

**Supplementary Table 4. Cellular component analysis of differentially downregulated genes.**

GO.ID	Term	Ontology	Count	Pop.Hits	List.Total	Pop.Total	Fold.Enrichment	Pvalue	FDR	Enrichment.Score	GENES
GO:0005794	<a href="#">Golgi apparatus</a>	Cellular component	16	994	171	23539	2.21577417722711	0.00247955583420123	0.58448928088464	2.60562610789617	<a href="#">CHST2</a> / <a href="#">CHST1</a> <a href="#">/ATP7B</a> / <a href="#">GOLPH3</a> <a href="#">/FAM109B</a> <a href="#">/SYNRG</a> / <a href="#">ACPP</a> <a href="#">/PCSK5</a> / <a href="#">STMN2</a> <a href="#">/TRFR2</a> / <a href="#">NAGPA</a> <a href="#">/B4GALT2</a> <a href="#">/GOLGA7B</a> <a href="#">/EMID2</a> / <a href="#">SERINC5</a> <a href="#">/CLDN17</a>
GO:0044644	<a href="#">cell part</a>	Cellular component	113	13142	171	23539	1.18361069060314	0.00393069886214797	0.58448928088464	2.40553022698048	<a href="#">ADORA3</a> / <a href="#">ADRA2C</a> <a href="#">/ATP7B</a> / <a href="#">BFS1P</a> <a href="#">/CACNB1</a> <a href="#">/CTNNA2</a> / <a href="#">GALR2</a> <a href="#">/GRIN2B</a> / <a href="#">HEPH</a> <a href="#">/PROM1</a> / <a href="#">ADAM23</a> <a href="#">/TRFR2</a> / <a href="#">ACPP</a> <a href="#">/CD200R1</a> / <a href="#">LIMA1</a> <a href="#">/GOLPH3</a> <a href="#">/SLC16A9</a> <a href="#">/GPRC5C</a> / <a href="#">CD248</a> <a href="#">/TNFRSF23</a> <a href="#">/PCDH19</a> / <a href="#">MAGI3</a> <a href="#">/CHRNB4</a> / <a href="#">ANK2</a> <a href="#">/BAIAP2L2</a> <a href="#">/MRGPRE</a> / <a href="#">LIPH</a> <a href="#">/CLDN17</a> <a href="#">/ACVR1C</a> / <a href="#">IPH4</a> <a href="#">/ISLR2</a> / <a href="#">FAM84B</a> <a href="#">/GJA6</a> / <a href="#">CHST2</a> <a href="#">/CHST1</a> / <a href="#">DYRK2</a> <a href="#">/MIB2</a> / <a href="#">TUBG2</a> <a href="#">/ALOX8</a> / <a href="#">LATS1</a> <a href="#">/MBD4</a> / <a href="#">NKX3-1</a> <a href="#">/ZBTB17</a> / <a href="#">ZFP2</a> <a href="#">/ZFP62</a> / <a href="#">LATS2</a> <a href="#">/SFC14L2</a> <a href="#">/SMARCC2</a> <a href="#">/TTGB1BP3</a> <a href="#">/CASZ1</a> / <a href="#">RASL12</a> <a href="#">/ZFP618</a> / <a href="#">CAPN9</a> <a href="#">/TRFR2</a> <a href="#">/HIST4H2A</a> <a href="#">/ZNRP3</a> / <a href="#">VHRN1</a> <a href="#">/LSM6</a> / <a href="#">PRDX6</a> <a href="#">/TCE25</a> / <a href="#">CSTAD</a> <a href="#">/EFHD1</a> / <a href="#">NTSDC3</a> <a href="#">/CHDH</a> / <a href="#">ABAT</a> <a href="#">/PDP1</a> / <a href="#">OMT2A</a> <a href="#">/CDA</a> / <a href="#">UBASH3A</a> <a href="#">/FOXO6</a> / <a href="#">EMID2</a> <a href="#">/SERINC5</a> <a href="#">/SLC15A1</a> <a href="#">/RUNX1T1</a> / <a href="#">CIRBP</a> <a href="#">/HHEX</a> / <a href="#">HMGAI1</a> <a href="#">/HOXB6</a> / <a href="#">PIAS2</a> <a