	3	SEC22B
27.87689535	27.6953121	28.08527259	NA	NA	25.6278963	26.089845	26.01627068	26.69232178	26.784691	27.0859817	27.4774597	27.0915408	26.5317937	27.1191186	27.16269373	27.76894421	27.75059802	SRSF6	3	SEC22B
26.20235912	26.19964734	26.10837003	25.1226574	NA	25.33459764	NA	25.07361434	NA	25.7370416	26.2387056	25.6972624	26.2367366	26.3377821	26.193419	27.16086808	27.29386311	26.88599755	STAU2	3	SEC22B
29.83421501	29.73280808	30.035512	25.17470446	26.10892831	25.0847659	26.03065333	25.53165988	26.02295106	28.3120729	28.3806347	28.4094887	29.3859707	29.0731138	29.3889494	29.26420938	29.61407164	29.19608154	TFRC	3	SEC22B
33.58542128	33.3353795	33.8202167	28.71315778	28.58401921	28.84628257	33.03467603	32.89008504	33.08679791	30.8418365	30.415888	30.4998097	31.5243993	31.508478	31.6026231	33.17328365	33.13781984	33.1682854	THBS1	3	STX5
27.19826143	27.10209457	26.88471738	25.56563903	26.36721383	24.89642923	NA	24.38396632	NA	25.2982755	25.1558404	25.2198164	26.8513853	26.6056902	26.511322	27.31094694	27.0215751	27.05551293	TIE1	3	SEC22B
26.11676117	25.79585378	25.4652565	NA	NA	NA	25.14117789	24.88604408	NA	25.7157323	25.4535301	25.0992476	26.5957669	25.6387068	25.781968	25.7456575	26.86997199	26.39445524	TRIM22	3	SEC22B
27.46629943	27.52663952	27.9290868	25.72507434	NA	26.03120042	NA	NA	NA	27.3056517	27.3062603	27.0708129	26.4404725	26.5582559	26.5314368	27.29570322	27.37815565	27.48684791	TRIM47	3	SEC22B
26.89122282	27.42934059	27.5555232	NA	NA	25.03132664	25.68217507	25.79382157	26.3882597	26.5305887	26.3439436	26.7341496	26.9298769	26.77505	27.0820267	27.41804162	NA	27.1284903	TSNAX;DISC1	3	SEC22B
29.03915183	28.95986144	28.94198478	27.61456315	27.59042269	27.67667142	27.06074853	27.35194991	26.76268576	27.2502469	27.3633587	27.465599	28.8670578	28.9232321	28.9726253	28.81729544	28.73489249	28.71230517	TST	3	SEC22B
25.8362935	25.96778615	26.37999052	NA	24.23622563	24.02943215	25.22195611	25.43205197	NA	24.9431537	25.1772924	25.2711336	25.5049734	25.4768574	25.4126737	25.40691291	25.96941199	26.33596083	UAP1L1	3	SEC22B
32.65731825	32.52318441	32.51451026	31.1016188	30.93368035	30.97240622	31.19876491	31.46372965	31.12028103	31.8700088	31.8440463	31.870707	31.7320236	31.6133341	31.6471016	32.02785546	32.33306145	32.25141001	UCHL1	3	SEC22B
28.66444826	28.23260742	28.54333113	NA	25.89746826	26.36396014	NA	27.21604569	26.59576694	26.8329182	27.3014712	26.7771841	28.2451319	28.4086792	28.4688258	28.46995153	28.61999374	28.05765351	VAMP3	3	SEC22B
27.72194965	27.44994634	27.39124608	NA	NA	NA	NA	NA	25.8393245	NA	26.2020228	27.1150551	26.9765091	26.834004	NA	27.77379318	27.84128168	27.68739085	VAMP5	3	SEC22B
35.41808938	35.35635816	35.36169439	32.75787871	32.72419620	32.64254715	33.52647629	33.44418559	33.68217089	32.6625057	32.4796198	32.5970599	33.3494211	33.5812738	33.5813861	35.30198354	35.26027855	35.27648859	VWF	3	SEC22B, STX5
