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Supplemental Data

Journal Title

Drug Metabolism and Disposition

Article Title

Three-dimensional spherical cellular aggregates of RPTEC as an in vitro tool for evaluation of human renal proximal tubular toxicity and drug disposition

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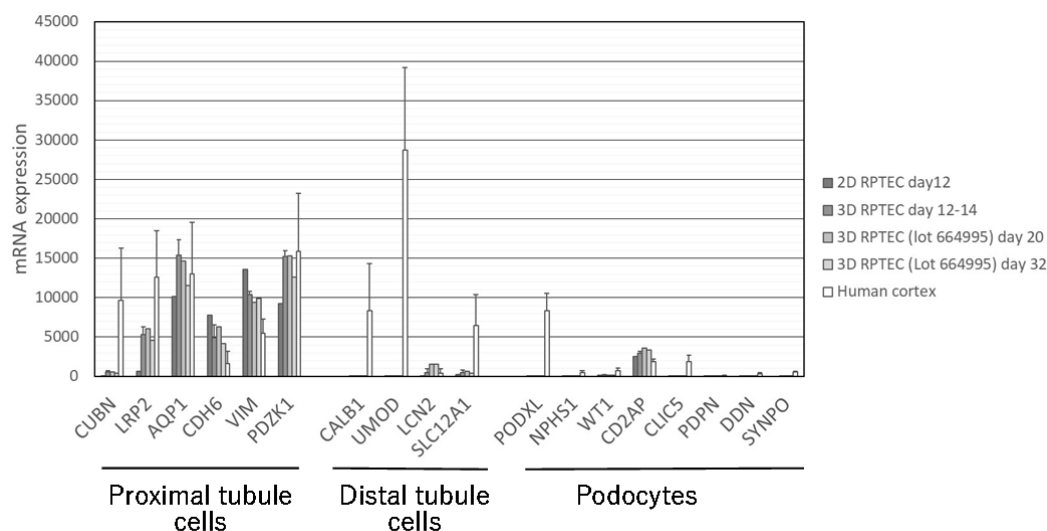
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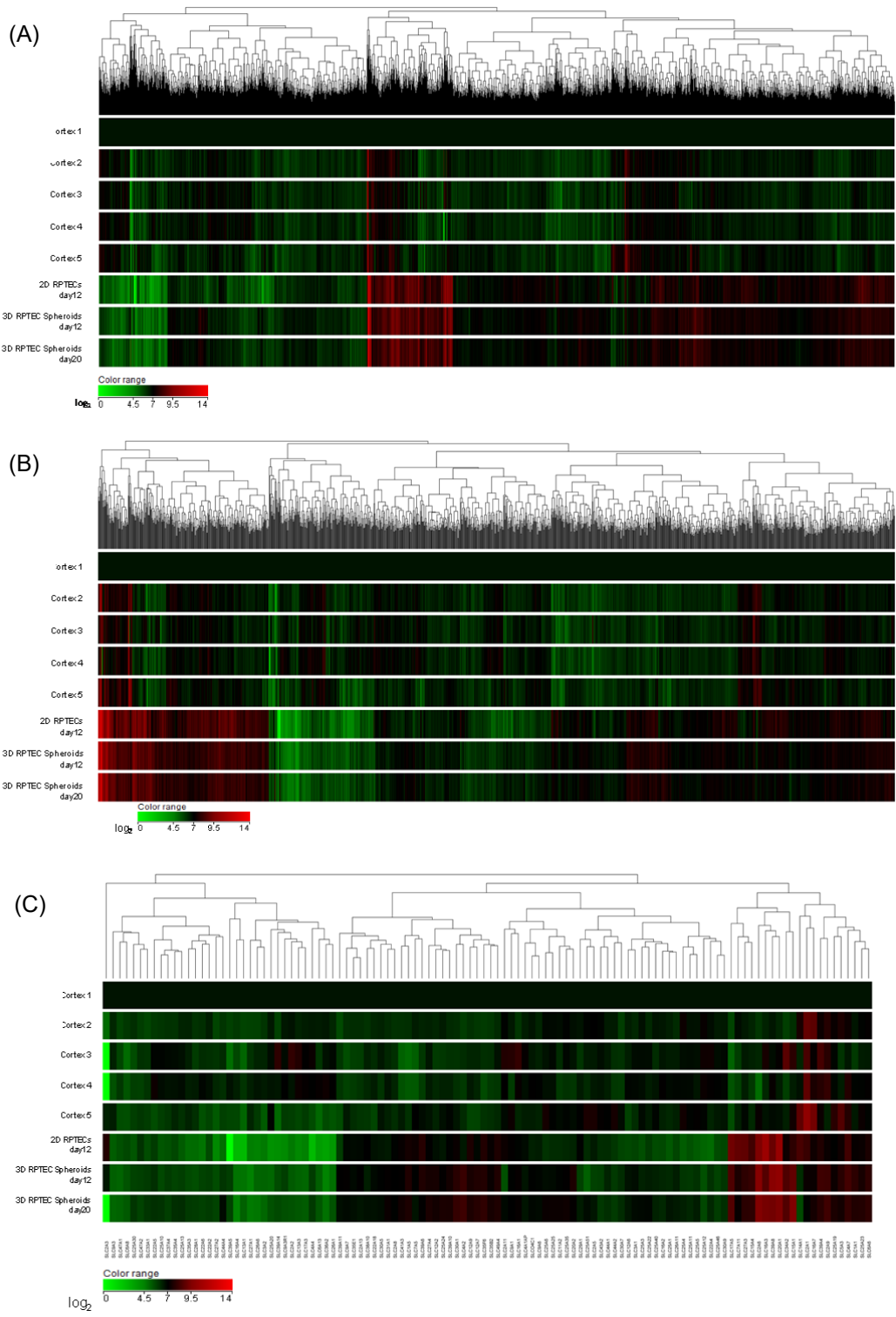
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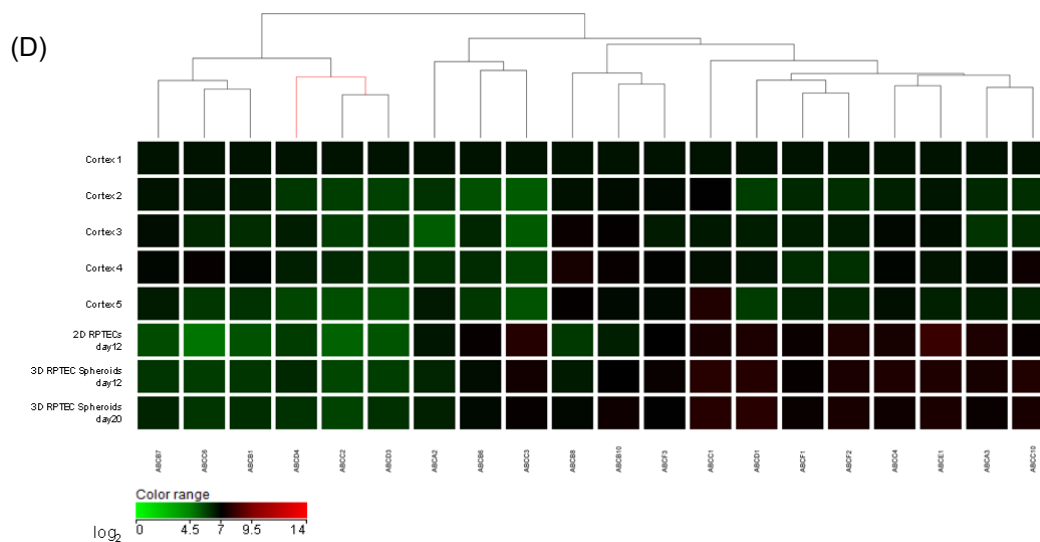


Supplemental Figure 1: mRNA expression of kidney marker genes in 2D RPTECs, 3D RPTEC spheroids, and human kidney cortices.

RPTECs (Lot: 664995) were used for 2D RPTECs and 3D RPTEC spheroids at different culture periods. RPTECs (Lot: 18TL117405 and Lot: 682573) were used only for the culture period for 12-14 days. Bar represents mean \pm SD of 3 and 5 different donors for RPTEC and human kidney cortices, respectively. *: Statistically significant compared to the control, $p < 0.05$, t -test

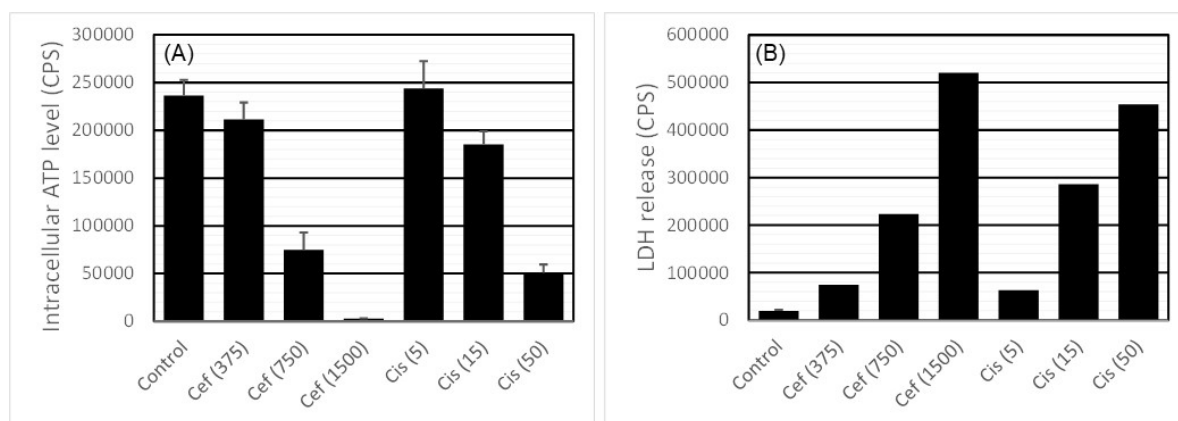
CUBN, cubilin; LRP2, LDL receptor related protein 2; AQP1, aquaporin 1; CDH6, cadherin 6; VIM, Vimentin; PDZK1, PDZ domain containing 1; CALB1, calbindin 1; UMOD, uromodulin; LCN2, lipocalin 2; PODXL, podocalyxin-like; NPHS1, nephrosis 1; WT1, Wilms tumor 1; CD2AP, CD2-associated protein; CLIC5, chloride intracellular channel 5; PDPN, podoplanin; DDN, dendrin; SYNPO, synaptopodin were used as markers for proximal tubule cells, distal tubule cells and podocytes (Agarwal et al., 2021)





Supplemental Figure 2: Heatmap of 4473 proteins (A), 1492 enzymes (B), 112 SLC transporters (C), and 20 ABC transporters in 2D RPTECs at day12, 3D RPTEC spheroids at day 12/20 and human cortices.

Proteins with >20% of the average protein expression in human cortices were used in the heatmap.



Supplemental Figure 3: Effect of cefalotin and cisplatin on intracellular ATP levels (A) and lactate dehydrogenase release (B) in 3D RPTEC spheroids

3D RPTEC spheroids (lot: 664995) were exposed with cefalotin (375, 750 and 1,500 μ M) and cisplatin (5, 15, 50 μ M) for 3 days. Bar represents the mean \pm SD of 4 (A) and

2-3 (B) replications.

Supplemental data

Supplemental Table 1: MS condition and ion monitoring parameters of analytes

Compound	Metformin	Hesperetin		Furosemide	Digoxin
Ionization	Positive	Positive	Negative	Negative	Negative
Q1 (<i>m/z</i>)	130.1	303.4	301.4	329.0	825.3
Q3 (<i>m/z</i>)	60.1	153.1	150.8	204.9	779.4
Time (msec)	30	30	30	30	30
DP (V)	60	160	-55	-70	-180
CE (V)	17	40	-32	-30	-30
CXP (V)	13	13	-13	-11	-15

Supplemental Table 2: Proteins showing more similar expression to human kidney cortex by changing 2D culture to 3D spheroidal culture

		Enzymes	Transporters	Others
Down-regulation	2D: >5-fold that of human kidney cortex 3D: within 5-fold difference to human kidney cortex	42	2	27
	2D: >5-fold that of human kidney cortex 3D: within 5-fold difference to human kidney cortex 3D/2D: >3-fold change	4 (PLOD2, P3H3, PFKP, ENO2)	1 (SLC16A3)	1 (VCAN)
Up-regulation	2D: <0.2-fold that of human kidney cortex 3D: within 5-fold difference to human kidney cortex	46	16	70
	2D: <0.2-fold that of human kidney cortex 3D: within 5-fold difference to human kidney cortex 3D/2D: >3-fold change	16 (AKR7A3, ALDH2, LDHD, OGDHL, DIO1, IFI30, NAT8, ZDHHC20, HERC5, GLYCTK, C11orf54, NAPEPLD, GALM, MCEE, ACSM2A, NDUFS8)	6 (SLC9A3R1, SLC16A4, SLC39A5, SLC6A13, SLC13A1, SLC4A4)	32 (ATP5PD, SEPTIN4, RAB11FIP3, PIGR, HLA-DRB1, LGALS2, H1-4, MT1G, CEACAM1, CD46, H1-2, COX5A, GCSH, MYL6, LRP2, PTH1R, C1QBP, OCLN, RHBDD2, EMB, PARM1, GLRX5, CPNE8, H1FX, PHYHIPL, CALML4, TXN2, SH3GL2, PXMP2, NFU1, NENF, CNPY2)

Supplemental Table 3: Proteins showing more deviated expression from human kidney cortex by changing 2D culture to 3D spheroidal culture

		Enzymes	Transporters	Others
Down-regulation	2D: within 5-fold that of human kidney cortex 3D: <0.2-fold difference to human kidney cortex	11	0	15
	2D: within 5-fold that of human kidney cortex 3D: <0.2-fold difference to human kidney cortex 3D/2D: >3-fold change	1 (ADSS1)	-	4 (GLTPD2, IRF3, TGFBI, PLIN2)
Up-regulation	2D: within 5-fold that of human kidney cortex 3D: >5 fold difference to human kidney cortex	12	3	44
	2D: within 5-fold that of human kidney cortex 3D: >5-fold difference to human kidney cortex 3D/2D: >3-fold change	1 (VNN1)	-	12 (SPINT2, BAG3, HLA-H, S100A1, HLA-F, SQSTM1, CTTN, TPD52L1, TMEM97, PBXIP1, ARFGAP3, ITM2B)

Supplemental Table 4: Coefficient of variation of mRNA expression in 3D RPTEC spheroids from 3 different donors and human kidney cortex from 5 different donors

	Total genes	3D RPTEC spheroids						Human kidney cortex					
		CV% \leq 20%		20% < CV% \leq 50%		50% < CV%		CV% \leq 20%		20% < CV% \leq 50%		50% < CV%	
		No. of gene	% of total	No. of gene	% of total	No. of gene	% of total	No. of gene	% of total	No. of gene	% of total	No. of gene	% of total
All genes	16985	10198	60.0	4620	27.2	2167	12.8	4865	28.6	7859	46.3	4261	25.1
Enzymes	3193	2257	70.7	691	21.6	245	7.67	1069	33.5	1498	46.9	626	19.61
SLC transporters	334	180	53.9	111	33.2	43	12.9	46	13.8	158	47.3	130	38.9
ABC transporters	39	16	41.0	18	46.2	5	12.8	6	15.4	25	64.1	8	20.5

RPTECs were cultured for 12 or 14 days in spheroid culture.

Supplemental table 5: Protein abundance in total lysate, plasma membrane and PM/TL ratio of detected proteins

Protein name	3D RP/TEC Spheroid_L.ct.664995_day12_TL			3D RP/TEC Spheroid_L.ct.664995_day12_PM			PM/TL ratio			Protein name	3D RP/TEC Spheroid_L.ct.664995_day12_TL			3D RP/TEC Spheroid_L.ct.664995_day12_PM			PM/TL ratio			Protein name	3D RP/TEC Spheroid_L.ct.664995_day12_TL			3D RP/TEC Spheroid_L.ct.664995_day12_PM			PM/TL ratio		
ZZEF1	94.2	63.5	0.67	YBX3	958.3	472.3	0.49	WDR18	187.9	114.2	0.61	VNN1	134.6	794.2	5.90														
ZYX	123.4	54.5	0.44	YBX1	287.7	235.2	0.82	WDR12	196.6	157.1	0.80	VKORC1L1	113.9	322.9	2.83														
ZW10	123.9	131.5	1.06	YARS2	173.3	16	0.09	WDR11	89.8	69.1	0.77	VKORC1	64	242.2	3.78														
ZSWIM8	155.7	162.5	1.04	YARS1	449.5	93.6	0.21	WDR1	190	57.7	0.30	VIPAS39	159	55.2	0.35														
ZRANB2	446.1	22.8	0.05	XYLB	35.6	10.4	0.29	WDFY1	126.9	311	2.45	VIM	235.4	69.2	0.29														
ZPR1	158.9	94.6	0.60	XXYL1	60.3	183.1	3.04	WBP2	212	466.6	2.20	VIL1	12.4	14.3	1.15														
ZNF638	163.9	78.5	0.48	XRN2	110.7	55.7	0.50	WBP11	794.3	46.1	0.06	VEZT	171.1	591.3	3.46														
ZNF622	290.9	53	0.18	XRCC6	145.2	27.2	0.19	WASL	246	104.4	0.42	VDAC3	125	512	4.10														
ZNF532	106.6	79	0.74	XRCC5	134.5	46.5	0.35	WASHC5	119.6	101.8	0.85	VDAC2	128.3	542.8	4.23														
ZNF512	93.2	74.2	0.80	XRCC1	175.8	30.9	0.18	WASHC4	120.1	98.6	0.82	VDAC1	119.7	462.5	3.86														
ZNF451	123.4	78.1	0.63	XPOT	194.7	89.2	0.46	WASHC3	112.6	74.5	0.66	VCPIP1	131	68.2	0.52														
ZNF330	183.4	50	0.27	XPO7	82.6	31.9	0.39	WASHC2A	192.8	96.2	0.50	VCP	146.3	47.8	0.33														
ZNF326	133.9	150.6	1.12	XPO5	235.4	176.7	0.75	WASH2P	150.6	86.8	0.58	VCL	90.6	30.3	0.33														
ZNF207	133.8	16.8	0.13	XPO4	137.2	82.6	0.60	WASF2	142.7	159	1.11	VCAN	302.5	86.9	0.29														
ZMYND8	249.4	92.6	0.37	XPO1	119.7	102.4	0.86	WARS2	88.2	29.1	0.33	VCAM1	292.3	1132.8	3.88														
ZMYM4	137	137.2	1.00	XPNPEP3	109.4	11.5	0.11	WARS1	174.5	35.3	0.20	VBP1	202.5	38.3	0.19														
ZMYM2	164.6	84.6	0.51	XPNPEP2	28.9	90.2	3.12	VWA8	85.7	47.9	0.56	VAV2	91.2	65.9	0.72														
ZMPSTE24	108.7	529.6	4.87	XPNPEP1	185.6	52.7	0.28	VWA5A	251	85.7	0.34	VAT1L	0.1	1.9	19.00														
ZFYVE26	155	353.2	2.28	XPC	72.8	41.3	0.57	VWA1	2.5	3.5	1.40	VAT1	166.8	224.8	1.35														
ZFYVE1	84.9	136.6	1.61	XAB2	129.2	93.3	0.72	VTN	2	2.2	1.10	VASP	231.1	123.2	0.53														
ZFR	223.7	66.8	0.30	WVVOX	106.1	221.4	2.09	VTIB	141.3	995.4	7.04	VARS1	235.1	89.9	0.38														
ZFPL1	127.1	364.5	2.87	WRNIP1	105.1	67.8	0.65	VTIA	116.5	491.4	4.22	VAPB	128.1	492.9	3.85														
ZDHHC5	280.8	1636.3	5.83	WNK1	300.8	163.3	0.54	VTA1	131.5	212.4	1.62	VAPA	136.2	529.3	3.89														
ZDHHC3	146.4	393.4	2.69	WLS	51.2	388	7.58	VSNL1	64.7	100.6	1.55	VANGL1	63.3	524.3	8.28														
ZDHHC20	56.9	781.1	13.73	WIFI2	250.4	179.8	0.72	VRK2	208.4	474.1	2.27	VAMP8	160	1461.4	9.13														
ZC3HAV1	94.9	103.1	1.09	WFS1	41.8	134.7	3.22	VPS53	135.8	130.9	0.96	VAMP7	160.3	1254.9	7.83														
ZC3H18	189.9	35.1	0.18	WDR92	186.5	81.3	0.44	VPS52	138.3	138.6	1.00	VAMP3	123.4	539.4	4.37														
ZC3H15	131.9	19.7	0.15	WDR91	154.8	261.5	1.69	VPS51	199.5	229.8	1.15	VAC14	128.7	101.2	0.79														
ZC3H14	564.7	494.4	0.88	WDR82	124.2	39.9	0.32	VPS50	119.7	115.6	0.97	UXS1	216.7	662.7	3.06														
ZBTB20	111.6	76.6	0.69	WDR81	125.5	273.7	2.18	VPS4B	125.9	174.4	1.39	UTRN	140.7	282	2.00														
ZADH2	71.6	17.8	0.25	WDR77	127.4	44.5	0.35	VPS4A	126.8	207.3	1.63	UTP6	166.3	294.6	1.77														
YY1	123.5	45.4	0.37	WDR75	162.8	222.8	1.37	VPS45	89.7	300.6	3.35	UTP3	84.8	92.9	1.10														
YWHAZ	236.1	67	0.28	WDR72	104.2	530.8	5.09	VPS41	136.5	190.6	1.40	UTP20	155.4	91.9	0.59														
YWHAQ	310.6	73.9	0.24	WDR7	178.2	177	0.99	VPS39	150.4	230.8	1.53	UTP18	156.7	202	1.29														
YWHAH	193.1	76.8	0.40	WDR61	142	42.3	0.30	VPS37B	151.9	365.6	2.41	UTP15	110.1	183.8	1.67														
YWHAJ	189.7	61.9	0.33	WDR6	173.3	91	0.53	VPS36	134.3	53.3	0.40	UTP11	183	141.3	0.77														
YWHAE	177.7	63.9	0.36	WDR59	109.7	142.1	1.30	VPS35L	108.6	128.6	1.18	USP9X	122.5	74.7	0.61														
YWHA8	156.4	50	0.32	WDR55	192.4	80.5	0.42	VPS35	131.2	59.3	0.45	USP8	174	322.7	1.85														
YTHDF3	246.9	71.8	0.29	WDR5	121.8	15.6	0.13	VPS33B	154.3	46.5	0.30	VAP7	112.7	48	0.43														
YTHDC2	162.5	62.6	0.39	WDR48	131.1	237.1	1.81	VPS33A	162.1	123.4	0.76	USP5	150.3	46.9	0.31														
YME1L1	127.6	351.4	2.75	WDR47	183.5	163.5	0.89	VPS29	164.6	76.4	0.46	USP48	116.6	77.3	0.66														
YLP1M1	263.6	7.7	0.03	WDR45B	174.8	189.9	1.09	VPS26B	124.8	68.9	0.55	USP47	145.7	68	0.47														
YKT6	147.8	163	1.10	WDR45	159.4	97.5	0.61	VPS26A	153.7	79.4	0.52	USP40	95.4	260.1	2.73														
YIPF6	66.4	242.1	3.65	WDR44	523.1	246.2	0.47	VPS25	155.2	87.6	0.56	USP4	135.4	36	0.27														
YIPF5	104.1	443.3	4.26	WDR43	197.4	314.3	1.59	VPS18	159.1	99.8	0.63	USP39	118.9	58.8	0.49														
YIPF4	110.2	337.4	3.06	WDR37	159.1	94.4	0.59	VPS16	164.4	134.2	0.82	USP24	144.5	111.5	0.77														
YIPF3	119.7	371.5	3.10	WDR36	205.7	118.5	0.58	VPS13D	144.3	136	0.94	USP19	161.2	133.6	0.83														
YIPF1	145.9	644.5	4.42	WDR33	509.7	102.3	0.20	VPS13C	174.8	391.3	2.24	USP15	170.5	69.4	0.41														
YES1	95.6	450.5	4.72	WDR3	163.6	168.5	1.03	VPS13A	101.2	186.5	1.84	USP14	264	54.1	0.20														
				WDR19	180.3	126.2	0.70	VPS11	157.1	136.5	0.87	USP13	132.5	79.7	0.60														

Values are expressed as % of protein abundance in TL of human kidney cortex 1.