href="#">/PITX1</a> / <a href="#">REF2</a> <a href="#">/SIX1</a> / <a href="#">HEYL</a> <a href="#">/TCEAL8</a> / <a href="#">SITK35</a> <a href="#">/TEX19.2</a> / <a href="#">PRSS23</a> <a href="#">/ESRP2</a> / <a href="#">ITC5</a> <a href="#">/MKL1</a> / <a href="#">IP6K3</a> <a href="#">/TCEAL5</a> / <a href="#">GALK1</a> <a href="#">/KIF9</a> / <a href="#">MARCKS</a> <a href="#">/STMN2</a> / <a href="#">RNF220</a> <a href="#">/RRC15</a> <a href="#">/KATNAL2</a> <a href="#">/ARPP21</a> <a href="#">/SERPINB7</a> / <a href="#">SCGN</a> <a href="#">/SYNRG</a> <a href="#">/FAM109B</a> <a href="#">/DUOXA1</a> / <a href="#">PCSK5</a> <a href="#">/NAGPA</a> <a href="#">/B4GALT2</a> <a href="#">/GOLGA7B</a> <a href="#">/SLC9A3</a> / <a href="#">ENKUR</a> <a href="#">/KLRCL1</a> / <a href="#">TPH2</a>
GO:0005623	<a href="#">cell</a>	Cellular component	113	13163	171	23539	1.18172238060521	0.00421155976337743	0.58448928088464	2.37555703215139	<a href="#">ADORA3</a> / <a href="#">ADRA2C</a> <a href="#">/ATP7B</a> / <a href="#">BFS1P</a> <a href="#">/CACNB1</a> <a href="#">/CTNNA2</a> / <a href="#">GALR2</a> <a href="#">/GRIN2B</a> / <a href="#">HEPH</a> <a href="#">/PROM1</a> / <a href="#">ADAM23</a> <a href="#">/TRFR2</a> / <a href="#">ACPP</a> <a href="#">/CD200R1</a> / <a href="#">LIMA1</a> <a href="#">/GOLPH3</a> <a href="#">/SLC16A9</a> <a href="#">/GPRC5C</a> / <a href="#">CD248</a> <a href="#">/TNFRSF23</a> <a href="#">/PCDH19</a> / <a href="#">MAGI3</a> <a href="#">/CHRNB4</a> / <a href="#">ANK2</a> <a href="#">/BAIAP2L2</a> <a href="#">/MRGPRE</a> / <a href="#">LIPH</a> <a href="#">/CLDN17</a> <a href="#">/ACVR1C</a> / <a href="#">IPH4</a> <a href="#">/ISLR2</a> / <a href="#">FAM84B</a> <a href="#">/GJA6</a> / <a href="#">CHST2</a> <a href="#">/CHST1</a> / <a href="#">DYRK2</a> <a href="#">/MIB2</a> / <a href="#">TUBG2</a> <a href="#">/ALOX8</a> / <a href="#">LATS1</a> <a href="#">/MBD4</a> / <a href="#">NKX3-1</a> <a href="#">/ZBTB17</a> / <a href="#">ZFP2</a> <a href="#">/ZFP62</a> / <a href="#">LATS2</a> <a href="#">/SFC14L2</a> <a href="#">/SMARCC2</a> <a href="#">/TTGB1BP3</a>



											<a href="#">//GPRC5C/CSTAD</a> <a href="#">//EHD1//NTSDC3</a> <a href="#">//CHDH//ABAT</a> <a href="#">//PDP1//OMT2A</a> <a href="#">//SEC14L2</a> <a href="#">//CDA//UBASH3A</a> <a href="#">//FOXO6//EMID2</a> <a href="#">//SERINC5//IPH4</a> <a href="#">//RUNX1T1//CIRBP</a> <a href="#">//HHEX//HMGAI</a> <a href="#">//HOXB6//PIAS2</a> <a href="#">//NKX3-1//PTX1</a> <a href="#">//RFX2//SK1</a> <a href="#">//ZBTB17//ZFP2</a> <a href="#">//ZFP62//HEYL</a> <a href="#">//ICEAL8//STK35</a> <a href="#">//SMARCC2</a> <a href="#">//CASZ1//TEX19.2</a> <a href="#">//ZFP618//PRSS23</a> <a href="#">//ESRP2//MAGI3</a> <a href="#">//TTC5//MKL1</a> <a