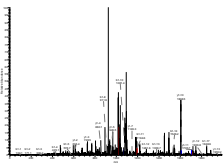
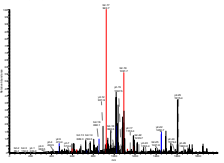
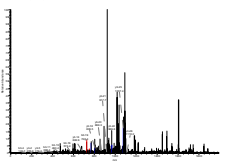
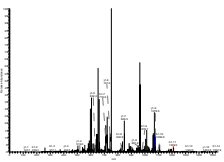
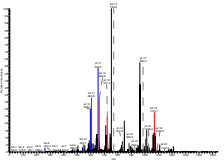
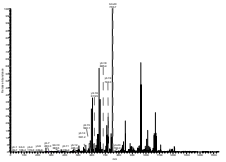
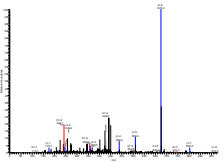
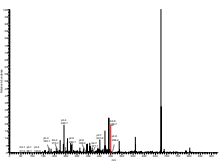

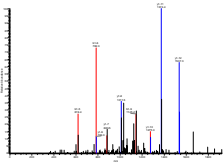
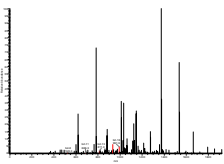

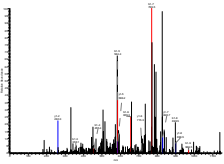
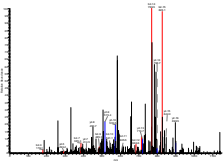
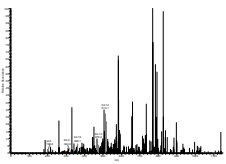
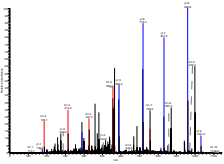
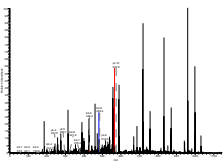

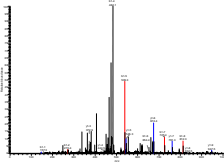
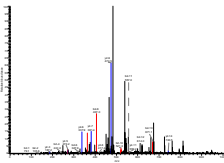
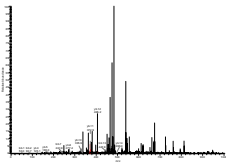
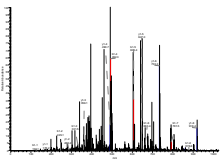
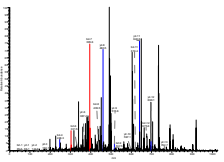
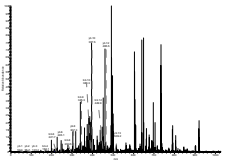
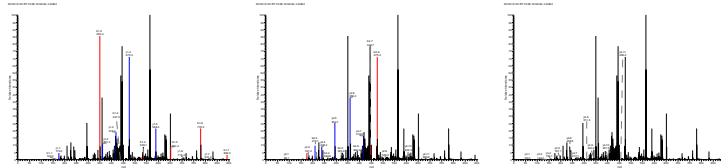


Table S-1. Selected examples of accepted spectra of single-peptide identifications in the inner medullary collecting ducts (IMCDs).

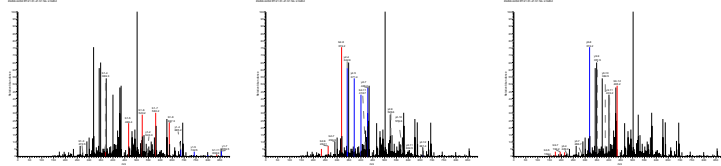
Protein name ^a	Charge +1 ^b	Charge +2	Charge +3	Confirmed ^c
Fixed perfusion-biotinylated IMCDs				
ACE R.VAEFFFTSLGLSPM*PPEF WAESMLEK#.P Xcorr: 2.8; Δ Cn: 0.1; Rsp: 5				RT-PCR
APC R.NDSLSSLDFFFFDVLDR EK.A Xcorr: 3.0; Δ Cn: 0.2; Rsp: 6				Negative
Calcyclin K.LQDAEIAR.L Xcorr: 2.5; Δ Cn: 0.4; Rsp: 1				RT-PCR
CD40LG K.REGLYYVYTQVTFCSNR. E Xcorr: 3.0; Δ Cn: 0.2; Rsp: 1				Negative
CLIC4 K.NSRPEANEALERGLLK.T Xcorr: 2.8; Δ Cn: 0.1; Rsp: 1				RT-PCR
ERC2 K.IAELESLTLR.H Xcorr: 3.41; Δ Cn: 0.4; Rsp: 3				Negative
g H/K ATPase α 1 K.RIVIGDASETALLK.F Xcorr: 3.9; Δ Cn: 0.5; Rsp: 1				IF
GPR64 K.EDSCNGKSRMALR.R Xcorr: 2.7; Δ Cn: 0.1; Rsp: 8				RT-PCR

GRIN2D
R.YWSVDKLGGR.A
Xcorr: 2.5; Δ Cn: 0.3; Rsp: 1



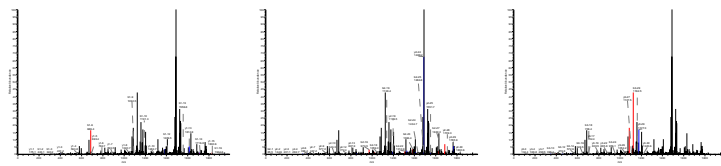
Negative

HCN1
R.LGTPPGGAAGK#.E
Xcorr: 2.9; Δ Cn: 0.2; Rsp: 2



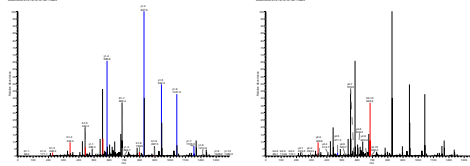
Negative

Kv4.3
K.ELPCGERYSVAFFCLDTA
CVMIFTVEYLLR.L
Xcorr: 3.2; Δ Cn: 0.3; Rsp: 2



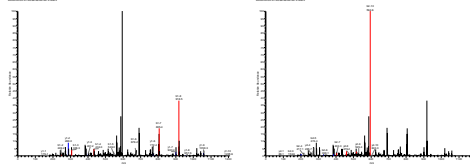
Negative

LPL
K.GLGDVDQLVK#.C
Xcorr: 2.1; Δ Cn: 0.1; Rsp: 1



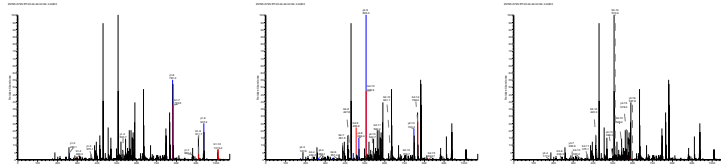
RT-PCR

LRP4
K.FTGKNQEIR.N
Xcorr: 2.2; Δ Cn: 0.1; Rsp: 7



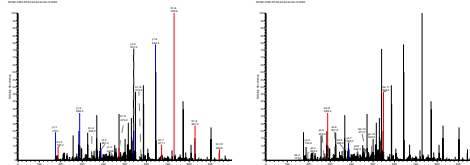
RT-PCR

MAPK12
K.GLKYIHAAGVIHRDLK.P
Xcorr: 3.0; Δ Cn: 0.3; Rsp: 3



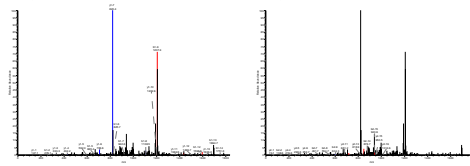
Negative

NHE2
K.EGGTQTPGVLR.Q
Xcorr: 2.4; Δ Cn: 0.2; Rsp: 6



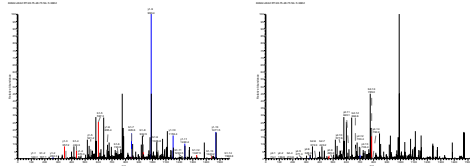
IF

PalmT
R.KM*DHHCPWVNNCVGE
K.N
Xcorr: 2.2; Δ Cn: 0.2; Rsp: 3



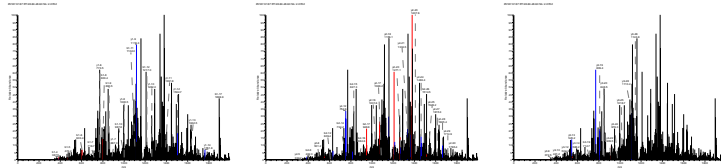
RT-PCR

PIK3-C2 γ
R.DACSYFTSNALPLK.I
Xcorr: 2.4; Δ Cn: 0.5; Rsp: 10



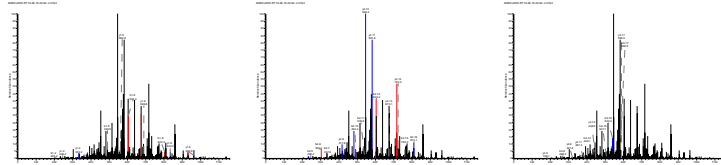
Negative

PIK3-C β
 K.TVVSSEISGKNDHIWNEQ
 LEFDINICDLPR.M
 Xcorr: 2.6; Δ Cn: 0.2; Rsp: 4



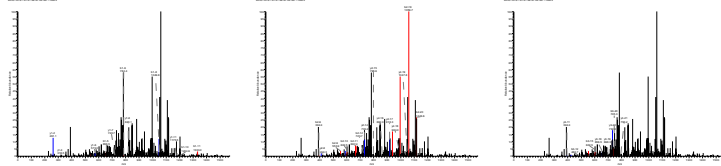
RT-PCR

PKA- β C
 M*GNTAIAKKGSEVESVK.E
 Xcorr: 2.8; Δ Cn: 0.3; Rsp: 1



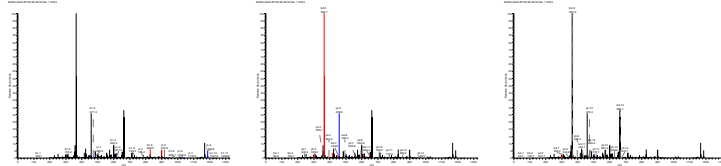
RT-PCR

Rab31
 K.WVKELKEHGPENIVM*AI
 AGNK.C
 Xcorr: 3.1; Δ Cn: 0.2; Rsp: 1



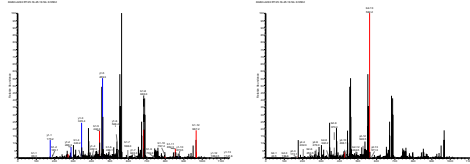
RT-PCR

Rabaptin-5
 R.QWREEVASLQAVMK#.E
 Xcorr: 2.8; Δ Cn: 0.1; Rsp: 7



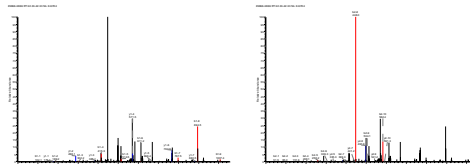
RT-PCR

S1P-R
 R.SPSAVGPSGGGLR.R
 Xcorr: 2.8; Δ Cn: 0.2; Rsp: 4



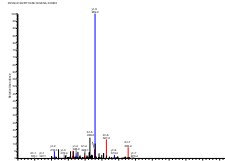
Negative

SCN5A
 R.TSLLVPWPLR.H
 Xcorr: 2.8; Δ Cn: 0.2; Rsp: 1



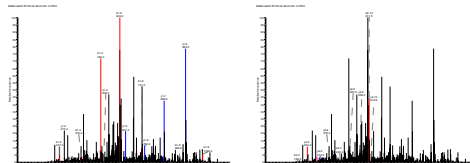
Negative

Septin-9
 R.VDLGAK.A
 Xcorr: 1.8; Δ Cn: 0.2; Rsp: 1



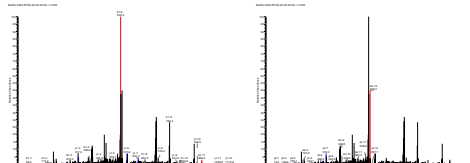
RT-PCR

SNAP29
 K.MDQDLKM*SQK.H
 Xcorr: 2.2; Δ Cn: 0.2; Rsp: 6



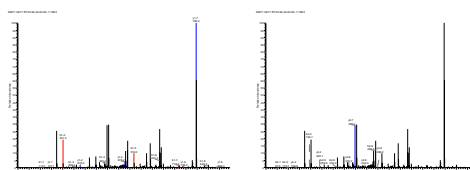
RT-PCR

TauT
 R.GLTLPGAGEGIK.F
 Xcorr: 2.1; Δ Cn: 0.1; Rsp: 3



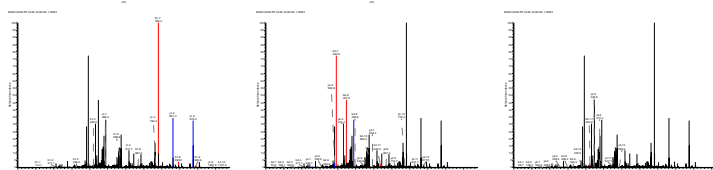
IF

THIK-1
R.LSGEMISMK.D
Xcorr: 2.1; Δ Cn: 0.3; Rsp: 2



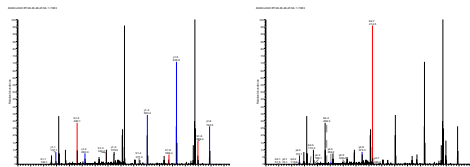
RT-PCR

TYRO3
R.LPIPM*VILPFMK#.H
Xcorr: 2.5; Δ Cn: 0.2; Rsp: 4



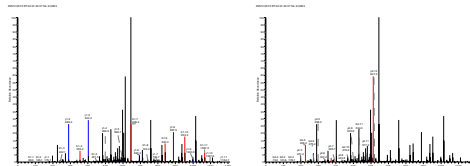
RT-PCR

VK γ C
R.TKLQDIK.S
Xcorr: 2.3; Δ Cn: 0.1; Rsp: 1



RT-PCR

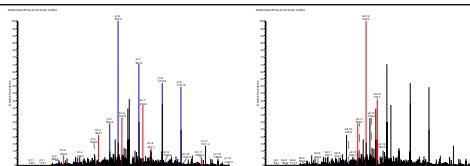
WASPIP
R.SGPLPPPPINR.N
Xcorr: 2.4; Δ Cn: 0.2; Rsp: 7



RT-PCR

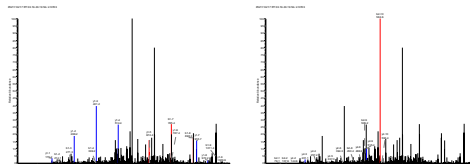
Fixed incubation-biotinylated IMCDs

FZD1
K.VYGLMYFGPEELR.F
Xcorr: 4.0; 0.6; Δ Cn: Rsp: 1



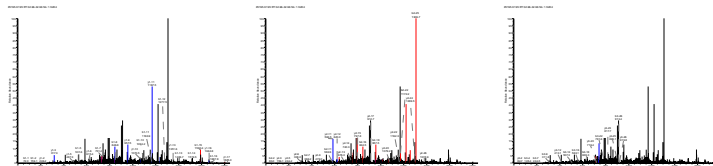
RT-PCR

ROMK K.RGGKLCLLIR.V
Xcorr: 2.5; Δ Cn: 0.1; Rsp: 1



RT-PCR

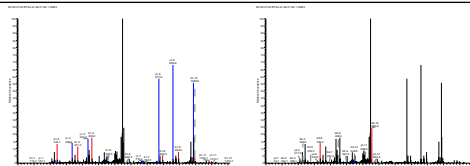
Podocalyxin
K.ASFKPAEDSCALELAPILD
NQAVAVK.R
Xcorr: 3.3; Δ Cn: 0.4; Rsp: 1



RT-PCR

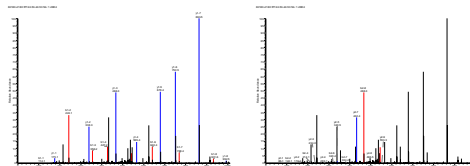
Non-fixed perfusion-biotinylated IMCDs

CA4
K.NQQSPINIVTSK.T
Xcorr: 3.1; Δ Cn: 0.4; Rsp: 1



RT-PCR

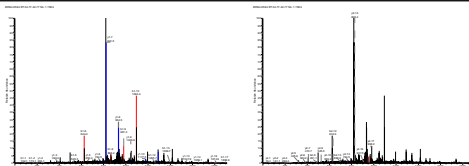
CD59
R.LEIANVQYR.C
Xcorr: 3.5; Δ Cn: 0.5; Rsp: 1



RT-PCR

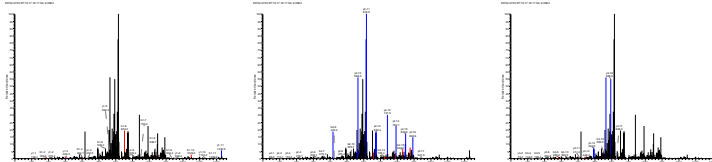
 Non-fixed incubation-biotinylated IMCDs

CD166
 TASKHVNKDLGNMEENK
 Xcorr: 2.9; Δ Cn: 0.6; Rsp: 1



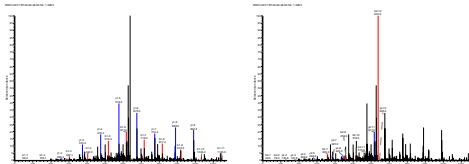
RT-PCR

MCT2
 K.VSNTHNPPSDRDKESSI.-
 Xcorr: 3.2; Δ Cn: 0.4; Rsp: 1



RT-PCR

VAPA
 K.GPFTDVVTTNLK.L
 Xcorr: 3.9; Δ Cn: 0.4; Rsp: 1



RT-PCR

a. Identified proteins are abbreviated. The identified peptide sequence is shown with corresponding Xcorr, Δ Cn, and Rsp scores. * indicated methionine (M) oxidation. # indicates lysine (K) biotinylation. b. Accepted spectra of three charged states are shown. Color red indicates matches to b-ion series; blue indicates matched to y-ion series. c. Protein identifications were confirmed in IMCDs with immunofluorescence staining (IF) or RT-PCR. “Negative“ indicates no RT-PCR product at 30 cycles of amplification.