Supplemental table 5 (Continued):

Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio
USP10	218.6	57.8	0.26	UBR3	117.2	32.6	0.28	TXNDC12	209.5	172.9	0.83	TRNT1	263.6	35.4	0.13
USO1	120.6	89.8	0.74	UBR2	135.4	133.7	0.99	TXN2	111.7	9.9	0.09	TRMU	71.2	24	0.34
USH1C	53	38.9	0.73	UBR1	100.1	13.2	0.13	TXLNA	180	41.9	0.23	TRMT2A	131.3	88.8	0.68
USE1	109.2	346.7	3.17	UBQLN2	138.8	57.9	0.42	TWF2	242.2	80	0.33	TRMT1L	166.8	40.6	0.24
UROD	269.3	102.2	0.38	UBQLN1	110.9	32.6	0.29	TWF1	172.8	63.3	0.37	TRMT10C	161.2	20.6	0.13
UQCRQ	41.1	218.6	5.32	UBP1	131.5	84.7	0.64	TVP23B	162.3	217.3	1.34	TRMT1	1210.8	281	0.23
UQCRH	36.6	123.8	3.38	UBLCP1	221.4	18.2	0.08	TUFM	88.1	6.1	0.07	TRIP6	88	42.5	0.48
UQCRC2	57.9	171.9	2.97	UBL3	143.4	1021.1	7.12	TUBGCP3	97.3	81.6	0.84	TRIP12	106.9	84	0.79
UQCRC1	62.1	169.3	2.73	UBL4	131	146.9	1.12	TUBGCP2	110.4	71.6	0.65	TRIP10	146.4	68.7	0.47
UQCRB	68	218.5	3.21	UBFD1	155.8	36.7	0.24	TUBG1	109.5	68.9	0.63	TRIOBP	87.2	38.2	0.44
UQCR11	48.6	162.5	3.34	UBE4B	200.5	189.8	0.95	TUBB8	95.1	30.6	0.32	TRIM47	165.9	265.1	1.60
UQCR10	64.3	220.7	3.43	UBE4A	94.5	77.2	0.82	TUBB6	237.1	110.9	0.47	TRIM33	84.7	65.4	0.77
UQCC2	145.4	192.4	1.32	UBE3C	197.6	112.7	0.57	TUBB4B	132.8	40.4	0.30	TRIM3	67.4	37.1	0.55
UQCC1	147.1	161.2	1.10	UBE3A	111.2	21.7	0.20	TUBB4A	126.3	52.7	0.42	TRIM28	224.7	67.3	0.30
UPP1	338.8	35.1	0.10	UBE2Z	237.3	139.6	0.59	TUBB3	1909.9	348.5	0.18	TRIM25	131.9	47.2	0.36
UPF2	98.3	57.2	0.58	UBE2V2	162.7	49.8	0.31	TUBB2B	119.7	59.7	0.50	TRIM2	53.1	36.4	0.69
UPF1	111.9	86.6	0.77	UBE2O	90.1	35.4	0.39	TUBB2A	129.4	0.1	0.00	TREH	5.7	11.3	1.98
UPB1	13.6	11.4	0.84	UBE2N	186.4	131.3	0.70	TUBB	148.2	47.7	0.32	TRAPPC9	77.3	43.3	0.56
UNC93B1	154.6	968.4	6.26	UBE2M	237	134.3	0.57	TUBA4A	63.9	26.7	0.42	TRAPPC8	141.3	73.3	0.52
UNC5CL	39.7	352	8.87	UBE2L5	289.8	77.2	0.27	TUBA1C	136.1	52.2	0.38	TRAPPC6B	91.2	92.7	1.02
UNC45A	183.2	124.3	0.68	UBE2L3	317.1	94	0.30	TUBA1A	138	59.2	0.43	TRAPPC4	113.3	42.3	0.37
UNC13B	140.9	143.2	1.02	UBE2K	308.1	112	0.36	TTYH3	221.8	1314.5	5.93	TRAPPC3	131.4	39.7	0.30
UMPS	95.1	62.5	0.66	UBE2J2	99.2	239.2	2.41	TTR	6.3	10.4	1.65	TRAPPC2L	131.5	36.2	0.28
UMOD	36.2	13.9	0.38	UBE2J1	55.9	183.3	3.28	TTLL12	348	101.5	0.29	TRAPPC11	127.9	107.8	0.84
ULK3	131.7	131.3	1.00	UBE2H	221	28	0.13	TTI1	138.7	166.2	1.20	TRAPPC10	19.7	11.6	0.59
UGT3A1	68.8	254.7	3.70	UBE2E2	323.8	154	0.48	TTC8	82.7	48.6	0.59	TRAP1	127	36.5	0.29
UGT2B7	5.3	10.2	1.92	UBE2D3	179.8	152.2	0.85	TTC7B	90.9	471.5	5.19	TRAM1	194.4	746	3.84
UGT2A3	42.2	155.1	3.68	UBAP2L	549.3	96.2	0.18	TTC39C	703.3	432.1	0.61	TRAF6	122.8	80.9	0.66
UGT1A9	39.4	145.7	3.70	UBA7	110.2	47.9	0.43	TTC38	77.3	17.3	0.22	TRAF2	163.1	282.3	1.73
UGT1A6	65.9	244.2	3.71	UBA6	202.1	48.7	0.24	TTC37	124.5	58.5	0.47	TRADD	71.9	46.5	0.65
UGP2	131.1	28.7	0.22	UBA5	101.5	44.1	0.43	TTC26	151.6	81.9	0.54	TRABD	149.6	556.7	3.72
UGGT2	165.5	345.7	2.09	UBA3	225.2	58.4	0.26	TTC19	187.7	260.3	1.39	TRA2B	127.3	36.9	0.29
UGGT1	110	148.8	1.35	UBA2	172.1	39.6	0.23	TTC13	115.3	264.6	2.29	TPT1	196.6	31.8	0.16
UGDH	76.9	15.2	0.20	UBA1	136.9	28.4	0.21	TSTA3	137.8	23.9	0.17	TPST1	75.7	334.6	4.42
UGCG	317	3322	10.48	UAP1L1	110.4	32.7	0.30	TST	93.5	3.3	0.04	TPRGL1	156.9	256.4	1.63
UFSP2	85.9	251.6	2.93	UAP1	157.2	87.5	0.56	TSPAN9	83.2	506.7	6.09	TPR	112.1	21.2	0.19
UFL1	84.1	119.5	1.42	UACA	100.2	91.2	0.91	TSPAN8	87.9	232.3	2.64	TPPP3	3.8	0.1	0.03
UFD1	324.2	80.1	0.25	UZSURP	142.9	83.4	0.58	TSPAN6	152.6	980.9	6.43	TPPP	56.9	11.1	0.20
UFC1	156.8	56.7	0.36	UZAF2	190.4	24.8	0.13	TSPAN33	52	333.5	6.41	TPP2	244	106.1	0.43
UEVLD	111.6	166.8	1.49	UZAF1	148.9	8.1	0.05	TSPAN15	77.8	377	4.85	TPP1	74.6	105.8	1.42
UCHL5	152.5	45.1	0.30	TYW1	89.6	210	2.34	TSPAN1	281.4	1659.7	5.90	TPMT	109.8	26.8	0.24
UCHL3	270.5	51.8	0.19	TYMP	264.4	63.7	0.24	TSNAX	132.6	72.7	0.55	TPM4	7.4	0.1	0.01
UCHL1	308.6	59.3	0.19	TXNRD2	91.5	16	0.17	TSN	145.6	33.4	0.23	TPM3	83.5	12.5	0.15
UBXN6	108.3	95.7	0.88	TXNRD1	286.2	94	0.33	TSFG101	155.2	390.3	2.51	TPM2	2.2	1.3	0.59
UBXN4	109.4	192.3	1.76	TXNL4A	189.1	148.6	0.79	TSFM	166.6	22.7	0.14	TPM2	98.4	413.3	4.20
UBXN1	213.7	53.1	0.25	TXNL1	175.7	24.7	0.14	TSFN15	115.8	57.8	0.50	TPM1	38	8.6	0.23
UBTF	45.2	13.4	0.30	TXNDC9	149.7	41.7	0.28	TRRAP	126	85.3	0.68	TPM1	26.7	0.1	0.00
UBR5	176.4	251.6	1.43	TXNDC5	85.3	73.3	0.86	TRPV4	25.1	195.6	7.79	TPI1	196.3	33.7	0.17
UBR4	125.3	107.9	0.86	TXNDC17	222.3	44	0.20	TRPM7	148.5	781.3	5.26	TPD52L2	212.7	149.8	0.70
				TXNDC15	68.3	261.6	3.83	TRPM4	118.1	619.2	5.24	TPD52L2	307.7	126	0.41

Values are expressed as % of protein abundance in TL of human kidney cortex 1.

Supplemental table 5 (Continued):

Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio
TPD52L1	435.9	250.7	0.58	TMEM9	122.8	653.5	5.32	TMCC3	164.5	393	2.39	THAP4	151.5	39.6	0.26
TPD52	147.5	75.3	0.51	TMEM87B	99.2	346.9	3.50	TMBIM6	118.5	411.4	3.47	THAP11	60.3	35.2	0.58
TPCN1	95.4	422.8	4.43	TMEM87A	136.9	735.2	5.37	TM9SF4	102.2	385.3	3.77	TGOLN2	77.4	308.4	3.98
TPBG	147.3	809.5	5.50	TMEM72	0.1	161.0	161.00	TM9SF3	104.9	283.8	2.71	TGM2	291.3	86	0.30
TP53I3	229.4	45.2	0.20	TMEM70	103.3	316.2	3.06	TM9SF2	133.6	542.3	4.06	TGFBRAP1	190.8	118.9	0.62
TP53BP2	224.6	220.6	0.98	TMEM68	123.4	293.4	2.38	TM9SF1	130.5	442.6	3.39	TGFB1	3	2.4	0.80
TP53BP1	133	43.6	0.33	TMEM63A	170.8	1502.4	8.80	TM7SF2	123.4	463.8	3.76	TGFB1I1	8.9	0.1	0.01
TP53	41.7	28.8	0.69	TMEM62	160.7	889	5.53	TLR3	80	345.4	4.32	TFRC	15.6	734.6	4.71
TOR3A	121.7	294	2.42	TMEM43	96.6	335.2	3.47	TLN2	124.4	138	1.11	TFIP11	179.3	84.5	0.47
TOR1B	136.5	165.4	1.21	TMEM38B	82.7	315.4	3.81	TLN1	108.5	56.5	0.52	TFG	116.2	44.4	0.38
TOR1AIP1	117	149.6	1.28	TMEM33	58.1	222.9	3.84	TLN3	160.1	98.9	0.62	TFPC2	123.8	42.1	0.34
TOR1A	85.9	236.8	2.76	TMEM30A	112.2	672.5	5.99	TKT	477	64.3	0.13	TFB1M	138.2	54.8	0.40
TOP2B	113.8	78.3	0.69	TMEM263	309.8	110.5	0.36	TKFC	19	5.6	0.29	TFAM	100.9	7.3	0.07
TOP2A	296.2	579.3	1.96	TMEM256	36.9	126.1	3.42	TKI	170.6	106.7	0.63	TEX264	78.3	224.4	2.87
TOP1	128.3	18.2	0.14	TMEM245	32.4	70.5	2.18	TJP2	420.5	333.3	0.79	TEX2	62.7	115.5	1.84
TOMM70	120.1	396.1	3.30	TMEM230	118.1	343.2	2.91	TJP1	76.4	91	1.19	TEX10	158.2	232.3	1.47
TOMM40L	152.3	378.9	2.49	TMEM223	107.1	300.4	2.80	TIRAP	64.7	34.2	0.53	TES	506.7	143.4	0.28
TOMM40	189.3	544.7	2.88	TMEM222	43	257.3	5.98	TIPRL	159.7	50.7	0.32	TERF2IP	91.9	0.1	0.00
TOMM34	305.8	94.3	0.31	TMEM214	142	393.4	2.77	TINAGL1	7.7	4.1	0.53	TEFM	132.4	11.5	0.09
TOMM22	125.9	378.4	3.01	TMEM205	90.6	376.8	4.16	TINAG	2.1	1.5	0.71	TECR	79.8	226.4	2.84
TOMM20	116.7	295.8	2.53	TMEM201	177.7	87.6	0.49	TIMMDC1	122.4	439.6	3.59	TDRKH	171.5	446.1	2.60
TOM1L2	108.5	162.9	1.50	TMEM200A	405.8	4159.3	10.25	TIMM9	69.9	150.1	2.15	TCTN3	111.9	198.1	1.77
TOM1L1	142.8	212.6	1.49	TMEM199	80.6	293.1	3.64	TIMM8B	93.1	100.1	1.08	TCP1	158.6	65.8	0.41
TOM1	190.3	321.9	1.69	TMEM192	166.6	1298.1	7.79	TIMM50	98.7	275.9	2.80	TCOF1	1614	93.7	0.06
TOLLIP	175.1	426.5	2.44	TMEM189	86.1	176.8	2.05	TIMM44	163.9	65.1	0.40	TCIRG1	341.9	2824.4	8.26
TOE1	550.6	75.1	0.14	TMEM185A	258.9	2426.4	9.37	TIMM23	107.5	569.6	5.30	TCERG1	157.2	21.5	0.14
TNXB	10	11.1	1.11	TMEM176B	155.8	1839.4	11.81	TIMM22	74.3	185.1	2.49	TCAF1	148.1	165.4	1.12
TNS3	25.2	24	0.95	TMEM168	104.5	581.9	5.57	TIMM21	90.5	352.5	3.90	TBRG4	157.7	80.4	0.51
TNS2	15.8	21.5	1.36	TMEM165	149.6	519.6	3.47	TIMM17A	335.9	1385.3	4.12	TBL3	154.8	314.9	2.03
TNS1	37.1	31	0.84	TMEM143	56.9	241.2	4.24	TIMM13	65.1	85.6	1.31	TBL2	81	250.6	3.09
TNPO3	177.8	117	0.66	TMEM135	104.1	100.4	0.96	TIGAR	295.5	114.2	0.39	TBK1	108.4	102.9	0.95
TNPO2	116.2	76.9	0.66	TMEM134	105.9	322.7	3.05	TIAL1	140.5	79.4	0.57	TBCK	63	49.4	0.78
TNPO1	118.7	115.5	0.97	TMEM127	206.4	2418.6	11.72	TIA1	190.1	58.1	0.31	TBCE	234.1	80.8	0.35
TNFRSF21	604.4	5571.5	9.22	TMEM126A	72.1	329.3	4.57	THY1	134.5	11.2	0.08	TBCD	138.6	38.8	0.28
TNFRSF10B	479.2	4160.1	8.68	TMEM120B	73	327.6	4.49	THY1	22.3	145	6.50	TBCB	232.2	50.1	0.22
TNFRSF10A	236.7	1999.7	8.45	TMEM120A	52.5	181.6	3.46	THUMPD3	166.6	64.9	0.39	TBCA	245.9	41.7	0.17
TNC	69.8	14.3	0.20	TMEM115	162.4	447	2.75	THUMPD1	96.8	24.5	0.25	TBC1D9B	128.7	109.6	0.85
TMX4	96.7	254.8	2.63	TMEM111	97.3	223.7	2.30	THSD7A	45.4	61.2	1.35	TBC1D5	200.4	176.9	0.88
TMX3	114	371.3	3.26	TMEM109	77.6	259.2	3.34	THRAP3	198.2	45.7	0.23	TBC1D4	64.1	45.3	0.71
TMX2	127.7	443.1	3.47	TMEM106B	493.2	5418.1	10.99	THOP1	225.1	50.6	0.22	TBC1D23	96.5	73.2	0.76
TMX1	131.7	539.2	4.09	TMED9	111.3	441.8	3.97	THOC7	152.3	22.4	0.15	TBC1D22A	184.5	42.3	0.23
TMUB1	39.7	297.6	7.50	TMED7	60.2	176.1	2.93	THOC6	77.5	13.7	0.18	TBC1D17	140.6	149.2	1.06
TMT3	98.2	339.1	3.45	TMED5	106.6	397.2	3.73	THOC5	100.3	9.5	0.09	TBC1D15	143.6	136.3	0.95
TMPO	203.6	67.5	0.33	TMED4	91.8	331.9	3.62	THOC3	168.3	48	0.29	TBC1D13	91.5	32.3	0.35
TMPO	139.5	105	0.75	TMED3	100.5	394.3	3.92	THOC2	111.7	81.9	0.73	TBC1D10B	417.5	443.6	1.06
TMOD3	73.2	44.6	0.61	TMED2	127.7	474.4	3.71	THOC1	155.4	55.8	0.36	TBC1D10A	91.2	237.5	2.60
TMOD1	32.5	17.6	0.54	TMED10	120.5	458.9	3.81	THNSL1	96.1	12.3	0.13	TAX1BP3	147.8	149	1.01
TMLE	117	24.4	0.21	TMED1	117.4	423.9	3.61	THEM6	68.2	130.6	1.91	TATDN1	187.6	49.9	0.27
TMEM97	363.4	371.1	1.02	TMCO3	288.6	989	3.43	THBS1	43.8	47.9	1.09	TARS1	353.9	90.6	0.26
TMEM94	86.6	373.5	4.31	TMCO1	148.5	347.4	2.34	THBD	55.7	163.1	2.93	TAROBP	123.8	47.9	0.39

Values are expressed as % of protein abundance in TL of human kidney cortex 1.

Supplemental table 5 (Continued):

Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio
TAPT1	79.3	391.8	4.94	STXBP3	144.6	519.8	3.59	STAG2	69.6	53.2	0.76	SPON1	151	85.7	0.57
TAPBP	140	608.3	4.35	STXBP2	91	346.4	3.81	ST3GAL1	121.9	363.9	2.99	SPNS1	155.2	859.8	5.54
TAP2	162.7	774.4	4.76	STXBP1	112.4	347	3.09	ST14	83.2	530.6	6.38	SPINT2	407.7	1415.5	3.47
TAP1	185.9	841.8	4.53	STX8	87.3	680.6	7.80	ST13	101.7	46.5	0.46	SPINT1	185.4	756.5	4.08
TAOK3	114.6	68.5	0.60	STX7	104.1	739.2	7.10	SSRP1	162.8	42.4	0.26	SPG7	109.1	394.5	3.62
TANGO2	81.1	23	0.28	STX5	110.3	283.8	2.57	SSR4	62.1	137.4	2.21	SPG21	160.6	344.7	2.15
TANC1	75.8	84	1.11	STX4	126.8	754.6	5.95	SSR3	114.2	399.9	3.50	SPCS3	96.8	251.5	2.60
TAMM41	124.2	245.5	1.98	STX3	82.2	666.7	8.11	SSR1	99.2	438.6	4.42	SPCS2	101.2	379.5	3.75
TALDO1	235.2	31.1	0.13	STX2	154	1189.9	7.73	SSH3	253.5	134.1	0.53	SPCS1	93.8	364.5	3.89
TAGLN2	146.3	32.4	0.22	STX18	105.8	320.8	3.03	SSBP1	197.4	31.8	0.16	SPATS2L	103	54.4	0.53
TAGLN	3.1	2.7	0.87	STX17	245.6	787.8	3.21	SSB	156.5	32.8	0.21	SPATA5	117.9	90.8	0.77
TAF15	187.6	18.1	0.10	STX16	139.9	740.5	5.29	SRSF9	152.5	22	0.14	SPATA20	219.9	18.8	0.09
TACSTD2	68.1	298.9	4.39	STX12	100.8	720.4	7.15	SRSF7	138.4	0.3	0.00	SPART	136.1	151.4	1.11
TACO1	135.3	6.9	0.05	STX10	161.1	872.3	5.41	SRSF6	117	15.1	0.13	SPAG9	262.8	77.9	0.30
TAB1	136.2	50.8	0.37	STUB1	127.3	336.4	2.64	SRSF3	149.2	3.4	0.02	SPAG9	194.6	100.1	0.51
SYVN1	73.7	334.6	4.54	STT3B	96.5	351.2	3.64	SRSF2	112.5	15.6	0.14	SPAG7	199.8	34.7	0.17
SYTL4	154.8	589.7	3.81	STT3A	92.8	268.5	2.89	SRSF10	144	148.9	1.03	SOWAHC	180.8	158.5	0.88
SYPL2	87.4	464.2	5.31	STRN4	207.4	87.1	0.42	SRSF1	157.9	14.2	0.09	SOS1	133.8	79.9	0.60
SYPL1	101.3	481.8	4.76	STRN3	104.6	55.8	0.53	SRR1	125	26.7	0.21	SORT1	63.1	238	3.77
SYNRG	121.6	56.9	0.47	STRN	124.4	62.5	0.50	SRRM2	427.4	64.4	0.15	SORL1	58.1	66.3	1.14
SYNPO	1.4	0.1	0.07	STRIP1	111.2	26.5	0.24	SRRM1	146.4	19.8	0.14	SORD	57.9	15.5	0.27
SYNJ2BP	106.3	212.5	2.00	STRAP	203	49.6	0.24	SRR	828.3	634.9	0.77	SORBS3	59.3	19.3	0.33
SYNE2	116.5	96.4	0.83	STRADA	97.7	98.8	1.01	SRPRB	97.5	289.1	2.97	SORBS2	39.2	26.3	0.67
SYNE1	77.8	40	0.51	STON2	47.8	26.4	0.55	SRPRA	92.3	199.5	2.16	SORBS1	33.6	24.8	0.74
SYNCRIP	186.5	52.5	0.28	STOML2	90.1	258.6	2.87	SRPK2	157.5	43.6	0.28	SON	148.8	94.6	0.64
SYMPK	105.2	107.1	1.02	STOML1	318.2	2718.9	8.54	SRP9	108.4	13.5	0.12	SOD3	19.6	9	0.46
SYAP1	113.6	65	0.57	STOM	253.8	1907.6	7.52	SRP72	141.9	75	0.53	SOD2	635.5	59.9	0.09
SWAP70	117.7	31.4	0.27	STMN1	2473.9	808.6	0.33	SRP68	164.4	72.4	0.44	SOAT1	419.8	1767	4.21
SV2A	140.7	383	2.72	STK4	179.1	91	0.51	SRP54	156.3	66.9	0.43	SNX9	116.2	76.8	0.66
SUSD2	21.3	46.4	2.18	STK39	588.6	489.8	0.83	SRP14	130.2	30.8	0.24	SNX8	112.5	115.5	1.03
SURF4	52.7	173.8	3.30	STK38L	56.1	61.4	1.09	SRM	547.9	83.6	0.15	SNX6	164.6	97.3	0.59
SURF1	107	344.5	3.22	STK38	268.5	119.7	0.45	SRI	81.9	40.9	0.50	SNX5	79.1	53.7	0.68
SUPV3L1	121.4	52.6	0.43	STK3	154.6	81.8	0.53	SRGAP2	165.2	180.4	1.09	SNX4	74.9	53.1	0.71
SUPT6H	101.9	37.3	0.37	STK25	276.3	243.5	0.88	SRC	191.1	658.6	3.45	SNX30	48.3	40.5	0.84
SUPT5H	124.4	29.5	0.24	STK24	209.7	196.5	0.94	SQSTM1	390.1	420.4	1.08	SNX3	103.7	160.8	1.55
SUPT16H	183.4	47.2	0.26	STK11IP	258.1	1513.6	5.86	SQOR	224	654.9	2.92	SNX29	56.3	66.9	1.19
SUOX	19.3	8.6	0.45	STIP1	171.4	40.1	0.23	SQLE	365.4	1329	3.64	SNX27	97.5	137.6	1.41
SUN2	85.7	82.1	0.96	STIM1	217.7	578.7	2.66	SPTLC3	410.9	1912.9	4.66	SNX2	119.8	59.6	0.50
SUN1	67.9	98.9	1.46	STEAP4	15.1	25.1	1.66	SPTLC2	102.2	286.3	2.80	SNX18	34.6	56	1.62
SUMF2	121.6	106.4	0.88	STBD1	142.7	268.2	1.88	SPTLC1	159.9	662.1	4.14	SNX17	61.8	324.9	5.26
SULTIC2	120.4	49.1	0.41	STAU2	190.2	203.1	1.07	SPTBN2	62.3	61.2	0.98	SNX15	87.7	99.8	1.14
SULTIA1	162.9	77.4	0.48	STAU1	119.8	76.4	0.64	SPTBN1	71.2	40.8	0.57	SNX12	112.4	104.6	0.93
SUGT1	236.7	77.4	0.33	STAT6	81.8	61.5	0.75	SPTB	86.8	66.3	0.76	SNX11	248.3	1563.3	6.30
SUGP2	152	219	1.44	STAT5B	65.2	51.5	0.79	SPTAN1	69.1	30.6	0.44	SNX1	131	119.4	0.91
SUGCT	38.4	8.1	0.21	STAT5A	87.2	63	0.72	SPTA1	80.9	48.2	0.60	SNW1	162.5	89.2	0.55
SUCLG2	66.2	4.7	0.07	STAT3	75.5	51.6	0.68	SPRYD7	131	663.3	5.06	SNU13	116.5	50.5	0.43
SUCLG1	69.9	2.8	0.04	STAT1	101.4	54.4	0.54	SPRYD4	96	16.4	0.17	SNTB2	97.8	263.7	2.70
SUCLA2	76.2	9.8	0.13	STAMBIP	117.2	87.7	0.75	SPRY4	253.9	1846	7.27	SNTB1	163.8	539.1	3.29
SUB1	150.3	14.9	0.10	STAM2	135	170.5	1.26	SPR	116.5	26.6	0.23	SNRPG	128.2	20.7	0.16
STXBP4	173.2	218.6	1.26	STAM	255.8	190.8	0.75	SPPL2A	383.7	2508.4	6.54	SNRPE	141.4	5.9	0.04

Values are expressed as % of protein abundance in TL of human kidney cortex 1.

Supplemental table 5 (Continued):

Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio
SNRPD3	98.8	21.4	0.22	SLC9A3	35.1	32.9	0.94	SLC35A3	47.3	241.1	5.10	SLC22A5	68.1	516	7.58
SNRPD2	150.9	30.3	0.20	SLC9A1	125.2	684.8	5.47	SLC34A2	374.6	3211	8.57	SLC22A4	66.3	141.3	2.13
SNRPD1	169.3	33.7	0.20	SLC8A1	1.5	7.5	5.00	SLC33A1	58.3	253.6	4.35	SLC22A2	55.3	128.6	2.33
SNRPB2	350.8	51.5	0.15	SLC7A9	3.3	63.6	19.27	SLC31A1	135.9	1052.2	7.74	SLC22A18	114.3	120	1.05
SNRPB	109.2	41.5	0.38	SLC7A8	2.5	11.9	4.76	SLC30A9	62.6	201.4	3.22	SLC22A13	16.4	22.3	1.36
SNRPA1	120.5	27.5	0.23	SLC7A5	127.8	259.7	2.03	SLC30A7	70.8	436.9	6.17	SLC22A12	10.4	23.2	2.23
SNRPA	156	21.1	0.14	SLC7A11	186.6	322.4	1.73	SLC30A5	125.6	430.3	3.43	SLC22A11	10.9	78.4	7.19
SNRNP70	133.1	13.2	0.10	SLC6A8	41.4	277.7	6.71	SLC30A1	223	1899.6	8.52	SLC20A2	188.5	1334.7	7.08
SNRNP40	205.3	95	0.46	SLC6A6	242.1	1787.9	7.38	SLC2A9	286.6	2042.3	7.13	SLC20A1	1077.2	8686.6	8.06
SNRNP200	127.3	73.7	0.58	SLC6A19	3.2	0.1	0.03	SLC2A8	128.3	546.5	4.26	SLC1A5	196.8	1370.3	6.96
SNF8	161	81	0.50	SLC6A13	35.3	277	7.85	SLC2A6	840.1	7126.4	8.48	SLC1A1	235.6	1872.6	7.95
SNF1	148.2	58.3	0.39	SLC5A9	7.3	10.4	1.42	SLC2A5	53.3	151.7	2.85	SLC19A3	8.8	70.6	8.02
SNAPIN	163.6	229.2	1.40	SLC5A8	14.3	66.5	4.65	SLC2A3	93.3	83.8	0.90	SLC17A5	370.1	1624.1	4.39
SNAP29	127.5	302.4	2.37	SLC5A3	220.1	1320.1	6.00	SLC2A2	38	152.1	4.00	SLC17A3	32.1	123.4	3.84
SNAP23	180.7	1035.8	5.73	SLC5A2	7.7	6.8	0.88	SLC2A13	131	989.5	7.55	SLC16A7	148.2	1028.5	6.94
SMU1	107.1	14.4	0.13	SLC5A12	6.9	14.4	2.09	SLC2A11	43.5	176.2	4.05	SLC16A4	27	155.3	5.75
SMS	212.4	44.5	0.21	SLC5A11	29.5	72.2	2.45	SLC2A1	147.5	727.2	4.93	SLC16A3	404.1	4212.4	10.42
SMPDL3B	280.6	1511.1	5.39	SLC5A10	15.7	77.1	4.91	SLC29A1	53.1	347.8	6.55	SLC16A2	78.3	458.9	5.86
SMPD4	84.4	170.6	2.02	SLC5A1	13.8	15.4	1.12	SLC28A1	44.4	176.9	3.98	SLC16A1	139.1	92.7	6.66
SMPD1	164.6	184.6	1.12	SLC4A7	322.1	2264	7.03	SLC27A4	171.9	573	3.33	SLC15A4	270.9	1213.9	4.48
SMN1	160.2	191.8	1.20	SLC4A4	51.9	336.3	6.48	SLC27A3	237	493.5	2.08	SLC15A1	487.4	3936.4	8.08
SMIM24	4.7	20.4	4.34	SLC4A4	62.8	523.3	8.33	SLC27A2	46	177.3	3.85	SLC14A1	70.9	84.5	1.19
SMIM20	42.1	228.1	5.42	SLC4A2	278.1	2252.2	8.10	SLC27A1	22.3	68.2	3.06	SLC13A3	34	240.6	7.08
SMG1	190.1	453.8	2.39	SLC4A1AP	97.8	24.4	0.25	SLC26A6	32.4	123	3.80	SLC13A2	28.1	100.7	3.58
SMCHD1	158.9	84.6	0.53	SLC4A1	83.1	52.6	0.63	SLC26A11	87.3	684.7	7.84	SLC13A1	26.4	244.5	9.26
SMC3	81.5	27.7	0.34	SLC49A4	195.8	850.6	4.34	SLC26A1	28.8	167	5.80	SLC12A9	180	1411.3	7.84
SMC1A	99.6	43.7	0.44	SLC47A2	54.9	130	2.37	SLC25A6	108.9	422.7	3.88	SLC12A7	200	1581.5	7.91
SMARCE1	140.9	40.2	0.29	SLC47A1	33	231.5	7.02	SLC25A51	34.8	329.2	9.46	SLC12A6	101.4	606.7	5.98
SMARCD2	92.1	82.4	0.89	SLC44A4	62.7	573.2	9.14	SLC25A5	66.4	229.9	3.46	SLC12A2	174	1517.9	8.72
SMARCC2	109	31.9	0.29	SLC44A2	59.3	124	2.09	SLC25A46	52.1	132.8	2.55	SLC12A1	14.5	52.9	3.65
SMARCC1	138.1	17.9	0.13	SLC44A2	18.1	116.7	6.45	SLC25A42	12.8	36.5	2.85	SLC11A2	124	700.7	5.65
SMARCB1	100.9	60.2	0.60	SLC44A1	80	493.9	6.17	SLC25A40	83.4	179.2	2.15	SKP1	138	63.3	0.46
SMARCA5	128.8	78.5	0.61	SLC43A2	55.3	108.9	1.97	SLC25A4	62.5	213.7	3.42	SKIV2L	109.8	47.8	0.44
SMARCA4	65.2	43.5	0.67	SLC41A3	132.8	281.9	2.12	SLC25A35	131.9	506.6	3.84	SIRT5	155	12.8	0.08
SMARCA2	61.6	25.7	0.42	SLC3A2	33.5	158.1	4.72	SLC25A30	52.4	294.2	5.61	SIRPA	250.6	788.6	3.15
SMARCA1	55	51.7	0.94	SLC3A1	108.3	441.8	4.08	SLC25A3	82	329.9	4.02	SIPA1L1	100.3	108.7	1.08
SMAP1	212.3	63.9	0.30	SLC39A8	921.3	6426.9	6.98	SLC25A25	112.1	561.9	5.01	SIN3A	209.8	66.8	0.32
SMAD4	84.5	39.8	0.47	SLC39A6	195.8	1290.8	6.59	SLC25A24	134.8	461	3.42	SIL1	143.5	156.6	1.05
SMAD3	177.5	71.6	0.40	SLC39A5	55.3	214	3.87	SLC25A23	175.5	559.5	3.19	SIGMAR1	194.7	245.2	1.26
SLTM	222.8	47.2	0.21	SLC39A4	300.2	2986.8	9.95	SLC25A22	88.3	377.9	4.28	SIGIRR	62	95.4	1.54
SLMAP	104.6	116.1	1.11	SLC39A14	46.6	275.7	5.92	SLC25A20	31.5	110.2	3.50	SIAE	127	88.5	0.70
SLK	173.7	161.4	0.93	SLC39A11	130.2	540.4	4.15	SLC25A19	152.4	520.8	3.42	SHTN1	179.7	49.8	0.28
SLIT2	70.5	43.3	0.61	SLC39A10	168.1	464	2.76	SLC25A13	55.4	197.4	3.56	SHPK	85.9	23.6	0.27
SLIRP	95.9	11.2	0.12	SLC38A10	85.2	148.1	1.74	SLC25A12	43	161.2	3.75	SHMT2	142.1	19.5	0.14
SLCO4C1	124.9	1042.4	8.35	SLC37A4	57.4	229.1	3.99	SLC25A11	60.2	216.2	3.59	SHMT1	61.5	21.5	0.35
SLCO2A1	14.4	175.3	12.17	SLC36A2	21.3	104.1	4.89	SLC25A10	48.5	209.9	4.33	SHANK2	109.3	366.3	3.35
SLC9A7	133.6	480	3.59	SLC35F6	206	1297.3	6.30	SLC25A1	74.9	322.6	4.31	SH3TC1	66.4	118.9	1.79
SLC9A6	120.9	554	4.58	SLC35E1	113.7	428.1	3.77	SLC23A1	9.8	50.3	5.13	SH3PXD2B	284.2	139.8	0.49
SLC9A3R2	16.2	66.3	4.09	SLC35B2	146.4	558.1	3.81	SLC22A8	16.5	21.2	1.28	SH3KBP1	86.5	63.6	0.74
SLC9A3R1	55.3	139.1	2.52	SLC35A4	51.5	116.2	2.26	SLC22A6	52.3	283.4	5.42	SH3GL2	139.4	150	1.08

Values are expressed as % of protein abundance in TL of human kidney cortex 1.