href="#">//IP6K3//ICEAL5</a> <a href="#">//ADRA2C//ALOX8</a> <a href="#">//CTNNA2//GALK1</a> <a href="#">//KIF9//MARCKS</a> <a href="#">//STMN2//TRFR2</a> <a href="#">//RNF220//LRRC18</a> <a href="#">//CD248//KATNAL2</a> <a href="#">//CAPN9//WHRN</a> <a href="#">//ARPP21//ANK2</a> <a href="#">//SERPINB7//SCGN</a> <a href="#">//SYNRG//ACVR1C</a> <a href="#">//FAM84B</a> <a href="#">//FAM109B//ATP7B</a> <a href="#">//DUXA1//PCSK5</a> <a href="#">//NAGPA</a> <a href="#">//B4GALT2</a> <a href="#">//GOLGA7B</a> <a href="#">//CLDN17//GRIN2B</a> <a href="#">//CACNB1//ENKUR</a> <a href="#">//BAIAP2L2</a> <a href="#">//PROM1//HEPH</a> <a href="#">//GALR2</a> <a href="#">//TGB1BP3</a> <a href="#">//RASL12</a>
GO:0043073	<a href="#">germ cell nucleus</a>	Cellular component	2	23	171	23539	11.9699974574116	0.0120087660242805	0.620220833711134	1.92050161677518	<a href="#">//TERF2//MARCKS</a>
GO:0032421	<a href="#">stereocilium bundle</a>	Cellular component	2	24	171	23539	11.4712475633528	0.0130385213856323	0.620220833711134	1.88477165633958	<a href="#">//PROM1//WHRN</a>
GO:0005911	<a href="#">cell-cell junction</a>	Cellular component	6	267	171	23539	3.09337012944346	0.0135576227035841	0.620220833711134	1.86781645628227	<a href="#">//CTNNA2//GIA6</a> <a href="#">//ATP7B//MAGI3</a> <a href="#">//CLDN17</a> <a href="#">//BAIAP2L2</a>
GO:0005737	<a href="#">cytoplasm</a>	Cellular component	74	8219	171	23539	1.23938043998751	0.0140959280388894	0.620220833711134	1.85090632604277	<a href="#">//CHST2//CHST1</a> <a href="#">//TUBG2//ZBP2</a> <a href="#">//PRDX6//ACPP</a> <a href="#">//BFS1//GOLPH3</a> <a href="#">//TGF2//GPRC5C</a> <a href="#">//CSTAD//EHD1</a> <a href="#">//NTSDC3//CHDH</a> <a href="#">//ABAT//PDP1</a> <a href="#">//OMT2A//SEC14L2</a> <a href="#">//CDA//UBASH3A</a> <a href="#">//FOXO6//EMID2</a> <a href="#">//SERINC5//IPH4</a> <a href="#">//STMN2//MIB2</a> <a href="#">//FAM109B//ATP7B</a> <a href="#">//DUXA1//PCSK5</a> <a href="#">//TERF2//NAGPA</a> <a href="#">//B4GALT2</a> <a href="#">//GOLGA7B</a> <a href="#">//SYNRG//CLDN17</a> <a href="#">//MARCKS</a> <a href="#">//GRIN2B//CIRBP</a> <a href="#">//CACNB1</a> <a href="#">//BAIAP2L2//SCGN</a> <a href="#">//HEPH//ADRA2C</a> <a href="#">//ALOX8//CTNNA2</a> <a href="#">//GALK1//HHEX</a> <a href="#">//KIF9//LATS1</a> <a href="#">//MBD4//PTX1</a> <a href="#">//LATS2//TRFR2</a> <a href="#">//HEYL//LIMA1</a> <a href="#">//RNF220//STK35</a> <a href="#">//LRRC18//DYRK2</a> <a href="#">//CASZ1//CD248</a> <a href="#">//KATNAL2</a> <a href="#">//CAPN9//WHRN</a> <a href="#">//ARPP21//LSM6</a> <a href="#">//ANK2//SERPINB7</a> <a href="#">//TTC5//MKL1</a> <a href="#">//ACVR1C//IP6K3</a> <a href="#">//FAM84B</a>