Table S-2. Proteins identified from the fixed perfusion-biotinylated inner medullary collecting ducts (IMCDs).

Protein name	Gene name	Accession	Ion (n) ^a	CDDB family ^b	Type ^c	Confirmed ^d
14-3-3 protein zeta/delta	YWHAZ	P63102	6 (15)	Signaling proteins		
3-hydroxyanthranilate 3,4-dioxygenase	HAAO	P46953	1 (1)	Biosynthetic proteins		
6-phosphofructo-2-kinase/fructose-2,6-biphosphatase 1	PFKFB1	P07953	1 (1)	Metabolism proteins		
Acetyl-CoA carboxylase 1	ACACA	P11497	1 (1)	Metabolism proteins		
Activity-dependent neuroprotector	ADNP	Q9JKL8	1 (1)	Nuclear proteins		
Adenomatous polyposis coli protein	APC	P70478	1 (12)	Signaling proteins		
Alcohol dehydrogenase	AKR1A1	P51635	2 (2)	Metabolism proteins		
Alpha-1-antitrypsin precursor	SERPINA1	P17475	10 (12)	Secreted proteins		
Alpha-actinin-4	ACTN4	Q9QXQ0	5 (9)	Cytoskeletal proteins and linkers/molecular motors		
Aminopeptidase N	ANPEP	P15684	2 (4)	Aminopeptidases	II	
Angiotensin-converting enzyme, somatic isoform precursor	ACE	P47820	1 (2)	Signaling proteins	I	RT-PCR
Annexin A1	ANXA1	P07150	5 (16)	Membrane trafficking proteins		
Annexin A2	ANXA2	Q07936	7 (15)	Membrane trafficking proteins		
Aspartate aminotransferase, cytoplasmic	GOT1	P13221	1 (14)	Metabolism proteins		
ATP-binding cassette sub-family A member 2	ABCA2	Q9ESR9	2 (3)	Transporters and channels	III	
Baculoviral IAP repeat-containing protein 4	BIRC4	Q9R0I6	1 (7)	Apoptosis proteins		
Bassoon protein	BSN	O88778	2 (4)	Cytoskeletal proteins and linkers/molecular motors		
Beta-glucuronidase precursor	GUSB	P06760	20 (67)	Protein degradation pathway		
Bone morphogenetic protein 4 precursor	BMP4	Q06826	1 (1)	Secreted proteins		

Calcyclin	S100A6	P05964	1 (1)	Binding proteins		RT-PCR
cAMP-dependent protein kinase, beta-catalytic subunit	PRKACB	P68182	1 (3)	Protein kinases, serine/threonine		RT-PCR
Catalase	CAT	P04762	1 (1)	Stress proteins		
CD40 ligand	CD40LG	Q9Z2V2	1 (12)	Signaling proteins	II	
Chloride intracellular channel protein 4	CLIC4	Q9Z0W7	1 (1)	Transporters and channels	III	RT-PCR
COUP transcription factor 2	NR2F2	O09018	1 (1)	Nuclear receptors		
Creatine kinase M-type	CKM	P00564	1 (1)	Metabolism proteins		
Creatine kinase, sarcomeric mitochondrial precursor	CKMT2	P09605	3 (12)	Metabolism proteins		
Cytochrome P450 4B1	CYP4B1	P15129	1 (1)	Metabolism proteins		
Cytosolic acyl coenzyme A thioester hydrolase	ACOT7	Q64559	1 (2)	Metabolism proteins		
Dihydropyrimidinase-related protein 1	CRMP1	Q62950	1 (7)	Miscellaneous proteins		
Double-strand break repair protein MRE11A	MRE11A	Q9JIM0	1 (1)	Nuclear proteins		
ERC protein 2	ERC2	Q8K3M6	1 (9)	Cytoskeletal proteins and linkers/molecular motors		
Ficolin-2 precursor	FCN2	P57756	1 (1)	Secreted proteins		
Focal adhesion kinase 1	PTK2	O35346	1 (1)	Protein kinases, tyrosine		
Fos-related antigen 2	FOSL2	P51145	1 (1)	Nuclear proteins		
Glandular kallikrein-7, submandibular/renal precursor	KLK7	P36373	2 (4)	Protein degradation pathway		
Glial fibrillary acidic protein, astrocyte	GFAP	P47819	3 (77)	Cytoskeletal proteins and linkers/molecular motors		
Glutamate [NMDA] receptor subunit epsilon 4 precursor	GRIN2D	Q62645	1 (1)	Membrane receptors	III	
Glyceraldehyde-3-phosphate dehydrogenase	GAPDH	P04797	1 (1)	Metabolism proteins		
Glycerol-3-phosphate dehydrogenase, mitochondrial precursor	GPD2	P35571	2 (5)	Metabolism proteins		

G-protein coupled receptor 64 precursor	GPR64	Q8CJ11	1 (1)	Membrane receptors	III	RT-PCR
Hermansky-Pudlak syndrome 6 protein homolog	HPS6	Q7M733	2 (2)	Miscellaneous proteins		
Hexokinase-1	HK1	P05708	2 (2)	Metabolism proteins		
Histone H2B		Q00715	2 (2)	Nuclear proteins		
Histone H4	HIST1H4B	P62804	3 (12)	Nuclear proteins		
Hydroxymethylglutaryl-CoA synthase, mitochondrial precursor	HMGCS2	P22791	1 (1)	Metabolism proteins		
Keratin, type I cytoskeletal 19	KRT19	Q63279	15 (81)	Cytoskeletal proteins and linkers/molecular motors		
Keratin, type II cytoskeletal 8	KRT8	Q10758	2 (9)	Cytoskeletal proteins and linkers/molecular motors		
Lamin-A	LMNA	P48679	3 (3)	Nuclear proteins		
Lipoprotein lipase precursor	LPL	Q06000	1 (1)	Metabolism proteins	GPI	RT-PCR
Long-chain fatty acid transport protein 1	SLC27A1	P97849	1 (1)	Transporters and channels (related)		
Low-density lipoprotein receptor-related protein 4 precursor	LRP4	Q9QYP1	1 (1)	Membrane receptors	I	RT-PCR
Mitogen-activated protein kinase 12	MAPK12	Q63538	1 (1)	Protein kinases, serine/threonine		RT-PCR
Moesin	MSN	O35763	2 (2)	Cytoskeletal proteins and linkers/molecular motors		
Myosin heavy chain, cardiac muscle beta isoform	MYH7	P02564	1 (1)	Cytoskeletal proteins and linkers/molecular motors		
Myosin Ib	MYO1A	Q05096	1 (1)	Cytoskeletal proteins and linkers/molecular motors		
Myosin-5A	MYO5A	Q9QYF3	3 (10)	Cytoskeletal proteins and linkers/molecular motors		

Myosin-9	MYH9	Q62812	3 (5)	Cytoskeletal proteins and linkers/molecular motors		
Neurofilament triplet H protein	NEFH	P16884	4 (14)	Cytoskeletal proteins and linkers/molecular motors		
Nitric oxide synthase, inducible	NOS2	Q06518	1 (24)	Signaling proteins		
Nitric-oxide synthase, brain	NOS1	P29476	3 (10)	Signaling proteins		
Nucleolar transcription factor 1	UBTF	P25977	1 (2)	Transcription factors		
Oligonucleotide/oligosaccharide-binding fold-containing protein 1	OBFC1	Q6AYD2	1 (3)	Miscellaneous proteins		
Palmitoyltransferase ZDHHC7	ZDHHC7	Q923G5	1 (1)	Biosynthetic proteins	III	RT-PCR
Pancreatic alpha-amylase precursor		P00689	1 (2)	Secreted proteins		
PDZ domain-containing RING finger protein 3	PDZRN3	P68907	3 (4)	Miscellaneous proteins		
Peroxiredoxin-1	PRDX1	Q63716	3 (5)	Stress proteins		
Peroxiredoxin-2	PRDX2	P35704	2 (2)	Stress proteins		
Phosphatidylinositol-4,5-bisphosphate 3-kinase catalytic subunit beta isoform	PIK3CB	Q9Z1L0	1 (1)	Signaling proteins		RT-PCR
Phosphatidylinositol-4-phosphate 3-kinase C2 domain-containing gamma polypeptide	PIK3C2G	O70173	1 (1)	Signaling proteins		
Phosphorylase b kinase gamma catalytic chain, testis/liver isoform	PHKG2	P31325	1 (1)	Protein kinases, serine/threonine		
Potassium channel subfamily K member 13, THIK-1	KCNK13	Q9ERS0	1 (1)	Transporters and channels	III	RT-PCR
Potassium voltage-gated channel subfamily D member 3, Kv4.3	KCND3	Q62897	1 (7)	Transporters and channels	III	
Potassium/sodium hyperpolarization-activated cyclic nucleotide-gated channel 1	HCN1	Q9JKB0	1 (3)	Transporters and channels	III	
Potassium-transporting ATPase alpha chain 1	ATP4A	P09626	1 (14)	Ion pumps	III	IF
Propionyl-CoA carboxylase alpha chain, mitochondrial precursor	PCCA	P14882	6 (11)	Metabolism proteins		
Propionyl-CoA carboxylase beta chain, mitochondrial precursor	PCCB	P07633	5 (8)	Metabolism proteins		
Prostatic acid phosphatase precursor	ACPP	P20646	1 (2)	Miscellaneous proteins		

Prostatic spermine-binding protein precursor	SBP	P08723	1 (5)	Secreted proteins		
Protein piccolo	PCLO	Q9JKS6	2 (8)	Cytoskeletal proteins and linkers/molecular motors		
Protein-arginine deiminase type-1	PADI1	O88806	1 (7)	Protein degradation pathway		
Rab GTPase-binding effector protein 1	RABEP1	O35550	1 (2)	Small GTP binding proteins and related proteins		RT-PCR
Ras-related protein Rab-31	RAB31	Q6GQP4	1 (4)	Small GTP binding proteins and related proteins		RT-PCR
Ribosome recycling factor, mitochondrial precursor	MRRF	Q5RKI9	1 (1)	Biosynthetic proteins		
RNA-binding protein 10	RBM10	P70501	1 (1)	Nuclear proteins		
Septin-9	SEPT9	Q9QZR6	1 (4)	Cytoskeletal proteins and linkers/molecular motors		RT-PCR
Serine protease inhibitor Kazal-type 2 precursor	SPINK2	Q6IE49	1 (4)	Secreted proteins		
Serine/threonine-protein kinase Nek6	NEK6	P59895	1 (1)	Protein kinases, serine/threonine		
Serine/threonine-protein kinase receptor R3 precursor	ACVRL1	P80203	2 (5)	Membrane receptors	I	IF
Serum albumin precursor	ALB	P02770	2 (3)	Secreted proteins		
Signal-induced proliferation-associated 1-like protein 1, SPA-1	SIPA1L1	O35412	2 (2)	Small GTP binding proteins and related proteins		
Sodium- and chloride-dependent taurine transporter	SLC6A6	P31643	1 (3)	Transporters and channels	III	IF
Sodium channel protein type 5 alpha subunit	SCN5A	P15389	1 (5)	Transporters and channels	III	
Sodium/hydrogen exchanger 2	SLC9A2	P48763	1 (1)	Transporters and channels	III	IF
Somatotropin precursor	GH1	P01244	1 (1)	Secreted proteins		

Spectrin alpha chain, brain	SPTAN1	P16086	81 (157)	Cytoskeletal proteins and linkers/molecular motors		
Sphingosine 1-phosphate receptor Edg-8	EDG8	Q9JKM5	1 (3)	Membrane receptors	III	
Synaptosomal-associated protein 29	SNAP29	Q9Z2P6	1 (1)	Membrane trafficking proteins		RT-PCR
Synaptotagmin-like protein 4	SYTL4	Q8VHQ7	3 (9)	Membrane trafficking proteins		
Syntaxin-8	STX8	Q9Z2Q7	2 (2)	Membrane trafficking proteins	II	
Terminal deoxynucleotidyltransferase-interacting factor 1	DNTTIP1	Q91Y53	1 (2)	Nuclear proteins		
Thioredoxin reductase 2, mitochondrial precursor	TXNRD2	Q9Z0J5	1 (1)	Stress proteins		
Timeless homolog	TIMELESS	Q9Z2Y1	2 (2)	Nuclear proteins		
Transcription initiation factor IIF beta subunit	GTF2F2	Q01750	1 (1)	Nuclear proteins		
Transforming growth factor beta-3 precursor	TGFB3	Q07258	1 (2)	Secreted proteins		
Transmembrane protease, serine 9	TMPRSS9	P69526	2 (6)	Metabolism proteins	II	
Triosephosphate isomerase	TPI1	P48500	4 (6)	Metabolism proteins		
Tyrosine-protein kinase receptor TYRO3 precursor	TYRO3	P55146	1 (1)	Membrane receptors	I	RT-PCR
Vitamin K-dependent gamma-carboxylase	GGCX	O88496	1 (1)	Biosynthetic proteins	III	RT-PCR
Wiskott-Aldrich syndrome protein-interacting protein	WASPIP	Q6IN36	1 (1)	Cytoskeletal proteins and linkers/molecular motors		RT-PCR
Xanthine dehydrogenase/oxidase	XDH	P22985	1 (7)	Metabolism proteins		

a, Number of peptides identified with their total hit number in the parenthesis; b, Collecting duct database (CDDB) family group names; c, Membrane protein types: I, one membrane spanning helix with an extracellular N⁷-terminus; II, one membrane spanning helix with an extracellular C⁷-terminus; III, multiple membrane spanning helices; GPI, glycosylphosphatidylinositol-linked; d, Protein identifications confirmed by Immunofluorescence staining (IF) or RT-PCR.

Table S-3. RT-PCR primer sequences used to examine mRNA expression of single-peptide identifications in the inner medullary collecting ducts (IMCDs).

Protein name	Gene name	5' primer ^a	Exon ^b	3' primer ^a	Exon ^b
Angiotensin-converting enzyme	ACE	ATGCCATGAAGTTGGGCT AC	24	AGTTGACGCGACTGGACT CT	25
Adenomatous polyposis coli protein	APC	ATGGCCTTGACAAACCTG AC	11	TCCAAAGCACATTCCATC AA	13
Aquaporin-2	AQP2	GACTGTGCTTAGTGCATC TCATTTTAT	4	AGGATCATGCAAACCTCTG TTCGT	4
Carbonic anhydrase 4 precursor	CA4	ATCTGCCCACCCAGTACA AG	4	AGCCCTCGTTTACCTCGT TT	6
Calcyclin	S100A6	AAGGAGGGTGACAAGCA CAC	2	AGATCATCCATCAGCCTT GC	3
CD166 antigen precursor	ALCAM	CTTGCACAGCAGAAAAC CAA	12	GAGGAGGAGACCAACCA CAA	14
CD40 ligand	CD40LG	TGAGGCCAACAGTAATG CAG	4	ATTCGCTGCCCTGAGTAA GA	5
CD59 glycoprotein precursor	CD59	CTCGGAGGGGATTCATCT TA	1	CCGGATACAGCAACAAG ACA	2
Chloride intracellular channel protein 4	CLIC4	GCGACGAGATGACATTA GCA	5	CTCTTGGCGACGTCACTG TA	6
ERC protein 2	ERC2	TTGCAGACCGACTGAAA CAG	10	TTCTCCAGCTGTTGGTTG TG	12
Frizzled 1 precursor	FZD1	CATCACATCAGGCTTCTG GA	1	AGTGACTAGGCTTGGCA GGA	1
Glutamate [NMDA] receptor subunit epsilon 4	GRIN2D	TCTTCGCGGTCATCTTTC TT	8	CCACTCTCGGCTGGTTGT AT	9
G-protein coupled receptor 64 precursor	GPR64	TTTTGCTGGATCAACAGC AG	15	AAGGCAAAGCCCCAAGT AAT	17
Potassium/sodium hyperpolarization-activated cyclic nucleotide-gated channel 1	HCN1	CAGCATGTCTGACCTCTG GA	4	TATCTTCTGGCGCATGTC AG	5

Potassium voltage-gated channel subfamily D member 3, Kv4.3	KCND3	GGCTACACCCTGAAGAGCTG	1	GCCAAATATCTTCCCAGCAA	2
Lipoprotein lipase	LPL	AACATTGGAGAAGCCATTCG	5	CAGAGCCCTTTCTCAAATGC	6
Low-density lipoprotein receptor-related protein 4	LRP4	TGTCAGCTACGCCGTTGGTGGAC	36	CACTTCCTGAGTGGAAGTTCG	37
Mitogen-activated protein kinase 12	MAPK12	GCTGTGAACGAGGACTGTGA	6	AGCCAACAGACCAAATGTCC	8
Monocarboxylate transporter 2, MCT2	SLC16A7	TGTCTTATGGACCAGGTTGG	3	CACGACTATCCCCTGCGCTA	4
Palmitoyltransferase ZDHHC7	ZDHHC7	GTGGGTGAACAACACTGTGTGG	5	TGACTGCGGTGAAAGTGAAG	7
Phosphatidylinositol-4-phosphate 3-kinase C2 domain-containing gamma polypeptide	PIK3C2G	GCAGAGTCTGGAGTGCTTCC	29	CTGCTCGAAGGACTTTTTGG	30
Phosphatidylinositol-4,5-bisphosphate 3-kinase catalytic subunit beta isoform	PIK3CB	TGAGGTTGTGAGCACCTCTG	18	TCACCAATGCCAAGGACATA	19
cAMP-dependent protein kinase, beta-catalytic subunit	PRKACB	ACCCCATGCTCGTTTCTATG	6	CTTGACTCTCTTGGCGAACCC	7
Podocalyxin precursor	PODXL	GGCTGTGTTTGAAGCTGCTGA	6	CTGTCTGCAGCTCCTCTGTG	8
Ras-related protein Rab-31	RAB31	TGGGTTAAGGAGCTGAAGGA	5	GCCACTGTTTCCGTTTTTCAT	7
Rabaptin-5, Rab GTPase-binding effector protein 1	RABEP1	ACTGCTGCTAAGGCCACTGT	16-17	TGTCATGTCTCAGGGAGCTG	18

ATP-sensitive inward rectifier potassium channel 1	KCNJ1	TGTGGATGCACAGTCAA GGT	2	GTCAGGCGGGTAGAACT CTG	5
Sphingosine 1-phosphate receptor Edg-8	EDG8	ACACCTTCACCAACCGAG AC	1	GGGGACACGAGTGTCT GAT	1
Sodium channel protein type 5 alpha subunit	SCN5A	AACCAGACAGAAGGGGA CCT	24	GCTGCTCCTCATACCCTC TG	25-26
Septin-9	SEPT9	AAGAAACGCATCCCTGA CAC	6	ATACCGTTGGACAGCAG GTC	7
Synaptosomal-associated protein 29	SNAP29	ATGTGGAAGACGAGGAC ACC	1	GTCCACCATCTTCTCCGT GT	2
Potassium channel subfamily K member 13, THIK-1	KCNK13	GGCTCATCCTGCTTTACC TG	1	CACTGTGCCACGAAGTA GA	1
Tyrosine-protein kinase receptor TYRO3	TYRO3	CATCCTGCTTCGGAAGAG AC	10	TCCTCCAGCTTCTCCTTC AA	12
Vesicle-associated membrane protein-associated protein A	VAPA	TTGCTCCACCAAACATTT CA	3	AGTCGCTTGC ACTCTTCC AT	5
Vitamin K-dependent gamma-carboxylase	GGCX	AACCTTTCTGAGACGGCA GA	14	GGTTCAAATGGTCGCAA GTT	15
Wiskott-Aldrich syndrome protein-interacting protein	WASPIP	TACACCTCCCTTGCTTC AC	5	CTGGGACTGTCCATTCCA CT	6

a, Primers were selected using an online software Primer3 (http://frodo.wi.mit.edu/cgi-bin/primer3/primer3_www.cgi) from the Whitehead Institute for Biomedical Research. Each pair frames at least one intron to avoid amplification of genomic DNA, except those for FZD1, EDG8, and KCNK13 that have one single exon. b, Numbers indicate primer locations on the exons. Information of the transcripts was obtained from Ensembl *Rattus norvegicus* database (http://www.ensembl.org/Rattus_norvegicus/index.html).