Supplemental table 5 (Continued):

Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio
SH3GLB1	134.7	114.5	0.85	SEPTIN4	13.3	2.6	0.20	SCRIB	156.4	518.4	3.31	RUFY1	173	199.1	1.15
SH3GL2	30.3	17.5	0.58	SEPTIN2	147.7	35.9	0.24	SCOPE1	18.9	11	0.58	RTRAF	131.1	25.3	0.19
SH3GL1	110.8	52.1	0.47	SEPTIN11	133.4	53.1	0.40	SCP2	173.2	27.6	0.16	RTN4IP1	163.4	0.1	0.00
SH3BP4	113.3	294.2	2.60	SEPTIN10	141.3	42.8	0.30	SCO2	124.4	488.6	3.93	RTN4	148	367.8	2.49
SH3BP1	266.4	102.4	0.38	SEPHS2	87.3	23.4	0.27	SCO1	66	190.2	2.88	RTN4	209.7	321.6	1.53
SH3BGRL3	232.9	59.5	0.26	SEPHS1	140.2	15.8	0.11	SOXY	144.5	23.4	0.16	RTN4	66	43.2	0.65
SH3BGRL2	31.6	9.1	0.29	SENP8	149.3	29.5	0.20	SCIN	61.4	33	0.54	RTN3	112.2	295.2	2.63
SH3BGRL	97.8	16.3	0.17	SELENOS	133.7	449	3.36	SCFD2	95.8	160.7	1.68	RTN1	111	241.7	2.18
SGTA	185.9	48.7	0.26	SELENOO	105.5	0.1	0.00	SCFD1	141.5	189.3	1.34	RTKN	115.1	91.5	0.79
SGSH	318.2	186.4	0.59	SELENON	61.3	134	2.19	SCD	408.6	1276.8	3.12	RTF2	143.5	4.4	0.03
SGPL1	158.4	607	3.83	SELENOF	111.6	170.3	1.53	SCCPDH	82.7	279.6	3.38	RTCB	141	20.2	0.14
SFXN5	40.4	95.9	2.37	SELENBP1	51.1	12.1	0.24	SCARB2	259.9	1993.6	7.67	RTCA	85.8	21	0.24
SFXN4	81.4	274.1	3.37	SEL1L	98.7	324.3	3.29	SCARB1	240.7	1864.2	7.74	RSU1	69.8	42.2	0.60
SFXN3	103.8	447.2	4.31	SEH1L	120.7	159.2	1.32	SCAMP4	133	631	4.74	RSL1D1	275.8	278.8	1.01
SFXN2	20.2	78.4	3.88	SEC63	90.8	284	3.13	SCAMP3	145.3	564.5	3.89	RRP9	174.6	139.7	0.80
SFXN1	52	204.5	3.93	SEC62	69.2	256	3.70	SCAMP2	67.6	408.9	6.05	RRP8	221	195.4	0.88
SFT2D3	119	346.3	2.91	SEC61G	95.5	515.6	5.40	SCAMP1	111.6	567.5	5.09	RRP7BP	205.5	145.6	0.71
SFRP1	12.6	16.9	1.34	SEC61A1	100.9	356.9	3.54	SCAF4	96.8	93.2	0.96	RRP1B	111.6	57	0.51
SFPQ	103.7	8.2	0.08	SEC31A	149	77.6	0.52	SBSPON	31.1	16.4	0.53	RRP15	251.2	304.6	1.21
SF3B6	133.5	106.7	0.80	SEC24D	138.4	108.5	0.78	SBF1	160.8	172	1.07	RRP12	276.6	307.9	1.11
SF3B4	132.2	35.6	0.27	SEC24C	120.2	69.5	0.58	SBDS	208.7	47.3	0.23	RRP1	163.8	159.8	0.98
SF3B3	133.9	68.9	0.51	SEC24B	122.3	110.6	0.90	SAT2	33.3	12	0.36	RRM2B	324.5	94.4	0.29
SF3B2	240.7	115.7	0.48	SEC24A	141.3	74.5	0.53	SART3	156.2	71.8	0.46	RRM2	1757.6	2087.4	1.19
SF3B1	171.2	107.5	0.63	SEC23IP	157.9	100	0.63	SART1	133.6	44	0.33	RRM1	223.7	165.5	0.74
SF3A3	147.1	34.5	0.23	SEC23B	133.7	47.7	0.36	SARS2	193.3	17	0.09	RRBP1	235.5	102.7	0.44
SF3A2	179.5	50.5	0.28	SEC23A	135.3	65.8	0.49	SARS1	187.8	41.8	0.22	RRAS2	119.1	506.8	4.26
SF3A1	156.5	36.3	0.23	SEC22B	118.1	373.6	3.16	SARDH	8.3	3	0.36	RRAS	89.6	423.9	4.73
SETD9	69.1	122.7	1.78	SEC16A	131.8	131.6	1.00	SARAF	94.1	442.3	4.70	RRAGC	181.7	722.3	3.98
SETD3	161.5	44.8	0.28	SEC13	132.1	46.1	0.35	SAR1B	105.5	143.9	1.36	RRAGB	168.8	689.4	4.08
SET	257.6	25.5	0.10	SEC11C	70.8	286.4	4.05	SAR1A	74.6	44.1	0.59	RRAD	52.6	37.9	0.72
SERPINH1	172	152.1	0.88	SEC11A	124.9	403.9	3.23	SAP18	106.6	37	0.35	RPTOR	148.1	190.3	1.28
SERPING1	14.6	17.9	1.23	SDSL	232.2	42.6	0.18	SAMM50	80.9	223.1	2.76	RPSA	220.4	33.4	0.15
SERPINF2	6.3	0.1	0.02	SDR39U1	108.3	71.2	0.66	SAMHD1	72.9	10.9	0.15	RPS9	209.7	165.2	0.79
SERPINF1	3.6	5	1.39	SDHD	58.8	180.8	3.07	SAFB	225.1	34.2	0.15	RPS8	175.1	179.6	1.03
SERPINE2	751	566.4	0.75	SDHC	46.4	169.2	3.65	SAE1	257.4	68.8	0.27	RPS7	309.7	41.6	0.13
SERPINB9	148.3	38.7	0.26	SDHB	52.4	197.9	3.78	SACM1L	75	269.2	3.59	RPS6KA3	91.7	76.8	0.84
SERPINB6	273.5	77.9	0.28	SDHA	56.9	195.9	3.44	SAA4	25.9	3.7	0.14	RPS6KA1	141.7	79.7	0.56
SERPINB12	56.9	72.2	1.27	SDF4	267.3	358.3	1.34	S100A9	3.5	16.8	4.80	RPS6	263.9	231.8	0.88
SERPINB1	509.6	133.2	0.26	SDF2L1	64.3	114.7	1.78	S100A8	3.1	16.9	5.45	RPS5	212.7	108.4	0.51
SERPINA7	9.8	20.6	2.10	SDF2	245.2	466.6	1.90	S100A7	91.8	149.7	1.63	RPS4X	198.3	102.7	0.52
SERPINA5	9.2	32.5	3.53	SDCBP	289.7	1509.4	5.21	S100A16	739.3	473.7	0.64	RPS3A	260.5	130.8	0.50
SERPINA4	1.6	0.1	0.06	SDC4	316.1	601.7	1.90	S100A13	482	121.9	0.25	RPS3	225.3	67.9	0.30
SERPINA3	4.5	3.4	0.76	SDC2	85.4	404.1	4.73	S100A11	269.3	58.2	0.22	RPS27L	270.7	241.7	0.89
SERPINA1	10.7	8.4	0.79	SDC1	203.3	1093.8	5.38	S100A10	172.9	73.1	0.42	RPS27	188.2	174	0.92
SERINC1	352.1	2697.6	7.66	SCYL3	85.3	59	0.69	S100A1	655.5	142.8	0.22	RPS26	288.8	215.8	0.75
SERBP1	185.1	156.9	0.08	SCYL2	162.1	180.8	1.12	RXRB	73.9	51.8	0.70	RPS25	149.3	33.8	0.23
SEPTIN9	218.5	88.3	0.40	SCYL1	139.7	129.3	0.93	RXDD4	227.5	105	0.46	RPS24	198.4	173.4	0.87
SEPTIN8	98.7	56.6	0.57	SCRN3	194.9	40	0.21	RUVBL2	230.9	106.8	0.46	RPS23	603.6	912.4	1.51
SEPTIN7	129.3	29.4	0.23	SCRN2	44.7	10.6	0.24	RUVBL1	235.5	104.9	0.45	RPS21	255.5	39.2	0.15
SEPTIN6	132.3	46.4	0.35	SCRN1	283	64.5	0.23	RUFY2	106.7	126.8	1.19	RPS20	388.4	58.2	0.15

Values are expressed as % of protein abundance in TL of human kidney cortex 1.

Supplemental table 5 (Continued):

Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio
RPS2	220.6	187.5	0.85	RPL17	258	218	0.84	RHOT1	62.5	162.4	2.60	RBM39	105.3	57.4	0.55
RPS19	535.2	60	0.11	RPL15	164.8	181.9	1.10	RHOG	119.1	344.2	2.89	RBM3	78.8	8.1	0.10
RPS18	193.3	409.3	2.12	RPL14	219.7	216.2	0.98	RHOF	319.2	1407.1	4.41	RBM28	141.3	223.4	1.58
RPS17	256.1	126.8	0.50	RPL13A	152.6	151.9	1.00	RHOC	167.8	230.2	1.37	RBM25	127	14.5	0.11
RPS16	147	153.4	1.04	RPL13	798	941.9	1.18	RHOA	138.4	1461.3	10.56	RBM22	91.7	68.7	0.75
RPS15A	196.7	48.1	0.24	RPL12	206.5	93.4	0.45	RHOB	142.1	187.2	1.32	RBM17	195.7	10.3	0.05
RPS15	190.9	143.6	0.75	RPL11	220.6	37.6	0.17	RHEB	152.3	182	1.20	RBM15B	147	83.9	0.57
RPS14	286	128.2	0.45	RPL10A	173.8	204.5	1.18	RHBDF1	81.8	652.4	7.98	RBM15	130.6	54.7	0.42
RPS13	235.6	200.4	0.85	RPL10	197.2	230.2	1.17	RHBDD2	190.2	806.3	4.24	RBM14	161.7	29.9	0.18
RPS12	230.4	20.3	0.09	RPAP3	165.4	69	0.42	RGN	44.6	18.2	0.41	RBM12B	193.8	37.3	0.19
RPS11	319.6	318.7	1.00	RPA3	107.3	30.8	0.29	RGL2	101.6	69.5	0.68	RBM12	142.5	38.6	0.27
RPS10	339.7	20.1	0.06	RPA2	331.1	123.2	0.37	RFTN1	88	503.1	5.72	RBM10	142	24.5	0.17
RPRD1B	127.4	14	0.11	RPA1	144.9	55.5	0.38	RFT1	106.1	432.8	4.08	RBKS	94.7	17.9	0.19
RPP30	211.7	94.3	0.45	RP2	114.6	743.2	6.49	RFK	192.8	29.8	0.15	RBFA	140.6	29.2	0.21
RPN2	86.6	323	3.73	ROMO1	66	296.4	4.49	RFL	171.5	1226.9	7.15	RBCK1	177.9	441.1	2.48
RPN1	91.6	366.3	4.00	ROCK2	126.5	51.1	0.40	RFC5	159.7	53.8	0.34	RBBP9	119.1	27.7	0.23
RPLP2	136.6	234.8	1.72	ROCK1	81.6	28.6	0.35	RFC4	162.3	84.6	0.52	RBBP7	282.8	55.8	0.20
RPLP1	148.7	81.5	0.55	RO60	134	31	0.23	RFC3	140.9	87.8	0.62	RBBP4	135.3	29.6	0.22
RPLP0	213.5	163.8	0.77	RNPS1	113.9	52.1	0.46	RFC1	120.3	104.3	0.87	RB1	209.9	158.1	0.75
RPL9	210.7	22.7	0.11	RNPEP	173.4	34.3	0.20	REX04	758.6	702.9	0.93	RAVER2	150.7	90.5	0.60
RPL8	208.6	217.8	1.04	RNMT	237.1	72.3	0.30	REX02	155.3	22.1	0.14	RAVER1	129.3	70.2	0.54
RPL7A	284.2	337.1	1.19	RNH1	153.5	41.9	0.27	RETSAT	101.9	335.9	3.30	RASAL1	348.3	302.4	0.87
RPL7	140.1	161.4	1.15	RNF40	164.9	80.6	0.49	RETREG2	94.8	215	2.27	RARS1	195.1	80.2	0.41
RPL6	235	273.4	1.16	RNF213	83.8	99.1	1.18	REH1	100.9	326.8	3.24	RARRES2	12.1	9	0.74
RPL5	181.1	37.7	0.21	RNF20	116	38.1	0.33	REPS1	113.5	49.6	0.44	RAPH1	182.4	55.1	0.30
RPL4	197.5	275.9	1.40	RNF170	41.7	199.9	4.79	RENBP	77.1	31.7	0.41	RAP2C	71	527.8	7.43
RPL38	1157.9	572	0.49	RNF167	149.7	1092	7.29	RELCH	138.8	104.3	0.75	RAP2B	100.2	580.6	5.79
RPL37A	372.7	324.1	0.87	RNF149	376	3403.5	9.05	RELA	103.6	29.1	0.28	RAP1GDS1	201.4	69.8	0.35
RPL36A	30324.4	29270.2	0.97	RNF14	130.1	65.7	0.50	REEP6	23.7	52	2.19	RAP1GAP	62.6	34.7	0.55
RPL36	170	162.3	0.95	RNF13	306.5	2453	8.00	REEP5	100.2	290.6	2.90	RAP1B	70.7	214.8	3.04
RPL35A	196.7	219.8	1.12	RNF128	340.3	3204	9.42	REEP4	107.5	122.4	1.14	RAP1A	70.3	254.2	3.62
RPL35	85.4	0.1	0.00	RNASET2	60.8	27.4	0.45	REEP3	140	306.8	2.19	RANGAP1	256.1	109	0.43
RPL34	97.6	119.7	1.23	RNASEL	71.4	37.6	0.53	RECQL	340.1	61.5	0.18	RANBP6	139.9	103	0.74
RPL32	121.3	103.4	0.85	RNASE6	1	0.1	0.10	RECK	8.8	19.1	2.17	RANBP3	301.3	48.6	0.16
RPL31	292.3	133.5	0.46	RNASE2	5.6	10.3	1.84	RDX	60.6	82.2	1.36	RANBP2	134.6	73.1	0.54
RPL30	144.9	178.9	1.23	RMND1	64.4	187.7	2.91	RDH14	79.7	240.7	3.02	RANBP1	243.6	49.1	0.20
RPL3	180.1	206.3	1.15	RMDN3	125.6	269.5	2.15	RDH13	107.9	355.3	3.29	RAN	230.8	53.2	0.23
RPL29	649.8	517.4	0.80	RMDN2	80	143.8	1.80	RDH12	33	70.3	2.13	RALY	136.3	139.5	1.02
RPL28	206.3	427.8	2.07	RMDN1	160.1	151.8	0.95	RDH11	94.2	356.1	3.78	RALGAPB	130.7	148.4	1.14
RPL27A	358.1	395.9	1.11	RIT1	148.6	68.2	0.46	RDH10	49.1	194.9	3.97	RALGAP2	55.9	49.4	0.88
RPL27	122.3	111.3	0.91	RIPOR1	79.8	145.9	1.83	RCN2	93.3	89.3	0.96	RALGAP1	210.5	253.5	1.20
RPL26	344.2	302.3	0.88	RIPK1	146.1	73.1	0.50	RCN1	180.9	204.7	1.13	RALB	129.2	707.7	5.48
RPL24	239.9	248.2	1.03	RIOX2	96.3	17.4	0.18	RCC2	183.4	135.3	0.74	RALA	134	851	6.35
RPL23A	500.6	359.1	0.72	RINT1	91.9	139.2	1.51	RCC1	306.5	29	0.09	RAI14	90.4	34.1	0.38
RPL23	212.8	186.9	0.88	RING1	113	30.6	0.27	RBP7	1.8	0.1	0.06	RAE1	128.4	83.8	0.65
RPL22	124.1	19.8	0.16	RIDA	37.6	32.3	0.86	RBMX	182	114	0.63	RAD50	152.7	37.3	0.24
RPL21	344.4	391.4	1.14	RICTOR	139.4	156.7	1.12	RBMS1	121.9	25.7	0.21	RAD23B	150.9	30.6	0.20
RPL19	151.4	112.5	0.74	RIC8A	148.9	159.7	1.07	RBM8A	116.8	74.9	0.64	RAD23A	168.7	61.4	0.36
RPL18A	204	238.2	1.17	RHPN2	154.5	145	0.94	RBM47	102.1	37.5	0.37	RAD21	98.3	55.1	0.56
RPL18	180.1	216.3	1.20	RHOT2	89.9	370.8	4.12	RBM4	123.2	49.8	0.40	RACK1	213.2	37	0.17

Values are expressed as % of protein abundance in TL of human kidney cortex 1.

Supplemental table 5 (Continued):

Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio
RAC2	44.8	89.1	1.99	RAB11FIP1	140.3	226.9	1.62	PTK2	109	75.4	0.69	PSMB10	229.6	48.7	0.21
RAC1	96.9	201.7	2.08	RAB11B	98.3	230.7	2.35	PTH1R	36.9	53.8	1.46	PSMB1	162.9	34.3	0.21
RABL6	502.8	160.3	0.32	RAB10	101.7	278.8	2.74	PTGS1	19	48.7	2.56	PSMA7	175.3	34	0.19
RABL3	80.2	187.8	2.34	QTRT2	117.7	14.1	0.12	PTGR2	153.5	41.4	0.27	PSMA6	172.1	29	0.17
RABGGTA	180.1	51.6	0.29	QTRT1	167.2	0.1	0.00	PTGR1	211.4	42.7	0.20	PSMA5	180.3	38	0.21
RABGEF1	161.4	140.5	0.87	QSOX2	168.4	542.7	3.22	PTGFRN	274.3	1428.8	5.21	PSMA4	174.3	31.6	0.18
RABGAP1L	120.6	98.1	0.81	QRSL1	248.1	14.3	0.06	PTGES3	183.8	21.1	0.11	PSMA3	156.6	29.3	0.19
RABGAP1	114.6	86.8	0.76	QRICH1	195.9	164.4	0.84	PTGES2	96.1	180.1	1.87	PSMA2	164.1	37.2	0.23
RABEPK	269.4	82.9	0.31	QPR1	209.9	73	0.35	PTER	273.8	61.9	0.23	PSMA1	178.2	29.2	0.16
RABEP1	110.6	36.7	0.33	QDPR	53.9	6.7	0.12	PTDSS2	96.3	444.3	4.61	PSIP1	99.9	18.6	0.19
RAB9A	175.9	852.4	4.85	QARS1	196.5	84.8	0.43	PTDSS1	111.1	662.3	5.96	PSEN1	187.1	2311.6	12.35
RAB8B	128.8	663.8	5.15	PYGL	255	81.3	0.32	PTCD3	186	87.5	0.47	PSAT1	113.6	27	0.24
RAB8A	79.7	330.6	4.15	PYGB	248.1	54.3	0.22	PTBP3	128.8	81.1	0.63	PSAP	202.4	293.2	1.45
RAB7A	154	905.7	5.88	PYCR3	155.6	25.9	0.17	PTBP1	149.2	52.6	0.35	PRXL2B	87.7	48.4	0.55
RAB6A	129.6	404.8	3.12	PYCR2	334.4	131.8	0.39	PSTPIP2	581.6	203.6	0.35	PRXL2A	104.3	358.3	3.44
RAB5F	150.4	413.4	2.75	PXN	72.3	27.2	0.38	PSPC1	216.8	22.6	0.10	PRUNE2	44.8	19.5	0.44
RAB5C	112.1	451.3	4.03	PXMP2	47	59.6	1.27	PSMG3	201	36.9	0.18	PRSS23	26.2	30	1.15
RAB5B	110.1	417.2	3.79	PXDN	44.8	36.9	0.82	PSMG2	538.1	0.1	0.00	PRRC2A	541.5	131.2	0.24
RAB5A	137.6	501.8	3.65	PWP2	180.7	213.1	1.18	PSMG1	171.2	43.4	0.25	PRRC1	108.6	49.2	0.45
RAB4B	135.6	403.9	2.98	PWP1	143.2	90.9	0.63	PSMF1	116.8	99.7	0.85	PRPSAP2	159.5	20.5	0.13
RAB4A	126.8	402.5	3.17	PVR	104.7	661.7	6.32	PSME3	439.3	69.5	0.16	PRPSAP1	242.1	100.3	0.41
RAB43	109.4	378.6	3.46	PUS1	261.7	44.5	0.17	PSME2	171	52.9	0.31	PRPS2	263.9	65.3	0.25
RAB3IP	371.3	92.1	0.25	PURA	40.1	16.3	0.41	PSME1	183.8	45.9	0.25	PRPS1	138.3	27.3	0.20
RAB3GAP2	102.7	96.5	0.94	PUM3	161.4	264.4	1.64	PSMD9	142.4	58.1	0.41	PRPF8	127.5	91.6	0.72
RAB3GAP1	109.8	74.7	0.68	PUM1	175.1	195.5	1.12	PSMD8	168.6	47.2	0.28	PRPF6	136.1	29.9	0.22
RAB3D	368.5	1656.5	4.50	PUF60	171	21.2	0.12	PSMD7	161.5	41.3	0.26	PRPF4B	109.8	74	0.67
RAB3B	922.6	2914.4	3.16	PUDP	99.2	25.3	0.26	PSMD6	130	36	0.28	PRPF40A	102.2	19.6	0.19
RAB35	86.7	352	4.06	PTTG1IP	674.5	4969.4	7.37	PSMD5	174.4	51.4	0.29	PRPF4	190.9	94.7	0.50
RAB34	150.5	440.9	2.93	PTRH2	134.4	533.3	3.97	PSMD4	176.8	42.3	0.24	PRPF31	134.7	29.4	0.22
RAB32	334.4	1744.1	5.22	PTRH1	200.4	24.9	0.12	PSMD3	129.5	42.9	0.33	PRPF3	187.8	110.4	0.59
RAB31	108.4	368.1	3.40	PTPRO	10.6	57.3	5.41	PSMD2	155.4	45.5	0.29	PRPF19	118.4	54.3	0.46
RAB30	98.5	226.4	2.30	PTPRM	185.8	1215.7	6.54	PSMD14	180.7	51.1	0.28	PROM2	64.6	72.6	1.12
RAB2B	112.9	540.7	4.79	PTPRJ	240.7	1392.1	5.78	PSMD13	158.6	49.3	0.31	PROM1	336.9	2853.6	8.47
RAB2A	108.5	349.4	3.22	PTPRG	170.4	1142.3	6.70	PSMD12	137.9	58	0.42	PRODH2	21.7	17.5	0.81
RAB29	82.9	435.6	5.25	PTPRF	192.6	1039.6	5.40	PSMD11	146	50.4	0.35	PRODH	69.2	159.8	2.31
RAB27B	564.6	2601.6	4.61	PTPRE	183.8	1061.8	5.78	PSMD10	141.3	40.8	0.29	PROCR	58.9	149.2	2.53
RAB27A	161.7	723.3	4.47	PTPRD	107.4	770.3	7.17	PSMD1	153.7	53.4	0.35	PRNP	73.7	539.2	7.32
RAB24	61.3	221	3.61	PTPRC	12.6	20	1.59	PSMC6	182.6	61.8	0.34	PRMT9	107.3	77.1	0.72
RAB23	163.5	545.4	3.34	PTPRA	99	598.8	6.05	PSMC5	155.9	50.2	0.32	PRMT5	148.2	19.3	0.13
RAB22A	125.3	573.5	4.58	PTPN6	102.8	86.4	0.84	PSMC4	161.1	45.5	0.28	PRMT3	407.1	116.4	0.29
RAB21	72	198.5	2.76	PTPN23	120.9	152.5	1.26	PSMC3	160.3	41.5	0.26	PRMT1	230.6	62.5	0.27
RAB20	102.1	806.8	7.90	PTPN2	158.8	282.2	1.78	PSMC2	159.9	45.5	0.28	PRKRA	190.8	170.2	0.89
RAB1B	109.6	378.2	3.45	PTPN13	106.8	257.2	2.41	PSMC1	170.3	50.3	0.30	PRKDC	181.8	31.3	0.17
RAB1A	105.3	360.5	3.42	PTPN12	147.8	68.2	0.46	PSMB8	216.1	41	0.19	PRKD2	126.8	107.6	0.85
RAB18	93.2	299.7	3.22	PTPN11	192.3	130	0.68	PSMB7	182.6	32.2	0.18	PRKD1	169	217.3	1.29
RAB17	77.4	479.5	6.20	PTPN1	281.7	848.6	3.01	PSMB6	141.8	98.6	0.70	PRKCSH	137	132.3	0.97
RAB14	83.6	330.8	3.96	PTPMT1	81.9	204.6	2.50	PSMB5	80.4	19	0.24	PRKCI	49.9	79.8	1.60
RAB13	158.2	426.8	2.70	PTPA	129.6	34.6	0.27	PSMB4	169.2	28.2	0.17	PRKCD	134.8	74.8	0.55
RAB11FIP5	147.1	156.5	1.06	PTP4A2	158.8	262.2	1.65	PSMB3	154.8	32.4	0.21	PRKCA	69.8	81.9	1.17
RAB11FIP3	30	0.1	0.00	PTK7	36.2	108.7	3.00	PSMB2	189.1	36.2	0.19	PRKAR2B	20.7	3.8	0.18

Values are expressed as % of protein abundance in TL of human kidney cortex 1.