26.68618888	27.13858289	27.43356494	NA	NA	NA	NA	NA	NA	NA	NA	NA	27.102395	27.5922063	27.128392	26.0898248	24.87965541	25.8159467	ZC3HAV1L	3	SEC22B
32.24872677	32.24612349	32.16104834	30.92634627	30.99745588	31.24541527	30.53741844	31.217722	31.42947029	33.2353493	33.134121	33.1001623	32.1907528	32.1972715	31.985223	30.59894627	30.86348796	30.92500235	AKAP12	4	SEC22B
25.61506853	25.78977341	25.60320163	NA	NA	23.70893568	23.94154271	NA	24.21697079	25.3365057	24.9905344	25.2325342	26.2232458	25.977623	26.3038939	NA	NA	NA	BNIP3	4	SEC22B
NA	NA	NA	NA	24.81811872	NA	NA	NA	NA	NA	NA	NA	26.1907846	26.4842223	26.5371666	27.652531	27.19413327	27.70464182	CGNL1	4	STX5
28.00099148	27.57036647	27.34798611	25.29498498	24.79585378	25.52109239	NA	NA	NA	28.9757168	28.8833487	28.8051357	28.3743877	28.4111872	28.5649998	NA	NA	NA	ESM1	4	SEC22B
NA	NA	24.57871036	24.67986878	NA	NA	NA	NA	NA	25.1672956	25.1631546	25.285033	24.8664153	25.4931086	25.0544069	NA	NA	NA	FARP1	4	STX5
25.61633121	25.45327892	25.38053558	NA	NA	NA	26.11193527	25.8540281	26.0548209	27.6097814	27.4998287	27.6675645	27.2409994	27.1916883	27.1631738	26.30789369	26.19844879	26.43273698	FSTL1	4	STX5
30.2724201	30.36191657	30.22054996	30.94118727	30.89113589	31.02207801	29.53473125	29.35205518	29.49594674	31.6267534	31.5669693	31.7202461	32.0928264	32.0569497	32.1496171	31.08853646	31.12896958	31.16883829	IGF2BP3	4	STX5
24.7280625	25.18744692	24.92261416	NA	NA	NA	25.53219515	25.85293349	25.46600375	26.628397	26.6772093	26.1701453	26.0371838	26.0981836	26.0857386	25.6975806	25.60087886	25.26931534	LMO7	4	STX5
29.39065177	29.57535262	29.49300927	29.20263468	29.17776286	29.03456781	28.10529567	28.25435301	28.30029327	30.5723558	30.6902915	30.6192067	30.9388061	30.968429	30.8846737	27.92320379	27.89775675	27.81268253	MMP1	4	STX5
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	27.2896483	27.1814879	27.2441793	NA	NA	NA	MYCT1	4	STX5
NA	NA	NA	26.52157169	NA	NA	NA	NA	NA	26.5783073	NA	26.2736966	26.3766662	25.8997745	26.2174886	NA	NA	NA	OXR1	4	STX5
NA	NA	NA	NA	25.87321485	NA	NA	NA	NA	25.2859855	25.6354168	25.8991522	26.1053556	25.9749349	26.2401988	NA	25.23611612	NA	PDPK1;PDPK2P	4	STX5
24.9791942	NA	NA	25.87602881	25.78591337	26.15749898	24.43879236	NA	24.46687505	25.8736842	26.0397584	25.9066484	27.4752191	27.395665	27.3562388	25.67591806	25.88000589	25.84484098	RALGAPA2	4	STX5
26.22171647	27.16432525	26.78556422	28.36185384	28.49121333	28.34726809	NA	24.60715871	NA	28.3066949	28.5262291	28.4599836	30.3088876	30.1821039	30.1144595	25.48646434	24.86240051	25.6164434	SLC12A2	4	STX5
26.66261601	26.42447925	26.75951459	28.09898672	28.07183598	28.10559541	26.211764	26.45614946	26.01047723	28.425464	28.4057612	28.2814027	28.8120398	28.2633813	28.6582976	26.71685755	26.44733147	26.56293482	STK10	4	STX5