Table S-4. Proteins identified from the fixed incubation-biotinylated inner medullary collecting ducts (IMCDs).

Protein name	Gene name	Accession	Ion (n) ^a	CDDB family ^b	Type ^c	Confirmed ^d
14-3-3 protein eta	YWHAH	P68511	2 (9)	Signaling proteins		
40S ribosomal protein S15a	RPS15A	P62246	1 (1)	Biosynthetic proteins		
60S acidic ribosomal protein P2	RPLP2	P02401	2 (3)	Biosynthetic proteins		
60S ribosomal protein L13	RPL13	P41123	1 (1)	Biosynthetic proteins		
60S ribosomal protein L14	RPL14	Q63507	2 (6)	Biosynthetic proteins		
60S ribosomal protein L15	RPL15	P61314	1 (1)	Biosynthetic proteins		
60S ribosomal protein L23	RPL23	P62832	1 (1)	Biosynthetic proteins		
60S ribosomal protein L34	RPL34	P11250	1 (1)	Biosynthetic proteins		
60S ribosomal protein L8	RPL8	P62919	1 (7)	Biosynthetic proteins		
6-phosphofructokinase, liver	PFKL	P30835	1 (2)	Metabolism Proteins		
6-phosphofructokinase, muscle	PFKM	P47858	1 (2)	Metabolism Proteins		
Acetyl-CoA carboxylase 1	ACACA	P11497	1 (1)	Biosynthetic proteins		
ADAM 10 precursor	ADAM10	Q10743	1 (1)	Signaling proteins	I	
ADAM 17 precursor	ADAM17	Q9Z1K9	1 (1)	Signaling proteins	I	
ADP-ribosylation factor 2	ARF2	P84082	3 (4)	Small GTP binding proteins and related proteins		
ADP-ribosylation factor 4	ARF4	P61751	1 (1)	Small GTP binding proteins and related proteins		
ADP-ribosylation factor 5	ARF5	P84083	3 (13)	Small GTP binding proteins and related proteins		
Agrin precursor	AGRN	P25304	4 (20)	Adhesion proteins and collagens	II	
Amine oxidase [flavin-containing] A	MAOA	P21396	1 (1)	Protein degradation pathways	II	

ATP synthase delta chain, mitochondrial precursor	ATP5D	P35434	1 (2)	Metabolism Proteins		
ATP synthase O subunit, mitochondrial precursor	ATP5O	Q06647	1 (2)	Metabolism Proteins		
ATP-sensitive inward rectifier potassium channel 1	KCNJ1	P35560	1 (1)	Transporters and Channels	III	RT-PCR
Beta-2-microglobulin precursor	B2M	P07151	1 (1)	Miscellaneous proteins		
Beta-glucuronidase precursor	GUSB	P06760	4 (8)	Protein degradation pathways		
Carbonic anhydrase 2	CA2	P27139	2 (7)	Transporters and channels (related protein)		
Core histone macro-H2A.1	H2AFY	Q02874	3 (4)	Nuclear proteins		
Corticosteroid 11-beta-dehydrogenase isozyme 1	HSD11B1	P16232	1 (2)	Steroid metabolizing enzymes		
Cytochrome c oxidase polypeptide Va, mitochondrial precursor	COX5A	P11240	1 (2)	Metabolism Proteins		
Cytochrome c oxidase subunit 4 isoform 1, mitochondrial precursor	COX4I1	P10888	3 (4)	Metabolism Proteins	II	
Dihydropyrimidinase-related protein 2	DPYSL2	P47942	1 (1)	Miscellaneous proteins		
Dolichyl-diphosphooligosaccharide--protein glycosyltransferase 63 kDa subunit precursor	RPN2	P25235	5 (8)	Biosynthetic proteins	III	
Dolichyl-diphosphooligosaccharide--protein glycosyltransferase 67 kDa subunit precursor	RPN1	P07153	5 (8)	Biosynthetic proteins	III	
Ectonucleotide pyrophosphatase/phosphodiesterase 1	ENPP1	Q924C3	1 (1)	Signaling proteins	II	
Endoplasmic reticulum protein ERp29 precursor	ERP29	P52555	2 (5)	Biosynthetic proteins		
Epithelial-cadherin precursor	CDH1	Q9R0T4	8 (16)	Adhesion proteins and collagens	I	
Frizzled 1 precursor	FZD1	Q08463	1 (1)	Membrane receptors	III	RT-PCR
Galectin-3	LGALS3	P08699	3 (7)	Miscellaneous proteins		
Glutathione S-transferase theta-2	GSTT2	P30713	1 (2)	Stress proteins		
Golgi apparatus protein 1 precursor	GLG1	Q62638	2 (4)	Adhesion proteins and collagens	I	

GTP:AMP phosphotransferase mitochondrial	AK3	P29411	1 (1)	Metabolism Proteins	
GTP-binding protein ARD-1	TRIM23	P36407	1 (1)	Small GTP binding proteins and related proteins	
Heat-shock protein beta-3	HSPB3	Q9QZ58	1 (1)	Chaperone	
Hemoglobin beta-1 subunit	HBB	P02091	2 (4)	Miscellaneous proteins	
Heparin-binding growth factor 2 precursor	FGF2	P13109	1 (2)	Miscellaneous proteins	
Histone H2A 1		P02262	6 (18)	Nuclear proteins	
Histone H2B		Q00715	2 (4)	Nuclear proteins	
Histone H3	H3F3B	P84245	3 (4)	Nuclear proteins	
Hyaluronan and proteoglycan link protein 2 precursor	HAPLN2	Q9ESM2	1 (5)	Secreted proteins	
Insulin-like growth factor 1 receptor precursor	IGF1R	P24062	3 (4)	Membrane receptors	I
Integrin beta-1 precursor	ITGB1	P49134	24 (54)	Adhesion proteins and collagens	I
Lactadherin precursor	MFGE8	P70490	3 (6)	Miscellaneous proteins	
Major vault protein	MVP	Q62667	4 (4)	Miscellaneous proteins	
Myosin regulatory light chain 2-B, smooth muscle isoform	RLC-B	P18666	2 (2)	Cytoskeletal Proteins and Linkers/Molecular Motors	
Neural cell adhesion molecule L1 precursor	L1CAM	Q05695	2 (2)	Adhesion proteins and collagens	I
Neuropilin-1 precursor	NRP1	Q9QWJ9	2 (2)	Membrane receptors	I
Nucleobindin-1 precursor	NUCB1	Q63083	1 (1)	Miscellaneous proteins	
Peptidyl-prolyl cis-trans isomerase B precursor	PPIB	P24368	2 (3)	Biosynthetic proteins	
Peroxiredoxin-1	PRDX1	Q63716	3 (3)	Stress proteins	
Peroxiredoxin-5, mitochondrial precursor	PRDX5	Q9R063	1 (2)	Stress proteins	
Phosphatidylethanolamine-binding protein	PBP	P31044	1 (1)	Signaling proteins	
Poly [ADP-ribose] polymerase 1	PARP1	P27008	1 (1)	Stress proteins	
Probable G-protein coupled receptor 116 precursor	GPR116	Q9WVT0	2 (4)	Membrane receptors	III

Programmed cell death 6-interacting protein	PDCD6IP	Q9QZA2	1 (1)	Apoptosis proteins	
Prolyl 4-hydroxylase alpha-1 subunit precursor	P4HA1	P54001	1 (2)	Biosynthetic proteins	
Prostaglandin F2 receptor negative regulator precursor	PTGFRN	Q62786	1 (2)	Miscellaneous proteins	I
Proto-oncogene C-crk	CRK	Q63768	1 (2)	Signaling proteins	
Pyruvate carboxylase, mitochondrial precursor	PC	P52873	13 (17)	Metabolism Proteins	
Ras-related protein Rab-1B	RAB1B	P10536	1 (1)	Small GTP binding proteins and related proteins	
Replication protein A 32 kDa subunit	RPA2	Q63528	1 (1)	Nuclear proteins	
Serine/threonine-protein phosphatase PP1-gamma catalytic subunit	PPP1CC	P63088	1 (1)	Protein phosphatases	
Single-stranded DNA-binding protein, mitochondrial precursor	SSBP1	P28042	1 (2)	Stress proteins	
SPARC precursor	SPARC	P16975	1 (1)	Secreted proteins	
Succinate dehydrogenase [ubiquinone] iron-sulfur protein	SDHB	P21913	1 (1)	Metabolism Proteins	
Superoxide dismutase [Cu-Zn]	SOD1	P07632	1 (2)	Stress proteins	
Superoxide dismutase [Mn], mitochondrial precursor	SOD2	P07895	1 (2)	Stress proteins	
T-complex protein 1 subunit delta	CCT4	Q7TPB1	2 (3)	Chaperone	
Thioredoxin	TXN	P11232	1 (2)	Stress proteins	
Trimethyllysine dioxygenase, mitochondrial precursor	TMLHE	Q91ZW6	1 (1)	Biosynthetic proteins	
14-3-3 protein zeta/delta	YWHAZ	P63102	1 (1)	Signaling proteins	
150 kDa oxygen-regulated protein precursor	HYOU1	Q63617	5 (5)	Chaperones	
3,2-trans-enoyl-CoA isomerase, mitochondrial precursor	DCI	P23965	3 (4)	Biosynthetic proteins	
3-hydroxyacyl-CoA dehydrogenase type-2	HADH2	O70351	9 (11)	Metabolism proteins	
3-hydroxyisobutyrate dehydrogenase, mitochondrial precursor	HIBADH	P29266	1 (1)	Miscellaneous proteins	
3-ketoacyl-CoA thiolase, mitochondrial	ACAA2	P13437	5 (5)	Metabolism proteins	
47 kDa heat shock protein precursor	SERPINH1	P29457	2 (2)	Chaperones	

60 kDa heat shock protein, mitochondrial precursor	HSPD1	P63039	17 (19)	Chaperones	
60S acidic ribosomal protein P0	RPLP0	P19945	6 (7)	Biosynthetic proteins	
60S ribosomal protein L11	RPL11	P62914	1 (1)	Biosynthetic proteins	
60S ribosomal protein L18	RPL18	P12001	1 (1)	Biosynthetic proteins	
60S ribosomal protein L6	RPL6	P21533	1 (1)	Biosynthetic proteins	
60S ribosomal protein L7	RPL7	P05426	1 (1)	Biosynthetic proteins	
78 kDa glucose-regulated protein precursor	HSPA5	P06761	14 (18)	Biosynthetic proteins	
Acetyl-CoA acetyltransferase, mitochondrial precursor	ACAT1	P17764	9 (23)	Metabolism proteins	
Actin, alpha cardiac	ACTC	P68035	19 (265)	Cytoskeletal proteins and linkers/molecular motors	
Actin, cytoplasmic 2	ACTG1	P63259	13 (114)	Cytoskeletal proteins and linkers/molecular motors	
Acyl-CoA dehydrogenase, long-chain specific, mitochondrial precursor	ACADL	P15650	3 (6)	Metabolism proteins	
Acyl-CoA dehydrogenase, short/branched chain specific, mitochondrial precursor	ACADSB	P70584	1 (1)	Metabolism proteins	
Acyl-CoA dehydrogenase, very-long-chain specific, mitochondrial precursor	ACADVL	P45953	4 (10)	Metabolism proteins	
ADP/ATP translocase 1	SLC25A4	Q05962	2 (2)	Transporters and channels	III
ADP/ATP translocase 2	SLC25A5	Q09073	4 (16)	Transporters and channels	III
Aldose reductase	AKR1B1	P07943	8 (27)	Stress proteins	
Alpha crystallin B chain	CRYAB	P23928	3 (5)	Chaperones	
Alpha-actinin-1	ACTN1	Q9Z1P2	7 (10)	Cytoskeletal proteins and linkers/molecular motors	
Alpha-actinin-4	ACTN4	Q9QXQ0	26 (56)	Cytoskeletal proteins and linkers/molecular motors	

Alpha-enolase	ENO1	P04764	8 (9)	Metabolism proteins		
Annexin A1	ANXA1	P07150	8 (16)	Membrane trafficking proteins		
Annexin A2	ANXA2	Q07936	21 (55)	Membrane trafficking proteins		
Annexin A5	ANXA5	P14668	4 (6)	Membrane trafficking proteins		
Annexin A6	ANXA6	P48037	4 (4)	Membrane trafficking proteins		
AP-2 complex subunit alpha-2	AP2A2	P18484	1 (1)	Membrane trafficking proteins		
AP-2 complex subunit beta-1	AP2B1	P62944	2 (4)	Membrane trafficking proteins		
Arginase-2, mitochondrial precursor	ARG2	O08701	2 (2)	Biosynthetic proteins		
Aspartate aminotransferase, mitochondrial precursor	GOT2	P00507	8 (10)	Biosynthetic proteins		
ATP synthase alpha chain, mitochondrial precursor	ATP5A1	P15999	18 (74)	Metabolism proteins		
ATP synthase beta chain, mitochondrial precursor	ATP5B	P10719	23 (42)	Metabolism proteins		
ATP synthase gamma chain, mitochondrial	ATP5C1	P35435	3 (3)	Metabolism proteins		
Beta-catenin	CTNNB1	Q9WU82	6 (7)	Signaling proteins		
Calnexin precursor	CANX	P35565	13 (27)	Chaperones	I	
Calpain small subunit 1	CAPNS1	Q64537	2 (2)	Protein degradation pathways		
Calreticulin precursor	CALR	P18418	3 (4)	Chaperones		
Calumenin precursor	CALU	O35783	1 (1)	Miscellaneous proteins		
Catalase	CAT	P04762	1 (1)	Stress proteins		
CD166 antigen precursor	ALCAM	O35112	1 (2)	Adhesion proteins and collagens	I	RT-PCR
Ceruloplasmin precursor	CP	P13635	2 (2)	Secreted proteins		
Clathrin heavy chain	CLTC	P11442	10 (13)	Membrane trafficking proteins		

Cytochrome c oxidase subunit 2	MTCO2	P00406	1 (1)	Metabolism proteins	III
Dihydrolipoyllysine-residue acetyltransferase component of pyruvate dehydrogenase complex	DLAT	P08461	2 (4)	Metabolism proteins	
Dihydrolipoyllysine-residue succinyltransferase component of 2- oxoglutarate dehydrogenase complex, mitochondrial precursor	DLST	Q01205	1 (1)	Metabolism proteins	
Elongation factor 1-alpha 1	EEF1A1	P62630	4 (5)	Biosynthetic proteins	
Elongation factor 1-alpha 2	EEF1A2	P62632	4 (11)	Biosynthetic proteins	
Elongation factor 2	EEF2	P05197	3 (3)	Biosynthetic proteins	
Enoyl-CoA hydratase, mitochondrial precursor	ECHS1	P14604	3 (3)	Biosynthetic proteins	
Gamma-enolase	ENO2	P07323	2 (2)	Metabolism proteins	
Glutamate dehydrogenase 1, mitochondrial precursor	GLUD1	P10860	5 (5)	Metabolism proteins	
Glutaminase kidney isoform, mitochondrial precursor	GLS	P13264	2 (3)	Metabolism proteins	
Glutathione peroxidase 1	GPX1	P04041	1 (1)	Stress proteins	
Glyceraldehyde-3-phosphate dehydrogenase	GAPDH	P04797	7 (17)	Metabolism proteins	
Glycerol-3-phosphate dehydrogenase, mitochondrial precursor	GPD2	P35571	2 (4)	Metabolism proteins	
GTP-binding nuclear protein Ran	RAN	P62828	1 (1)	Small GTP binding proteins and related proteins	
Guanine nucleotide-binding protein beta subunit 2-like 1	GNB2L1	P63245	1 (1)	Heterotrimeric G proteins	
Guanine nucleotide-binding protein G	GNAI2	P04897	7 (8)	Heterotrimeric G proteins	
Heat shock 70 kDa protein 1A/1B	HSPA1A	Q07439	12 (26)	Chaperones	
Heat shock cognate 71 kDa protein	HSPA8	P63018	6 (10)	Chaperones	
Heat shock protein HSP 90-beta	HSP90AB1	P34058	10 (11)	Chaperones	
Heat shock-related 70 kDa protein 2	HSPA2	P14659	4 (4)	Chaperones	
Heat-shock protein beta-1	HSPB1	P42930	6 (10)	Chaperones	
Hexokinase-1	HK1	P05708	2 (3)	Metabolism proteins	