Supplemental table 5 (Continued):

Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio
PRKAR2A	113.8	175.4	1.54	PPL	163.5	56.5	0.35	PNP	86.8	21.4	0.25	PLAA	201.2	53.6	0.27
PRKAR1A	100.5	102.4	1.02	PPIP5K2	222.2	54.7	0.25	PNO1	170.6	84.7	0.50	PLA2G4C	376.1	1029.7	2.74
PRKAG1	112.3	141	1.26	PPIL4	97.6	93.9	0.96	PNN	146.5	92.6	0.63	PLA2G4A	40.6	45.6	1.12
PRKACA	106.6	136.3	1.28	PPIL3	56.9	10.5	0.18	PNKP	186.7	16	0.09	PLA2G15	257.1	120.4	0.47
PRKAB1	114.3	139.7	1.22	PPIL1	244.4	247.2	1.01	PNKD	115	368.8	3.21	PKP4	133.7	602.8	4.51
PRKAA2	106.2	124.2	1.17	PIIH	149.6	98.7	0.66	PNKD	82.5	424.4	5.14	PKP2	54.2	97.9	1.81
PRKAA1	118.7	159.6	1.34	PIIG	124.5	24.7	0.20	PMVK	75.2	35.5	0.47	PKN2	198.2	133.4	0.67
PREPL	77.8	44.9	0.58	PIIF	190	12.9	0.07	PMPCB	181.8	16.5	0.09	PKM	539.3	128.7	0.24
PREP	260.8	67.1	0.26	PPID	221.5	64.8	0.29	PMPCA	194.6	13.4	0.07	PKLR	60.5	16.4	0.27
PRELP	4.6	5.8	1.26	PPIC	197.4	118.3	0.60	PMP2	2.9	3.1	1.07	PKD2	97.4	410.1	4.31
PREB	86.5	417.7	4.83	PPIB	134.3	89.2	0.66	PMM2	286.9	73.5	0.26	PITRM1	229.3	17.3	0.08
PRDX6	104.2	21.8	0.21	PPFIBP1	192.3	136.5	0.71	PML	236	82.2	0.35	PITPNB	263.8	131.2	0.50
PRDX5	186.4	26	0.14	PPFIA1	132.3	131.3	0.99	PLXNB2	140	962.7	6.88	PITPNA	212.6	66.9	0.31
PRDX4	233.5	188.9	0.81	PPCS	93.9	47.2	0.50	PLXNB1	150.2	803.8	5.35	PITHD1	123.1	46.5	0.38
PRDX3	127.6	16.1	0.13	PPAT	421.1	182.1	0.43	PLXDC2	66.2	567.3	8.57	PISD	117.4	505.9	4.31
PRDX2	157.6	39.1	0.25	PPA2	126.6	7.6	0.06	PLXVAP	6	7.3	1.22	PIR	101.6	58.5	0.58
PRCP	132.8	51.8	0.39	PPA1	360.1	74.5	0.21	PLTP	17.6	16	0.91	PIPOX	6.8	2.7	0.40
PRAF2	127.5	306.7	2.41	POU3F3	150.4	74.3	0.49	PLSCR4	15.5	89.3	5.76	PIP5K1C	80.8	90.6	1.12
PPWD1	124.4	0.1	0.00	POSTN	6	3.6	0.60	PLSCR3	138.3	886.2	6.41	PIP5K1A	99.7	66.3	0.66
PPT2	394.5	293.9	0.74	POR	61.2	216.6	3.54	PLSCR1	112.2	710	6.33	PIP4P1	128.5	1202.4	9.36
PPT1	80.7	65.4	0.81	POP1	240.6	110.1	0.46	PLS3	149.2	57.3	0.38	PIP4K2C	100.3	28.9	0.29
PPP6R3	211.1	97.1	0.46	PON2	214.1	730.5	3.41	PLS1	159.9	87.9	0.55	PIP4K2B	140.6	57.3	0.41
PPP6C	173.6	43.9	0.25	POMK	122	321	2.63	PLRG1	236.1	162.7	0.69	PIP4K2A	92.5	26.4	0.29
PPP5C	219.5	51.9	0.24	POMGNT2	69.7	126.6	1.82	PLPPP3	31.6	225.1	7.12	PIN4	177.4	60.5	0.34
PPP4R3A	111.7	82.2	0.74	POMGNT1	78.2	236.2	3.02	PLPPP1	127.5	504.5	3.96	PIN1	150.4	61.6	0.41
PPP4R2	119.5	16.9	0.14	POM121C	274.7	213	0.78	PLPBP	157.5	34.2	0.22	PIK3R4	112.8	100	0.89
PPP4C	181.2	46.2	0.25	POLR3B	138.7	44.7	0.32	PLP2	218.3	1236.2	5.66	PIK3R2	98.4	147.5	1.50
PPP3CC	119.3	113.1	0.95	POLR3A	203.4	65.9	0.32	PLOD3	255.7	168.7	0.66	PIK3CB	122.7	77.1	0.63
PPP2R5E	153.4	91.3	0.60	POLR2H	218	118.8	0.54	PLOD2	298.1	194.1	0.65	PIK3C3	117	82.9	0.71
PPP2R5D	154.3	115.8	0.75	POLR2G	145.9	21.9	0.15	PLOD1	149.8	98.4	0.66	PIK3C2A	108.9	91.5	0.84
PPP2R5C	125.7	62.5	0.50	POLR2E	167.3	33.1	0.20	PLLP	27.2	132.8	4.88	PIGU	92.4	334.1	3.62
PPP2R5A	179.1	96.5	0.54	POLR2B	150.9	49.5	0.33	PLIN3	489.1	351.8	0.72	PIGT	118.5	330.4	2.79
PPP2R3A	261.8	179.7	0.69	POLR2A	136	62.8	0.46	PLIN2	168.7	176.2	1.04	PIGS	114.1	361.5	3.17
PPP2R2A	149.4	47.7	0.32	POLR1D	146.1	43.9	0.30	PLG	1.3	6.2	4.77	PIGR	11.9	26.4	2.22
PPP2R1A	147.7	49.8	0.34	POLRIC	213.4	119.3	0.56	PLEKHA7	28.9	86.6	3.00	PIGO	95.2	367.3	3.86
PPP2CB	177.2	64.8	0.37	POLR1B	149.4	52.1	0.35	PLEKHA6	144.4	393.4	2.72	PIGK	124.6	459.9	3.69
PPP2CA	175.8	47.7	0.27	POLDIP3	155.8	29.7	0.19	PLEKHA5	182.4	307.9	1.69	PIGG	148.7	704.4	4.74
PPP1R9B	138.9	71.4	0.51	POLDIP2	157.1	19.2	0.12	PLEK2	216.1	39.8	0.18	PIEZO1	59.6	466.7	7.83
PPP1R8	145.6	2	0.01	POLD1	150.1	48.5	0.32	PLEC	144.6	65.7	0.45	PICALM	121.4	68.5	0.56
PPP1R7	208.8	36.8	0.18	POLB	205.7	57.9	0.28	PLD3	150.3	673.8	4.48	PI4KB	73.8	56.9	0.77
PPP1R21	75.7	42.2	0.56	POGLUT3	64.3	42.2	0.66	PLCXD3	4.1	1.4	0.34	PI4KA	100	425.1	4.25
PPP1R12A	105.6	28.6	0.27	POGLUT2	164.4	140.7	0.86	PLCL1	49.3	35.9	0.73	PI4K2A	201.8	1246.2	6.18
PPP1R10	289.4	30.7	0.11	POGLUT1	145.1	126.2	0.87	PLCG2	19	11.2	0.59	PHYHIP1L	249.9	126.8	0.51
PPP1CC	153.5	155.9	1.02	POFUT2	109.4	115.8	1.06	PLCD4	52.4	13.2	0.25	PHYHD1	101.4	54.3	0.54
PPP1CB	149.9	136.5	0.91	POFUT1	142.1	108.4	0.76	PLCD3	263.7	1536	5.82	PHYH	97.9	18.1	0.18
PPME1	274.3	76	0.28	PODXL	8.7	5.1	0.59	PLCD1	31.9	92.8	2.91	PHPT1	133.2	27.2	0.20
PPM1G	342.2	37.5	0.11	PNPT1	124.7	12.1	0.10	PLCB4	564.7	444.6	0.79	PHLDB2	101.1	81.8	0.81
PPM1F	71.1	35.6	0.50	PNPO	170.3	89.4	0.52	PLBD2	445.4	205.4	0.46	PHLDB1	120.6	115.7	0.96
PPM1B	217.7	60.1	0.28	PNPLA8	119	139	1.17	PLAUR	60.6	113.3	1.87	PHKG2	176.5	59.6	0.34
PPM1A	125.8	32.5	0.26	PNPLA6	149.6	488	3.26	PLAU	260	307.7	1.18	PHKB	132.2	77.6	0.59

Values are expressed as % of protein abundance in TL of human kidney cortex 1.

Supplemental table 5 (Continued):

Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio
PHKA2	83.8	37.1	0.44	PDXK	112.1	20.8	0.19	PCBD2	115.1	13.7	0.12	P4HB	140.7	121.1	0.86
PHKA1	512.1	200.4	0.39	PDXDC1	113.7	70.4	0.62	PCBD1	135.2	21.7	0.16	P4HA1	92.9	129.5	1.39
PHGDH	77.1	22.2	0.29	PDS5B	53.5	40.4	0.76	PC	34.1	4.4	0.13	P4HA1	146.6	80.3	0.55
PHF6	579.8	62.3	0.11	PDS5A	131.3	111.4	0.85	PBXIP1	274.1	1051.4	3.84	P3H3	43.8	14.9	0.34
PHB2	87.8	338.1	3.85	P DPR	77	6.6	0.09	PBX1	35.9	59.6	1.66	P3H1	203.8	161.3	0.79
PHB	107.2	401.3	3.74	PDPK1	102.5	85.6	0.84	PBLD	15.8	7	0.44	P2RX4	129.1	641.5	4.97
PHAX	187	16.8	0.09	PDP1	103.1	11.1	0.11	PBDC1	168.5	65.2	0.39	OXSR1	110	61.6	0.56
PGRMC2	55	210.3	3.82	PDLIM7	29.5	18.8	0.64	PAXX	170.6	43.5	0.25	OXSM	140.7	14.5	0.10
PGRMC1	23.6	101.9	4.32	PDLIM5	98.5	32.3	0.33	PAXBP1	124.7	52.6	0.42	OXNAD1	182.3	31.6	0.17
PGPEP1	347.7	121.6	0.35	PDLIM2	4.9	2	0.41	PATJ	104.1	365.1	3.51	OXCT1	313.4	17.9	0.06
PGP	359.8	53.4	0.15	PDLIM1	113.9	43.8	0.38	PARVA	51.8	47.7	0.92	OXAIL	50.9	190.6	3.74
PGM3	216.8	70.4	0.32	PK3	49.7	8.6	0.17	PARS2	119.5	36.8	0.31	OVCA2	121	42.7	0.35
PGM2	198.1	30.5	0.15	PK2	29	7.6	0.26	PARP9	164.9	133	0.81	OTUD7B	127.1	71.5	0.56
PGM1	141.8	30.6	0.22	PK1	112.9	41.4	0.37	PARP4	325.5	670.7	2.06	OTUB1	202.5	55.2	0.27
PGLS	141.8	33.9	0.24	PDI A6	116	124.3	1.07	PARP14	189.4	257.5	1.36	OSTM1	343.4	2432.7	7.08
PGK2	307.9	61.2	0.20	PDI A5	142.3	89.8	0.63	PARP10	86.2	59.3	0.69	OSTF1	132.2	86.7	0.66
PGK1	177.7	40.5	0.23	PDI A4	110.4	76.5	0.69	PARP1	341.7	84.7	0.25	OSTC	105.8	190.4	1.80
PGGT1B	197.8	47.4	0.24	PDI A3	110.2	151.7	1.38	PARN	193.4	103.1	0.53	OSGEPL1	109.1	45.2	0.41
PGD	262	61.3	0.23	PDHX	163.8	25.8	0.16	PARM1	21	79.3	3.78	OSBPL9	220.3	74	0.34
PGAM5	186.7	561.5	3.01	PDHB	168.8	6.9	0.04	PARL	73	272.9	3.74	OSBPL8	56.4	135	2.39
PGAM1	243.4	52.3	0.21	PDHA1	170.9	13.1	0.08	PARK7	184.5	30	0.16	OSBPL3	454.4	180.6	0.40
PFN2	87.9	38.2	0.43	PDGFRB	25.9	28.5	1.10	PARD6B	159.7	196	1.23	OSBPL2	139.9	26.8	0.19
PFN2	120.6	29.5	0.24	PDGFRA	9.2	9.3	1.01	PAPSS2	86.7	37.1	0.43	OSBPL11	220.5	106.2	0.48
PFN1	277.1	59.1	0.21	PDF	127.7	334.5	2.62	PAPSS1	223.1	67.1	0.30	OSBPL10	130.5	89.7	0.69
PFKP	292.5	73.6	0.25	PDE12	184.9	23	0.12	PAPOLA	649.5	243	0.37	OSBP	109.8	81.7	0.74
PFKM	116.6	31.7	0.27	PDCL3	161.1	106.6	0.66	PAPLN	16.8	11.2	0.67	OS9	87.9	230	2.62
PFKL	45.8	20.8	0.45	PDCD6IP	160.2	189.9	1.19	PANK4	192.7	66.2	0.34	OS9	119.2	435	3.65
PFKFB3	465.4	58.1	0.12	PDCD6	148.7	321.3	2.16	PALM3	100.2	336.9	3.36	ORMDL2	56.7	391.8	6.91
PFKFB2	71.8	26.1	0.36	PDCD5	367.2	77	0.21	PALM	13.9	49.9	3.59	ORM2	4.7	11.1	2.36
PFDN6	204.6	32.1	0.16	PDCD4	186.5	64.3	0.34	PALLD	16.7	7.1	0.43	ORM1	2.7	3.2	1.19
PFDN2	228.4	44.9	0.20	PDCD11	188.7	127.9	0.68	PAK4	553.5	450.7	0.81	ORC4	114.4	166.5	1.46
PFAS	301.3	79.1	0.26	PDCD10	198.4	302.6	1.53	PAK2	267.2	101.2	0.38	OR1M1	136.8	38.2	0.28
PEX6	154.6	157.1	1.02	PDAP1	187	26.5	0.14	PAK1	127.3	50	0.39	OPTN	203.1	82	0.40
PEX5	79.7	57.2	0.72	PCYT2	117.8	37	0.31	PAIP1	212.4	64.5	0.30	OPLAH	191.6	59.9	0.31
PEX3	135.9	172	1.27	PCYT1A	178.4	131.8	0.74	PAICS	306.8	64.8	0.21	OPA3	47	234	4.98
PEX14	146.8	351.5	2.39	PCYOX1	99.5	402.7	4.05	PAH	12.7	37.4	2.94	OPA1	72	172.8	2.40
PEX11B	178.1	418.8	2.35	PCTP	109.3	54.6	0.50	PAFAH2	72.4	95	1.31	OMA1	78.2	237.8	3.04
PES1	339	361.5	1.07	PCNA	560.7	100.6	0.18	PAFAH1B3	106.6	44.4	0.42	OLA1	292.4	59.2	0.20
PEPD	56.9	11.9	0.21	PCMT1	154.2	51.6	0.33	PAFAH1B2	259.3	57.3	0.22	OGT	141	64.1	0.45
PELP1	191.6	188.1	0.98	PCM1	74.8	104.1	1.39	PAFAH1B1	140.3	70.2	0.50	OGN	7	6.4	0.91
PELO	120.8	46.4	0.38	PCK2	11.7	1.8	0.15	PAF1	141.3	57.9	0.41	OGFR	221.2	57.5	0.26
PECR	97	13.9	0.14	PCK1	20.7	5.7	0.28	PADI2	198.2	127.9	0.65	OGDHL	35.6	10.4	0.29
PECAM1	14.9	59.5	3.99	PCIF1	84.4	20.1	0.24	PACSN3	131.2	336.9	2.57	OGDH	75.4	18.7	0.25
PEBP1	79.3	15.8	0.20	PCID2	121.5	49.8	0.41	PACSN2	142.9	98.8	0.69	OGA	81.6	17.9	0.22
PEA15	157.1	39.6	0.25	PCHGB6	143.1	1790.8	12.51	PACCI	44.7	139.3	3.12	ODR4	68.1	257.7	3.78
PDZK1IP1	31.3	392.9	12.55	PCHD1	47.7	67.2	1.41	PABPN1	134.9	81.1	0.60	OCLN	75.2	497	6.61
PDZK1	57.2	141.2	2.47	PCCB	82.4	14.1	0.17	PABPC4	352.1	147.3	0.42	OClAD2	153.5	565.3	3.68
PDZD8	102.1	147.2	1.44	PCCA	85.1	10.4	0.12	PABPC1	217.3	95.7	0.44	OClAD1	110.3	361.8	3.28
PDZD11	152.4	322.7	2.12	PCBP2	167.6	90.9	0.54	PA2G4	245	45.4	0.19	OBSL1	99.6	134.7	1.35
PDXP	133.6	141.3	1.06	PCBP1	148.1	74.1	0.50	P4HTM	203	224.1	1.10	OAT	90.9	22.6	0.25

Values are expressed as % of protein abundance in TL of human kidney cortex 1.

Supplemental table 5 (Continued):

Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PW/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PW/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PW/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PW/TL ratio
OAS2	0.1	13.3	133.00	NSFL1C	184.6	30.7	0.17	NME1	596.7	205.4	0.34	NDUFV3	39.7	167.3	4.21
OARD1	134.5	37	0.28	NSF	101.2	272.9	2.70	NMD3	156.6	109.3	0.70	NDUFV3	178.1	239.5	1.34
NXF1	108.8	82.3	0.76	NSDHL	238.3	884.3	3.71	NLRX1	89.7	257.7	2.87	NDUFV2	48.6	115.5	2.38
NUTF2	169.4	36.9	0.22	NSA2	141.1	102.3	0.73	NLN	234.6	54.1	0.23	NDUFV1	44.1	106.8	2.42
NUP98	173	77.9	0.45	NRP1	103.9	514.8	4.95	NLE1	106.1	124.8	1.18	NDUFS8	55.2	239.2	4.33
NUP93	147.1	101.5	0.69	NRIP2	0.1	4.5	45.00	NKIRAS2	152.7	67.8	0.44	NDUFS7	56.3	182.3	3.24
NUP88	184.9	63.4	0.34	NRDC	335.9	96.5	0.29	NIT2	150.9	31	0.21	NDUFS6	25	115.3	4.61
NUP62	111.6	33.6	0.30	NRCAM	649.6	783.5	1.21	NIT1	111.9	29.5	0.26	NDUFS5	50.1	192.8	3.85
NUP54	157.8	93.3	0.59	NRBP2	413.2	156.9	0.38	NIPSNAP3	63.6	11.5	0.18	NDUFS4	33.6	120.7	3.59
NUP50	198.6	66.6	0.34	NRBP1	57.8	16.9	0.29	NIPSNAP2	149.3	13.4	0.09	NDUFS3	56.8	174.7	3.08
NUP37	132.1	24.6	0.19	NR2F2	66.7	19.3	0.29	NIPSNAP1	82.8	6	0.07	NDUFS2	63	141.5	2.25
NUP35	254.7	157.3	0.62	NR2C2AP	282.4	49	0.17	NIPBL	206.8	84.9	0.41	NDUFS1	49.6	111.3	2.24
NUP214	216.1	101	0.47	NPTN	114.7	735.8	6.41	NIP7	194.6	134.7	0.69	NDUFC2	41.7	163.8	3.93
NUP210	90.9	134.5	1.48	NPR1	177.6	1090.3	6.14	NINJ1	61.9	277.9	4.49	NDUFB9	35	111.8	3.19
NUP205	93	61.1	0.66	NPNT	1.4	0.1	0.07	NIFK	232.2	282.7	1.22	NDUFB8	24.5	127.8	5.22
NUP188	98.2	99.8	1.02	NPM1	295.7	34.6	0.12	NIF3L1	122.4	23.8	0.19	NDUFB7	37.3	137.5	3.69
NUP160	104.5	67.2	0.64	NPLOC4	156.3	38.7	0.25	NID2	20.5	3.8	0.19	NDUFB6	48.4	151.4	3.13
NUP155	100.9	73.2	0.73	NPL	12.1	6	0.50	NID1	6.8	3.7	0.54	NDUFB5	55.3	162.4	2.94
NUP133	93.7	92.6	0.99	NPHS2	24.5	104.2	4.25	NIBAN2	332.7	326.7	0.98	NDUFB4	34.8	146.2	4.20
NUP107	104	98.7	0.95	NPHS1	6.5	6.2	0.95	NIBAN1	261	354.6	1.36	NDUFB3	35.6	116.9	3.28
NUMB	113.7	99.4	0.87	NPPEPPS	268.3	86.4	0.32	NIF5	356.5	1522.8	4.27	NDUFB11	41.5	146.6	3.53
NUMA1	71.3	34.2	0.48	NPEPL1	208.7	30.1	0.14	NHLRC2	153.6	55	0.36	NDUFB10	44.7	138.2	3.09
NUFIP2	321.4	174.3	0.54	NPC2	89.6	30.9	0.34	NGLY1	123.9	90	0.73	NDUFAF7	181.1	25.8	0.14
NUDT9	224.8	46.8	0.21	NPC1	666.2	4789.4	7.19	NGFN	53.3	38.3	0.72	NDUFAF6	124	342.8	2.76
NUDT8	131	40.6	0.31	NOTCH2	332.2	2694.2	8.11	NFYC	66.6	21.4	0.32	NDUFAF5	147.5	26.7	0.18
NUDT6	46.9	9.3	0.20	NOSTRIN	168.3	139.9	0.83	NFXL1	142.1	318.7	2.24	NDUFAF4	173.5	511.9	2.95
NUDT5	244	58	0.24	NOSIP	178.3	33.8	0.19	NFU1	99.9	8.3	0.08	NDUFAF3	191.7	453.5	2.37
NUDT4	296.4	59.1	0.20	NOP58	135	76.6	0.57	NFS1	133.5	8.2	0.06	NDUFAF2	147.8	401.2	2.71
NUDT21	131.2	356.4	2.72	NOP56	145.8	110.2	0.76	NFKBIE	119.8	49	0.41	NDUFAF1	171.8	617	3.59
NUDT2	199.7	57.5	0.29	NOP2	245.6	262.9	1.07	NFKB2	208.8	126.1	0.60	NDUFA1	65.6	41.4	0.63
NUDT19	132.7	10.5	0.08	NONO	158.1	20	0.13	NFKB1	106.6	32.6	0.31	NDUFA9	40.1	111.8	2.79
NUDT12	70.1	21.4	0.31	NOMO2	77.2	247.8	3.21	NFIA	61.1	8.5	0.14	NDUFA8	46.4	191.5	4.13
NUDT1	237.1	0.1	0.00	NOMO1	95	324	3.41	NF2	147.8	249.4	1.69	NDUFA7	40.4	170.8	4.23
NUDCD2	116.5	37.4	0.32	NOLC1	822.3	88.7	0.11	NF1	116	147.3	1.27	NDUFA6	52.5	133.1	2.54
NUDCD1	56.5	13.5	0.24	NOL9	123.5	155.4	1.26	NEU1	180.9	113	0.62	NDUFA5	58	124.5	2.15
NUDC	268.7	110.4	0.41	NOL6	373.4	229.9	0.62	NES	9.7	6.3	0.65	NDUFA4	36	143.4	3.98
NUCKS1	1125.5	0.1	0.00	NOL11	140.6	202.6	1.44	NEO1	97.9	98.6	1.01	NDUFA3	29.2	210.3	7.20
NUCB2	65.2	138.3	2.12	NOL10	220.6	65.4	0.30	NENF	43.7	32.9	0.75	NDUFA2	52.7	120.4	2.28
NUCB1	85.4	111.9	1.31	NOC4L	212.7	355.3	1.67	NEMF	103.7	84.4	0.81	NDUFA13	50.8	170.9	3.36
NUBPL	55.7	15.8	0.28	NOC3L	249	252.8	1.02	NELFCD	118.8	92.4	0.78	NDUFA12	35	107.6	3.07
NUBP2	183.6	66.1	0.36	NOC2L	163.8	130	0.79	NELFB	111.2	65.1	0.59	NDUFA11	28.8	124.2	4.31
NUBP1	160.8	54.4	0.34	NOA1	185	25	0.14	NEK9	112.3	77	0.69	NDUFA10	44.4	133.8	3.01
NTN4	29.5	7.6	0.26	NNT	129.9	501.9	3.86	NEK7	84.4	44.3	0.52	NDUFA1	36.4	184.2	5.06
NTMT1	363.7	87.7	0.24	NNMT	1656.6	333.8	0.20	NEGR1	18.3	18	0.98	NDST1	16.2	11.9	0.73
NT5E	176.4	803.3	4.55	NMT1	221.1	38.7	0.18	NEDD4L	114.1	190.8	1.67	NDRG2	9.6	15.3	1.59
NTSDC1	155.2	31.7	0.20	NMRAL1	71.7	34.3	0.48	NEDD4	101.3	224.3	2.21	NDRG1	45.6	235.7	5.17
NTSC3A	129.5	118.1	0.91	NMNAT3	58.6	34.7	0.59	NECTIN3	94.1	376.6	4.00	NDP1P1	272.7	2651.3	9.72
NTSC2	108.1	22.7	0.21	NMNAT1	122.4	15.2	0.12	NECTIN2	67.8	243.8	3.60	NDC1	66.5	162.8	2.45
NTSC	139.5	35.5	0.25	NME3	48	180.8	3.77	NECAP2	102.9	104.8	1.02	NCSTN	395.5	2233.5	5.65
NSUN2	332.7	55.2	0.17	NME2	490.8	178.2	0.36	NEBL	9.1	17.3	1.90	NCOA7	124.1	70.9	0.57

Values are expressed as % of protein abundance in TL of human kidney cortex 1.