GO:0005576	<a href="#">extracellular region</a>	Cellular component	21	1807	171	23539	1.59975339566404	0.0219725371378701	0.892423046830416	1.65811979281281	<a href="#">//CIQTNF6//EMID2</a> <a href="#">//ECM2//PCSK5</a> <a href="#">//PROM1//CCL24</a> <a href="#">//HNF1//LPH</a> <a href="#">//KCP//EGFL7</a> <a href="#">//GRIN2B//SVS5</a> <a href="#">//ADAM23//CIRA</a> <a href="#">//ACPP//ZPBP2</a> <a href="#">//PRSS23</a> <a href="#">//FAM180A//SCGN</a> <a href="#">//KLHL11//PRSS48</a>
GO:0032993	<a href="#">protein-DNA complex</a>	Cellular component	3	89	171	23539	4.64005519416519	0.0271437352961879	0.969529788708876	1.56633038855176	<a href="#">//TERF2//HIST3H2A</a> <a href="#">//HHEX</a>

GO:0031982	<a href="#">vesicle</a>	Cellular component	11	783	171	23539	1.93385016393687	0.0281697528332065	0.969529788708876	1.55021696358027	ZBP2//PCSK5 /ACPP//GRIN2B /BALP2L2 /SYNRG /FAM109B//PRDX6 /SCGN//PROM1 /STMN2
GO:0005923	<a href="#">tight junction</a>	Cellular component	3	94	171	23539	4.39324374766704	0.0312159212273691	0.969529788708876	1.50562384387992	ATP7B//MAG3 /CLDN17
GO:0070160	<a href="#">occluding junction</a>	Cellular component	3	94	171	23539	4.39324374766704	0.0312159212273691	0.969529788708876	1.50562384387992	ATP7B//MAG3 /CLDN17
GO:0071944	<a href="#">cell periphery</a>	Cellular component	36	3670	171	23539	1.35029399110856	0.0344283262345285	1	1.46308409041695	ADORA3//ADRA2C /ATP7B//BFS1 /CACNB1 /CTNNA2//GALR2 /GRIN2B//HEPH /PROM1//ADAM23 /TRFR2//ACPP /CD200R1//LIMA1 /GOLPH3 /SLC16A9 /GPRC5//CD248 /TNSRF2.2 /PCDH19//MAG3 /CHRN4//ANK2 /BALP2L2 /MRGPRE//LIPH /CLDN17 /ACVRLC//JPH4 /SLR2//FAM84B /GJA6//MARCKS /KLRCL//SLC9A3
GO:0042734	<a href="#">presynaptic membrane</a>	Cellular component	2	42	171	23539	6.55499860763019	0.0373660505841328	1	1.42752280260954	ADORA3//GRIN2B
GO:0005886	<a href="#">plasma membrane</a>	Cellular component	35	3583	171	23539	1.34466200854261	0.0389759835133563	1	1.40920291708757	ADORA3//ADRA2C /PROM1//ANK2 /CACNB1 /CHRN4//GJA6 /ATP7B//MAG3 /CLDN17//LIMA1 /KLRCL//CD200R1 /CTNNA2//SLC9A3 /GRIN2B /ACVRLC//BFS1 /GALR2//HEPH /ADAM23//TRFR2 /ACPP//GOLPH3 /SLC16A9 /GPRC5//CD248 /TNSRF2.2 /PCDH19 /BALP2L2 /MRGPRE//LIPH /JPH4//SLR2 /FAM84B
GO:0043229	<a href="#">intracellular organelle</a>	Cellular component	80	9449	171	23539	1.16545641452204	0.0453092374583936	1	1.34381324681218	CHST12//CHST1 /TUBG2//TERT2 /MBD4//HIST3H2A /LATS1//LATS2 /ZBP2//BFS1 /LIMA1//PRDX6 /ACPP//GOLPH3 /TCE25//GPRC5C /CSTAD//EFHD1 /NTSDC3//CHDH /ABA1//PCP1 /BMD2//SERINC5 /JPH4//UNX1T1 /CIRBP//HHEX /HMGA1//HOXB6 /PIAS2//NKC3-1 /PTX1//REX2 /SIX1//ZBTB17 /ZFP2//ZFP62 /HEYL//TCEAL8 /STK35//SECI4L2 /SMARCC2 /DYRK2//CASZ1 /TEX19.2//ZFP618 /PRSS23//ESRP2 /LSM9//MAG3 /TTC5//MKL1 /JPK3//UBASH3A /FOXO6//TCEAL5 /STMN2//MIB2 /FAM109B//ATP7B /DUOXA1//PCSK5 /NAGPA /B4GALT2 /GOLGA7B /SYNRG//CLDN17 /MARCKS /CTNNA2//KIF9 /KATNAL2//ANK2 /WHRN//GRIN2B /CACNB1//ENKUR /BALP2L2//SCGN /PROM1