Histone H1.0	H1F0	P43278	1 (1)	Nuclear proteins	
Histone H1.2	HIST1H1C	P15865	1 (1)	Nuclear proteins	
Histone H4 [Contains: Osteogenic growth peptide	HIST1H4B	P62804	1 (1)	Nuclear proteins	
Integrin alpha-1 precursor	ITGA1	P18614	2 (2)	Adhesion proteins and collagens	I
Interferon-induced GTP-binding protein Mx2	MX2	P18589	1 (1)	Membrane trafficking proteins	
Isovaleryl-CoA dehydrogenase, mitochondrial precursor	IVD	P12007	2 (4)	Metabolism proteins	
Keratin, I cytoskeletal 19	KRT19	Q63279	5 (12)	Cytoskeletal proteins and linkers/molecular motors	
Keratin, II cytoskeletal 8	KRT8	Q10758	9 (29)	Cytoskeletal proteins and linkers/molecular motors	
Lamin-A	LMNA	P48679	5 (7)	Cytoskeletal proteins and linkers/molecular motors	
Laminin beta-2 chain precursor	LAMB2	P15800	2 (2)	Adhesion proteins and collagens	
L-lactate dehydrogenase A chain	LDHA	P04642	3 (3)	Metabolism proteins	
Malate dehydrogenase, mitochondrial precursor	MDH2	P04636	9 (32)	Metabolism proteins	
Methylmalonate-semialdehyde dehydrogenase [acylating], mitochondrial precursor	ALDH6A1	Q02253	5 (7)	Metabolism proteins	
Moesin	MSN	O35763	3 (3)	Cytoskeletal proteins and linkers/molecular motors	
Myosin Id	MYO1D	Q63357	6 (9)	Cytoskeletal proteins and linkers/molecular motors	
Myosin light polypeptide 6	MYL6	Q64119	1 (3)	Cytoskeletal proteins and linkers/molecular motors	
Myosin-10	MYH10	Q9JLT0	71 (141)	Cytoskeletal proteins and linkers/molecular motors	

Myosin-11	MYH11	Q63862	7 (33)	Cytoskeletal proteins and linkers/molecular motors		
Myosin-9	MYH9	Q62812	67 (137)	Cytoskeletal proteins and linkers/molecular motors		
NADH-ubiquinone oxidoreductase 24 kDa subunit, mitochondrial precursor	NDUFV2	P19234	1 (1)	Metabolism proteins		
Neurofilament triplet H protein	NEFH	P16884	1 (1)	Cytoskeletal proteins and linkers/molecular motors		
Peroxisomal multifunctional enzyme 2	HSD17B4	P97852	5 (6)	Metabolism proteins		
Phosphate carrier protein, mitochondrial precursor	SLC25A3	P16036	2 (5)	Transporters and channels	III	
Plastin-3	PLS3	Q63598	3 (4)	Cytoskeletal proteins and linkers/molecular motors		
Plectin 1	PLEC1	P30427	9 (11)	Cytoskeletal proteins and linkers/molecular motors		
Podocalyxin precursor	PODXL	Q9WTQ2	1 (1)	Adhesion proteins and collagens	I	RT-PCR
Profilin-1	PFN1	P62963	1 (2)	Cytoskeletal proteins and linkers/molecular motors		
Programmed cell death protein 8, mitochondrial precursor	PDCD8	Q9JM53	6 (8)	Apoptosis proteins		
Prohibitin	PHB	P67779	5 (6)	Miscellaneous proteins		
Propionyl-CoA carboxylase beta chain, mitochondrial precursor	PCCB	P07633	4 (5)	Metabolism proteins		
Prostaglandin G/H synthase 1 precursor	PTGS1	Q63921	3 (5)	Signaling proteins		
Protein disulfide-isomerase A3 precursor	PDIA3	P11598	14 (24)	Biosynthetic proteins		
Protein disulfide-isomerase A4 precursor	PDIA4	P38659	3 (3)	Biosynthetic proteins		
Protein disulfide-isomerase A6 precursor	PDIA6	Q63081	4 (4)	Biosynthetic proteins		

Protein disulfide-isomerase precursor	P4HB	P04785	6 (6)	Biosynthetic proteins	
Pyruvate dehydrogenase E1 component alpha subunit, somatic form, mitochondrial precursor	PDHA1	P26284	2 (5)	Metabolism proteins	
Pyruvate dehydrogenase E1 component beta subunit, mitochondrial precursor	PDHB	P49432	4 (6)	Metabolism proteins	
Pyruvate kinase isozymes M1/M2	PKM2	P11980	14 (28)	Metabolism proteins	
Ras-related protein Rab-14	RAB14	P61107	2 (3)	Small GTP binding proteins and related proteins	
Ras-related protein Rab-1A	RAB1A	Q6NYB7	1 (1)	Small GTP binding proteins and related proteins	
Serum albumin precursor	ALB	P02770	6 (7)	Secreted proteins	
Short chain 3-hydroxyacyl-CoA dehydrogenase, mitochondrial precursor	HADHSC	Q9WVK7	2 (2)	Metabolism proteins	
Sodium/potassium-transporting ATPase alpha-1 chain precursor	ATP1A1	P06685	26 (134)	Ion pumps	III
Sodium/potassium-transporting ATPase alpha-3 chain	ATP1A3	P06687	15 (63)	Ion pumps	III
Sodium/potassium-transporting ATPase beta-1 chain	ATP1B1	P07340	6 (14)	Ion pumps	II
Sodium/potassium-transporting ATPase beta-3 chain	ATP1B3	Q63377	1 (3)	Ion pumps	II
Spectrin alpha chain, brain	SPTAN1	P16086	70 (151)	Cytoskeletal proteins and linkers/molecular motors	
Spectrin beta chain, brain 2	SPTBN2	Q9QWN8	51 (94)	Cytoskeletal proteins and linkers/molecular motors	
Stress-70 protein, mitochondrial precursor	HSPA9	P48721	14 (16)	Chaperones	
Succinate dehydrogenase [ubiquinone] flavoprotein subunit, mitochondrial precursor	SDHA	Q920L2	3 (4)	Metabolism proteins	
Transitional endoplasmic reticulum ATPase	VCP	P46462	3 (3)	Membrane trafficking proteins	
Transketolase	TKT	P50137	1 (1)	Metabolism proteins	

Trifunctional enzyme alpha subunit, mitochondrial precursor	HADHA	Q64428	13 (16)	Metabolism proteins	
Trifunctional enzyme beta subunit, mitochondrial precursor	HADHB	Q60587	2 (2)	Metabolism proteins	
Triosephosphate isomerase	TPI1	P48500	5 (6)	Biosynthetic proteins	
Tubulin alpha-1 chain	TUBA1	P68370	11 (29)	Cytoskeletal proteins and linkers/molecular motors	
Tubulin alpha-2 chain	TUBA2	Q6P9V9	3 (7)	Cytoskeletal proteins and linkers/molecular motors	
Tubulin beta chain		P04691	3 (10)	Cytoskeletal proteins and linkers/molecular motors	
Ubiquinol-cytochrome-c reductase complex core protein 2, mitochondrial precursor	UQCRC2	P32551	10 (26)	Metabolism proteins	
Ubiquitin	RPS27A	P62989	1 (9)	Protein degradation pathways	
Vacuolar ATP synthase subunit B, brain isoform	ATP6V1B2	P62815	2 (2)	Metabolism proteins	
Vimentin	VIM	P31000	2 (2)	Cytoskeletal proteins and linkers/molecular motors	
Voltage-dependent anion-selective channel protein 2	VDAC2	P81155	4 (8)	Transporters and channels	III

a, Number of peptides identified with their total hit number in the parenthesis; b, Collecting duct database (CDDb) family group names; c, Membrane protein types: I, one membrane spanning helix with an extracellular N^o-terminus; II, one membrane spanning helix with an extracellular C^o-terminus; III, multiple membrane spanning helices; GPI, glycosylphosphatidylinositol-linked; d, Protein identifications confirmed by RT-PCR.

Table S-5. Number of proteins identified from the non-fixed perfusion- and incubation-biotinylated inner medullary collecting ducts (IMCDs).

Non-fixed perfusion-biotinylated IMCDs				
Peptide number ^a	Original database search ^b	Reversed database search ^c	Net difference ^d	Manually accepted identification ^e
1	497	452	45	32
2	78	67	11	20
3	25	12	13	17
4	12	2	10	10
>4	41	0	41	38
Total	653	533	120	117

Non-fixed incubation-biotinylated IMCDs				
Peptide number ^a	Original database search ^b	Reversed database search ^c	Net difference ^d	Manually accepted identification ^e
1	140	19	121	91
2	44	1	43	41
3	29	0	29	27
4	18	0	18	15
>4	65	0	65	61
Total	296	20	276	235

a, Number of peptides identified for particular proteins; b, Number of proteins passing the default criteria of the Bioworks/Sequest search algorithm using the Swiss-Prot database; c, Same as b except the sequences in the database were reversed; d, Estimated number of proteins likely to be valid identifications; e, Number of proteins passing manual spectrum inspection.

Table S-6. Proteins identified from the non-fixed perfusion- and incubation-biotinylated inner medullary collecting ducts (IMCDs).

Protein name	Gene name	Accession	Ion (n) ^a	CDDB family ^b	Type ^c	P/I
14-3-3 protein beta/alpha	YWHAB	P35213	2 (4)	Signaling proteins		P
14-3-3 protein epsilon	YWHAE	P62260	6 (9)	Signaling proteins		P
14-3-3 protein eta	YWHAH	P68511	3 (11)	Signaling proteins		P
14-3-3 protein theta	YWHAQ	P68255	6 (13), 1(1)	Signaling proteins		P, I
14-3-3 protein zeta/delta	YWHAZ	P63102	6 (15), 1 (1)	Signaling proteins		P, I
150 kDa oxygen-regulated protein precursor	HYOU1	Q63617	5 (5)	Chaperones		I
26S protease regulatory subunit 8	PSMC5	P62198	1 (1)	Protein degradation pathways		I
3,2-trans-enoyl-CoA isomerase, mitochondrial precursor	DCI	P23965	3 (4)	Biosynthetic proteins		I
3-hydroxyacyl-CoA dehydrogenase type-2	HADH2	O70351	9 (11)	Metabolism proteins		I
3-hydroxyisobutyrate dehydrogenase, mitochondrial precursor	HIBADH	P29266	1 (1)	Miscellaneous proteins		I
3-ketoacyl-CoA thiolase, mitochondrial	ACAA2	P13437	5 (5)	Metabolism proteins		I
3-mercaptopyruvate sulfurtransferase	MPST	P97532	2 (2)	Metabolism proteins		I
40S ribosomal protein S14	RPS14	P13471	1 (1)	Biosynthetic proteins		I
40S ribosomal protein S2	RPS2	P27952	1 (1)	Biosynthetic proteins		I
40S ribosomal protein S3	RPS3	P62909	1 (1)	Biosynthetic proteins		I
40S ribosomal protein S3a	RPS3A	P49242	2 (2)	Biosynthetic proteins		I
40S ribosomal protein S8	RPS8	P62243	1 (1)	Biosynthetic proteins		I
40S ribosomal protein SA	RPSA	P38983	4 (5), 2 (3)	Biosynthetic proteins		P, I
47 kDa heat shock protein precursor	SERPINH1	P29457	2 (2)	Chaperones		I
60 kDa heat shock protein, mitochondrial precursor	HSPD1	P63039	17 (19)	Chaperones		I
60S acidic ribosomal protein P0	RPLP0	P19945	6 (7)	Biosynthetic proteins		I

60S ribosomal protein L11	RPL11	P62914	1 (1)	Biosynthetic proteins	I
60S ribosomal protein L18	RPL18	P12001	1 (1)	Biosynthetic proteins	I
60S ribosomal protein L3	RPL3	P21531	1 (1)	Biosynthetic proteins	I
60S ribosomal protein L31	RPL31	P62902	1 (1)	Biosynthetic proteins	I
60S ribosomal protein L4	RPL4	P50878	1 (1)	Biosynthetic proteins	I
60S ribosomal protein L6	RPL6	P21533	1 (1)	Biosynthetic proteins	I
60S ribosomal protein L7	RPL7	P05426	1 (1)	Biosynthetic proteins	I
60S ribosomal protein L7a	RPL7A	P62425	1 (1)	Biosynthetic proteins	I
78 kDa glucose-regulated protein precursor	HSPA5	P06761	14 (28), 14 (18)	Chaperones	P, I
Acetyl-CoA acetyltransferase, mitochondrial precursor	ACAT1	P17764	9 (23)	Metabolism proteins	I
Actin, alpha cardiac	ACTC	P68035	19 (265)	Cytoskeletal proteins and linkers/molecular motors	I
Actin, alpha skeletal muscle	ACTA1	P68136	20 (42)	Cytoskeletal proteins and linkers/molecular motors	P
Actin, cytoplasmic 1	ACTB	P60711	12 (34)	Cytoskeletal proteins and linkers/molecular motors	P
Actin, cytoplasmic 2	ACTG1	P63259	13 (114)	Cytoskeletal proteins and linkers/molecular motors	I
Actin-related protein 2/3 complex subunit 1B	ARPC1B	O88656	2 (2)	Cytoskeletal proteins and linkers/molecular motors	I
Acyl-CoA dehydrogenase, long-chain specific, mitochondrial precursor	ACADL	P15650	3 (6)	Metabolism proteins	I
Acyl-CoA dehydrogenase, medium-chain specific, mitochondrial precursor	ACADM	P08503	2 (3)	Metabolism proteins	I

Acyl-CoA dehydrogenase, short/branched chain specific, mitochondrial precursor	ACADSB	P70584	1 (1)	Metabolism proteins		I
Acyl-CoA dehydrogenase, very-long-chain specific, mitochondrial precursor	ACADVL	P45953	4 (10)	Metabolism proteins		I
Adenosylhomocysteinase	AHCY	P10760	1 (1)	Biosynthetic proteins		I
Adipocyte-derived leucine aminopeptidase precursor	ARTS1	Q9JJ22	1 (1)	Aminopeptidases		I
ADP/ATP translocase 1	SLC25A4	Q05962	2 (2)	Transporters and channels	III	I
ADP/ATP translocase 2	SLC25A5	Q09073	4 (16)	Transporters and channels	III	I
Afadin- and alpha-actinin-binding protein	SSX2IP	Q8CGZ2	1 (3)	Tight junction proteins		I
Aldehyde dehydrogenase 1A3	ALDH1A3	Q8K4D8	1 (1)	Metabolism proteins		I
Aldose reductase	AKR1B1	P07943	16 (62), 8(27)	Stress proteins		P, I
Alkaline phosphatase, tissue-nonspecific isozyme precursor	ALPL	P08289	1 (1)	Protein phosphatases	GPI	P
Alpha crystallin B chain	CRYAB	P23928	1 (1), 3 (5)	Chaperones		P, I
Alpha-1-antiproteinase precursor	SERPINA1	P17475	10 (12)	Secreted proteins		P
Alpha-actinin-1	ACTN1	Q9Z1P2	9 (16), 7(10)	Cytoskeletal proteins and linkers/molecular motors		P, I
Alpha-actinin-4	ACTN4	Q9QXQ0	5 (9), 26 (56)	Cytoskeletal proteins and linkers/molecular motors		P, I
Alpha-enolase	ENO1	P04764	8 (9)	Metabolism proteins		I
AMBP protein precursor	AMBP	Q64240	5 (15)	Secreted proteins		P
Aminopeptidase B	RNPEP	O09175	1 (1)	Secreted proteins		I
Amyotrophic lateral sclerosis 2 chromosomal region candidate gene 3 protein homolog	TRAK2	Q8R2H7	1 (52)	Membrane trafficking proteins		P
Annexin A1	ANXA1	P07150	5 (16), 8 (16)	Membrane trafficking proteins		P, I
Annexin A2	ANXA2	Q07936	7 (15), 21 (55)	Membrane trafficking proteins		P, I
Annexin A4	ANXA4	P55260	3 (3)	Membrane trafficking proteins		I