Supplemental table 5 (Continued):

Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio
NCOA5	94.5	10.4	0.11	MYO7B	40.5	46.6	1.15	MTIF3	117.4	16.1	0.14	MRPS14	199.5	162.7	0.82
NCLN	109.7	345.1	3.15	MYO6	90.5	72.7	0.80	MTIF2	129.2	17.8	0.14	MRPS10	178.4	68.1	0.38
NCL	241.9	144.7	0.60	MYO5B	133.1	211.1	1.59	MTHFS	85.7	13	0.15	MRPL9	239.7	273.3	1.14
NCKAP1	109.1	171.6	1.57	MYO5A	93.5	97.5	1.04	MTHFR	198.3	62.2	0.31	MRPL57	211.6	216.1	1.02
NCK2	85.8	83.9	0.98	MYO1E	200.1	106.1	0.53	MTHFD1L	324	47	0.15	MRPL54	571.7	452.1	0.79
NCK1	126.5	110.1	0.87	MYO1D	73.7	169.4	2.30	MTHFD1	139.6	36.9	0.26	MRPL52	247.4	244.5	0.99
NCEH1	244.5	1001.9	4.10	MYO1C	89.7	265.6	2.96	MTG1	118.1	34.8	0.29	MRPL51	196.5	243.7	1.24
NCBP3	165.2	209.6	1.27	MYO1B	66.9	184.8	2.76	MTFR1L	82.4	117.2	1.42	MRPL49	213.1	236	1.11
NCBP2	230.5	47	0.20	MYO18A	88.5	52	0.59	MTFP1	132.8	566.2	4.26	MRPL48	222	62.5	0.28
NCBP1	170.7	30.5	0.18	MYO10	170.3	438.3	2.57	MTDH	244.2	512.6	2.10	MRPL47	243.8	297.9	1.22
NCAPD2	390.2	247.8	0.64	MYLK	35.6	29	0.81	MT-CO3	39.2	125.2	3.19	MRPL46	244.1	61.4	0.25
NCAM1	34.1	27.3	0.80	MYL9	58	52.8	0.91	MT-CO2	37.3	146.6	3.93	MRPL45	207.4	237.4	1.14
NCALD	89	122.6	1.38	MYL6	57.4	23.3	0.41	MT-CO1	41	132.6	3.23	MRPL44	209.2	181.9	0.87
NBEAL2	141.3	82.9	0.59	MYL12B	73.9	66.5	0.90	MTCH2	60.9	235.6	3.87	MRPL43	252.2	257.2	1.02
NBEAL1	119.4	59	0.49	MYH9	82.6	40.1	0.49	MTCH1	55.8	161	2.89	MRPL41	259.9	251.6	0.97
NBAS	114	229.4	2.01	MYH14	18.9	15.6	0.83	MT-ATP6	23.3	66.7	2.86	MRPL40	296.8	81.9	0.28
NAXE	135.4	28.6	0.21	MYH11	8.7	10.6	1.22	MTARC2	12.7	27.8	2.19	MRPL4	233.3	226.2	0.97
NAXD	53.9	22.2	0.41	MYH10	35.7	18.9	0.53	MTARC1	87.9	260.3	2.96	MRPL39	188.9	181.5	0.96
NAT8	17	73.8	4.34	MYEF2	168.8	43.7	0.26	MTAP	199.9	58.3	0.29	MRPL38	124.3	106.8	0.86
NAT10	142.1	86.1	0.61	MYDGF	189.9	114.7	0.60	MTA2	162.7	69.4	0.43	MRPL37	258.7	249.9	0.97
NAT1	125.1	27.9	0.22	MYD88	98	179.6	1.83	MTA1	78.3	15.5	0.20	MRPL32	214.3	165.5	0.78
NASP	208.2	42.4	0.20	MYCBP2	134.1	199.6	1.49	MT1H	71.9	17.7	0.25	MRPL30	200.7	170.7	0.85
NARS2	66.7	0.1	0.00	MYBBP1A	160.3	195.1	1.22	MT1G	56	16.2	0.29	MRPL3	364.2	441.8	1.21
NARS1	238.3	61.8	0.26	MYADM	59.8	302.6	5.06	MSTO1	178.5	69	0.39	MRPL28	156.6	146.9	0.94
NAPSA	17.8	33.1	1.86	MX1	20.5	11.2	0.55	MSRA	23.2	15.2	0.66	MRPL27	261.8	340.8	1.30
NAPRT	73	16.3	0.22	MVP	209.9	689.2	3.28	MSN	149.9	149.8	1.00	MRPL24	249.8	255.6	1.02
NAPG	103.3	344.7	3.34	MVK	287.1	73.1	0.25	MSI2	161.2	85	0.53	MRPL22	219.3	190.5	0.87
NAPEPLD	129.8	620	4.78	MVD	310.1	154	0.50	MSH6	81.4	57.1	0.70	MRPL21	223.3	118.8	0.53
NAPA	131.6	377.9	2.87	MVB12A	166	407	2.45	MSH5	345.2	587.8	1.70	MRPL20	251.9	289.9	1.15
NAP1L4	134.4	26.7	0.20	MUL1	69	231.9	3.36	MSH2	175.6	51.2	0.29	MRPL2	200.5	203.4	1.01
NAP1L1	181.9	50.3	0.28	MUC13	25.7	104.8	4.08	MRTO4	187.4	90.3	0.48	MRPL19	169.8	166.3	0.98
NANS	174.7	21.6	0.12	MUC1	152.1	492.5	3.24	MRS2	226.3	685	3.03	MRPL17	267.7	278.1	1.04
NAMPT	755.5	196.6	0.26	MTX3	59.1	159.5	2.70	MRPS9	155.6	96.2	0.62	MRPL15	238.9	263	1.10
NAGLU	136.4	114.9	0.84	MTX2	98.5	295.1	3.00	MRPS5	342.5	152.8	0.45	MRPL13	199	195	0.98
NAGK	145.8	25.2	0.17	MTX1	98.7	274	2.78	MRPS36	91.9	19.8	0.22	MRPL12	173.2	68.7	0.40
NAGA	102.2	60.3	0.59	MTTP	23.6	11.4	0.48	MRPS35	181	54.7	0.30	MRPL11	221.8	170.6	0.77
NAE1	288.1	68.8	0.24	MTREX	136.2	53.1	0.39	MRPS34	236.3	100.5	0.43	MRPL10	224.7	88.9	0.40
NADSYN1	354.3	108.1	0.31	MTR	150.6	33.9	0.23	MRPS31	410.7	131	0.32	MRPL1	206.7	158.4	0.77
NADK2	85.6	16.3	0.19	MTPN	248.4	39	0.16	MRPS30	194	210.5	1.09	MROH1	142.3	292.8	2.06
NACA2	219.4	34.1	0.16	MTPAP	91.2	27.9	0.31	MRPS27	258.8	87.5	0.34	MRI1	253.9	65	0.26
NACA	254.3	36.7	0.14	MTOR	133.7	203	1.52	MRPS25	193.8	71	0.37	MRE11	148.2	45.6	0.31
NAA50	123.5	29	0.23	MT-ND5	33.8	102.9	3.04	MRPS24	162	95	0.59	MRC2	43.8	45.1	1.03
NAA40	180	140.6	0.78	MT-ND4	21.1	110	5.21	MRPS23	248.1	84.4	0.34	MPZL1	8.7	9.2	1.06
NAA35	239	116.8	0.49	MT-ND2	52	150.7	2.90	MRPS22	191.8	87.5	0.46	MPZL1	130.3	651.8	5.00
NAA25	271.1	41.7	0.15	MT-ND1	31.4	115.7	3.68	MRPS2	222.2	61.3	0.28	MPV17	95.6	358.3	3.75
NAA16	126.6	61.6	0.49	MTMR9	119.9	61.1	0.51	MRPS18C	189.8	38	0.20	MPST	104.2	21.6	0.21
NAA15	400.3	80.3	0.20	MTMR6	122.6	78.3	0.64	MRPS18B	143.4	67.1	0.47	MPRI1	30.4	18.7	0.62
NAA10	365.5	114.1	0.31	MTMR12	410.5	136.8	0.33	MRPS17	239.3	86.8	0.36	MPP7	113.9	420	3.69
MYORG	187.9	954.5	5.08	MTMR10	98.6	70.5	0.72	MRPS16	224.3	84.3	0.38	MPP6	184.6	725.5	3.93
MYOF	243	1611.8	6.63	MTMR1	156.5	89.6	0.57	MRPS15	223.7	137.3	0.61	MPP5	79.4	463.2	5.83

Values are expressed as % of protein abundance in TL of human kidney cortex 1.

Supplemental table 5 (Continued):

Protein name	3D RPTEC Spheroid_Lot.664995_day12.TL	3D RPTEC Spheroid_Lot.664995_day12.PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12.TL	3D RPTEC Spheroid_Lot.664995_day12.PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12.TL	3D RPTEC Spheroid_Lot.664995_day12.PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12.TL	3D RPTEC Spheroid_Lot.664995_day12.PM	PM/TL ratio
MPP2	39.6	72.7	1.84	MIA2	95.8	209.6	2.19	MCAM	104.9	426.2	4.06	MANIA1	68.6	240	3.50
MPP1	65.7	152	2.31	MGST3	67.6	179	2.65	MBOAT7	94.1	357.1	3.79	MAL1	126.8	38	0.30
MPI	171.7	54.5	0.32	MGST1	107	418.5	3.91	MBNL1	135.6	20.1	0.15	MAK16	157.2	163.1	1.04
MPDZ	87.9	363.8	4.14	MGRN1	220.8	1422.1	6.44	MBNL1	142.2	13.4	0.09	MAIP1	100.2	180.3	1.80
MPDU1	92.1	348.6	3.79	MGME1	390.2	26.2	0.07	MBLAC2	88.1	324.2	3.68	MAGT1	114.1	182.7	1.60
MPC2	83.6	278	3.33	MGLL	123.9	126.6	1.02	MAVS	672.7	1450.2	2.16	MAGO8	142.2	99.7	0.70
MOXD1	11.3	21.8	1.93	MGAT1	83.6	164.4	1.97	MATR3	157.9	140.9	0.89	MAG2	18.6	61.6	3.31
MOV10	99.3	86.4	0.87	MGARP	18.9	68.4	3.62	MAT2B	145	46.6	0.32	MAGED2	107.9	158	1.46
MOSPD2	123.4	344.2	2.79	MGAM	5.5	5.1	0.93	MAT2A	164	49.2	0.30	MACROH2A1	102.3	71.9	0.70
MORC2	303.9	248.8	0.82	MFSD10	56.2	184.7	3.29	MAST2	52.4	140.5	2.68	MACROD1	69.3	5.7	0.08
MON2	92.6	108.7	1.17	MFN2	58.7	158.5	2.70	MARVELD3	130.2	985.1	7.57	MACF1	120	78.1	0.65
MOGS	110.6	302.5	2.74	MFN1	88.8	325.1	3.66	MARS1	164.7	74	0.45	MACF1	88.3	98.2	1.11
MOCS3	103.9	16.2	0.16	MFGE8	87.4	337.4	3.86	MARX2	156.9	170.1	1.08	M6PR	88.3	420.4	4.76
MOCS2	101.9	16.2	0.16	MFF	94.5	344.1	3.64	MARCKSL1	82.7	228.9	2.77	LYRM4	154.4	3.5	0.02
MOB4	154.7	32	0.21	MFAP4	10	4.3	0.43	MARCKS	86.7	230.3	2.66	LYPLA1	162.5	58	0.36
MOB2	116.8	59.2	0.51	MFAP2	3.8	9.1	2.39	MARCF6	129.7	326.1	2.51	LYN	84.2	457.1	5.43
MOB1B	136.8	100.8	0.74	METTL7B	137.9	480.4	3.48	MARCF5	130.6	342.4	2.62	LY75	0.1	8.6	86.00
MMUT	114.8	11	0.10	METTL7A	52	215.9	4.15	MAPT	18.1	0.1	0.01	LXN	138.4	46.4	0.34
MMRN2	3.4	6.3	1.85	METTL3	211.1	52.6	0.25	MAPT	13.1	64.5	4.92	LUZP1	174	82.5	0.47
MMP15	238.3	841.4	3.53	METAP2	76.2	26.4	0.35	MAPRE3	116.4	47.4	0.41	LUM	1	1.3	1.30
MMP14	860.2	5387.2	6.26	METAP1	219.7	47.8	0.22	MAPRE2	159.6	67.7	0.42	LUC7L3	151.1	22.4	0.15
MMGT1	114.9	381.7	3.32	MET	342	1846	5.40	MAPRE1	198.5	85.4	0.43	LUC7L2	137.2	8.4	0.06
MME	22.7	102.4	4.51	MESD	109.5	91.6	0.84	MAPKAPK2	205.2	76.1	0.37	LUC7L	165.1	2.5	0.02
MMAB	159.4	11.5	0.07	MEMO1	492.7	236.1	0.48	MARX8	103.7	60.6	0.58	LTN1	182.8	109.1	0.60
MMAA	101	16	0.16	MELTF	178.1	301.6	1.69	MAPK3	57.5	35.7	0.62	LTP1	2.7	0.5	0.19
MLYCD	78.2	15.6	0.20	MED24	122	86.7	0.71	MAPK14	123.5	50.8	0.41	LTA4H	160.8	44.3	0.28
MLST8	139.8	172.6	1.23	MED18	96.6	24	0.25	MAPK1	111.6	36.8	0.33	LSS	244.8	1069.9	4.37
MLKL	408.8	95.2	0.23	MECR	119.4	3.2	0.03	MAP7D1	486.7	322	0.66	LSR	127.6	868.3	6.80
MLH1	143	71.2	0.50	MECP2	118.3	12.7	0.11	MAP7	668.1	331.6	0.50	LSM8	176.2	37.8	0.21
MLEC	71.4	238.8	3.34	MEAK7	206.2	873.5	4.24	MAP4K4	288.9	570.2	1.97	LSM4	205.6	33.4	0.16
MKRN2	112.7	32.7	0.29	ME3	128.3	79	0.62	MAP4	520.1	40	0.08	LSM2	209.6	99.9	0.48
MKLN1	178.7	94.9	0.53	ME2	247.2	14.6	0.06	MAP3K7	144.1	108.8	0.76	LSM14A	184.5	43	0.23
MISP	68.8	89.9	1.31	ME1	385.1	73.5	0.19	MAP3K6	182.8	202.4	1.11	LSM12	186.9	51.9	0.28
MPEP	140.4	16.4	0.12	MDN1	250.9	240.3	0.96	MAP2K6	93.8	58.3	0.62	LRSAM1	214.6	411.9	1.92
MIOX	230.7	45.4	0.20	MDH2	123.8	14.8	0.12	MAP2K4	129.5	46.4	0.36	LRRN4	163.1	492.4	3.02
MIOS	143.7	170.1	1.18	MDH1	174.7	31.4	0.18	MAP2K3	108.7	54.9	0.51	LRRK2	167.5	158.6	0.95
MINPP1	97.1	61.9	0.64	MCUR1	85.4	257.1	3.01	MAP2K2	113.1	62.8	0.56	LRRFIP2	155.6	29.5	0.19
MINK1	159.1	285.2	1.79	MCU	180.3	590.2	3.27	MAP2K1	150.7	83.6	0.55	LRRK8E	211.5	1026.6	4.85
MINDY3	258.5	89.9	0.35	MCTS1	237.7	51.1	0.21	MAP1S	135.5	95.6	0.71	LRRK8D	79.9	478.7	5.99
MINDY1	271.4	451.4	1.66	MCMBP	295.5	39.6	0.13	MAP1B	305.4	104.7	0.34	LRRK8A	181.2	1385.4	7.65
MIER1	1426.4	482.8	0.34	MCM6	507.2	128	0.25	MAP11	119.3	103.5	0.87	LRRK59	142.5	456	3.20
MIEF1	187.7	51.9	0.28	MCM4	660.7	340.8	0.52	MAOB	36	131.1	3.64	LRRK57	96.8	199.2	2.06
MICU2	331.1	468.2	1.41	MCM3AP	95.2	73.1	0.77	MAOA	93.1	382.8	4.11	LRRK47	142.4	50.1	0.35
MICU1	324.7	618.8	1.91	MCM3	439.5	196.4	0.45	MANF	182.4	132.5	0.73	LRRK41	139.8	69.1	0.49
MICOS13	77.9	180.7	2.32	MCM2	1407.4	1443.2	1.03	MANBAL	142.7	1166.1	8.17	LRRK40	188.5	125.7	0.67
MICALL2	134.5	133.6	0.99	MCF2L	84.7	285.1	3.37	MAN2C1	84.4	39.9	0.47	LRRK32	42.1	50.6	1.20
MICALL1	320.7	120.9	0.38	MCEE	77.7	4	0.05	MAN2B1	210	144.5	0.69	LRRK1	159.4	543.3	3.41
MICAL1	130.7	55.8	0.43	MCCC2	69.9	8	0.11	MAN2A1	100.9	297.6	2.95	LRPPRC	90.4	16.7	0.18
MIB2	90.5	126.4	1.40	MCCC1	67.5	15.5	0.23	MAN1B1	166.8	454.5	2.72	LRPAP1	79.5	122.8	1.54
MIA3	112.9	164.4	1.46	MCAT	78.9	13.5	0.17	MAN1A2	134.4	370.7	2.76	LRP2	17	62.6	3.68

Values are expressed as % of protein abundance in TL of human kidney cortex 1.

Supplemental table 5 (Continued):

Protein name	3D RP/TEC Spheroid_Lot.664995_day12_TL	3D RP/TEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RP/TEC Spheroid_Lot.664995_day12_TL	3D RP/TEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RP/TEC Spheroid_Lot.664995_day12_TL	3D RP/TEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RP/TEC Spheroid_Lot.664995_day12_TL	3D RP/TEC Spheroid_Lot.664995_day12_PM	PM/TL ratio
LRP10	1429	16105.3	11.32	LDHD	37.1	3.8	0.10	KNG1	11.8	5.2	0.44	ITPR2	65.5	240	3.66
LRP1	18.2	26.7	1.47	LDHB	194.7	39.1	0.20	KMO	11	27.5	2.50	ITPR1	55.3	157.7	2.85
LRG1	1.8	1.8	1.00	LDHA	253.8	48.8	0.19	KLHDC7A	49	106.3	2.17	ITPK1	346.9	66.8	0.19
LRCH4	116.4	197.1	1.69	LDHA	75.5	203.8	2.70	KLHDC2	137.2	116.7	0.85	ITPA	557.7	127.4	0.23
LRBA	132.6	109.8	0.83	LCP1	4.9	5.1	1.04	KLC4	107.6	91.1	0.85	ITM2C	221.7	3031.1	13.67
LRATD2	61.1	78.7	1.29	LCMT1	166	23.3	0.14	KLC2	177.1	149.2	0.84	ITM2B	920.8	5481	5.95
LPP	100.4	44.4	0.44	LCLAT1	75.2	205.2	2.73	KLC1	158.3	85.3	0.54	ITI5	20.3	25.7	1.27
LPI3	154.9	89.7	0.58	LBR	181	485.7	2.68	KIRREL1	61.6	235.5	3.82	ITI4	21.9	5.4	0.25
LPI2	151.2	62.9	0.42	LBP	4.9	2.8	0.57	KIFBP	193.3	69.5	0.36	ITI2	2.7	0.1	0.04
LPGAT1	406.6	1658.2	4.08	LASP1	138.9	37.5	0.27	KIF5B	127.2	55.3	0.43	ITI1	2.8	2.4	0.86
LPCAT3	108.3	374.9	3.46	LAS1L	210.5	235.3	1.12	KIF3B	100.6	70.7	0.70	ITGB8	132.3	644	4.87
LPCAT2	14.2	40.4	2.85	LARS2	120.1	24.2	0.20	KIF21A	135.8	52	0.38	ITGB6	74.3	461.9	6.22
LPCAT1	113.3	265.4	2.34	LARS1	230.3	63.2	0.27	KIF1C	174.1	98.1	0.56	ITGB5	64.3	336.8	5.24
LONP2	57.4	20.1	0.35	LARP7	276.5	33.8	0.12	KIF13B	58.6	42.4	0.72	ITGB4	132.4	595.4	4.50
LONP1	118	10	0.08	LARP4B	253.8	65.2	0.26	KIDINS220	186.7	1079.7	5.78	ITGB3	290.2	1820.3	6.27
LNPK	92.1	260.9	2.83	LARP4	217.5	96.7	0.44	KIAA2013	82	189	2.30	ITGB2	13.1	0.1	0.01
LNPEP	141.2	546.3	3.87	LARP1	161.8	78.4	0.48	KIAA1217	65	118.5	1.82	ITGB1	100.3	629.9	6.28
LMTK2	98.4	162.8	1.65	LAP3	73.2	14.7	0.20	KIAA0319L	188	1195	6.36	ITGAV	211.9	1413.7	6.67
LMO7	70.4	37.9	0.54	LANCL2	102.4	61	0.60	KIAA0100	52.7	129.2	2.45	ITGAM	48.2	0.1	0.00
LMNB2	61.7	29.1	0.47	LANCL1	96.3	35.7	0.37	KHSRP	172.5	39.6	0.23	ITGA9	0.1	18.1	181.00
LMNB1	146.2	65.1	0.45	LAMTOR5	77.2	487.5	6.31	KHK	12.2	4.3	0.35	ITGA8	33.6	6.4	0.19
LMNA	118	26.7	0.23	LAMTOR3	183.5	990.8	5.40	KHDRBS1	248.9	66.7	0.27	ITGA7	7.8	24	3.08
LMF2	80.9	317.8	3.93	LAMTOR2	199.1	953.2	4.79	KDSR	91.6	299	3.26	ITGA6	67.9	341.9	5.04
LMCD1	51.8	20.5	0.40	LAMTOR1	254.1	1922.3	7.57	KDM3B	386.2	170.1	0.44	ITGA6	92.3	317.2	3.44
LMBRD1	433.6	3968.1	9.15	LAMP2	341.9	1751.6	5.12	KDM1B	138.7	43.6	0.31	ITGA5	102.2	307.7	3.01
LMAN2L	76.7	288.1	3.76	LAMP1	332.7	2370.8	7.13	KDM1A	120.2	50.8	0.42	ITGA3	250.4	1751.7	7.00
LMAN2	107.4	373.2	3.47	LAMC1	30.2	13.5	0.45	KCTD12	16.4	6.5	0.40	ITGA2	72.5	428.4	5.91
LMAN1	65.5	220.6	3.37	LAMB2	11.1	7.1	0.64	KCT2	168.4	1187.6	7.05	ITGA1	12.2	48.7	3.99
LLGL2	63.2	75.7	1.20	LAMB1	51.8	29.9	0.58	KCNJ15	335.4	3169.8	9.45	ITFG1	166	785.9	4.73
LIPA	281.1	181.7	0.65	LAMA5	35.1	23.8	0.68	KCNJ10	54.9	29	0.53	ITCH	136.7	537	3.93
LIN7C	241.6	707.8	2.93	LAMA4	11.1	9	0.81	KBTBD11	102.3	46.2	0.45	ISYNA1	103.7	37.2	0.36
LIN7A	119.8	535.5	4.47	LAMA1	154.1	52.2	0.34	KARS1	195.6	39.8	0.20	ISY1	124	230.1	1.86
LIMS1	62.4	41.5	0.67	LAD1	155.9	51.3	0.33	KANK3	4.4	5.4	1.23	IST1	118.7	246.8	2.08
LIMA1	249.5	199.9	0.80	LACTB2	170.4	25.7	0.15	KANK2	40.9	23.5	0.57	ISOC2	70	5.9	0.08
LIG3	251.9	81.6	0.32	LACTB	78.7	190.8	2.42	JUP	90.3	492	5.45	ISOC15	192.4	208.6	1.08
LIG1	121.1	187.7	1.55	L3HYPDH	46.5	16.4	0.35	JMJD7	96.5	37.8	0.39	ISCA1	118.4	9.2	0.08
LHPP	71.4	16.3	0.23	L2HGDH	73.2	44	0.60	JMJD6	171.5	36.5	0.21	IRS4	36.5	79.5	2.18
LGMN	45.4	21.4	0.47	L1CAM	63.4	93.8	1.48	JCHAIN	7.2	11.4	1.58	IRF3	0.1	20.2	202.00
LGALS	111	43.4	0.39	KYNU	42.7	8.3	0.19	JAM3	26	40.6	1.56	IRF2BP1	75.1	36.8	0.49
LGALS8	240.1	1226.4	5.11	KYAT3	339.7	50.8	0.15	JAK2	201.8	67.4	0.33	IQSEC2	193.4	29.5	0.15
LGALS3BP	176.9	254.4	1.44	KTN1	113.3	61	0.54	JAK1	204.7	1435.3	7.01	IQGAP2	26	16.6	0.64
LGALS3	355.8	827.4	2.33	KRT18	136	36.4	0.27	JAGN1	91.4	308	3.37	IQGAP1	205.2	170.9	0.83
LGALS2	39.8	18.9	0.47	KRR1	178.9	171.2	0.96	IYD	20.4	25.8	1.26	IPO9	241.4	171.4	0.71
LGALS1	173.4	215.2	1.24	KRAS	74.6	216.1	2.90	IWS1	295.4	27.4	0.09	IPO7	231.7	85.1	0.37
LETMD1	57.9	74	1.28	KPNB1	199.7	75.2	0.38	IVNS1ABP	173.1	82.2	0.47	IPO5	180.6	106.5	0.59
LETM1	119.8	346.3	2.89	KPNA6	154.5	74.3	0.48	IWD	56.6	7.6	0.13	IPO4	195.6	92.5	0.47
LEPROT	456.7	4476.8	9.80	KPNA4	144.2	64.8	0.45	ITSN1	112.6	55.6	0.49	IPO13	400.8	387.3	0.97
LEMD3	115.6	130.5	1.13	KPNA3	348.8	180.8	0.52	ITPRIP	157	326.9	2.08	IPO11	302.9	197.6	0.65
LEMD2	99.4	177.6	1.79	KPNA2	952.4	751	0.79	ITPRID2	181.2	225.6	1.25	INTS3	132.7	228.5	1.72
LDLR	2279.8	9702	4.26	KPNA1	134.4	93.6	0.70	ITPR3	369.7	1387.6	3.75	INTS1	136.9	122.1	0.89

Values are expressed as % of protein abundance in TL of human kidney cortex 1.