GO:0043296	<a href="#">apical junction complex</a>	Cellular component	3	110	171	23539	3.75422647527911	0.0462599966350328	1	1.33479440315612	ATP7B//MAG3 /CLDN17

GO:0043226	<a href="#">organelle</a>	Cellular component	80	9472	171	23539	1.16262644223171	0.0478806691673072	1	1.31983978864077	<a href="#">CHST2</a> / <a href="#">CHST1</a> <a href="#">TUBG2</a> / <a href="#">TERF2</a> <a href="#">MBD4</a> / <a href="#">HIST3H2A</a> <a href="#">LATS1</a> / <a href="#">LATS2</a> <a href="#">ZBP2</a> / <a href="#">BESP1</a> <a href="#">LIMA1</a> / <a href="#">PRDX6</a> <a href="#">ACPP</a> / <a href="#">GOLPH3</a> <a href="#">TCE3</a> / <a href="#">GPRCSC</a> <a href="#">CSTAD</a> / <a href="#">EFHD1</a> <a href="#">NTSDC3</a> / <a href="#">CHDH</a> <a href="#">ABAT</a> / <a href="#">PDP1</a> <a href="#">EMID2</a> / <a href="#">SERINC5</a> <a href="#">JPH4</a> / <a href="#">RUNX1T1</a> <a href="#">CTRB9</a> / <a href="#">HHEX</a> <a href="#">HMGAL1</a> / <a href="#">FOXO6</a> <a href="#">PIAS2</a> / <a href="#">NKK3-1</a> <a href="#">PTX1</a> / <a href="#">RFX2</a> <a href="#">SIX1</a> / <a href="#">ZBTB17</a> <a href="#">ZFP2</a> / <a href="#">ZFP62</a> <a href="#">HEY1</a> / <a href="#">TCEAL8</a> <a href="#">STK35</a> / <a href="#">SEC14L2</a> <a href="#">SMARCC2</a> <a href="#">DYRK2</a> / <a href="#">CASZ1</a> <a href="#">TEX19.2</a> / <a href="#">ZFP618</a> <a href="#">PRSS23</a> / <a href="#">ESRP2</a> <a href="#">LSM6</a> / <a href="#">MAGI3</a> <a href="#">TTC5</a> / <a href="#">MKL1</a> <a href="#">IPGK3</a> / <a href="#">UBASH3A</a> <a href="#">FOXO6</a> / <a href="#">TCEAL5</a> <a href="#">STMN2</a> / <a href="#">MIB2</a> <a href="#">FAM109B</a> / <a href="#">ATP7B</a> <a href="#">DUOX1</a> / <a href="#">PCSK5</a> <a href="#">NAGPA</a> <a href="#">B4GALT2</a> <a href="#">GOLGA7B</a> <a href="#">SYNRG</a> / <a href="#">CLDN17</a> <a href="#">MARCKS</a> <a href="#">CTNNA2</a> / <a href="#">KIF9</a> <a href="#">KATNAL2</a> / <a href="#">ANK2</a> <a href="#">WHRN</a> / <a href="#">GRIN2B</a> <a href="#">BAIAP2L2</a> <a href="#">CACNB1</a> / <a href="#">ENKUR</a> <a href="#">SCGN</a> / <a href="#">PROM1</a>
GO:0016327	<a href="#">apicolateral plasma membrane</a>	Cellular component	3	113	171	23539	3.65455674584692	0.0494144857913852	1	1.3061457195569	<a href="#">ATP7B</a> / <a href="#">MAGI3</a> <a href="#">CLDN17</a>
GO:0031988	<a href="#">membrane-bounded vesicle</a>	Cellular component	8	554	171	23539	1.98779741170013	0.049821446112714	1	1.30258367083744	<a href="#">ZBP2</a> / <a href="#">PCSK5</a> <a href="#">ACPP</a> / <a href="#">GRIN2B</a> <a href="#">BAIAP2L2</a> <a href="#">SYNRG</a> <a href="#">FAM109B</a> <a href="#">PROM1</a>