Annexin A5	ANXA5	P14668	1 (1), 4 (6)	Membrane trafficking proteins		P, I
Annexin A6	ANXA6	P48037	4 (4)	Membrane trafficking proteins		I
AP-2 complex subunit alpha-2	AP2A2	P18484	1 (1)	Membrane trafficking proteins		I
AP-2 complex subunit beta-1	AP2B1	P62944	2 (4)	Membrane trafficking proteins		I
Aquaporin-1	AQP1	P29975	4 (37), 4 (5)	Transporters and channels	III	P, I
Aquaporin-2	AQP2	P34080	2 (9), 3 (7)	Transporters and channels	III	P, I
Aquaporin-4	AQP4	P47863	3 (4), 1 (1)	Transporters and channels	III	P, I
Arginase-2, mitochondrial precursor	ARG2	O08701	2 (2)	Biosynthetic proteins		I
Aspartate aminotransferase, mitochondrial precursor	GOT2	P00507	8 (10)	Biosynthetic proteins		I
ATP synthase alpha chain, mitochondrial precursor	ATP5A1	P15999	18 (74)	Metabolism proteins		I
ATP synthase B chain, mitochondrial precursor	ATP5F1	P19511	6 (6)	Metabolism proteins		I
ATP synthase beta chain, mitochondrial precursor	ATP5B	P10719	23 (42)	Metabolism proteins		I
ATP synthase gamma chain, mitochondrial	ATP5C1	P35435	3 (3)	Metabolism proteins		I
ATP-citrate synthase	ACLY	P16638	4 (5)	Biosynthetic proteins		I
Band 3 anion transport protein	SLC4A1	P23562	1 (1)	Transporters and channels	III	I
Barttin	BSND	Q8R2H3	7 (47)	Transporters and channels	III	P
Basigin precursor	BSG	P26453	2 (2)	Transporters and channels	I	I
Beta-catenin	CTNNB1	Q9WU82	6 (7)	Signaling proteins		I
Calcium-binding protein p22	CHP	P61023	1 (1), 1 (1)	Membrane trafficking proteins		P, I
Calcyclin	S100A11	Q6B345	1 (1)	Biosynthetic proteins		I (RT- PCR)
Calnexin precursor	CANX	P35565	2 (7), 13 (27)	Chaperones	I	P, I
Calpain small subunit 1	CAPNS1	Q64537	2 (2)	Protein degradation pathways		I

Calpain-1 catalytic subunit	CAPN1	P97571	5 (6)	Protein degradation pathways		I
Calpain-2 catalytic subunit precursor	CAPN2	Q07009	1 (1)	Protein degradation pathways		I
Calponin-3	CNN3	P37397	1 (1)	Cytoskeletal proteins and linkers/molecular motors		P
Calreticulin precursor	CALR	P18418	3 (4)	Chaperones		I
Calumenin precursor	CALU	O35783	1 (1)	Miscellaneous proteins		I
Carbonic anhydrase 4 precursor	CA4	P48284	1 (4)	Transporters and channels (related)	GPI	P (RT-PCR)
Carnitine O-palmitoyltransferase I, liver isoform	CPT1A	P32198	3 (4)	Metabolism proteins	III	I
Casein kinase II subunit alpha	CSNK2A1	P19139	1 (1)	Protein kinases, serine/threonine		I
Catalase	CAT	P04762	1 (1)	Stress proteins		I
Caveolin-1	CAV1	P41350	1 (4)	Membrane trafficking proteins	III	I
CD151 antigen	CD151	Q9QZA6	1 (1)	Adhesion proteins and collagens	III	I
CD166 antigen precursor	ALCAM	O35112	1 (2)	Adhesion proteins and collagens	I	I (RT-PCR)
CD48 antigen precursor	CD48	P10252	3 (4)	Signaling proteins	GPI	P
CD59 glycoprotein precursor	CD59	P27274	1 (5)	Miscellaneous proteins	GPI	P (RT-PCR)
Ceruloplasmin precursor	CP	P13635	40 (111), 2 (2)	Secreted proteins		P, I
Chloride channel protein ClC-Ka	CLCNKA	Q06393	2 (3)	Transporters and channels	III	I
Class I histocompatibility antigen, Non-RT1	RT1-AW2	P15978	1 (4)	Miscellaneous proteins	I	I
Clathrin heavy chain	CLTC	P11442	11 (11), 10 (13)	Membrane trafficking proteins		P, I
Clathrin light chain A	CLTA	P08081	3 (7)	Membrane trafficking proteins		P
Clathrin light chain B	CLTB	P08082	1 (2)	Membrane trafficking proteins		P
Clusterin precursor	CLU	P05371	13 (35)	Secreted proteins		P
Coatomer subunit beta	COPB	P23514	2 (2)	Membrane trafficking proteins		I

Complement C3 precursor	C3	P01026	5 (11)	Secreted proteins		P
Contactin-1 precursor	CNTN1	Q63198	2 (2)	Signaling proteins	GPI	P
Core histone macro-H2A.1	H2AFY	Q02874	3 (4)	Nuclear proteins		P
Corticosteroid 11-beta-dehydrogenase isozyme 2	HSD11B2	P50233	5 (6)	Steroid metabolizing enzymes		I
Creatine kinase, ubiquitous mitochondrial precursor	CKMT1	P25809	1 (1)	Metabolism proteins		I
Cytochrome b5 outer mitochondrial membrane isoform precursor	CYB5M	P04166	1 (2)	Metabolism proteins		P
Cytochrome c oxidase subunit 2	MTCO2	P00406	1 (1)	Metabolism proteins	III	I
Cytochrome c oxidase subunit 4 isoform 1, mitochondrial precursor	COX4I1	P10888	1 (1)	Metabolism proteins		P
Cytoplasmic dynein 1 intermediate chain 2	DYNC1I2	Q62871	1 (1)	Cytoskeletal proteins and linkers/molecular motors		I
Cytosolic acyl coenzyme A thioester hydrolase	ACOT7	Q64559	1 (2)	Metabolism proteins		P
D-beta-hydroxybutyrate dehydrogenase, mitochondrial precursor	BDH1	P29147	1 (1)	Miscellaneous proteins		I
Desmin	DES	P48675	3 (4)	Cytoskeletal proteins and linkers/molecular motors		P
Dihydrolipoyllysine-residue acetyltransferase component of pyruvate dehydrogenase complex	DLAT	P08461	2 (4)	Metabolism proteins		I
Dihydrolipoyllysine-residue succinyltransferase component of 2-oxoglutarate dehydrogenase complex, mitochondrial precursor	DLST	Q01205	1 (1)	Metabolism proteins		I
Dihydropyridine-sensitive L-type, calcium channel alpha-2/delta subunits precursor	CACNA2D1	P54290	7 (24)	Transporters and channels	III	P
Disks large homolog 1	DLG1	Q62696	7 (13)	Anchor scaffold proteins		P
Dynein heavy chain, cytosolic	DYNC1H1	P38650	9 (11)	Cytoskeletal proteins and linkers/molecular motors		I
Elongation factor 1-alpha 2	EEF1A2	P62632	4 (6), 4 (11)	Biosynthetic proteins		P, I

Elongation factor 2	EEF2	P05197	3 (3)	Biosynthetic proteins	I
Enoyl-CoA hydratase, mitochondrial precursor	ECHS1	P14604	3 (3)	Biosynthetic proteins	I
Epithelial-cadherin precursor	CDH1	Q9R0T4	5 (78)	Adhesion proteins and collagens	I P
Fatty aldehyde dehydrogenase	ALDH3A2	P30839	1 (2)	Metabolism proteins	I
Fibrinogen beta chain precursor	FGB	P14480	3 (5)	Secreted proteins	P
Fructose-bisphosphate aldolase A	ALDOA	P05065	2 (2)	Metabolism proteins	I
Fumarate hydratase, mitochondrial precursor	FH	P14408	2 (2)	Metabolism proteins	I
Galectin-3	LGALS3	P08699	1 (4)	Adhesion proteins and collagens	P
Gamma-enolase	ENO2	P07323	2 (2)	Metabolism proteins	I
Glial fibrillary acidic protein, astrocyte	GFAP	P47819	3 (77), 1 (19)	Cytoskeletal proteins and linkers/molecular motors	P, I
Glutamate dehydrogenase 1, mitochondrial precursor	GLUD1	P10860	5 (5)	Metabolism proteins	I
Glutaminase kidney isoform, mitochondrial precursor	GLS	P13264	2 (3)	Metabolism proteins	I
Glutathione peroxidase 1	GPX1	P04041	21 (102), 1 (1)	Stress proteins	P, I
Glutathione peroxidase 2	GPX2	P83645	2 (5)	Stress proteins	P
Glutathione peroxidase 3 precursor	GPX3	P23764	9 (38)	Secreted proteins	P
Glutathione peroxidase 6 precursor	GPX6	Q64625	3 (5)	Stress proteins	P
Glutathione S-transferase Mu 2	GSTM2	P08010	1 (1)	Stress proteins	I
Glyceraldehyde-3-phosphate dehydrogenase	GAPDH	P04797	7 (17)	Metabolism proteins	I
Glycerol kinase	GK	Q63060	1 (1)	Metabolism proteins	I
Glycerol-3-phosphate dehydrogenase, mitochondrial precursor	GPD2	P35571	2 (4)	Metabolism proteins	I
Glycogen phosphorylase, brain form	PYGB	P53534	5 (6)	Metabolism proteins	I
Golgi apparatus protein 1 precursor	GLG1	Q62638	2 (2)	Biosynthetic proteins	P

Golgi resident protein GCP60	ACBD3	Q7TNY6	3 (4)	Biosynthetic proteins	P
GTP-binding nuclear protein Ran	RAN	P62828	1 (1)	Small GTP binding proteins and related proteins	I
Guanine nucleotide-binding protein alpha-11 subunit	GNA11	Q9JID2	3 (3)	Heterotrimeric G proteins	I
Guanine nucleotide-binding protein beta subunit 2-like 1	GNB2L1	P63245	1 (1)	Heterotrimeric G proteins	I
Guanine nucleotide-binding protein beta subunit 4	GNB4	O35353	2 (6)	Heterotrimeric G-proteins	P
Guanine nucleotide-binding protein G	GNAI2	P04897	1 (1), 7 (8)	Heterotrimeric G proteins	P, I
Guanine nucleotide-binding protein G	GNAI3	P08753	1 (2)	Heterotrimeric G-proteins	P
Guanine nucleotide-binding protein G	GNAQ	P82471	2 (2)	Heterotrimeric G proteins	I
Guanine nucleotide-binding protein G	GNB1	P54311	1 (2)	Heterotrimeric G-proteins	P
Guanine nucleotide-binding protein G	GNB2	P54313	1 (2), 3 (3)	Heterotrimeric G proteins	P, I
Heat shock 70 kDa protein 1A/1B	HSPA1A	Q07439	4 (9), 12 (26)	Chaperones	P, I
Heat shock cognate 71 kDa protein	HSPA8	P63018	15 (30), 6 (10)	Chaperones	P, I
Heat shock protein HSP 90-beta	HSP90AB1	P34058	10 (11)	Chaperones	I
Heat shock-related 70 kDa protein 2	HSPA2	P14659	1 (1), 4 (4)	Chaperones	P, I
Heat-shock protein beta-1	HSPB1	P42930	6 (10)	Chaperones	I
Heme oxygenase 2	HMOX2	P23711	1 (1)	Miscellaneous proteins	I
Hemoglobin alpha-1/2 subunit	HBA1	P01946	5 (8)	Binding proteins	P
Hemoglobin beta-1 subunit	HBB	P02091	2 (13)	Binding proteins	P
Hemoglobin beta-2 subunit		P11517	4 (15)	Binding proteins	P
Heterogeneous nuclear ribonucleoprotein A1	HNRPA1	P04256	1 (2)	Nuclear proteins	I
Heterogeneous nuclear ribonucleoprotein A3	HNRPA3	Q6URK4	3 (3)	Nuclear proteins	I
Heterogeneous nuclear ribonucleoprotein D0	HNRPD	Q9JJ54	2 (3)	Nuclear proteins	I
Heterogeneous nuclear ribonucleoprotein K	HNRPK	P61980	3 (4)	Nuclear proteins	I
Hexokinase-1	HK1	P05708	2 (3)	Metabolism proteins	I

Histone H1.0	H1F0	P43278	1 (1)	Nuclear proteins		I
Histone H1.2	HIST1H1C	P15865	1 (1)	Nuclear proteins		I
Histone H2B		Q00715	2 (2)	Nuclear proteins		P
Histone H2B, testis	HIST1H2B A	Q00729	1 (3), 1 (1)	Nuclear proteins		P, I
Histone H4	HIST1H4B	P62804	3 (12), 1 (1)	Nuclear proteins		P, I
Hydroxymethylglutaryl-CoA lyase, mitochondrial precursor	HMGCL	P97519	1 (1)	Metabolism proteins		I
Ig kappa chain C region, A allele		P01836	2 (4)	Secreted proteins		P
Ig kappa chain C region, B allele		P01835	2 (5)	Secreted proteins		P
Inositol 1,4,5-trisphosphate receptor 1	ITPR1	P29994	1 (2)	Transporters and channels	III	I
Inositol 1,4,5-trisphosphate receptor 2	ITPR2	P29995	1 (1)	Transporters and channels	III	I
Integrin alpha-1 precursor	ITGA1	P18614	2 (2)	Adhesion proteins and collagens	I	I
Intercellular adhesion molecule 1 precursor	ICAM1	Q00238	1 (1)	Adhesion proteins and collagens	I	I
Interferon-induced GTP-binding protein Mx2	MX2	P18589	1 (1)	Membrane trafficking proteins		I
Interferon-induced GTP-binding protein Mx3	MX3	P18590	1 (1)	Membrane trafficking proteins		I
Isovaleryl-CoA dehydrogenase, mitochondrial precursor	IVD	P12007	2 (4)	Metabolism proteins		I
Keratin, II cytoskeletal 8	KRT8	Q10758	9 (29)	Cytoskeletal proteins and linkers/molecular motors		I
Keratin, type I cytoskeletal 19	KRT19	Q63279	15 (81), 15 (12)	Cytoskeletal proteins and linkers/molecular motors		P, I
Keratin, type I cytoskeletal 20	KRT20	P25030	4 (65), 2 (5)	Cytoskeletal proteins and linkers/molecular motors		P, I
Kinesin-like protein KIF2C	KIF2C	Q62909	2 (4)	Cytoskeletal proteins and linkers/molecular motors		P
Lamin-A	LMNA	P48679	3 (3), 5 (7)	Cytoskeletal proteins and linkers/molecular motors		P, I

Lamin-B1	LMNB1	P70615	7 (15), 1 (2)	Cytoskeletal proteins and linkers/molecular motors		P, I
Laminin beta-2 chain precursor	LAMB2	P15800	2 (3), 2 (2)	Adhesion proteins and collagens		P, I
LIN-7 homolog A	LIN7A	Q9Z250	1 (1)	Anchor scaffold proteins		P
LIN-7 homolog C	LIN7C	Q792I0	5 (7)	Anchor scaffold proteins		P
Lipid phosphate phosphohydrolase 3	PPAP2B	P97544	1 (2)	Metabolism proteins	III	I
L-lactate dehydrogenase A chain	LDHA	P04642	3 (3)	Metabolism proteins		I
L-lactate dehydrogenase B chain	LDHB	P42123	1 (1)	Metabolism proteins		I
Lysosome-associated membrane glycoprotein 1 precursor	LAMP1	P14562	1 (1)	Membrane trafficking proteins	I	I
Malate dehydrogenase, mitochondrial precursor	MDH2	P04636	9 (32)	Metabolism proteins		I
Merlin	NF2	Q63648	1 (2)	Cytoskeletal proteins and linkers/molecular motors		P
Methylmalonate-semialdehyde dehydrogenase [acylating], mitochondrial precursor	ALDH6A1	Q02253	5 (7)	Metabolism proteins		I
Mitochondrial 2-oxoglutarate/malate carrier protein	SLC25A11	P97700	2 (3)	Transporters and channels	III	I
Moesin	MSN	O35763	2 (2), 3 (3)	Cytoskeletal proteins and linkers/molecular motors		P, I
Monocarboxylate transporter 2, MCT2	SLC16A7	Q63344	1 (2)	Transporters and channels	III	I (RT-PCR)
Monocyte differentiation antigen CD14 precursor	CD14	Q63691	3 (6)	Signaling proteins	GPI	P
Monoglyceride lipase	MGLL	Q8R431	1 (1)	Metabolism proteins		I
Multifunctional protein ADE2 [Includes: Phosphoribosylaminoimidazole-succinocarboxamide synthase	PAICS	P51583	2 (3)	Biosynthetic proteins		I
Myosin heavy chain, fast skeletal muscle, embryonic	MYH3	P12847	1 (1)	Cytoskeletal proteins and linkers/molecular motors		I

Myosin Ib	MYO1A	Q05096	3 (4)	Cytoskeletal proteins and linkers/molecular motors	I
Myosin Id	MYO1D	Q63357	1 (1), 6 (9)	Cytoskeletal proteins and linkers/molecular motors	P, I
Myosin Ie	MYO1E	Q63356	2 (2)	Cytoskeletal proteins and linkers/molecular motors	I
Myosin light polypeptide 6	MYL6	Q64119	1 (3)	Cytoskeletal proteins and linkers/molecular motors	I
Myosin-10	MYH10	Q9JLT0	4 (18), 71 (141)	Cytoskeletal proteins and linkers/molecular motors	P, I
Myosin-11	MYH11	Q63862	7 (33)	Cytoskeletal proteins and linkers/molecular motors	I
Myosin-5B	MYO5B	P70569	1 (1)	Cytoskeletal proteins and linkers/molecular motors	I
Myosin-9	MYH9	Q62812	67 (137)	Cytoskeletal proteins and linkers/molecular motors	I
Na(+)/H(+) exchange regulatory cofactor NHE-RF2 (NHERF-2) (Tyrosine kinase activator protein 1) (TKA-1)	SLC9A3R2	Q920G2	1 (1)	Cytoskeletal proteins and linkers/molecular motors	I
NADH-ubiquinone oxidoreductase 24 kDa subunit, mitochondrial precursor	NDUFV2	P19234	1 (1)	Metabolism proteins	I
Neurabin-2	PPP1R9B	O35274	1 (2)	Cytoskeletal proteins and linkers/molecular motors	P
Neurofilament triplet H protein	NEFH	P16884	1 (1)	Cytoskeletal proteins and linkers/molecular motors	I
Nuclease sensitive element-binding protein 1	YBX1	P62961	1 (1)	Miscellaneous proteins	I