Supplemental table 5 (Continued):

Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio
INSR	98.6	231.1	2.34	IFT122	91	80.3	0.88	HSP90B1	94.8	72.4	0.76	HNRNPA0	148.8	23.8	0.16
INPPL1	103.1	131.9	1.28	IFITM3	1407.3	7353	5.22	HSP90AB1	185.8	45.7	0.25	HNMT	78.2	29.7	0.38
INPP5K	82	237.5	2.90	IFIT5	56.6	12.8	0.23	HSP90AA1	139.6	34.5	0.25	HMOX2	153.2	576.9	3.77
INPP5A	75	384.1	5.12	IFIT3	40.8	21.1	0.52	HSDL2	79.4	9.7	0.12	HMOX1	22.7	53.6	2.36
INPP1	336.3	85.5	0.25	IFIT2	40.8	0.1	0.00	HSDL1	97.4	377.4	3.87	HMGN4	75.1	3	0.04
INO80C	151.6	12.2	0.08	IFIT1	73.1	30.8	0.42	HSD3B7	99.3	344.7	3.47	HMGN3	445.5	18.1	0.04
INF2	194.2	176.4	0.91	IFI35	302.9	64.5	0.21	HSD17B8	37.7	5.5	0.15	HMGN2	40.5	4.1	0.10
IMPDH2	157.3	57.4	0.36	IFI30	100.1	66.3	0.66	HSD17B7	338.4	1293.5	3.82	HMGN1	382.1	47.4	0.12
IMPAD1	126.3	480.8	3.81	IFI16	51.4	44.4	0.86	HSD17B4	139.3	40.6	0.29	HMGCS2	4	3.1	0.78
IMP2	90.5	60.1	0.66	IDNK	40.7	55.6	1.37	HSD17B12	94.9	289.8	3.05	HMGCS1	11186.2	2956.6	0.26
IMPA1	360.2	67.8	0.19	ID1	558.7	136	0.24	HSD17B11	127.7	337.3	2.64	HMGCL	78.9	4.8	0.06
IMMT	82.2	243.6	2.96	IDH3G	161.7	21.7	0.13	HSD17B10	109	113.0	1.04	HMGCB3	392.9	0.1	0.00
IMMT	93.2	272.6	2.92	IDH3B	189.5	34.5	0.18	HSD11B2	5.6	5.3	0.95	HMGCB2	97.8	4.7	0.05
ILVBL	46.5	133.7	2.88	IDH3A	242.6	41.5	0.17	HSCB	107.1	10.2	0.10	HMGCB1	125.6	14.4	0.11
ILKAP	253	69	0.27	IDH2	96.7	7.6	0.08	HSD2T1	97.5	299	3.07	HMGA1	1178.5	34.3	0.03
ILK	55.6	55.3	0.99	IDH1	143.3	32.6	0.23	HS1BP3	340.3	93.6	0.28	HMGA1	295.9	41	0.14
ILF3	143.2	84.1	0.59	IDE	304	84.2	0.28	HRG	7.1	2.9	0.41	HMBS	232.1	25.7	0.11
ILF2	138.1	72.8	0.53	ICMT	102.8	317.5	3.09	HPX	3.3	2.9	0.88	HM13	147.5	542.1	3.68
IL41	565.9	365.4	0.65	ICAM2	9	4.9	0.54	HPF6	218.3	377.6	1.73	HLCS	152.9	190.1	1.24
IL32	393.3	514.1	13.07	ICAM1	267.8	1437.4	5.37	HPF3	118.7	200.7	1.69	HLA-H	922.8	7194.5	7.80
IL18	252.2	49.6	0.20	ICA1	330.8	297	0.90	HPRT1	46.3	15.2	0.33	HLA-F	351.7	2175.1	6.18
IL13RA1	259.5	2182	8.41	IBA57	54.3	3.9	0.07	HPN	290.5	1981.4	6.82	HLA-E	223.1	1847	8.28
IKBKB	181.3	104	0.57	IARS2	84.7	22.2	0.26	HPD	12.9	5.7	0.44	HLA-DRB3	9.1	39.7	4.36
IKBIP	331.1	1084.5	3.28	IARS1	280.8	101.6	0.36	HPCAL1	87	122.1	1.40	HLA-DRB1	18.7	110	5.88
IKBIP	217.2	801.8	3.69	IAH1	87.9	15.7	0.18	HP1BP3	97.4	56.4	0.58	HLA-DRA	30.5	125.3	4.11
IK	229.3	51.3	0.22	HYOU1	115.6	80.2	0.69	HP	5.7	4.6	0.81	HLA-DPA1	26.4	47.2	1.79
IGSF8	69	426.3	6.18	HUWE1	135.6	82	0.60	HOOK1	155.6	121.6	0.78	HLA-DMA	87.2	806.7	9.25
IGSF3	306	922.6	3.02	HTT	164.5	130.6	0.79	HOMER3	288.2	484.3	1.68	HLA-C	192.5	1215.9	6.32
IGLL5	1.1	0.2	0.18	HTRA2	76.2	48.1	0.63	HOGA1	54.8	7.9	0.14	HLA-B	87.7	473	5.39
IGLC2	6.1	3.3	0.54	HTATSF1	162.2	35.6	0.22	HNRNPUL2	126.8	91.9	0.72	HLA-A	9.8	13.2	1.35
IGKV1D-39	7.3	0.1	0.01	HTATIP2	341.3	693.5	2.03	HNRNPUL1	172.8	79.8	0.46	HLA-A	52.7	342.9	6.51
IGKC	4	2.1	0.53	HSPH1	218.6	74.9	0.34	HNRNPU	144.3	108.7	0.75	HKDC1	222.8	873.5	3.92
IGHV3-7	4.8	6.8	1.42	HSPG2	6.2	4.1	0.66	HNRNPU	487.2	280.9	0.58	HK2	1064.6	528.3	0.50
IGHV3-30	4.1	6.7	1.63	HSP1	90.4	5.6	0.06	HNRNPR	110.7	58.1	0.52	HK1	191.2	388.6	2.03
IGHM	19.8	20.4	1.03	HSPD1	106.7	10.3	0.10	HNRNPM	128.4	78.1	0.61	HIST2H3A	216.1	49.5	0.23
IGHG4	2.4	0.1	0.04	HSPBP1	174.6	55.4	0.32	HNRNPL	113	86.4	0.76	HIST2H2AC	47.7	19.3	0.40
IGHG3	3	4	1.33	HSPB6	3.2	0.1	0.03	HNRNPL	190.9	34	0.18	HIP1R	79.4	59.3	0.75
IGHG2	2.8	3.4	1.21	HSPB11	189.1	38.9	0.21	HNRNPK	230.4	34.4	0.15	HIP1	45.6	51.5	1.13
IGHG1	1.9	3.8	2.00	HSPB1	103	20.2	0.20	HNRNPK	217.1	29.6	0.14	HINT3	100.9	218.8	2.17
IGHD	28.4	15.9	0.56	HSPA9	103.6	13.4	0.13	HNRNPH3	177.2	61.5	0.35	HINT2	62.6	3.6	0.06
IGHA1	3.1	2.6	0.84	HSPA8	182.8	267.6	1.46	HNRNPH2	109.5	49.6	0.45	HINT1	174.9	50.3	0.29
IGFBP7	244.7	163.3	0.67	HSPA5	138.1	175.7	1.27	HNRNPH1	159	106.8	0.67	HIBCH	27.7	3.6	0.13
IGFBP4	106.4	245.9	2.31	HSPA4L	223.6	66.8	0.30	HNRNPF	118.7	41.3	0.35	HIBADH	76.7	6	0.08
IGF2R	149.2	555	3.72	HSPA4	215.2	49.9	0.23	HNRNPD	169	25	0.15	HGS	200.1	162.1	0.81
IGF2BP3	854.5	532.9	0.62	HSPA2	39.5	43.9	1.10	HNRNPD	159.7	15.7	0.10	HGH1	174.1	79.1	0.45
IGF2BP2	327.9	139.5	0.43	HSPA1B	127.9	176.4	1.38	HNRNPC	166.2	184.1	1.11	HGD	109.3	25.3	0.23
IGF2BP1	204.1	156.8	0.77	HSPA14	299.9	80.9	0.27	HNRNPAB	202	27	0.13	HEXB	66.6	42	0.63
IGF1R	99.7	397.6	3.99	HSPA13	73.7	132.2	1.79	HNRNPA3	131.5	27.3	0.21	HEXA	74.1	44.8	0.60
IGBP1	129.8	32.1	0.25	HSPA12B	21.5	37.8	1.76	HNRNPA2B1	141.8	18.2	0.13	HERPUD1	169.5	744	4.39
IFT27	122.2	53.3	0.44	HSPA12A	30.8	21.5	0.70	HNRNPA1	174.7	47.5	0.27	HERC5	124.5	166.3	1.34

Values are expressed as % of protein abundance in TL of human kidney cortex 1.

Supplemental table 5 (Continued):

Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio
HERC4	254.5	88.3	0.35	H1-4	70.9	91.7	1.29	GPX1	251.9	44	0.17	GNAS	91.5	576.3	6.30
HERC2	115.6	145.6	1.26	H1-3	34.1	27.9	0.82	GPT2	130.4	11.6	0.09	GNAS	108.1	380.4	3.52
HERC1	117.5	43.5	0.37	H1-2	72.3	34.1	0.47	GPT	26.6	7.1	0.27	GNAS	125.8	428.1	3.40
HELZ	244.3	219.9	0.90	H1-1	54.4	24.1	0.44	GPS1	100.4	416.8	4.15	GNAQ	100.9	452.5	4.48
HECTD4	209.4	138.5	0.66	H1-0	23.8	19.3	0.81	GPRIN3	79	268.9	3.40	GNAI3	116.5	819.8	7.04
HECTD3	136.9	90.5	0.66	GYS1	232	587.4	2.53	GPRC5C	238.6	2213.2	9.28	GNAI2	99.1	518	5.23
HECTD1	130.9	76.7	0.59	GYPC	0.1	318.5	3185.00	GPRC5A	156.1	1314.9	8.42	GNAI1	130.7	710.6	5.44
HEBP2	127	34	0.27	GYPB	83.7	21.1	0.25	GPR89B	41.8	177.5	4.25	GNAI3	129.1	747.1	5.79
HEBP1	232.4	114.2	0.49	GYG1	191.4	488	2.55	GPR155	190.3	2118.9	11.13	GNAI2	97.1	612.7	6.31
HEATR5B	122.7	123.7	1.01	GUSB	61.5	49	0.80	GPR108	118.5	639.2	5.39	GNAI1	76.1	373.4	4.91
HEATR1	184.5	277.4	1.50	GUK1	120.6	43.8	0.36	GPR107	136.2	901.6	6.62	GMPS	240.6	58.5	0.24
HDLBP	147.8	40.9	0.28	GUF1	14	9.2	0.66	GNPMB	174.2	513.4	2.95	GMPR2	159.7	67.4	0.42
HDHD5	170	4	0.02	GUCY1B1	88.2	155.9	1.77	GPI	212.4	44.2	0.21	GMPR	472.4	113.8	0.24
HDHD3	47.4	4.6	0.10	GTPBP6	58.2	145.7	2.50	GPHN	65.5	22.3	0.34	GMPPB	151.8	27.3	0.18
HDHD2	109.2	32.1	0.29	GTPBP4	200.1	225.8	1.13	GPD2	136.7	311.5	2.28	GMPPA	123.4	32.8	0.27
HDFGL3	24.1	4.8	0.20	GTPBP10	206	19.7	0.10	GPD1L	115.5	23	0.20	GMFB	146.7	32.7	0.22
HDFGL2	537.3	52	0.10	GTF3C6	143.3	70.9	0.49	GPD1	59.4	12.6	0.21	GMD5	204.2	55.1	0.27
HDGF	252.3	27.4	0.11	GTF3C3	172	145.1	0.84	GPC4	136.6	305.5	2.24	GM2A	19.9	13.9	0.70
HDDC3	91.4	63.3	0.69	GTF3C2	93	53	0.57	GPC3	274.7	513.4	1.87	GLYR1	68.6	44.6	0.65
HDDC2	86.4	33.1	0.38	GTF3C1	111.8	92.1	0.82	GPC1	112.1	213.4	1.90	GLYCTK	51.6	14.5	0.28
HDAC6	58.8	20.7	0.35	GTF2I	145.8	55.8	0.38	GPAT3	38.7	110	2.84	GLYATL1	10.3	2.4	0.23
HDAC2	109.2	41.9	0.38	GTF2F2	623.6	118.6	0.19	GPAM	69.8	168.9	2.42	GLYATL	15.1	2	0.13
HDAC1	144.9	47.3	0.33	GTF2B	144.2	60.1	0.42	GPA1	115.9	555.9	4.80	GLUL	630.5	127.9	0.20
HCFC1	139.1	35.7	0.26	GSTZ1	79.3	10.6	0.13	GOT2	147.2	8	0.05	GLUD1	73.7	7.2	0.10
HCCS	176.2	623	3.50	GSTT2B	54.2	13.4	0.25	GOT1	157.1	41.1	0.26	GLTPD2	0.1	16.5	165.00
HBS1L	154.7	75.7	0.49	GSTT1	3.8	7.7	2.03	GOSR2	75.5	244.5	3.24	GLTP	93.8	31.4	0.33
HBG1	98.6	95.3	0.97	GSTO1	171.2	30.4	0.18	GOSR1	105.8	344.6	3.26	GLT8D1	154.5	537.1	3.48
HBD	10.8	73.7	6.82	GSTM3	66.9	21.3	0.32	GORASP2	139.3	87.8	0.63	GLS	165.7	16.2	0.10
HAT1	205	73.7	0.36	GSTM2	44.5	4.5	0.10	GOPC	170.3	133.4	0.78	GLS	83.5	11.8	0.14
HARS2	176.6	26.1	0.15	GSTM1	38.2	21.6	0.57	GOLPH3	161.9	57.7	0.36	GLRX5	241.9	15.4	0.06
HAO2	6.5	9	1.38	GSTK1	132.4	44.9	0.34	GOLM1	192.5	827.8	4.30	GLRX3	423.1	110	0.26
HAGH	76.6	19	0.25	GSTA4	31.8	14	0.44	GOLM4	102.3	282.2	2.76	GLOD5	7.9	0.1	0.01
HADHB	74.4	149.3	2.01	GSS	187	39.5	0.21	GOLGB1	102.3	34.3	0.34	GLOD4	155.5	28.5	0.18
HADHA	68.5	133.5	1.95	GSR	211.3	45.2	0.21	GOLGA7	180.8	882.4	4.88	GLO1	255.8	54.8	0.21
HADH	43.8	2.2	0.05	GSPT1	240.5	60	0.25	GOLGA5	161.7	360.6	2.23	GLIPR2	32.6	121.2	3.72
HACL1	67.9	20	0.29	GSN	22.5	9.6	0.43	GOLGA4	72.5	84.6	1.17	GLG1	125	365.8	2.93
HACD3	116	410.4	3.54	GSK3B	180.9	191.8	1.06	GOLGA2	98.1	130.9	1.33	GLE1	226.9	113.8	0.50
HACD2	319.4	1105.6	3.46	GSDME	475.6	487.7	1.03	GNS	421.2	208.8	0.50	GLDC	215.4	25.2	0.12
HABP2	33	37.9	1.15	GSDMD	72.4	26.3	0.36	GNPNAT1	328.3	45.9	0.14	GLCE	50.6	138.2	2.73
HAAO	24.6	9.5	0.39	GRWD1	148	45.7	0.31	GNPDA2	148.3	31	0.21	GLB1L2	58.8	84.6	1.44
H6PD	142.5	129.8	0.91	GRSF1	237.6	50.8	0.21	GNPDA1	106.5	26.3	0.25	GLB1	136.6	112.6	0.82
H4C1	48.2	32.5	0.67	GRPEL1	148.2	8.1	0.05	GNPAT	292.6	362.6	1.24	GLA	54.2	90.5	1.67
H3C1	215.1	26.1	0.12	GRK2	122.2	132.8	1.09	GNL3	231.8	226.6	0.98	GK	11.2	9.5	0.85
H3-3A	10.9	1.7	0.16	GRIPAP1	99.2	20.7	0.21	GNL2	275.6	199.5	0.72	GIT2	116.6	78	0.67
H2BC12	57.1	36.1	0.63	GRHPR	76.9	15.9	0.21	GNL1	136	49.2	0.36	GIT1	131	70.8	0.54
H2AX	79	38.9	0.49	GRB2	114.7	218	1.90	GNG12	97.5	727.1	7.46	GIPC2	44.1	24.3	0.55
H2AFY2	113.9	95.4	0.84	GRAMD1A	137.2	578.8	4.22	GNB4	54.9	250.7	4.57	GIPC1	198.5	154.7	0.78
H2AFV	41	30.2	0.74	GPX8	117.3	473.1	4.03	GNB2	96.8	557.3	5.76	GIGYF2	210	47.2	0.22
H1FX	20	13	0.65	GPX4	114.1	83.6	0.73	GNB1	121.5	749.2	6.17	GIDS	77.6	33.6	0.43
H1-5	273.1	243.7	0.89	GPX3	1.4	1.1	0.79	GNAZ	18.1	95.9	5.30	GHTM	80.9	299.6	3.70

Values are expressed as % of protein abundance in TL of human kidney cortex 1.

Supplemental table 5 (Continued):

Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL			3D RPTEC Spheroid_Lot.664995_day12_PM			Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL			3D RPTEC Spheroid_Lot.664995_day12_PM			Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL			3D RPTEC Spheroid_Lot.664995_day12_PM						
	PM/TL ratio			PM/TL ratio				PM/TL ratio			PM/TL ratio				PM/TL ratio			PM/TL ratio						
GHDC	28.7	86.3	3.01				GAPDH	165.1	40.4	0.24				FPGT	145.4	42	0.29				FGG	5.3	6	1.13
GGT7	175	474.9	2.71				GANAB	110.1	112.5	1.02				FOXRED1	181.8	401.5	2.21				FGP2	123.4	11.5	0.09
GGT5	6.5	5.9	0.91				GAMT	130.1	30	0.23				FOXX1	144.7	45.1	0.31				FGD4	84	67.9	0.81
GGT1	97.3	644.4	6.62				GALT	73.9	32.1	0.43				FOLR2	12.7	9.7	0.76				FGB	8.2	7.9	0.96
GGPS1	368.9	57.1	0.15				GALNT7	248.5	795.4	3.20				FOLR1	109.9	689.6	6.27				FGA	8	1.9	2.38
GGH	25.5	15.4	0.60				GALNT4	162.1	533.5	3.29				FOLH1	9.1	38.1	4.19				FERMT2	36.6	30	0.82
GGCX	170	559.1	3.29				GALNT2	91.5	248.3	2.71				FNTB	134.5	31.9	0.24				FEN1	442.3	83	0.19
GGCT	156.8	45.3	0.29				GALNT14	154.9	366.2	2.36				FNTA	129.2	28.5	0.22				FECH	77.4	27.5	0.36
GGACT	18.7	6.6	0.35				GALNT11	199	698.1	3.51				FNDC3B	138.1	199.8	1.45				FDXR	187	26.4	0.14
GFRA1	24.6	11.1	0.45				GALNT10	329.5	1251.9	3.80				FNDC3A	94.7	183.2	1.93				FDX1	76.1	63.1	0.83
GFPT1	142.8	46.1	0.32				GALNT1	187.5	516.9	2.76				FNBP1L	149.8	101.2	0.68				FDPS	298	60.7	0.20
GFM2	195.7	52	0.27				GALNS	639.8	413.5	0.65				FN3KRP	72.1	28.7	0.40				FDFT1	154.2	433	2.81
GFM1	100.5	5.7	0.06				GALM	39	10.7	0.27				FN3K	58.8	19.1	0.32				FCSK	65.6	17.5	0.27
GET4	124.7	97.3	0.78				GALK2	109.5	34.9	0.32				FN1	72.7	50.5	0.69				FCHO2	195.4	154.3	0.79
GEMIN6	1380.4	536.2	0.39				GALK1	65.5	31.1	0.47				FMR1	144.2	65.7	0.46				FCGR1	40.8	225.9	5.54
GEMIN5	280.9	139.2	0.50				GALE	166.4	24.4	0.15				FMO5	50.2	104.2	2.08				FBXO7	86.4	64.6	0.75
GEMIN4	146.3	217.4	1.49				GALC	106.9	213.7	2.00				FMO4	40.1	97.8	2.44				FBXO22	252.1	48.8	0.19
GDPD3	17.2	49.1	2.85				GAK	84.2	88.5	1.05				FMO1	13.8	39	2.83				FBXO21	88.5	89.4	1.01
GDPD1	85.2	270.3	3.17				GADD45GIP1	206.9	224	1.08				FMNL2	180.2	657.2	3.65				FBXL20	141.5	562.6	3.98
GDI2	161.8	56.2	0.35				GABPA	84.3	11.9	0.14				FLVCR2	54	334.6	6.20				FBP2	2.8	0.1	0.04
GDI1	128.2	27.5	0.21				GAA	129.4	117.7	0.91				FLVCR1	116	575.5	4.96				FBP1	6	4.1	0.68
GDAP2	195	306.7	1.57				G6PD	422.8	103.3	0.24				FLRT3	104.4	434.4	4.16				FBN1	3.6	7.8	2.17
GDAP1	65.1	225.3	3.46				G6PC3	158.4	554.5	3.50				FLOT2	175	1198	6.85				FBLN2	0.1	1	10.00
GDA	235.7	65.4	0.28				G3BP2	178.8	39.5	0.22				FLOT1	189.6	1479	7.80				FBLN1	18.4	10.6	0.58
GDA	346.8	113.2	0.33				G3BP1	238	38.1	0.16				FLNC	131.3	71.6	0.55				FBLN1	14.5	5.2	0.36
GCSH	105.7	14.8	0.14				FYTD1	511.7	891.7	1.74				FLNB	89	26.1	0.29				FBLM1	20.4	24.6	1.21
GCN1	213.3	202.5	0.95				FYN	39.2	50.5	1.29				FLNA	56.6	17.7	0.31				FBL	176.4	103.4	0.59
GLCLM	101.6	36.6	0.36				FYCO1	108.4	226.2	2.09				FLJ45252	233.1	83.6	0.36				FAT1	409.4	1074.7	2.63
GLCL	108.5	29.7	0.27				FXYD2	111.5	1300.4	11.66				FLII	165.1	102.8	0.62				FASTKD5	125.2	39	0.31
GCHFR	48.6	19.6	0.40				FXR2	129.2	74.1	0.57				FLAD1	168.3	39.7	0.24				FASN	3899.6	1197.5	0.31
GCFC2	308.4	203.5	0.66				FXR1	173.7	55.4	0.32				FKBP9	198.9	173.6	0.87				FAS	313.6	1387.8	4.43
GCDH	76.9	6.6	0.09				FUS	167.3	14.1	0.08				FKBP8	82.7	191.3	2.31				FAR5B	162.1	24.1	0.15
GCC2	171.2	48.8	0.29				FUNDC2	64.9	166.1	2.56				FKBP7	192.4	271.3	1.41				FARSA	194.6	28.4	0.15
GCAT	667.9	120.5	0.18				FUNDC1	84.2	138.2	1.64				FKBP5	973.5	174.6	0.18				FARS2	81.3	22.1	0.27
GC	2.4	3.2	1.33				FUCA2	308.4	150.3	0.49				FKBP4	133.5	26.7	0.20				FARP2	57.6	205.9	3.57
GBP2	561.5	134.7	0.24				FUCA1	148	85.1	0.58				FKBP3	340.3	49	0.14				FARP1	175.4	920.8	5.25
GBP1	113.2	41.8	0.37				FUBP3	213	71	0.33				FKBP2	114.2	121.6	1.06				FAR1	117.3	159.1	1.36
GBF1	131.8	157.2	1.19				FUBP1	190.9	22.7	0.12				FKBP1A	161.2	90.6	0.56				FAM98C	51.3	11.2	0.22
GBE1	192.6	47.7	0.25				FTSJ3	243.7	307.2	1.26				FKBP15	103.3	88.9	0.86				FAM98B	118.5	17.6	0.15
GBA3	61.4	13.2	0.21				FTSJ1	197.6	92.2	0.47				FKBP11	65	134.4	2.07				FAM98A	190.9	51.5	0.27
GBA2	118.9	356.3	3.00				FTO	212.8	32.4	0.15				FKBP10	115.5	77.1	0.67				FAM91A1	111.8	98.7	0.88
GBA	207.9	543.3	2.61				FTL	557.9	845.9	1.52				FITM2	101.8	334.8	3.29				FAM8A1	127.3	211.1	1.66
GATM	2.6	1.3	0.50				FTH1	603.4	809.8	1.34				FIS1	70	135.1	1.93				FAM50A	689.2	103.2	0.15
GATD3B	56.9	3.3	0.06				FTCD	13.1	4.3	0.33				FIP1L1	280	67.7	0.24				FAM49B	315.6	381.3	1.21
GATD1	72.1	22.2	0.31				FSCN1	126.4	41	0.32				FIBP	78.9	163	2.07				FAM3C	162.3	746.7	4.60
GATAD2A	952.9	230.2	0.24				FRYL	121.6	122.8	1.01				FHL2	81.3	36.4	0.45				FAM241A	63.4	67.4	1.06
GART	409.4	125.7	0.31				FRMD8	176.7	191.4	1.08				FHL1	38.3	16.3	0.43				FAM234A	92.5	617.1	6.67
GARS1	404.5	78.7	0.19				FRK	113.5	726	6.40				FH	109.7	9	0.08				FAM210B	129.7	647.9	5.00
GAR1	124.3	31	0.25				FREM2	8.7	13.5	1.55				FGL2	11.2	9.2	0.82				FAM210A	24	98.1	4.09
GAPVD1	111.1	77.8	0.70				FRAS1	21.4	17.7	0.83				FGGY	55.5	18.6	0.34				FAM177A1	73.4	371.9	5.07

Values are expressed as % of protein abundance in TL of human kidney cortex 1.

Supplemental table 5 (Continued):

Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio
FAM171A1	184.8	856.7	4.64	ESYT2	150.4	401.7	2.67	ENPP5	487.1	427.5	0.88	EIF4E	200.3	111.1	0.55
FAM162A	97.4	389.1	3.99	ESYT1	172.4	443.4	2.57	ENPP4	134.5	550.1	4.09	EIF4B	613.7	59.8	0.10
FAM160B1	92.8	49.2	0.53	ESYT1	298.9	675.7	2.26	ENPP3	201.1	1099.5	5.47	EIF4A3	115	96.9	0.84
FAM151A	12.3	14	1.14	ESPN	59.8	57	0.95	ENPP1	133.1	664.3	4.99	EIF4A2	108.7	25.8	0.24
FAM126B	87	406.8	4.68	ESD	166.2	26.5	0.16	ENPEP	148	846.8	5.72	EIF4A1	198.4	53.7	0.27
FAM126A	164.3	837.1	5.09	ESAM	5.3	3.9	0.74	ENOSF1	59	14.8	0.25	EIF3M	176.5	50	0.28
FAM120B	120.1	41.2	0.34	ERP44	101.7	200.1	1.97	ENOPH1	138.7	66.6	0.48	EIF3L	172.8	53.4	0.31
FAM120A	174.7	83.8	0.48	ERP29	146.3	147.7	1.01	ENO3	39.4	19.7	0.50	EIF3K	179.6	54.1	0.30
FAHD2A	232.6	34.7	0.15	ERO1A	193.5	110.2	0.57	ENO2	391.3	106.6	0.27	EIF3J	205.9	59.5	0.29
FAHD1	77.2	6.7	0.09	ERMP1	122.4	434.9	3.55	ENO1	283.4	61.8	0.22	EIF3I	220.8	122.7	0.56
FAH	74.4	17.1	0.23	ERLIN2	60	233.5	3.89	ENG	14.3	21.3	1.49	EIF3H	221.5	77.8	0.35
FAF2	130.8	466.8	3.57	ERLIN1	55	188.7	3.43	ENDOG	293.9	136	0.46	EIF3G	225	107.4	0.48
FAF1	202.6	177.8	0.88	ERLEC1	126.7	455.3	3.59	ENDOD1	92.1	239.6	2.60	EIF3F	156.5	79.9	0.51
FADS2	1035.8	4521	4.36	ERIS	132	30.8	0.23	ENAH	184.5	68	0.37	EIF3E	171.3	74.3	0.43
FADS1	301.5	954.9	3.17	ERGIC3	145.1	367.4	2.53	EML4	155.5	61.6	0.40	EIF3D	213.5	56.2	0.26
FABP1	26.9	6.1	0.23	ERGIC2	141.4	512.4	3.62	EML2	173.4	56.6	0.33	EIF3CL	197.7	105.7	0.53
FAAH	53.1	208.7	3.93	ERGIC1	96.4	398.3	4.13	EML1	69	17	0.25	EIF3B	205.2	119.5	0.58
FAZH	108.2	448.7	4.15	ERCC2	152.1	75.2	0.49	EMILIN1	11.9	2.9	0.24	EIF3A	195.4	141.5	0.72
F9	2.9	5.2	1.79	ERC1	110.5	31	0.28	EMG1	168.6	84.1	0.50	EIF2S3	199	45.2	0.23
F3	29.5	12.8	0.43	ERBIN	126.4	485.8	3.84	EMD	139.5	303.6	2.18	EIF2S2	228.5	36.3	0.16
F2	11.7	6.3	0.54	ERBB2	94.6	629.9	6.66	EMCN	6.4	7.5	1.17	EIF2S1	201.7	34.1	0.17
F13A1	4	1.9	0.48	ERAP1	121.6	89	0.73	EMC8	141.2	479.9	3.40	EIF2D	220.4	64.2	0.29
F11R	111.5	664.8	5.96	EPS8L2	114	127.7	1.12	EMC7	117.3	408.9	3.49	EIF2B5	202.7	98.9	0.49
EZR	135	149.7	1.11	EPS8	191	776.9	4.07	EMC4	105.3	641.8	6.09	EIF2B4	181.1	128	0.71
EXTL3	142.1	532	3.74	EPS15L1	161.6	56.4	0.35	EMC3	131	496	3.79	EIF2B3	173.2	113	0.65
EXTL2	95	161.8	1.70	EPS15	130	48.3	0.37	EMC2	113.6	381.3	3.36	EIF2B2	201.9	45.8	0.23
EXOSC9	104.2	23.1	0.22	EPSR1	219.4	96.8	0.44	EMC10	167.6	408.6	2.44	EIF2B1	233.8	61.2	0.26
EXOSC7	96	8.7	0.09	EPPK1	146.7	64.6	0.44	EMC1	112.2	362.3	3.23	EIF2AK2	121.6	27.8	0.23
EXOSC6	135.7	43.3	0.32	EPN1	116.6	103.1	0.88	EMB	50.9	193.3	3.80	EIF2A	133.8	69	0.52
EXOSC5	187.5	47.9	0.26	EPM2AIP1	76.1	27.4	0.36	ELP3	153	82	0.54	EIF1AX	202.8	32.2	0.16
EXOSC3	129.5	11.7	0.09	EPHX2	23	3.9	0.17	ELP2	54.9	27.3	0.50	EIF1	129	15.7	0.12
EXOSC10	101.5	69.6	0.69	EPHX1	55.4	188.6	3.40	ELP1	92.1	43.2	0.47	EHHADH	39.8	10.2	0.26
EXOG	95.3	600.9	6.31	EPHB4	42.5	158.7	3.73	ELOVL4	66.2	52.2	0.79	EHD4	52.7	71.6	1.36
EXOC8	209.3	143.8	0.69	EPHA7	140.9	1116.4	7.92	ELOVL1	231.2	750.4	3.25	EHD3	15	16	1.07
EXOC7	182.9	103.1	0.56	EPHA2	213.5	1520.8	7.12	ELOC	192.3	78.7	0.41	EHD2	73.6	114.1	1.55
EXOC6B	172.3	119.6	0.69	EPDR1	289.8	167.7	0.58	ELOB	205.3	78.8	0.38	EHD1	121.7	174.5	1.43
EXOC6	212.1	159.9	0.75	EPCAM	139.3	890.4	6.39	ELN	7.6	14.5	1.91	EHBP1	218.7	222.3	1.02
EXOC5	169.4	121.7	0.72	EPB42	63.8	74.7	1.17	ELMOD2	95.2	387.4	4.07	EGFR	85.4	768.3	9.00
EXOC4	177.5	149.7	0.84	EPB41L5	158.5	586.1	3.70	ELMO2	84.1	63	0.75	EFTUD2	144.4	105.7	0.73
EXOC3	154.4	135.2	0.88	EPB41L3	47.1	161.5	3.43	ELAVL1	248.2	44.2	0.18	EFR3A	142.5	697.7	4.90
EXOC2	165.4	151.8	0.92	EPB41L2	75	187.6	2.50	ELAC2	171.2	29.6	0.17	EFNB1	64.6	353.9	5.48
EXOC1	196.5	129.4	0.66	EPB41L1	111.6	280.8	2.52	EIF6	210.1	58.4	0.28	EFL1	220.1	69.2	0.31
EXD2	164.8	405.4	2.46	EPB41L1	118.5	324.6	2.74	EIF5B	296.4	92	0.31	EFHD2	136	48.4	0.36
EWSR1	219.5	23.1	0.11	EPB41	132	570.3	4.32	EIF5A	267.3	49.5	0.19	EFHD1	83.8	64.9	0.77
EVPL	248	98.9	0.40	EP300	118.4	187.1	1.58	EIF5	141.9	28.2	0.20	EFEMP1	2.7	1.2	0.44
ETHE1	187.1	18.9	0.10	ENTPD5	48.5	28.4	0.59	EIF4H	207.6	13.7	0.07	EFCAB14	140.4	648	4.62
ETFDH	38	108	2.84	ENTPD4	153.5	552.8	3.60	EIF4G3	160.5	55.4	0.35	EEFSEC	65.5	24.4	0.37
ETFB	65.6	8.9	0.14	ENTPD2	27.6	261.7	9.48	EIF4G2	110.8	60.2	0.54	EEF2	437.5	100.8	0.23
ETFA	67.1	5.6	0.08	ENTPD1	15.2	18.3	1.20	EIF4G1	227.7	96.5	0.42	EEF1G	199.3	45.2	0.23
ETF1	214.6	61.8	0.29	ENPP6	8.8	27.7	3.15	EIF4E2	116.3	41.2	0.35	EEF1E1	247.3	50	0.20

Values are expressed as % of protein abundance in TL of human kidney cortex 1.

Supplemental table 5 (Continued):

Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio
EEF1D	177	20.6	0.12	DRG1	126.7	43.1	0.34	DLGAP4	303.6	514.9	1.70	DDX58	152.5	87.3	0.57
EEF1B2	119.5	13.6	0.11	DPYSL3	49.1	19.3	0.39	DLG4	237.4	44.4	0.19	DDX54	86.9	48.5	0.56
EEF1AKNMT	475.4	0.1	0.00	DPYSL2	94.7	24.4	0.26	DLG1	175.4	726.9	4.14	DDX50	216.2	183	0.85
EEF1A1	190	38.4	0.20	DPYS	19.1	11	0.58	DLD	89.7	16.6	0.19	DDX5	164.5	73.3	0.45
EEA1	279.1	53.5	0.19	DPY19L1	136.6	486.4	3.56	DLAT	128.5	39.5	0.31	DDX46	136.7	63.1	0.46
EDIL3	95.6	410.9	4.30	DPT	1.8	0.1	0.06	DKC1	149.3	63.7	0.43	DDX42	129.6	27.3	0.21
EDF1	366.7	70.1	0.19	DPP9	251	116.6	0.46	DIS3L2	136.2	27.8	0.20	DDX41	144.5	114.2	0.79
EDEM3	102.5	164.6	1.61	DPP7	171	83.3	0.49	DIS3	170.7	37.3	0.22	DDX3X	144.6	79.2	0.55
EDC4	166.6	137.3	0.82	DPP4	161.2	1004.4	6.23	DIPK2A	80	148.8	1.86	DDX39B	189.9	25.7	0.14
EDC3	159.9	54.4	0.34	DPP3	427.9	91	0.21	DIP2C	108.5	145.9	1.34	DDX39A	150.9	22.4	0.15
ECSIT	163.5	614.3	3.76	DPM1	105.7	328.1	3.10	DI01	32.3	80.2	2.48	DDX28	183.9	120.5	0.66
ECPAS	164.9	84.9	0.51	DPH5	305.3	30.2	0.10	DICER1	128.4	109.3	0.85	DDX27	249.1	297.3	1.19
ECI2	51.2	8.9	0.17	DPEP1	74.8	465.5	6.22	DIAPH2	232.8	172.5	0.74	DDX24	190.8	189.6	0.99
ECI1	105.3	5.8	0.06	DOCK9	92.6	94.8	1.02	DIAPH1	200.3	138.3	0.69	DDX23	129.8	12.5	0.10
ECHS1	54.3	3.4	0.06	DOCK7	146.2	117.2	0.80	DIABLO	184.5	184	1.00	DDX21	240.6	212.3	0.88
ECHDC3	43.9	3.3	0.08	DOCK1	61.5	70.6	1.15	DHX9	118.5	48.8	0.41	DDX20	333.1	347.1	1.04
ECHDC2	10.8	5.1	0.47	DNPH1	93.4	21.1	0.23	DHX40	131.6	36.8	0.28	DDX19B	238.6	123.7	0.52
ECHDC1	105	28.5	0.27	DNPEP	85	20	0.24	DHX32	143.6	156.7	1.09	DDX19A	153.5	66.1	0.43
ECH1	60.2	8.4	0.14	DNMBP	118.4	76.1	0.64	DHX30	186.5	124.8	0.67	DDX18	95.7	65.3	0.68
ECE1	147	815.8	5.55	DNM2	120.9	101.8	0.84	DHX29	132.7	35.5	0.27	DDX17	119.7	31.9	0.27
ECD	225.4	56.6	0.25	DNM1L	241.4	175.6	0.73	DHX16	103.1	44.5	0.43	DDX1	133.3	27.6	0.21
EBNA1BP2	220.3	501.9	2.28	DNM1	157.2	107	0.68	DHX15	162.4	66.9	0.41	DDT	122.8	30.5	0.25
EBAG9	107.6	341.2	3.17	DNASE2	216.6	97.9	0.45	DHTKD1	109.6	7.9	0.07	DDRGK1	82.3	154.6	1.88
DYSF	30.3	144.1	4.76	DNAJC9	152	144.8	0.95	DHR5X	47.5	159.5	3.36	DDR1	164	859	5.24
DYNLT3	48.9	24.9	0.51	DNAJC8	162.2	34.9	0.22	DHRS7B	72.7	240.3	3.31	DDOST	89	301.7	3.39
DYNLT1	223.7	34.8	0.16	DNAJC7	149.8	178	1.19	DHRS7	133.2	404.2	3.03	DDI2	153.3	62.6	0.41
DYNLRB1	148.9	23.5	0.16	DNAJC5	112.4	770.4	6.85	DHRS4	33.5	5.6	0.17	DDC	4.9	3.8	0.78
DYNLL2	63.6	23.5	0.37	DNAJC3	116.1	146.8	1.26	DHRS3	42.9	162.4	3.79	DDB1	158.1	72.6	0.46
DYNLL1	145.5	59.2	0.41	DNAJC19	87.3	388.1	4.45	DHRS11	75.8	4.8	0.06	DDAH2	82.2	67.9	0.83
DYNCL1I2	157.3	68.7	0.44	DNAJC16	106.5	358.6	3.37	DHRS1	25.3	79.5	3.14	DDAH1	44.6	16	0.36
DYNCL1I1	214	103.8	0.49	DNAJC13	106.3	207	1.95	DHODH	47.3	161.7	3.42	DCXR	66.4	10.6	0.16
DYNCL1I2	148.3	49	0.33	DNAJC11	61.4	169.1	2.75	DHCR7	380.4	1471.8	3.87	DCTN4	119.2	40.9	0.34
DYNCL1H1	127.7	113.3	0.89	DNAJC10	178.7	323.7	1.81	DHCR24	99.3	160.7	1.62	DCTN3	163.9	120.7	0.74
DUT	140	48.4	0.35	DNAJC1	165.4	440.3	2.66	DGLUCY	1269.2	161.3	0.13	DCTN2	132.7	44.6	0.34
DUSP3	163.7	44.6	0.27	DNAJB6	91.6	202.7	2.21	DGKE	34.2	76.5	2.24	DCTN1	151.7	82	0.54
DUSP23	103.5	32.5	0.31	DNAJB2	66.6	111.5	1.67	DFFA	144.1	23.1	0.16	DCTD	277.9	41.8	0.15
DUS3L	270.1	193	0.71	DNAJB14	141.1	501.2	3.55	DERL2	86.9	390.2	4.49	DCPS	86.2	6.4	0.07
DUS1L	196.6	107.8	0.55	DNAJB12	57.9	328.1	5.67	DERA	117.9	79.6	0.68	DCP1A	151.1	53.4	0.35
DTYMK	156.8	54	0.34	DNAJB11	107.1	188.5	1.76	DEPTOR	139	109.9	0.79	DCN	2.2	1.6	0.73
DTX3L	125.9	78.1	0.62	DNAJB1	215.7	114.8	0.53	DEPDC5	139.9	109.5	0.78	DCK	281.8	36.5	0.13
DTNBP1	261.5	99.6	0.38	DNAJA3	82.9	45.8	0.55	DENR	227.9	37.8	0.17	DCBLD2	1290	7125.8	5.52
DTNB	73.3	267.5	3.65	DNAJA2	115.7	157.6	1.36	DENND4C	105.5	106.8	1.01	DCAKD	73.6	324.4	4.41
DTNA	154.4	490.2	3.17	DNAJA1	110.1	169.5	1.54	DENND11	75.3	321.2	4.27	DCAF8	149	60.1	0.40
DTD1	174.2	20.5	0.12	DNAAF5	269.2	320.9	1.19	DENND10	105.4	94.9	0.90	DCAF7	124.3	105.9	0.85
DSTN	144.4	39.2	0.27	DMXL1	112	173.2	1.55	DEK	132	17.8	0.13	DCAF11	144	86.2	0.60
DST	82.3	75.2	0.91	DMTN	171.5	46.2	0.27	DEGS1	127.8	442	3.46	DCAF1	153.7	53.9	0.35
DSP	104.7	63.2	0.60	DMGDH	18.4	5.9	0.32	DECR2	204.3	58.7	0.29	DBT	52.8	9.3	0.18
DSG2	173.4	699.6	4.03	DMD	85.1	157.4	1.85	DECR1	74.6	7.8	0.10	DBNL	174.3	50.5	0.29
DSG1	86.5	133.5	1.54	DMAC2	174.1	429.6	2.47	DDX60	98.6	17.5	0.18	DBN1	193.6	118.9	0.61
DRG2	152	45.3	0.30	DLST	107.2	30.4	0.28	DDX6	223	132.4	0.59	DBI	196.4	52.6	0.27

Values are expressed as % of protein abundance in TL of human kidney cortex 1.

Supplemental table 5 (Continued):

Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio
DAZAP1	233.3	8.5	0.04	CTPS2	156.6	38.7	0.25	CPSF7	112.1	18.2	0.16	COPE	148.7	79.6	0.54
DARS2	90.3	5.8	0.06	CTPS1	560.7	220.4	0.39	CPSF6	189.7	17	0.09	COPB2	137.1	73.8	0.54
DARS1	215.2	66.1	0.31	CTNND1	77.6	323.6	4.17	CPSF3	115.3	31.5	0.27	COPB1	133.6	98.8	0.74
DAFK3	92.9	35.6	0.38	CTNND1	108.8	54.3	0.50	CPSF1	136.5	45.4	0.33	COPA	123.9	109.9	0.89
DAP3	198.3	78.3	0.39	CTNNB1	95.7	453.7	4.74	CPQ	15.6	9.8	0.63	COMTD1	108.3	317.3	2.93
DAO	0.9	1.4	1.56	CTNNAL1	225.8	648	2.87	CPED1	172.2	60.1	0.35	COMT	114.6	323.5	2.82
DAGLB	346.3	2200.1	6.35	CTNNA2	104.4	582.3	5.58	CPOX	321	132.9	0.41	COMMDD9	126.8	108.4	0.85
DAG1	102.1	317	3.10	CTNNA1	102.2	402.7	3.94	CPNE8	33.2	368.6	11.10	COMMDD8	106.6	94.5	0.89
DAB2	62	43.2	0.70	CTH	137.7	42.4	0.31	CPNE6	10.6	12.3	1.16	COMMDD7	96.1	119.6	1.24
DAAM1	65.5	173.7	2.65	CTDP1	94.9	103.6	1.09	CPNE3	128.8	95.3	0.74	COMMDD6	93.4	83.8	0.90
D2HGDH	50.6	11	0.22	CTCF	76	44.7	0.59	CPNE2	58.6	60	1.02	COMMDD4	123.7	112.8	0.91
CZIB	140.2	48.8	0.35	CTBS	97.4	54	0.55	CPNE1	117.1	24.8	0.21	COMMDD3	143.3	113.9	0.79
CYTH2	62.7	189.6	3.02	CTBP2	175.5	28.6	0.16	CPM	206.5	1372.9	6.65	COMMDD2	128.8	237	1.84
CYP51A1	185.3	572.8	3.09	CTBP1	137.9	40.7	0.30	CPEB4	124.9	81.2	0.65	COLGALT1	138.2	176.7	1.28
CYP4F2	7.9	17.6	2.23	CSTF3	150.9	53.9	0.36	CPD	475.5	2814.5	5.92	COL6A3	3.2	3.7	1.16
CYP4A22	32.9	12.7	0.39	CSTB	235.8	79.7	0.34	CP	10.6	32.1	3.03	COL6A2	2	1.6	0.80
CYP4A11	4.7	6.6	1.40	CST3	194.8	177.3	0.91	COX7C	169.3	277.6	1.64	COL6A1	2.8	3.5	1.25
CYP27A1	85.5	202.5	2.37	CSR2	9.6	2.1	0.22	COX7A2L	33	179.8	5.45	COL4A6	4.2	6.1	1.45
CYP20A1	52.1	170.4	3.27	CSR1	34.3	9.1	0.27	COX7A2	53.4	97.5	1.83	COL4A5	7	0.1	0.01
CYP17A1	34.1	37.2	1.09	CSNK2A2	127.9	84	0.66	COX7A1	27.8	51.1	1.84	COL4A4	2.6	1.5	0.58
CYFIP2	57.5	86.7	1.51	CSNK2A1	113.3	51.5	0.45	COX6C	44.2	137.2	3.10	COL4A3	4.1	3.4	0.83
CYFIP1	122.4	223.6	1.83	CSNK1G3	120.6	776.5	6.44	COX6B1	47.1	54.5	1.16	COL4A2	3.8	2.2	0.58
CYC1	68.9	231.2	3.36	CSNK1G2	156.2	1021.6	6.54	COX5B	20.8	112.7	5.42	COL4A1	3.1	1.5	0.48
CYBRD1	0.1	49.3	493.00	CSNK1D	198.6	136.4	0.69	COX5A	32.7	105.9	3.24	COL1A2	1.1	1.5	1.36
CYBB	4.5	8.3	1.84	CSNK1A1	163.1	142.6	0.87	COX4I	56.9	260.8	4.58	COL1A1	0.6	1.9	3.17
CYBA	4.9	10.3	2.10	CSK	167.1	84	0.50	COX20	101.1	277.5	2.74	COL18A1	15.2	5.9	0.39
CYB5R3	118	392	3.32	CSE1L	182.9	159.4	0.87	COX17	102.7	64.7	0.63	COL15A1	3	2	0.67
CYB5R1	38.9	150	3.86	CSDE1	144.6	50.7	0.35	COX15	84.9	312.8	3.68	COL14A1	4.9	4.5	0.92
CYB5B	129.2	508.2	3.93	CS	229.8	10.2	0.04	COX14	104.4	179.7	1.72	COL12A1	8.3	9.7	1.17
CXADR	140.6	866.2	6.16	CRYZL1	102.6	34.2	0.33	COX11	74.7	251	3.36	COIL	455.4	632.3	1.39
CWF19L1	103.1	55.3	0.54	CRYZ	69.3	8.6	0.12	COLT1	26.4	7	0.27	COG7	100.1	88.3	0.88
CUX1	93.6	160.2	1.71	CRYM	37.9	11.4	0.30	CORO7	385.9	155.5	0.40	COG6	111.9	78	0.70
CUTA	139.4	17.6	0.13	CRYL1	48.6	10.6	0.22	CORO2B	85.8	22.1	0.26	COG5	111.4	108.8	0.98
CUL7	144.1	159.5	1.11	CRYBG1	144.2	89.6	0.62	CORO1C	151	55.9	0.37	COG4	95	99.5	1.05
CUL5	99.7	72.9	0.73	CRYAB	625.8	148.3	0.24	CORO1B	181.3	43.4	0.24	COG3	103	90	0.87
CUL4B	159.3	92.5	0.58	CRYAA	3.4	7.8	2.29	CORO1A	4.8	7.6	1.58	COG2	174.1	155.3	0.89
CUL4A	165.2	95.1	0.58	CRTAP	238.2	190	0.80	COQ9	92	16.2	0.18	COCH	2.9	2.1	0.72
CUL3	120.8	102.7	0.85	CRKL	128.4	122.1	0.95	COQ8B	346.3	342.9	0.99	COBL1	551.8	603.6	1.09
CUL2	264.6	116.5	0.44	CRK	152.2	121.2	0.80	COQ8A	22.7	12.3	0.54	COASY	85.4	42.8	0.50
CUL1	283.2	259.8	0.92	CRIP2	143.2	85.2	0.59	COQ7	50.2	40.7	0.81	COA3	44.5	178.2	4.00
CUBN	12.8	27.4	2.14	CRELD1	82.7	310.3	3.75	COQ5	36.2	13.7	0.38	COA1	111.2	458.8	4.13
CTTNBP2NL	949.2	230.9	0.24	CREG1	63.5	24	0.38	COQ3	115.2	40.2	0.35	CNTN1	11.2	21.3	1.90
CTTN	663.3	204.9	0.31	CRBN	114.6	186	1.62	COP21	152.3	62.4	0.41	CNPY3	357.5	360.4	1.01
CTSZ	51.6	28.3	0.55	CRB2	24.3	49.4	2.03	COP56	163.5	50.9	0.31	CNPY2	96.6	83.9	0.87
CTSS	30.5	18.4	0.60	CRAT	65.8	6.9	0.10	COP55	167.8	48.6	0.29	CNP	115.6	236.9	2.05
CTSH	27.2	16.2	0.60	CRADD	111.1	45.1	0.41	COP54	147.2	41.1	0.28	CNOT9	179.8	97.1	0.54
CTSC	100.6	63	0.63	CR1	11.3	9.9	0.88	COP53	132.7	49.5	0.37	CNOT7	125.6	124.6	0.99
CTSB	105.8	63.8	0.60	CPVL	106	74.5	0.70	COP52	146.2	44	0.30	CNOT10	187.4	137.7	0.73
CTSA	80.3	42.2	0.53	CPT2	46.5	21.8	0.47	COP62	268.4	205.3	0.76	CNOT1	148.7	187.3	1.26
CTR9	118.7	94.8	0.80	CPT1A	32.1	103	3.21	COP61	114.8	69.6	0.61	CNNM4	199	505.8	2.54

Values are expressed as % of protein abundance in TL of human kidney cortex 1.

Supplemental table 5 (Continued):

Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio
CNNM3	102.5	689.2	6.72	CKMT1A	113	124.8	1.10	CETN2	144.6	65	0.45	CD63	468.2	2870.3	6.13
CNN3	169.2	55.5	0.33	CKB	1255.6	378.7	0.30	CES2	40.5	30.6	0.76	CD59	140.1	799	5.70
CNN2	78.3	34.4	0.44	CKAP5	174.1	184.1	1.06	CES1	8.2	4.7	0.57	CD58	227.1	1115.8	4.91
CNN1	7.1	14.9	2.10	CKAP4	116.3	339.5	2.92	CERT1	137.3	63.4	0.46	CD55	27.6	64.9	2.35
CNIH4	51	249.3	4.89	CISD3	31.3	15.6	0.50	CERS6	83.9	315.8	3.77	CD47	135.6	1033.6	7.62
CNDP2	149	33.6	0.23	CISD2	91.1	286.2	3.14	CERS5	82.9	345.5	4.17	CD46	111.5	364.2	3.27
CNBP	102.7	19.5	0.19	CISD1	54.3	203.4	3.75	CERS2	145.4	608.8	4.19	CD46	137.2	1838.7	13.40
CMTM6	301.4	2301.6	7.64	CIRBP	86.2	0.9	0.01	CEPT	109	697.2	6.40	CD44	344.3	2153.2	6.25
CMPK1	192.6	43.9	0.23	CIB1	33.2	141.9	4.27	CENPV	31	8.2	0.26	CD36	15.9	10.8	0.68
CMC1	87.7	158.4	1.81	CIAPIN1	501.8	109.4	0.22	CEMP2	178.6	1015.2	5.68	CD2AP	261.4	278.2	1.06
CMBL	88.5	27.7	0.31	CIAO3	81.7	29	0.35	CELSR1	97.1	372	3.83	CD163	10.7	15.8	1.48
CMAS	121.5	26.6	0.22	CIAO2B	168.6	96.3	0.57	CELF1	137.3	37.2	0.27	CD151	216.9	1920.4	8.85
CLYBL	89.9	6.7	0.07	CIAO2A	129.1	46.6	0.36	CEBPZOS	22.9	169.8	7.41	CD14	32	83.8	2.62
CLUH	159.8	34.4	0.22	CIAO1	161.4	115.4	0.71	CEBPZ	203.7	263.9	1.30	CD109	102.2	178	1.74
CLU	47.7	103.3	2.17	CHUK	74.8	61.5	0.82	CEACAM1	50.3	266.3	5.29	CCZ1B	141.7	371.8	2.62
CLTRN	20.6	72.9	3.54	CHRD	303.2	371.4	1.22	CDV3	1502	240.9	0.16	CCT8	165.5	57.6	0.35
CLTC	104.7	94.8	0.91	CHPF	93.7	371.7	3.97	CDSN	85.9	75.7	0.88	CCT7	136.8	42.6	0.31
CLTB	34.4	11	0.32	CHP1	61	238.4	3.91	CDS2	82.5	316.9	3.84	CCT6A	166.3	51.7	0.31
CLTA	104.5	34.9	0.33	CHORDC1	205.4	66.3	0.32	CDS1	75.3	341.8	4.54	CCT5	177.1	56.9	0.32
CLRN3	50.3	309.9	6.16	CHMP7	69.5	80.9	1.16	CDKN2AIP	152.1	84.7	0.56	CCT4	183.3	63.8	0.35
CLPX	161.8	21.8	0.13	CHMP6	82.7	289.1	3.50	CDKAL1	163.9	489.6	2.99	CCT3	172.5	58.4	0.34
CLPTM1L	91.4	373.8	4.09	CHMP5	147.3	374.8	2.54	CDK6	106.7	49.1	0.46	CCT2	177	64	0.36
CLPTM1	69	225.7	3.27	CHMP4B	274.1	562.8	2.05	CDK5RAP3	84.2	112.1	1.33	CCS	145.9	44.8	0.31
CLPP	128.7	15	0.12	CHMP4A	184	131.1	0.71	CDK5	181.5	120.8	0.67	CCNY	77.3	440.5	5.70
CLPB	69	89.2	1.29	CHMP3	91.8	81.9	0.89	CDK4	244.7	139	0.57	CCNK	140.1	100.8	0.72
CLN6	241.1	285.9	1.19	CHMP2B	73.7	84.9	1.15	CDK16	108.9	222.5	2.04	CCDC93	118.4	113.5	0.96
CLN5	219.1	125.5	0.57	CHMP2A	100.3	158.1	1.58	CDK1	290.2	207.5	0.72	CCDC90B	92.3	252.6	2.74
CLMN	94.6	89.3	0.94	CHMP1B	90.8	311.7	3.43	CDHR5	29.7	43.4	1.46	CCDC86	711.6	522.1	0.73
CLIP1	157.7	28.8	0.18	CHL1	2.2	4.5	2.05	CDHR2	15.2	46.2	3.04	CCDC8	174.1	598	3.21
CLINT1	100.2	93.2	0.93	CHKB	224.9	56.7	0.25	CDH6	215.5	440.1	2.04	CCDC6	179	40.8	0.23
CLINT1	123.5	217.9	1.76	CHID1	86.9	70.6	0.81	CDH5	4.2	6.1	1.45	CCDC51	111	378.7	3.41
CLIC5	2.1	0.4	0.19	CHIC2	134.2	1084.3	8.08	CDH2	50.6	283	5.59	CCDC50	262.1	363.7	1.39
CLIC4	153.9	102.5	0.67	CHI3L1	4.2	10.8	2.57	CDH16	46	169.3	3.68	CCDC47	104	344	3.31
CLIC2	1.2	0.1	0.08	CHERP	179.2	109.5	0.61	CDH13	11.4	9.5	0.83	CCDC25	157.7	152.4	0.97
CLIC1	351.5	87.7	0.25	CHDH	31.1	41.9	1.35	CDH1	28.2	32.8	1.16	CCDC22	131.9	117	0.89
CLGN	225.7	770	3.41	CHD4	122	76.5	0.63	CDCP1	486	2118.7	4.36	CCDC168	75.3	66.6	0.88
CLEC3B	12.2	3.9	0.32	CHCHD6	89.3	268.4	3.01	CDK73	146.1	22.6	0.15	CCDC127	165.2	354.6	2.15
CLEC18B	32.1	28.1	0.88	CHCHD4	34.4	95.4	2.77	CDK5L	165.4	81.7	0.49	CCDC124	257	37.1	0.14
CLDND1	179.3	632.1	3.53	CHCHD3	96.7	252.1	2.61	CDC42B8PB	127.3	162.4	1.28	CCDC12	158.4	122.9	0.78
CLDN7	62.1	179.3	2.89	CHAMP1	140	48.5	0.35	CDC42BPA	109.3	153.3	1.40	CCAR2	150	54.7	0.36
CLDN3	79.9	506.4	6.34	CGNL1	123.4	57.8	0.47	CDC42	118.7	289.2	2.44	CCAR1	183.7	60.3	0.33
CLDN2	55.6	352.2	6.33	CFL2	120.6	40.1	0.33	CDC40	114.4	111.3	0.97	CC2D1B	99.9	85	0.85
CLCNKB	52.9	106.4	2.01	CFL1	264.4	66.8	0.25	CDC37	116.6	56.4	0.48	CC2D1A	158.5	231.1	1.46
CLCN7	194.7	1391	7.14	CFI	54	80.2	1.49	CDC16	135.6	56	0.41	CBX5	210	6.4	0.03
CLCN5	84.8	420.9	4.96	CFHR5	1.2	2.2	1.83	CD97	88.8	632.6	7.12	CBX3	141.4	7.7	0.05
CLCN3	130.6	879.2	6.73	CFHR2	2.1	1.6	0.76	CD93	0.1	10.9	109.00	CBWD3	164.4	55.4	0.34
CLOC1	59.1	217.5	3.68	CFH	6.2	3.8	0.61	CD9	62	349.8	5.64	CBR4	37	4	0.11
CLASP2	131	100.7	0.77	CFD	7.3	5	0.68	CD81	42.1	237.9	5.65	CBR1	193.4	42.8	0.22
CLASP1	197.8	200.6	1.01	CFB	8.8	11.8	1.34	CD74	95.3	302.1	3.17	CBFB	226.2	104.5	0.46
CKMT2	18.2	12.7	0.70	CFAP298	254.5	56.2	0.22	CD68	285.7	1521.8	5.33	CAVIN2	11.9	14.3	1.20

Values are expressed as % of protein abundance in TL of human kidney cortex 1.