Nucleolin	NCL	P13383	1 (1)	Nuclear proteins		I
Ornithine aminotransferase, mitochondrial precursor	OAT	P04182	1 (1)	Biosynthetic proteins		I
Peripherin	PRPH	P21807	3 (15)	Cytoskeletal proteins and linkers/molecular motors		P
Peroxiredoxin-1	PRDX1	Q63716	3 (5)	Stress proteins		P
Peroxiredoxin-5, mitochondrial precursor	PRDX5	Q9R063	1 (1)	Stress proteins		P
Peroxiredoxin-6	PRDX6	O35244	2 (2)	Stress proteins		I
Peroxisomal multifunctional enzyme 2	HSD17B4	P97852	5 (6)	Metabolism proteins		I
Phosphate carrier protein, mitochondrial precursor	SLC25A3	P16036	2 (5)	Transporters and channels	III	I
Phosphoglycerate kinase 1	PGK1	P16617	1 (1)	Metabolism proteins		I
Phospholipid hydroperoxide glutathione peroxidase, nuclear	GPX4	Q91XR8	5 (18)	Stress proteins		P
Plastin-3	PLS3	Q63598	3 (4)	Cytoskeletal proteins and linkers/molecular motors		I
Plectin 1	PLEC1	P30427	9 (11)	Cytoskeletal proteins and linkers/molecular motors		I
Podocalyxin precursor	PODXL	Q9WTQ2	1 (1)	Adhesion proteins and collagens	I	I (RT-PCR)
Potassium-transporting ATPase alpha chain 2	ATP12A	P54708	2 (3)	Ion pumps	III	I
Profilin-1	PFN1	P62963	1 (2)	Cytoskeletal proteins and linkers/molecular motors		I
Programmed cell death protein 8, mitochondrial precursor	PDCD8	Q9JM53	1 (1), 6 (8)	Apoptosis proteins		P, I
Prohibitin	PHB	P67779	5 (6)	Miscellaneous proteins		I
Propionyl-CoA carboxylase beta chain, mitochondrial precursor	PCCB	P07633	5 (8), 4 (5)	Metabolism proteins		P, I
Prostaglandin G/H synthase 1 precursor	PTGS1	Q63921	3 (5)	Signaling proteins		I
Prostasin precursor	PRSS8	Q9ES87	1 (2)	Metabolism proteins		P

Protein disulfide-isomerase A3 precursor	PDIA3	P11598	14 (24)	Biosynthetic proteins		I
Protein disulfide-isomerase A4 precursor	PDIA4	P38659	3 (3)	Biosynthetic proteins		I
Protein disulfide-isomerase A6 precursor	PDIA6	Q63081	2 (2), 4 (4)	Biosynthetic proteins		P, I
Protein disulfide-isomerase precursor	P4HB	P04785	6 (7), 6 (6)	Biosynthetic proteins		P, I
Protein KIAA0152 precursor	KIAA0152	Q5FVQ4	1 (2)	Miscellaneous proteins	I	P
Pyruvate dehydrogenase E1 component alpha subunit, somatic form, mitochondrial precursor	PDHA1	P26284	2 (5)	Metabolism proteins		I
Pyruvate dehydrogenase E1 component beta subunit, mitochondrial precursor	PDHB	P49432	4 (6)	Metabolism proteins		I
Pyruvate kinase isozymes M1/M2	PKM2	P11980	14 (28)	Metabolism proteins		I
Ras-related protein Rab-14	RAB14	P61107	2 (3)	Small GTP binding proteins and related proteins		I
Ras-related protein Rab-1A	RAB1A	Q6NYB7	1 (1)	Small GTP binding proteins and related proteins		I
Ras-related protein Rab-7	RAB7	P09527	2 (2)	Small GTP binding proteins and related proteins		I
Reticulon-4	RTN4	Q9JK11	8 (24)	Membrane trafficking proteins	III	I
Retinal dehydrogenase 1	ALDH1A1	P51647	4 (4)	Metabolism proteins		I
S100 calcium-binding protein A4	S100A4	P05942	1 (1)	Biosynthetic proteins		I
Serine/threonine-protein phosphatase 2A catalytic subunit alpha isoform	PPP2CA	P63331	3 (4)	Protein phosphatases		P
Serine/threonine-protein phosphatase PP1-alpha catalytic subunit	PPP1CA	P62138	4 (7)	Protein phosphatases		P
Serine/threonine-protein phosphatase PP1-beta catalytic subunit	PPP1CB	P62142	3 (6)	Protein phosphatases		P
Serine/threonine-protein phosphatase PP1-gamma catalytic subunit	PPP1CC	P63088	9 (14)	Protein phosphatases		P
Serum albumin precursor	ALB	P02770	6 (7)	Secreted proteins		I

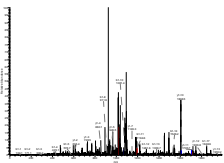
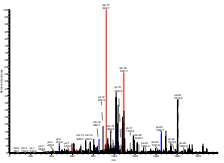
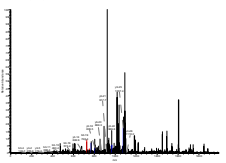
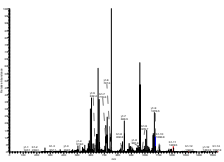
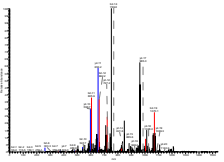
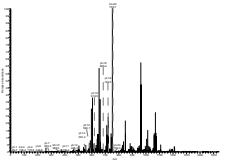
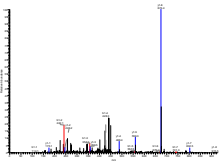
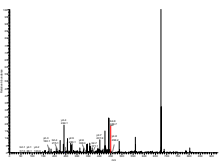

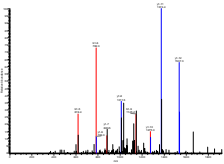
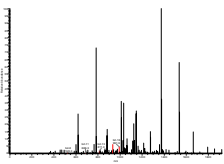

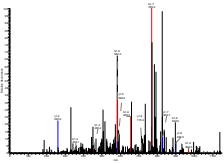
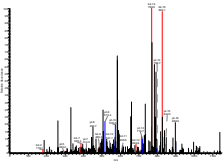
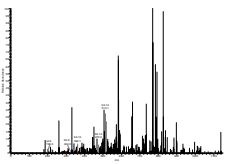
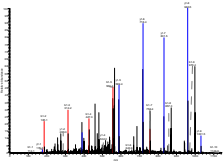
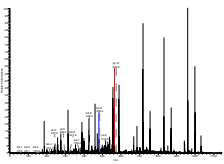

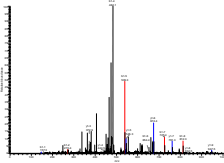
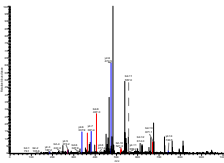
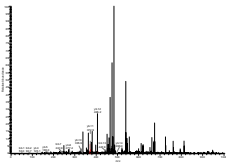
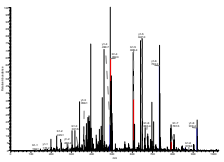
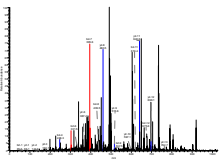
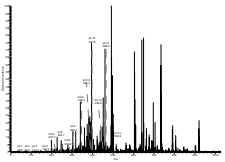
Short chain 3-hydroxyacyl-CoA dehydrogenase, mitochondrial precursor	HADHSC	Q9WVK7	2 (2)	Metabolism proteins		I
Sideroflexin-3	SFXN3	Q9JHY2	3 (4)	Transporters and channels	III	I
Sodium/potassium-transporting ATPase alpha-1 chain precursor	ATP1A1	P06685	26 (134)	Ion pumps	III	I
Sodium/potassium-transporting ATPase alpha-3 chain	ATP1A3	P06687	15 (63)	Ion pumps	III	I
Sodium/potassium-transporting ATPase alpha-4 chain	ATP1A4	Q64541	2 (3)	Ion pumps	III	I
Sodium/potassium-transporting ATPase beta-1 chain	ATP1B1	P07340	6 (14)	Ion pumps	II	I
Sodium/potassium-transporting ATPase beta-3 chain	ATP1B3	Q63377	1 (3)	Ion pumps	II	I
Sodium/potassium-transporting ATPase gamma chain	FXYD2	Q04679	1 (1)	Ion pumps	II	I
Spectrin alpha chain, brain	SPTAN1	P16086	81 (157), 70 (151)	Cytoskeletal proteins and linkers/molecular motors		P, I
Spectrin beta chain, brain 2	SPTBN2	Q9QWN8	51 (94)	Cytoskeletal proteins and linkers/molecular motors		I
S-phase kinase-associated protein 1A	SKP1A	Q6PEC4	1 (2)	Protein degradation pathway		P
Stress-70 protein, mitochondrial precursor	HSPA9	P48721	14 (16)	Chaperones		P, I
Succinate dehydrogenase [ubiquinone] flavoprotein subunit, mitochondrial precursor	SDHA	Q920L2	1 (1)	Metabolism proteins		P
Succinate dehydrogenase [ubiquinone] flavoprotein subunit, mitochondrial precursor	SDHA	Q920L2	3 (4)	Metabolism proteins		I
Succinyl-CoA ligase [GDP-forming] alpha-chain, mitochondrial precursor	SUCLG1	P13086	1 (1)	Miscellaneous proteins		I
Superoxide dismutase [Mn], mitochondrial precursor	SOD2	P07895	1 (1)	Stress proteins		P
Syntaxin-7	STX7	O70257	1 (1)	Membrane trafficking proteins	II	I
T-cell surface glycoprotein CD1d precursor	CD1D	Q63493	1 (1)	Adhesion proteins and collagens	I	I
T-complex protein 1 subunit alpha	CCT1	P28480	1 (1)	Chaperones		I

Thy-1 membrane glycoprotein precursor	THY1	P01830	2 (5)	Adhesion proteins and collagens	GPI	P
Timeless homolog	TIMELESS	Q9Z2Y1	2 (2)	Nuclear proteins		P
Transitional endoplasmic reticulum ATPase	VCP	P46462	3 (3)	Membrane trafficking proteins		I
Transketolase	TKT	P50137	1 (1)	Metabolism proteins		I
Transthyretin precursor	TTR	P02767	2 (2)	Secreted proteins		P
Trifunctional enzyme alpha subunit, mitochondrial precursor	HADHA	Q64428	13 (16)	Metabolism proteins		I
Trifunctional enzyme beta subunit, mitochondrial precursor	HADHB	Q60587	2 (2)	Metabolism proteins		I
Triosephosphate isomerase	TPI1	P48500	4 (6), 5 (6)	Biosynthetic proteins		P, I
Tropomyosin 1 alpha chain	TPM1	P04692	6 (9), 3 (4)	Cytoskeletal proteins and linkers/molecular motors		P, I
Tropomyosin alpha-4 chain	TPM4	P09495	3 (3)	Cytoskeletal proteins and linkers/molecular motors		I
Tropomyosin beta chain	TPM2	P58775	1 (1)	Cytoskeletal proteins and linkers/molecular motors		I
Tubulin alpha-1 chain	TUBA1	P68370	11 (29)	Cytoskeletal proteins and linkers/molecular motors		I
Tubulin alpha-2 chain	TUBA2	Q6P9V9	3 (7)	Cytoskeletal proteins and linkers/molecular motors		I
Tubulin alpha-6 chain	TUBA6	Q6AYZ1	1 (1)	Cytoskeletal proteins and linkers/molecular motors		I
Tubulin beta chain		P04691	3 (10)	Cytoskeletal proteins and linkers/molecular motors		I
Tubulointerstitial nephritis antigen-like precursor	TINAGL1	Q9EQT5	1 (3)	Secreted proteins		P
Ubiquinol-cytochrome c reductase iron-sulfur subunit, mitochondrial precursor	UQCRFS1	P20788	1 (1)	Metabolism proteins		I

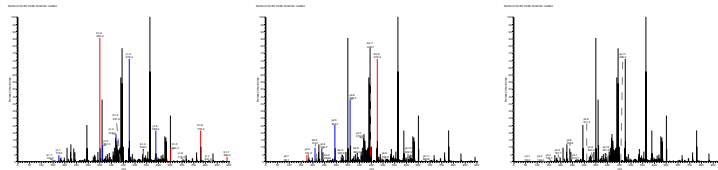
Ubiquinol-cytochrome-c reductase complex core protein 2, mitochondrial precursor	UQCRC2	P32551	10 (26)	Metabolism proteins		I
Ubiquitin	RPS27A	P62989	4 (23), 1 (9)	Protein degradation pathway		P, I
Unc-13 homolog D	UNC13D	Q9R189	2 (3)	Membrane trafficking proteins		P
Uromodulin precursor	UMOD	P27590	1 (1)	Miscellaneous proteins	GPI	P
Vacuolar ATP synthase subunit B, brain isoform	ATP6V1B2	P62815	2 (2)	Metabolism proteins		I
Versican core protein precursor	CSPG2	Q9ERB4	2 (2)	Secreted proteins		P
Vesicle-associated membrane protein-associated protein A	VAPA	Q9Z270	1 (1)	Membrane trafficking proteins	II	I (RT-PCR)
Vimentin	VIM	P31000	39 (230), 2 (2)	Cytoskeletal proteins and linkers/molecular motors		P, I
Voltage-dependent anion-selective channel protein 1	VDAC1	Q9Z2L0	7 (23), 4 (5)	Transporters and channels	III	P, I
Voltage-dependent anion-selective channel protein 2	VDAC2	P81155	11 (46), 4 (8)	Transporters and channels	III	P, I

a, Number of peptides identified with their total hit number in the parenthesis; b, Collecting duct database (CDDb) family group names; c, Membrane protein types: I, one membrane spanning helix with an extracellular N'-terminus; II, one membrane spanning helix with an extracellular C'-terminus; III, multiple membrane spanning helices; GPI, glycosylphosphatidylinositol-linked; d, Protein identified in perfusion (P) and/or incubation (I) biotinylation method. Identifications confirmed by RT-PCR are indicated.

Table S-1. Selected examples of accepted spectra of single-peptide identifications in the inner medullary collecting ducts (IMCDs).

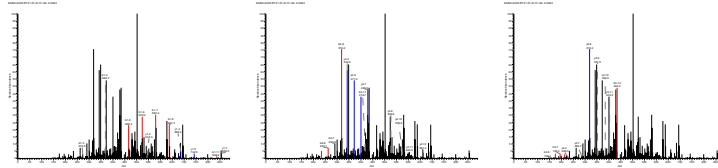
Protein name ^a	Charge +1 ^b	Charge +2	Charge +3	Confirmed ^c
Fixed perfusion-biotinylated IMCDs				
ACE R.VAEFFFTSLGLSPM*PPEF WAESMLEK#.P Xcorr: 2.8; Δ Cn: 0.1; Rsp: 5				RT-PCR
APC R.NDSLSSLDFFFFDVLDR EK.A Xcorr: 3.0; Δ Cn: 0.2; Rsp: 6				Negative
Calcyclin K.LQDAEIAR.L Xcorr: 2.5; Δ Cn: 0.4; Rsp: 1				RT-PCR
CD40LG K.REGLYYVYTQVTFCSNR. E Xcorr: 3.0; Δ Cn: 0.2; Rsp: 1				Negative
CLIC4 K.NSRPEANEALERGLLK.T Xcorr: 2.8; Δ Cn: 0.1; Rsp: 1				RT-PCR
ERC2 K.IAELESLTLR.H Xcorr: 3.41; Δ Cn: 0.4; Rsp: 3				Negative
g H/K ATPase α 1 K.RIVIGDASETALLK.F Xcorr: 3.9; Δ Cn: 0.5; Rsp: 1				IF
GPR64 K.EDSCNGKSRMALR.R Xcorr: 2.7; Δ Cn: 0.1; Rsp: 8				RT-PCR

GRIN2D
R.YWSVDKLGGR.A
Xcorr: 2.5; Δ Cn: 0.3; Rsp: 1



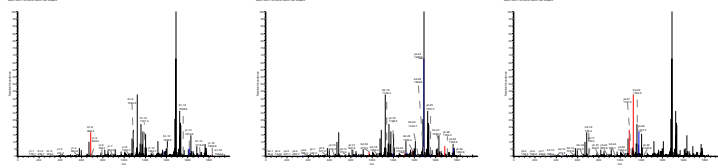
Negative

HCN1
R.LGTPPGGAAGK#.E
Xcorr: 2.9; Δ Cn: 0.2; Rsp: 2



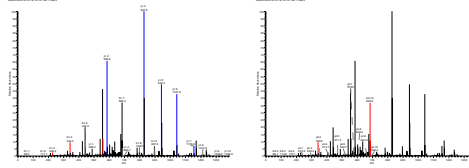
Negative

Kv4.3
K.ELPCGERYSVAFFCLDTA
CVMIFTVEYLLR.L
Xcorr: 3.2; Δ Cn: 0.3; Rsp: 2



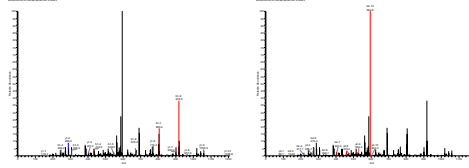
Negative

LPL
K.GLGDVDQLVK#.C
Xcorr: 2.1; Δ Cn: 0.1; Rsp: 1



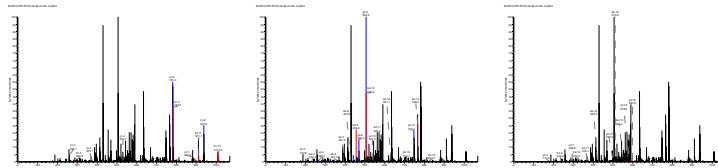
RT-PCR

LRP4
K.FTGKNQEIR.N
Xcorr: 2.2; Δ Cn: 0.1; Rsp: 7



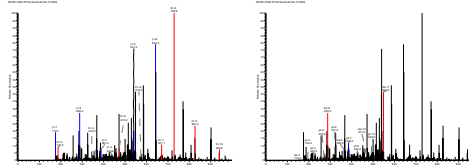
RT-PCR

MAPK12
K.GLKYIHAAGVIHRDLK.P
Xcorr: 3.0; Δ Cn: 0.3; Rsp: 3



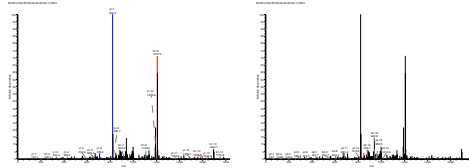
Negative

NHE2
K.EGGTQTPGVLR.Q
Xcorr: 2.4; Δ Cn: 0.2; Rsp: 6



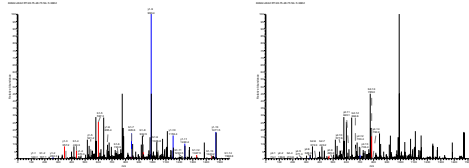
IF

PalmT
R.KM*DHHCPWVNNCVGE
K.N
Xcorr: 2.2; Δ Cn: 0.2; Rsp: 3



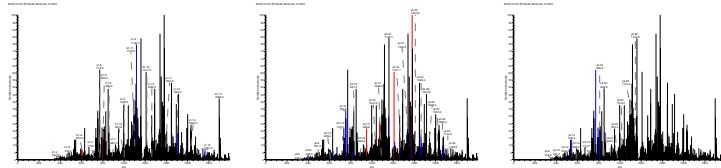
RT-PCR

PIK3-C2 γ
R.DACSYFTSNALPLK.I
Xcorr: 2.4; Δ Cn: 0.5; Rsp: 10



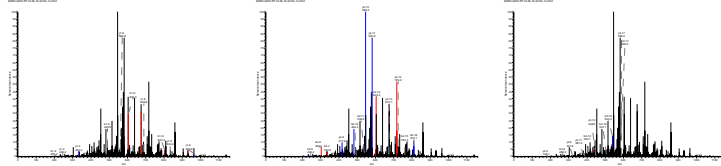
Negative

PIK3-C β
 K.TVVSSEISGKNDHIWNEQ
 LEFDINICDLPR.M
 Xcorr: 2.6; Δ Cn: 0.2; Rsp: 4



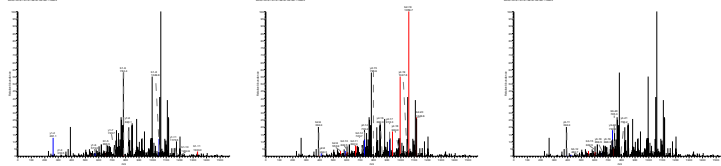
RT-PCR

PKA- β C
 M*GNTAIAKKGSEVESVK.E
 Xcorr: 2.8; Δ Cn: 0.3; Rsp: 1



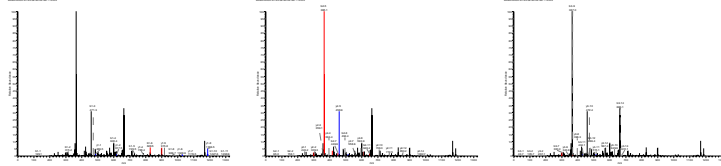
RT-PCR

Rab31
 K.WVKELKEHGPENIVM*AI
 AGNK.C
 Xcorr: 3.1; Δ Cn: 0.2; Rsp: 1



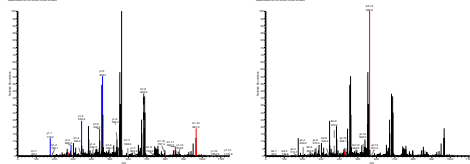
RT-PCR

Rabaptin-5
 R.QWREEVASLQAVMK#.E
 Xcorr: 2.8; Δ Cn: 0.1; Rsp: 7



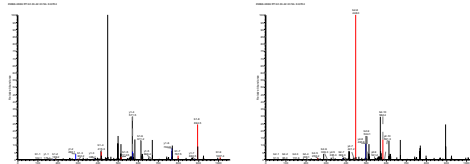
RT-PCR

S1P-R
 R.SPSAVGPSGGGLR.R
 Xcorr: 2.8; Δ Cn: 0.2; Rsp: 4



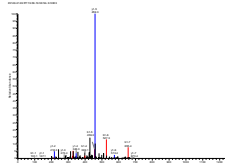
Negative

SCN5A
 R.TSLLVPWPLR.H
 Xcorr: 2.8; Δ Cn: 0.2; Rsp: 1



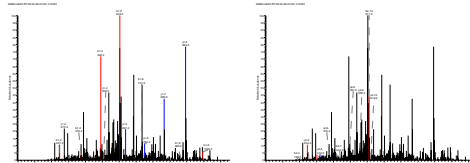
Negative

Septin-9
 R.VDLGAK.A
 Xcorr: 1.8; Δ Cn: 0.2; Rsp: 1



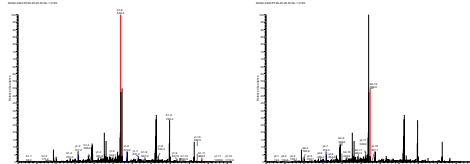
RT-PCR

SNAP29
 K.MDQDLKM*SQK.H
 Xcorr: 2.2; Δ Cn: 0.2; Rsp: 6



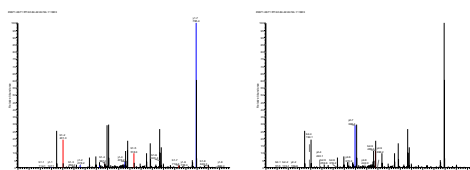
RT-PCR

TauT
 R.GLTLPGAGEGIK.F
 Xcorr: 2.1; Δ Cn: 0.1; Rsp: 3



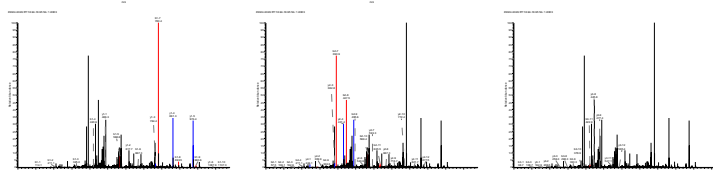
IF

THIK-1
R.LSGEMISMK.D
Xcorr: 2.1; Δ Cn: 0.3; Rsp: 2



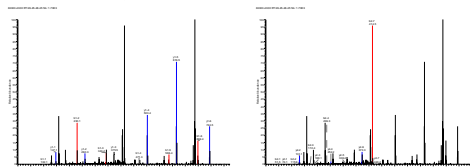
RT-PCR

TYRO3
R.LPIPM*VILPFMK#.H
Xcorr: 2.5; Δ Cn: 0.2; Rsp: 4



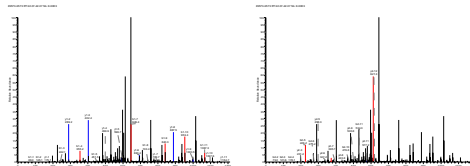
RT-PCR

VK γ C
R.TKLQDIK.S
Xcorr: 2.3; Δ Cn: 0.1; Rsp: 1



RT-PCR

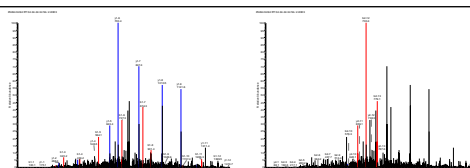
WASPIP
R.SGPLPPPPINR.N
Xcorr: 2.4; Δ Cn: 0.2; Rsp: 7



RT-PCR

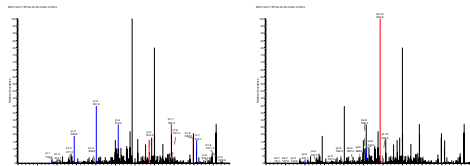
Fixed incubation-biotinylated IMCDs

FZD1
K.VYGLMYFGPEELR.F
Xcorr: 4.0; 0.6; Δ Cn: Rsp: 1



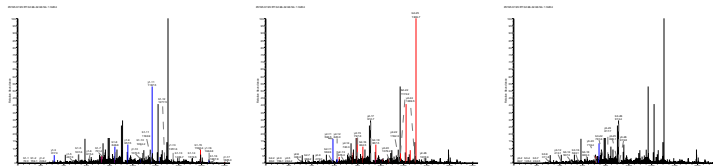
RT-PCR

ROMK K.RGGKLCLLIR.V
Xcorr: 2.5; Δ Cn: 0.1; Rsp: 1



RT-PCR

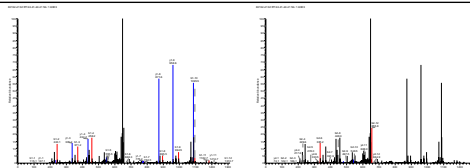
Podocalyxin
K.ASFKPAEDSCALELAPILD
NQAVAVK.R
Xcorr: 3.3; Δ Cn: 0.4; Rsp: 1



RT-PCR

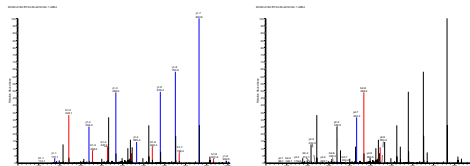
Non-fixed perfusion-biotinylated IMCDs

CA4
K.NQQSPINIVTSK.T
Xcorr: 3.1; Δ Cn: 0.4; Rsp: 1



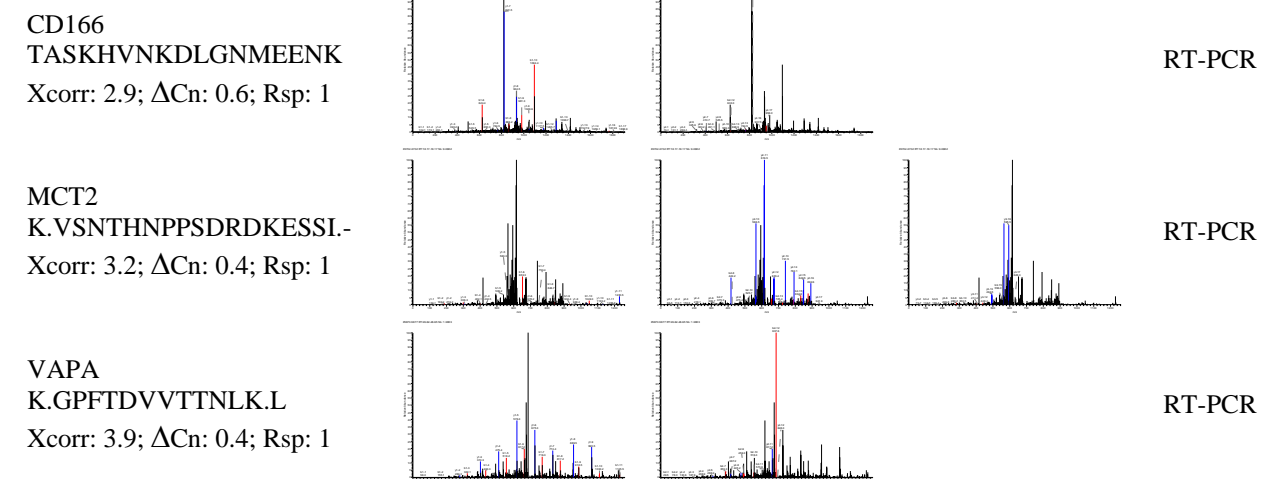
RT-PCR

CD59
R.LEIANVQYR.C
Xcorr: 3.5; Δ Cn: 0.5; Rsp: 1



RT-PCR

 Non-fixed incubation-biotinylated IMCDs



a. Identified proteins are abbreviated. The identified peptide sequence is shown with corresponding Xcorr, Δ Cn, and Rsp scores. * indicated methionine (M) oxidation. # indicates lysine (K) biotinylation. b. Accepted spectra of three charged states are shown. Color red indicates matches to b-ion series; blue indicates matched to y-ion series. c. Protein identifications were confirmed in IMCDs with immunofluorescence staining (IF) or RT-PCR. “Negative“ indicates no RT-PCR product at 30 cycles of amplification.

Table S-2. Proteins identified from the fixed perfusion-biotinylated inner medullary collecting ducts (IMCDs).

Protein name	Gene name	Accession	Ion (n) ^a	CDDB family ^b	Type ^c	Confirmed ^d
14-3-3 protein zeta/delta	YWHAZ	P63102	6 (15)	Signaling proteins		
3-hydroxyanthranilate 3,4-dioxygenase	HAAO	P46953	1 (1)	Biosynthetic proteins		
6-phosphofructo-2-kinase/fructose-2,6-biphosphatase 1	PFKFB1	P07953	1 (1)	Metabolism proteins		
Acetyl-CoA carboxylase 1	ACACA	P11497	1 (1)	Metabolism proteins		
Activity-dependent neuroprotector	ADNP	Q9JKL8	1 (1)	Nuclear proteins		
Adenomatous polyposis coli protein	APC	P70478	1 (12)	Signaling proteins		
Alcohol dehydrogenase	AKR1A1	P51635	2 (2)	Metabolism proteins		
Alpha-1-antitrypsin precursor	SERPINA1	P17475	10 (12)	Secreted proteins		
Alpha-actinin-4	ACTN4	Q9QXQ0	5 (9)	Cytoskeletal proteins and linkers/molecular motors		
Aminopeptidase N	ANPEP	P15684	2 (4)	Aminopeptidases	II	
Angiotensin-converting enzyme, somatic isoform precursor	ACE	P47820	1 (2)	Signaling proteins	I	RT-PCR
Annexin A1	ANXA1	P07150	5 (16)	Membrane trafficking proteins		
Annexin A2	ANXA2	Q07936	7 (15)	Membrane trafficking proteins		
Aspartate aminotransferase, cytoplasmic	GOT1	P13221	1 (14)	Metabolism proteins		
ATP-binding cassette sub-family A member 2	ABCA2	Q9ESR9	2 (3)	Transporters and channels	III	
Baculoviral IAP repeat-containing protein 4	BIRC4	Q9R0I6	1 (7)	Apoptosis proteins		
Bassoon protein	BSN	O88778	2 (4)	Cytoskeletal proteins and linkers/molecular motors		
Beta-glucuronidase precursor	GUSB	P06760	20 (67)	Protein degradation pathway		
Bone morphogenetic protein 4 precursor	BMP4	Q06826	1 (1)	Secreted proteins		

Calcyclin	S100A6	P05964	1 (1)	Binding proteins		RT-PCR
cAMP-dependent protein kinase, beta-catalytic subunit	PRKACB	P68182	1 (3)	Protein kinases, serine/threonine		RT-PCR
Catalase	CAT	P04762	1 (1)	Stress proteins		
CD40 ligand	CD40LG	Q9Z2V2	1 (12)	Signaling proteins	II	
Chloride intracellular channel protein 4	CLIC4	Q9Z0W7	1 (1)	Transporters and channels	III	RT-PCR
COUP transcription factor 2	NR2F2	O09018	1 (1)	Nuclear receptors		
Creatine kinase M-type	CKM	P00564	1 (1)	Metabolism proteins		
Creatine kinase, sarcomeric mitochondrial precursor	CKMT2	P09605	3 (12)	Metabolism proteins		
Cytochrome P450 4B1	CYP4B1	P15129	1 (1)	Metabolism proteins		
Cytosolic acyl coenzyme A thioester hydrolase	ACOT7	Q64559	1 (2)	Metabolism proteins		
Dihydropyrimidinase-related protein 1	CRMP1	Q62950	1 (7)	Miscellaneous proteins		
Double-strand break repair protein MRE11A	MRE11A	Q9JIM0	1 (1)	Nuclear proteins		
ERC protein 2	ERC2	Q8K3M6	1 (9)	Cytoskeletal proteins and linkers/molecular motors		
Ficolin-2 precursor	FCN2	P57756	1 (1)	Secreted proteins		
Focal adhesion kinase 1	PTK2	O35346	1 (1)	Protein kinases, tyrosine		
Fos-related antigen 2	FOSL2	P51145	1 (1)	Nuclear proteins		
Glandular kallikrein-7, submandibular/renal precursor	KLK7	P36373	2 (4)	Protein degradation pathway		
Glial fibrillary acidic protein, astrocyte	GFAP	P47819	3 (77)	Cytoskeletal proteins and linkers/molecular motors		
Glutamate [NMDA] receptor subunit epsilon 4 precursor	GRIN2D	Q62645	1 (1)	Membrane receptors	III	
Glyceraldehyde-3-phosphate dehydrogenase	GAPDH	P04797	1 (1)	Metabolism proteins		
Glycerol-3-phosphate dehydrogenase, mitochondrial precursor	GPD2	P35571	2 (5)	Metabolism proteins		

G-protein coupled receptor 64 precursor	GPR64	Q8CJ11	1 (1)	Membrane receptors	III	RT-PCR
Hermansky-Pudlak syndrome 6 protein homolog	HPS6	Q7M733	2 (2)	Miscellaneous proteins		
Hexokinase-1	HK1	P05708	2 (2)	Metabolism proteins		
Histone H2B		Q00715	2 (2)	Nuclear proteins		
Histone H4	HIST1H4B	P62804	3 (12)	Nuclear proteins		
Hydroxymethylglutaryl-CoA synthase, mitochondrial precursor	HMGCS2	P22791	1 (1)	Metabolism proteins		
Keratin, type I cytoskeletal 19	KRT19	Q63279	15 (81)	Cytoskeletal proteins and linkers/molecular motors		
Keratin, type II cytoskeletal 8	KRT8	Q10758	2 (9)	Cytoskeletal proteins and linkers/molecular motors		
Lamin-A	LMNA	P48679	3 (3)	Nuclear proteins		
Lipoprotein lipase precursor	LPL	Q06000	1 (1)	Metabolism proteins	GPI	RT-PCR
Long-chain fatty acid transport protein 1	SLC27A1	P97849	1 (1)	Transporters and channels (related)		
Low-density lipoprotein receptor-related protein 4 precursor	LRP4	Q9QYP1	1 (1)	Membrane receptors	I	RT-PCR
Mitogen-activated protein kinase 12	MAPK12	Q63538	1 (1)	Protein kinases, serine/threonine		RT-PCR
Moesin	MSN	O35763	2 (2)	Cytoskeletal proteins and linkers/molecular motors		
Myosin heavy chain, cardiac muscle beta isoform	MYH7	P02564	1 (1)	Cytoskeletal proteins and linkers/molecular motors		
Myosin Ib	MYO1A	Q05096	1 (1)	Cytoskeletal proteins and linkers/molecular motors		
Myosin-5A	MYO5A	Q9QYF3	3 (10)	Cytoskeletal proteins and linkers/molecular motors		