Supplemental table 5 (Continued):

Protein name	3D RP/TEC Spheroid_Lot.664995_day12_TL	3D RP/TEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RP/TEC Spheroid_Lot.664995_day12_TL	3D RP/TEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RP/TEC Spheroid_Lot.664995_day12_TL	3D RP/TEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RP/TEC Spheroid_Lot.664995_day12_TL	3D RP/TEC Spheroid_Lot.664995_day12_PM	PM/TL ratio
CAVIN1	52.8	199.1	3.77	CACYBP	198.9	56	0.28	BTF3	452.1	52.9	0.12	BAX	198.7	208.7	1.05
CAV2	62.1	357.8	5.76	CACUL1	189.1	83.8	0.44	BST1	21.6	96.7	4.48	BASP1	23.3	110.5	4.74
CAV1	66.8	200.8	3.01	CACNA2D1	66.4	346.1	5.21	BSND	35.6	25.4	0.71	BAP18	154.8	72	0.47
CAST	691.6	145.9	0.21	CACNA2D1	85.9	439.2	5.11	BSG	148.2	927.1	6.26	BANF1	172.4	46.8	0.27
CASR	41.2	57.9	1.41	CAB39	159.6	126.9	0.80	BROX	162.6	417.2	2.57	BAIAP2L1	416.1	2071.2	4.98
CASP9	118.6	40.3	0.34	CA8	224.1	249	1.11	BRK1	110.2	171.4	1.56	BAIAP2	85.6	458.1	5.35
CASP8	172.8	64.9	0.38	CA4	16	34.8	2.18	BRX1	97.2	124.4	1.28	BAG6	170.7	123.7	0.72
CASP7	149.2	39.9	0.27	CA3	183.5	50.6	0.28	BRI3BP	137.5	296.3	2.15	BAG5	210.3	363.3	1.73
CASP6	197.4	43.7	0.22	CA13	362.4	98.6	0.27	BRD9	215.2	385.4	1.79	BAG3	323.3	193.9	0.60
CASP3	649.9	347.7	0.54	CA12	128.2	818	6.38	BRCC3	146.8	41.4	0.28	BAG2	284.3	270.2	0.95
CASP1	117.5	41.9	0.36	C9orf64	182.8	79.8	0.44	BPNT1	247.3	53	0.21	BACH1	101.6	14.1	0.14
CASK	127.6	537.7	4.21	C9	0.2	0.3	1.50	BP1FA3	125.7	17.1	0.14	BABAM2	147.4	87.2	0.59
CASC4	73.7	223.8	3.04	C8orf82	54.4	5	0.09	BP1HL	24.9	3.8	0.15	B4GAT1	72.4	249	3.44
CARS2	153.5	13.1	0.09	C8G	3.1	3.9	1.26	BPGM	148.9	84.7	0.57	B4GALT5	201.2	608.4	3.02
CARS1	232.7	47.3	0.20	C8B	3.1	7.1	2.29	BOLA3	132.1	7.2	0.05	B4GALT1	120.6	444.4	3.68
CARMIL1	329.4	615.6	1.87	C8A	2.4	0.1	0.04	BOLA2	452.8	120.6	0.27	B3GNT2	124.1	267.2	2.15
CARM1	144.2	70.8	0.49	C7orf80	176.7	173.9	0.98	BNIP1	87.4	265	3.03	B3GLCT	116.1	101.2	0.87
CARHSP1	126.9	32.8	0.26	C7	3.3	1.7	0.52	BMP2K	164.2	126.2	0.77	B3GAT3	115.5	400.6	3.47
CARD19	117.5	346	2.94	C6orf89	86.2	196.8	2.28	BLVRB	103.3	26.4	0.26	B3GALT6	57.9	171.7	2.97
CAPZB	151.9	76.7	0.50	C6orf136	76.9	127.5	1.66	BLVRA	238.5	35.5	0.15	AZGP1	9.5	11.8	1.24
CAPZA2	133.2	73.8	0.55	C6orf120	70.4	340.1	4.83	BLMH	156.7	51.4	0.33	AUP1	75.3	287.3	3.82
CAPZA1	179.8	88.7	0.49	C6	3.4	2.6	0.76	BIRC6	152.3	167.1	1.10	AUH	57.3	7.6	0.13
CAPRIN1	156.9	26.9	0.17	C5orf51	155.1	104.7	0.68	BIN1	316.2	105.2	0.33	ATXN2L	653.4	189.1	0.29
CAPNS1	224.6	69.3	0.31	C4BPA	1.5	0.1	0.07	BHMT2	4	4.5	1.13	ATXN2	380.8	125.6	0.33
CAPN6	273.8	1621.8	5.92	C4B	34.5	35.8	1.04	BHMT	2.7	2.6	0.96	ATXN10	235	294.3	1.25
CAPN5	38.1	228.1	5.99	C4A	45.4	89.9	1.98	BGN	5.8	10.5	1.81	ATRN	256.4	1028.2	4.01
CAPN2	194.2	55.6	0.29	C3	20.9	23.2	1.11	BET1	202.1	761.2	3.77	ATRAID	313.2	2088.7	6.67
CAPN1	171.4	70.2	0.41	C2CD2L	93.6	369.2	3.94	BDH2	122.1	30.1	0.25	ATPAF1	112.6	32.8	0.29
CAPG	962.1	253.9	0.26	C2	19.8	20.3	1.03	BDH1	107.4	392.5	3.65	ATP9B	130.3	723.9	5.56
CAP2	106.3	27.5	0.26	C1S	21.2	23.6	1.11	BCS1L	69.2	205	2.96	ATP7B	91	488.8	5.37
CAP1	184.9	53.5	0.29	C1QBP	124.2	13.9	0.11	BCR	48.1	61.1	1.27	ATP7A	109.5	441	4.03
CANX	89	356.3	4.00	C1orf43	27.9	97	3.48	BCLAF1	296.7	67.6	0.23	ATP6V1H	70	331.3	4.73
CANTI	108.9	288.2	2.65	C1orf198	31.3	46	1.47	BCL2L2	44.1	50.8	1.15	ATP6V1G1	92.8	437	4.71
CAND1	151	57.4	0.38	C1GALT1C1	103.2	338.1	3.28	BCL2L13	114.7	381.2	3.32	ATP6V1E1	98.9	364.4	3.68
CAMLG	148.8	536.6	3.61	C1GALT1	83.1	303.1	3.65	BCL2L1	157.5	340.5	2.16	ATP6V1D	77.6	305.2	3.93
CAMKK2	173.7	113.7	0.65	C18orf32	127.4	461.5	3.62	BCKDK	101.8	6.9	0.07	ATP6V1C1	84.7	330.2	3.90
CAMK2G	54.4	58.2	1.07	C17orf75	145.5	120.4	0.83	BCKDHB	26	1.3	0.05	ATP6V1B2	82.9	379.6	4.58
CAMK2D	150.1	121.1	0.81	C16orf58	93.3	310.2	3.32	BCKDHA	39.2	15.1	0.39	ATP6V1B1	10.1	9.4	0.93
CAMK1	71.8	19.2	0.27	C12orf4	79.7	42.9	0.54	BCCIP	349.7	16.5	0.05	ATP6V1A	76.2	313.1	4.11
CALU	142.1	111.2	0.78	C12orf10	184.6	28.9	0.16	BCCIP	268.1	117.6	0.44	ATP6V0D2	7.9	4.9	0.62
CALR	100.3	99.7	0.99	C11orf54	56.6	15.2	0.27	BCAT2	427.2	11.8	0.03	ATP6V0D1	134.8	970.4	7.20
CALML4	55.5	37.8	0.68	BZW2	399.6	160.4	0.40	BCAT1	94.7	176.7	1.87	ATP6V0A4	27.7	99.8	3.60
CALM3	93.1	108.2	1.16	BZW1	210	51.7	0.25	BCAS3	258.8	98.6	0.38	ATP6V0A2	117.5	625.9	5.33
CALD1	44	10.7	0.24	BYSL	333	247.5	0.74	BCAS2	149.3	80	0.54	ATP6V0A1	133	987.3	7.42
CALCOOC2	181.9	319.5	1.76	BUD31	116.9	57.3	0.49	BCAP31	104.9	313.8	2.99	ATP6AP1	251.8	2671.8	10.61
CALCOOC1	172.4	107	0.62	BUD23	174.4	100.3	0.58	BCAP29	328.2	908.6	2.77	ATP5PO	91.7	236.4	2.58
CALB1	5.9	6.2	1.05	BUB3	134.4	23.4	0.17	BCAM	28.2	67.8	2.40	ATP5PD	63.2	233.1	3.69
CADM4	37.1	159.1	4.29	BTN3A3	127.3	508.2	3.99	BBS1	87.2	54.6	0.63	ATP5PB	71.7	249.9	3.49
CADM1	35.4	146.8	4.15	BTN2A1	70.7	361.7	5.12	BBOX1	14	9.4	0.67	ATP5MPL	43.8	156.2	3.57
CAD	288.3	159.6	0.55	BTF3L4	338.2	31.3	0.09	BAZ1B	92.5	58.1	0.63	ATP5MG	73.5	254.5	3.46

Values are expressed as % of protein abundance in TL of human kidney cortex 1.

Supplemental table 5 (Continued):

Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL			PM/TL ratio		3D RPTEC Spheroid_Lot.664995_day12_P.M			PM/TL ratio		3D RPTEC Spheroid_Lot.664995_day12_TL			PM/TL ratio		3D RPTEC Spheroid_Lot.664995_day12_P.M			PM/TL ratio
	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_P.M	PM/TL ratio			3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_P.M	PM/TL ratio			3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_P.M	PM/TL ratio			3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_P.M	PM/TL ratio	
ATP5MF	153.5	463.7	3.02		AS3MT	111.6	43.8	0.39		ARHGAP21	96.8	148.2	1.53		AP2S1	97.6	78.2	0.80	
ATP5ME	58.1	170.5	2.93		ARVCF	61.6	287.7	4.67		ARHGAP18	161.2	159.6	0.99		AP2M1	64.9	48.5	0.75	
ATP5MD	52.8	154.9	2.93		ARSL	4	19.8	4.95		ARHGAP17	96.7	84.6	0.87		AP2B1	103	74.2	0.72	
ATP5IF1	97.3	89.5	0.92		ARSF	2.4	6.8	2.83		ARHGAP12	95.2	60.2	0.63		AP2A2	99.9	67.1	0.67	
ATP5F1E	101.6	202.3	1.99		ARSD	115.6	181.6	1.57		ARHGAP1	194.6	118.7	0.61		AP2A1	102	85.1	0.83	
ATP5F1D	83	234	2.82		ARSB	62.3	38.4	0.62		ARG2	1231	54.3	0.04		AP1S2	83.2	135	1.62	
ATP5F1C	84.7	256.3	3.03		ARSA	308.8	176.4	0.57		ARFRP1	107.6	248	2.30		AP1S1	118.1	101.5	0.86	
ATP5F1B	87	226.2	2.60		ARRDC1	153.8	538.9	3.50		ARFIP2	93.3	50.7	0.54		AP1M2	24.3	16.7	0.69	
ATP5F1A	91.3	224.3	2.46		ARRB1	36.8	4.9	0.13		ARFIP1	237.6	76.4	0.32		AP1M1	122.3	90.7	0.74	
ATP2C1	95.1	244.3	2.57		ARPC5L	156	60.1	0.39		ARFGEF2	88.9	98	1.10		AP1G2	120.4	109.1	0.91	
ATP2C1	186	1430.2	7.69		ARPC5	158.8	49.6	0.31		ARFGEF1	111.3	122.9	1.10		AP1G1	106.3	83.6	0.79	
ATP2C1	197.4	1066.9	5.40		ARPC4	135.6	59	0.44		ARFGAP3	10292.1	3701.3	0.36		AP1B1	108.6	77.8	0.72	
ATP2B4	148.1	929.8	6.28		ARPC3	163.8	66.4	0.41		ARFGAP2	209.8	66.2	0.32		AP1AR	117.8	421.8	3.58	
ATP2B1	114.1	573.8	5.03		ARPC2	137.5	48.2	0.35		ARFGAP1	171.2	105.6	0.62		AOX1	92.4	29.3	0.32	
ATP2A2	93.6	331.4	3.54		ARPC1B	223.8	93.4	0.42		ARF6	129.7	162.7	1.25		AOC3	8.6	18.8	2.19	
ATP1B3	169.4	1160.1	6.85		ARPC1A	38.4	16.4	0.43		ARF5	127.9	57.5	0.45		AOC1	11.4	5.2	0.46	
ATP1B1	127.1	1008.9	7.94		ARMT1	228.3	40.5	0.18		ARF4	129.6	121.2	0.94		ANXA7	122.6	113.2	0.92	
ATP1A1	127.8	964.4	7.55		ARMCX3	130.7	282.1	2.16		ARF3	125.6	66.8	0.53		ANXA6	51.9	45.9	0.88	
ATP13A3	149.4	941.6	6.30		ARMCX2	93.6	350.2	3.74		ARCN1	142.2	64.2	0.45		ANXA4	200.7	146	0.73	
ATP13A1	160.2	609.7	3.81		ARMCX1	82.6	165	2.00		ARAF	122.1	115.9	0.95		ANXA3	160	32.9	0.21	
ATP11C	65.1	402.9	6.19		ARMC6	192.3	151.4	0.79		AQR	81.3	63.2	0.78		ANXA2	235.5	97.3	0.41	
ATP11B	172.2	1119.7	6.50		ARMC10	94.7	332.4	3.51		AQP2	63.6	68.8	1.08		ANXA13	7.6	7.9	1.04	
ATP11A	142.2	1026.2	7.22		ARMC1	167.6	168.5	1.01		AQP1	66.2	525.5	7.94		ANXA11	155.6	194.6	1.25	
ATL3	86.6	236.1	2.73		ARL8B	129.7	636.1	4.90		APRT	123.6	25.4	0.21		ANXA1	350.2	105.1	0.30	
ATL1	74.6	124.3	1.67		ARL8A	137.7	637.3	4.63		APPL2	61.6	66.5	1.08		ANPEP	170.3	851.4	5.00	
ATIC	236.2	53.3	0.23		ARL6IP5	207.2	681.5	3.29		APPL1	135.7	104.3	0.77		ANP32E	147.9	88.8	0.60	
ATG9A	150.3	558	3.71		ARL6IP1	97.6	216.6	2.22		APP	509.8	1160.1	2.28		ANP32B	191.8	29.2	0.15	
ATG7	125.6	57.2	0.46		ARL6	120.6	51	0.42		APOOL	99.9	282.5	2.83		ANP32A	289.1	42.7	0.15	
ATG3	115.3	36.5	0.32		ARL3	124.8	32.5	0.26		APOO	58.4	172.2	2.95		ANO6	67.5	419.6	6.22	
ATG16L1	283.7	152.3	0.54		ARL2	92.9	56.6	0.61		APOM	44	106.6	2.42		ANO10	157.1	588.5	3.75	
ATG12	213.4	129	0.60		ARL15	43.3	159.3	3.68		APOL2	166.8	463.7	2.78		ANKS4B	46.6	34.5	0.74	
ATE1	184.4	53.2	0.29		ARL1	124.7	187.6	1.50		APOH	1	3.4	3.40		ANKS1A	83.3	47.5	0.57	
ATAD3A	251.7	728.8	2.90		ARIH1	187.3	90.4	0.48		APOE	34.1	74.4	2.18		ANKRD46	86.1	333.4	3.87	
ATAD1	113.3	385.3	3.40		ARID1B	100.4	35.2	0.35		APOD	4.2	7.3	1.74		ANKRD28	114.8	102	0.89	
ASS1	8.6	6.2	0.72		ARID1A	198.1	125.7	0.63		APOBEC3C	280.7	41.6	0.15		ANKRD17	106.8	47.5	0.44	
ASRGL1	478.3	90.6	0.19		ARHGEF7	129.9	85.5	0.66		APOB	15.9	20.9	1.31		ANKRD13A	115.9	195.1	1.68	
ASPSCR1	131.9	27.2	0.21		ARHGEF37	62.9	95.6	1.52		APOA4	23.4	82.4	3.52		ANKMY2	136	111.3	0.82	
ASPN	1.1	0.5	0.45		ARHGEF28	177.5	171.1	0.96		APOA1	23.7	19.1	0.81		ANKLE2	115.9	167.2	1.44	
ASPH	74.9	185.2	2.47		ARHGEF2	110.1	117.4	1.07		APMAP	132.5	462.1	3.49		ANKHD1	157.9	58.5	0.37	
ASPDH	5.6	4.2	0.75		ARHGEF16	102.3	80.7	0.79		APLP2	399	1504.2	3.77		ANKFY1	70.2	98	1.40	
ASPA	12.6	0.1	0.01		ARHGEF12	84.3	94	1.12		APIP	346.3	49.2	0.14		ANK3	57.8	46.3	0.80	
ASNS	8596.2	3266.3	0.38		ARHGEF10L	71.2	102.6	1.44		API5	166.1	83.9	0.51		ANK2	38.7	74.6	1.93	
ASNA1	156.3	91.8	0.59		ARHGEF10	112.8	65.8	0.58		APEX1	222.4	17.4	0.08		ANK1	47.7	41.3	0.87	
ASMTL	84.8	16	0.19		ARHGEF1	137	94.5	0.69		APEH	228.8	79.7	0.35		ANAPC7	136.7	88.7	0.65	
ASL	184.8	36.9	0.20		ARHGDI8	3.9	4.8	1.23		APCS	1.3	2.1	1.62		ANAPCS	130.4	60.4	0.46	
ASH2L	114.2	16.3	0.14		ARHGDI4	181.5	38.9	0.21		APC	156.1	124.9	0.80		ANAPC1	129.7	41.1	0.32	
ASCC3	261.1	195.1	0.75		ARHGAP8	85.3	82.1	0.96		AP3S1	219.8	132.4	0.60		AMPD2	206.4	53	0.26	
ASCC2	296.5	159	0.54		ARHGAP35	96.1	53.6	0.56		AP3M1	155.3	97.4	0.63		AMN	32.7	165.3	5.06	
ASAP2	68.4	66.7	0.98		ARHGAP29	167.5	172.2	1.03		AP3D1	178.8	134.1	0.75		AMBP	1.4	0.1	0.07	
ASAH1	90.7	114.5	1.26		ARHGAP27	175.5	178	1.01		AP3B1	136	99.6	0.73		AMACR	144.1	16.3	0.11	

Values are expressed as % of protein abundance in TL of human kidney cortex 1.

Supplemental table 5 (Continued):

Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio	Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio
ALYREF	449.7	56.2	0.12	AIP	136.8	51.8	0.38	ADD1	59.1	32.4	0.55	ACE2	93.7	448.8	4.79
ALS2	80.2	77.4	0.97	AIMP2	220.6	111.6	0.51	ADCY9	119.6	332.6	2.78	ACE	25.2	75.5	3.00
ALPL	90.8	414	4.56	AIMP1	253	70.5	0.28	ADCY6	95.6	629.3	6.58	ACBD5	129	171.5	1.33
ALG9	93.9	285.8	3.04	AIFM1	78.4	241.3	3.08	ADCK1	83	243.2	2.93	ACBD3	126.3	64.1	0.51
ALG6	163.8	767.3	4.68	AIF1L	13	9.4	0.72	ADAR	197.2	92	0.47	ACAT2	1470.6	300.7	0.20
ALG5	38.8	152.8	3.94	AIDA	110.6	170.7	1.54	ADAMTS1	164.9	202.5	1.23	ACAT1	73.5	4.9	0.07
ALG10	57.5	253.8	4.41	AHSG	4.7	1.7	0.36	ADAM9	188.4	1106.6	5.87	ACAP2	142.4	102.2	0.72
ALG1	130.6	427.1	3.27	AHSA1	146.3	97.4	0.67	ADAM17	153.1	987.3	6.45	ACADVL	56.5	6.3	0.11
ALDOC	205	39.2	0.19	AHNAK	331.5	116.9	0.35	ADAM10	99.8	692.8	6.94	ACADSVL	32.8	5.3	0.16
ALDOB	3.3	1.8	0.55	AHCYL1	173.8	565.9	3.26	ACY3	22.3	4.9	0.22	ACADS	86	4.9	0.06
ALDOA	239	52.5	0.22	AHCY	92.3	21.3	0.23	ACY1	67.6	15.9	0.24	ACADM	45.7	2.3	0.05
ALDH9A1	79.6	19.3	0.24	AGXT2	43.1	22.5	0.52	ACTR3	144.8	44.4	0.31	ACADL	38.7	0.1	0.00
ALDH8A1	56.9	17.2	0.30	AGXT	3.9	6	1.54	ACTR2	147.9	48.8	0.33	ACAD9	119.2	283.1	2.38
ALDH7A1	59.7	8.3	0.14	AGTRAP	98.1	673.7	6.87	ACTR1B	127.8	52.2	0.41	ACAD8	38.4	5.8	0.15
ALDH6A1	29.2	3	0.10	AGTRAP	170.6	943.2	5.53	ACTRIA	183.8	71	0.39	ACAD11	48.3	10.2	0.21
ALDH5A1	28.5	1.5	0.05	AGT	16.4	14.1	0.86	ACTR10	122.6	50	0.41	ACAD10	46.9	11.5	0.25
ALDH4A1	36.2	6.6	0.18	AGRN	41.4	14.7	0.36	ACTN4	44.6	34	0.76	ACAA	469.7	380.1	0.81
ALDH3B1	179.9	1332.5	7.41	AGPS	226	252.1	1.12	ACTN1	73.4	43.6	0.59	ACAA2	22.4	2.2	0.10
ALDH3A2	30.6	86.7	2.83	AGPAT5	44.1	292.8	6.64	ACTL6A	112.5	123.8	1.10	ACAA1	56.3	7.7	0.14
ALDH2	65.3	5.1	0.08	AGPAT3	48.9	143.4	2.93	ACTA2	19.3	16.5	0.85	ABRAXAS2	163.2	56.4	0.35
ALDH1L1	49.3	13.6	0.28	AGPAT2	57.8	146.1	2.53	ACS3	87.6	9.9	0.11	ABLM3	212.3	258.9	1.22
ALDH1B1	44.6	3.1	0.07	AGPAT1	87	213.8	2.46	ACSS2	615.3	104.7	0.17	ABLM1	74.9	110.7	1.48
ALDH1A3	1234.3	343.2	0.28	AGO2	95.8	16.9	0.18	ACSS1	61.2	9	0.15	ABI2	139.7	215.5	1.54
ALDH1A2	70	25	0.36	AGMAT	18.5	4.2	0.23	ACSM3	137.5	18.5	0.13	ABI1	167.6	244.4	1.46
ALDH1A1	190.4	38.8	0.20	AGL	171.9	52.7	0.31	ACSM2B	15.7	1.5	0.10	ABHD6	31.7	132.7	3.52
ALDH18A1	206.5	29	0.14	AGK	98	219.7	2.24	ACSM2A	15.2	0.8	0.05	ABHD16A	91.7	309.4	3.37
ALDH16A1	100.7	61.2	0.61	AGFG1	171.4	41.5	0.24	ACSL4	290.3	430.5	1.48	ABHD14B	135.1	36.3	0.27
ALCAM	136.7	603.6	4.42	AFTPH	94.1	63.5	0.67	ACSL3	144.7	542.6	3.75	ABHD12	227.9	800.8	3.51
ALAD	18.3	8.2	0.45	AFMID	78.4	22	0.28	ACSL1	100.7	183.1	1.82	ABHD11	164.5	9.7	0.06
AKTIP	127	85.8	0.68	AFM	5.9	3.5	0.59	ACSF3	64.3	4.7	0.07	ABHD10	44.9	8.3	0.18
AKT1S1	212.4	194.2	0.91	AFG3L2	97.3	345.4	3.55	ACSF2	21.6	2.1	0.10	ABCF3	145.9	56.9	0.39
AKR7A3	16.3	8.9	0.55	AFDN	77.8	121	1.56	ACP6	209.8	60.8	0.29	ABCF2	183.1	138.6	0.76
AKR7A2	49.5	10.5	0.21	AFDN	138.1	123.2	0.89	ACP3	172.1	288.2	1.67	ABCF1	139.2	140.8	1.01
AKR1C3	117.6	27.1	0.23	AEBP1	7.3	11.2	1.53	ACP2	151.7	944.4	6.23	ABCE1	194.3	64.9	0.33
AKR1C2	385.4	151.5	0.39	ADSS2	211	52.2	0.25	ACP1	157.3	63.9	0.41	ABCD4	74.3	445	5.99
AKR1C1	51.6	10	0.19	ADSS1	31.3	2.8	0.09	ACOX1	161	36.4	0.23	ABCD3	55.9	91.7	1.64
AKR1B10	34	9.4	0.28	ADSL	243	45.6	0.19	ACOX3	147.4	30.1	0.20	ABCD1	210.6	407.7	1.94
AKR1B1	2470	509.2	0.21	ADRM1	513.8	109	0.21	ACOX2	12.8	2.1	0.16	ABCC6	56.9	304.7	5.36
AKR1A1	87.6	17.7	0.20	ADPRHL2	169.3	24.5	0.14	ACOX1	63.2	16.2	0.26	ABCC4	195.1	1628.1	8.34
AKAP9	109.1	50.5	0.46	ADPGK	88.1	331	3.76	ACOT9	90.1	7	0.08	ABCC3	164.7	1117.5	6.79
AKAP8L	160.8	41.2	0.26	ADNP	154.3	1069.5	6.93	ACOT8	260.3	67.1	0.26	ABCC2	49.6	280.5	5.66
AKAP2	112.3	79	0.70	ADK	323.3	48.5	0.15	ACOT7	284.5	103.9	0.37	ABCC10	202.1	1143.1	5.66
AKAP13	157	160.1	1.02	ADI1	337.1	60.8	0.18	ACOT2	75.8	8.6	0.11	ABCC1	218.2	1212.9	5.56
AKAP12	100.5	67.4	0.67	ADHFE1	66.4	4.7	0.07	ACOT13	47.2	6.7	0.14	ABCB8	90.7	326.6	3.60
AK6	124.3	70.6	0.57	ADH6	7.4	4.4	0.59	ACOT11	33.9	30.6	0.90	ABCB7	63.4	244	3.85
AK5	3880.1	2489.7	0.64	ADH5	139.3	36	0.26	ACO2	82.8	5.6	0.07	ABCB6	108.1	1040.3	9.62
AK4	61.3	14.1	0.23	ADH1C	21.2	29.5	1.39	ACO1	70.6	16.6	0.24	ABCB10	129.2	494.9	3.83
AK3	136.9	15.4	0.11	ADH1B	3.7	3.2	0.86	ACMSD	52.2	14.9	0.29	ABCB1	62.6	443.7	7.09
AK2	96.4	193.6	2.01	ADGRL2	22.3	77.1	3.46	ACLY	353.5	82.5	0.23	ABCA8	0.1	4.1	41.00
AK1	378.3	93.3	0.25	ADD3	52.7	24.3	0.46	ACIN1	348.4	33.1	0.10	ABCA3	174.6	1117.1	6.40

Values are expressed as % of protein abundance in TL of human kidney cortex 1.

Supplemental table 5 (Continued):

Protein name	3D RPTEC Spheroid_Lot.664995_day12_TL	3D RPTEC Spheroid_Lot.664995_day12_PM	PM/TL ratio
ABCA2	78.1	330.5	4.23
ABAT	11.9	2.4	0.20
AASS	137.2	15.8	0.12
AASDHPPT	257.2	95.2	0.37
AARSD1	142.9	30.5	0.21
AARS2	116.5	19.1	0.16
AARS1	198.1	43.4	0.22
AAR2	134.3	110.7	0.82
AAMP	180.9	52.2	0.29
AAK1	105.8	68.7	0.65
AAGAB	127.3	109	0.86
AACS	552.2	214.1	0.39
AAAS	92.7	161.3	1.74
A2M	9.9	9.6	0.97
A1CF	26.6	13.1	0.49
A1BG	5.2	0.8	0.15

Values are expressed as % of protein abundance in TL of human kidney cortex 1.

Reference

Agarwal S, Sudhini YR, Polat OK, Reiser J, and Altintas MM (2021) Renal cell markers:

lighthouses for managing renal diseases. *Am J Physiol-renal* **321**:F715–F739.