Myosin-9	MYH9	Q62812	3 (5)	Cytoskeletal proteins and linkers/molecular motors		
Neurofilament triplet H protein	NEFH	P16884	4 (14)	Cytoskeletal proteins and linkers/molecular motors		
Nitric oxide synthase, inducible	NOS2	Q06518	1 (24)	Signaling proteins		
Nitric-oxide synthase, brain	NOS1	P29476	3 (10)	Signaling proteins		
Nucleolar transcription factor 1	UBTF	P25977	1 (2)	Transcription factors		
Oligonucleotide/oligosaccharide-binding fold-containing protein 1	OBFC1	Q6AYD2	1 (3)	Miscellaneous proteins		
Palmitoyltransferase ZDHHC7	ZDHHC7	Q923G5	1 (1)	Biosynthetic proteins	III	RT-PCR
Pancreatic alpha-amylase precursor		P00689	1 (2)	Secreted proteins		
PDZ domain-containing RING finger protein 3	PDZRN3	P68907	3 (4)	Miscellaneous proteins		
Peroxiredoxin-1	PRDX1	Q63716	3 (5)	Stress proteins		
Peroxiredoxin-2	PRDX2	P35704	2 (2)	Stress proteins		
Phosphatidylinositol-4,5-bisphosphate 3-kinase catalytic subunit beta isoform	PIK3CB	Q9Z1L0	1 (1)	Signaling proteins		RT-PCR
Phosphatidylinositol-4-phosphate 3-kinase C2 domain-containing gamma polypeptide	PIK3C2G	O70173	1 (1)	Signaling proteins		
Phosphorylase b kinase gamma catalytic chain, testis/liver isoform	PHKG2	P31325	1 (1)	Protein kinases, serine/threonine		
Potassium channel subfamily K member 13, THIK-1	KCNK13	Q9ERS0	1 (1)	Transporters and channels	III	RT-PCR
Potassium voltage-gated channel subfamily D member 3, Kv4.3	KCND3	Q62897	1 (7)	Transporters and channels	III	
Potassium/sodium hyperpolarization-activated cyclic nucleotide-gated channel 1	HCN1	Q9JKB0	1 (3)	Transporters and channels	III	
Potassium-transporting ATPase alpha chain 1	ATP4A	P09626	1 (14)	Ion pumps	III	IF
Propionyl-CoA carboxylase alpha chain, mitochondrial precursor	PCCA	P14882	6 (11)	Metabolism proteins		
Propionyl-CoA carboxylase beta chain, mitochondrial precursor	PCCB	P07633	5 (8)	Metabolism proteins		
Prostatic acid phosphatase precursor	ACPP	P20646	1 (2)	Miscellaneous proteins		

Prostatic spermine-binding protein precursor	SBP	P08723	1 (5)	Secreted proteins		
Protein piccolo	PCLO	Q9JKS6	2 (8)	Cytoskeletal proteins and linkers/molecular motors		
Protein-arginine deiminase type-1	PADI1	O88806	1 (7)	Protein degradation pathway		
Rab GTPase-binding effector protein 1	RABEP1	O35550	1 (2)	Small GTP binding proteins and related proteins		RT-PCR
Ras-related protein Rab-31	RAB31	Q6GQP4	1 (4)	Small GTP binding proteins and related proteins		RT-PCR
Ribosome recycling factor, mitochondrial precursor	MRRF	Q5RKI9	1 (1)	Biosynthetic proteins		
RNA-binding protein 10	RBM10	P70501	1 (1)	Nuclear proteins		
Septin-9	SEPT9	Q9QZR6	1 (4)	Cytoskeletal proteins and linkers/molecular motors		RT-PCR
Serine protease inhibitor Kazal-type 2 precursor	SPINK2	Q6IE49	1 (4)	Secreted proteins		
Serine/threonine-protein kinase Nek6	NEK6	P59895	1 (1)	Protein kinases, serine/threonine		
Serine/threonine-protein kinase receptor R3 precursor	ACVRL1	P80203	2 (5)	Membrane receptors	I	IF
Serum albumin precursor	ALB	P02770	2 (3)	Secreted proteins		
Signal-induced proliferation-associated 1-like protein 1, SPA-1	SIPA1L1	O35412	2 (2)	Small GTP binding proteins and related proteins		
Sodium- and chloride-dependent taurine transporter	SLC6A6	P31643	1 (3)	Transporters and channels	III	IF
Sodium channel protein type 5 alpha subunit	SCN5A	P15389	1 (5)	Transporters and channels	III	
Sodium/hydrogen exchanger 2	SLC9A2	P48763	1 (1)	Transporters and channels	III	IF
Somatotropin precursor	GH1	P01244	1 (1)	Secreted proteins		

Spectrin alpha chain, brain	SPTAN1	P16086	81 (157)	Cytoskeletal proteins and linkers/molecular motors		
Sphingosine 1-phosphate receptor Edg-8	EDG8	Q9JKM5	1 (3)	Membrane receptors	III	
Synaptosomal-associated protein 29	SNAP29	Q9Z2P6	1 (1)	Membrane trafficking proteins		RT-PCR
Synaptotagmin-like protein 4	SYTL4	Q8VHQ7	3 (9)	Membrane trafficking proteins		
Syntaxin-8	STX8	Q9Z2Q7	2 (2)	Membrane trafficking proteins	II	
Terminal deoxynucleotidyltransferase-interacting factor 1	DNTTIP1	Q91Y53	1 (2)	Nuclear proteins		
Thioredoxin reductase 2, mitochondrial precursor	TXNRD2	Q9Z0J5	1 (1)	Stress proteins		
Timeless homolog	TIMELESS	Q9Z2Y1	2 (2)	Nuclear proteins		
Transcription initiation factor IIF beta subunit	GTF2F2	Q01750	1 (1)	Nuclear proteins		
Transforming growth factor beta-3 precursor	TGFB3	Q07258	1 (2)	Secreted proteins		
Transmembrane protease, serine 9	TMPRSS9	P69526	2 (6)	Metabolism proteins	II	
Triosephosphate isomerase	TPI1	P48500	4 (6)	Metabolism proteins		
Tyrosine-protein kinase receptor TYRO3 precursor	TYRO3	P55146	1 (1)	Membrane receptors	I	RT-PCR
Vitamin K-dependent gamma-carboxylase	GGCX	O88496	1 (1)	Biosynthetic proteins	III	RT-PCR
Wiskott-Aldrich syndrome protein-interacting protein	WASPIP	Q6IN36	1 (1)	Cytoskeletal proteins and linkers/molecular motors		RT-PCR
Xanthine dehydrogenase/oxidase	XDH	P22985	1 (7)	Metabolism proteins		

a, Number of peptides identified with their total hit number in the parenthesis; b, Collecting duct database (CDDB) family group names; c, Membrane protein types: I, one membrane spanning helix with an extracellular N⁷-terminus; II, one membrane spanning helix with an extracellular C⁷-terminus; III, multiple membrane spanning helices; GPI, glycosylphosphatidylinositol-linked; d, Protein identifications confirmed by Immunofluorescence staining (IF) or RT-PCR.

Table S-3. RT-PCR primer sequences used to examine mRNA expression of single-peptide identifications in the inner medullary collecting ducts (IMCDs).

Protein name	Gene name	5' primer ^a	Exon ^b	3' primer ^a	Exon ^b
Angiotensin-converting enzyme	ACE	ATGCCATGAAGTTGGGCT AC	24	AGTTGACGCGACTGGACT CT	25
Adenomatous polyposis coli protein	APC	ATGGCCTTGACAAACCTG AC	11	TCCAAAGCACATTCCATC AA	13
Aquaporin-2	AQP2	GACTGTGCTTAGTGCATC TCATTTTAT	4	AGGATCATGCAAACCTCTG TTCGT	4
Carbonic anhydrase 4 precursor	CA4	ATCTGCCCACCCAGTACA AG	4	AGCCCTCGTTTACCTCGT TT	6
Calcyclin	S100A6	AAGGAGGGTGACAAGCA CAC	2	AGATCATCCATCAGCCTT GC	3
CD166 antigen precursor	ALCAM	CTTGCACAGCAGAAAAC CAA	12	GAGGAGGAGACCAACCA CAA	14
CD40 ligand	CD40LG	TGAGGCCAACAGTAATG CAG	4	ATTCGCTGCCCTGAGTAA GA	5
CD59 glycoprotein precursor	CD59	CTCGGAGGGGATTCATCT TA	1	CCGGATACAGCAACAAG ACA	2
Chloride intracellular channel protein 4	CLIC4	GCGACGAGATGACATTA GCA	5	CTCTTGGCGACGTCACTG TA	6
ERC protein 2	ERC2	TTGCAGACCGACTGAAA CAG	10	TTCTCCAGCTGTTGGTTG TG	12
Frizzled 1 precursor	FZD1	CATCACATCAGGCTTCTG GA	1	AGTGACTAGGCTTGGCA GGA	1
Glutamate [NMDA] receptor subunit epsilon 4	GRIN2D	TCTTCGCGGTCATCTTTC TT	8	CCACTCTCGGCTGGTTGT AT	9
G-protein coupled receptor 64 precursor	GPR64	TTTTGCTGGATCAACAGC AG	15	AAGGCAAAGCCCCAAGT AAT	17
Potassium/sodium hyperpolarization-activated cyclic nucleotide-gated channel 1	HCN1	CAGCATGTCTGACCTCTG GA	4	TATCTTCTGGCGCATGTC AG	5

Potassium voltage-gated channel subfamily D member 3, Kv4.3	KCND3	GGCTACACCCTGAAGAGCTG	1	GCCAAATATCTTCCCAGCAA	2
Lipoprotein lipase	LPL	AACATTGGAGAAGCCATTCG	5	CAGAGCCCTTTCTCAAATGC	6
Low-density lipoprotein receptor-related protein 4	LRP4	TGTCAGCTACGCCGTTGGTGGAC	36	CACTTCCTGAGTGGAAGTTCG	37
Mitogen-activated protein kinase 12	MAPK12	GCTGTGAACGAGGACTGTGA	6	AGCCAACAGACCAAATGTCC	8
Monocarboxylate transporter 2, MCT2	SLC16A7	TGTCTTATGGACCAGGTTGG	3	CACGACTATCCCCTGCGCTA	4
Palmitoyltransferase ZDHHC7	ZDHHC7	GTGGGTGAACAACACTGTGTGG	5	TGACTGCGGTGAAAGTGAAG	7
Phosphatidylinositol-4-phosphate 3-kinase C2 domain-containing gamma polypeptide	PIK3C2G	GCAGAGTCTGGAGTGCTTCC	29	CTGCTCGAAGGACTTTTTGG	30
Phosphatidylinositol-4,5-bisphosphate 3-kinase catalytic subunit beta isoform	PIK3CB	TGAGGTTGTGAGCACCTCTG	18	TCACCAATGCCAAGGACATA	19
cAMP-dependent protein kinase, beta-catalytic subunit	PRKACB	ACCCCATGCTCGTTTCTATG	6	CTTGACTCTCTTGGCGAACCC	7
Podocalyxin precursor	PODXL	GGCTGTGTTTGAAGCTGCTGA	6	CTGTCTGCAGCTCCTCTGTG	8
Ras-related protein Rab-31	RAB31	TGGGTTAAGGAGCTGAAGGA	5	GCCACTGTTTCCGTTTTTCAT	7
Rabaptin-5, Rab GTPase-binding effector protein 1	RABEP1	ACTGCTGCTAAGGCCACTGT	16-17	TGTCATGTCTCAGGGAGCTG	18

ATP-sensitive inward rectifier potassium channel 1	KCNJ1	TGTGGATGCACAGTCAA GGT	2	GTCAGGCGGGTAGAACT CTG	5
Sphingosine 1-phosphate receptor Edg-8	EDG8	ACACCTTCACCAACCGAG AC	1	GGGGACACGAGTGTCT GAT	1
Sodium channel protein type 5 alpha subunit	SCN5A	AACCAGACAGAAGGGGA CCT	24	GCTGCTCCTCATACCCTC TG	25-26
Septin-9	SEPT9	AAGAAACGCATCCCTGA CAC	6	ATACCGTTGGACAGCAG GTC	7
Synaptosomal-associated protein 29	SNAP29	ATGTGGAAGACGAGGAC ACC	1	GTCCACCATCTTCTCCGT GT	2
Potassium channel subfamily K member 13, THIK-1	KCNK13	GGCTCATCCTGCTTTACC TG	1	CACTGTGCCACGAAGTA GA	1
Tyrosine-protein kinase receptor TYRO3	TYRO3	CATCCTGCTTCGGAAGAG AC	10	TCCTCCAGCTTCTCCTTC AA	12
Vesicle-associated membrane protein-associated protein A	VAPA	TTGCTCCACCAAACATTT CA	3	AGTCGCTTGC ACTCTTCC AT	5
Vitamin K-dependent gamma-carboxylase	GGCX	AACCTTTCTGAGACGGCA GA	14	GGTTCAAATGGTCGCAA GTT	15
Wiskott-Aldrich syndrome protein-interacting protein	WASPIP	TACACCTCCCTTGCTTC AC	5	CTGGGACTGTCCATTCCA CT	6

a, Primers were selected using an online software Primer3 (http://frodo.wi.mit.edu/cgi-bin/primer3/primer3_www.cgi) from the Whitehead Institute for Biomedical Research. Each pair frames at least one intron to avoid amplification of genomic DNA, except those for FZD1, EDG8, and KCNK13 that have one single exon. b, Numbers indicate primer locations on the exons. Information of the transcripts was obtained from Ensembl *Rattus norvegicus* database (http://www.ensembl.org/Rattus_norvegicus/index.html).

Table S-4. Proteins identified from the fixed incubation-biotinylated inner medullary collecting ducts (IMCDs).

Protein name	Gene name	Accession	Ion (n) ^a	CDDB family ^b	Type ^c	Confirmed ^d
14-3-3 protein eta	YWHAH	P68511	2 (9)	Signaling proteins		
40S ribosomal protein S15a	RPS15A	P62246	1 (1)	Biosynthetic proteins		
60S acidic ribosomal protein P2	RPLP2	P02401	2 (3)	Biosynthetic proteins		
60S ribosomal protein L13	RPL13	P41123	1 (1)	Biosynthetic proteins		
60S ribosomal protein L14	RPL14	Q63507	2 (6)	Biosynthetic proteins		
60S ribosomal protein L15	RPL15	P61314	1 (1)	Biosynthetic proteins		
60S ribosomal protein L23	RPL23	P62832	1 (1)	Biosynthetic proteins		
60S ribosomal protein L34	RPL34	P11250	1 (1)	Biosynthetic proteins		
60S ribosomal protein L8	RPL8	P62919	1 (7)	Biosynthetic proteins		
6-phosphofructokinase, liver	PFKL	P30835	1 (2)	Metabolism Proteins		
6-phosphofructokinase, muscle	PFKM	P47858	1 (2)	Metabolism Proteins		
Acetyl-CoA carboxylase 1	ACACA	P11497	1 (1)	Biosynthetic proteins		
ADAM 10 precursor	ADAM10	Q10743	1 (1)	Signaling proteins	I	
ADAM 17 precursor	ADAM17	Q9Z1K9	1 (1)	Signaling proteins	I	
ADP-ribosylation factor 2	ARF2	P84082	3 (4)	Small GTP binding proteins and related proteins		
ADP-ribosylation factor 4	ARF4	P61751	1 (1)	Small GTP binding proteins and related proteins		
ADP-ribosylation factor 5	ARF5	P84083	3 (13)	Small GTP binding proteins and related proteins		
Agrin precursor	AGRN	P25304	4 (20)	Adhesion proteins and collagens	II	
Amine oxidase [flavin-containing] A	MAOA	P21396	1 (1)	Protein degradation pathways	II	

ATP synthase delta chain, mitochondrial precursor	ATP5D	P35434	1 (2)	Metabolism Proteins		
ATP synthase O subunit, mitochondrial precursor	ATP5O	Q06647	1 (2)	Metabolism Proteins		
ATP-sensitive inward rectifier potassium channel 1	KCNJ1	P35560	1 (1)	Transporters and Channels	III	RT-PCR
Beta-2-microglobulin precursor	B2M	P07151	1 (1)	Miscellaneous proteins		
Beta-glucuronidase precursor	GUSB	P06760	4 (8)	Protein degradation pathways		
Carbonic anhydrase 2	CA2	P27139	2 (7)	Transporters and channels (related protein)		
Core histone macro-H2A.1	H2AFY	Q02874	3 (4)	Nuclear proteins		
Corticosteroid 11-beta-dehydrogenase isozyme 1	HSD11B1	P16232	1 (2)	Steroid metabolizing enzymes		
Cytochrome c oxidase polypeptide Va, mitochondrial precursor	COX5A	P11240	1 (2)	Metabolism Proteins		
Cytochrome c oxidase subunit 4 isoform 1, mitochondrial precursor	COX4I1	P10888	3 (4)	Metabolism Proteins	II	
Dihydropyrimidinase-related protein 2	DPYSL2	P47942	1 (1)	Miscellaneous proteins		
Dolichyl-diphosphooligosaccharide--protein glycosyltransferase 63 kDa subunit precursor	RPN2	P25235	5 (8)	Biosynthetic proteins	III	
Dolichyl-diphosphooligosaccharide--protein glycosyltransferase 67 kDa subunit precursor	RPN1	P07153	5 (8)	Biosynthetic proteins	III	
Ectonucleotide pyrophosphatase/phosphodiesterase 1	ENPP1	Q924C3	1 (1)	Signaling proteins	II	
Endoplasmic reticulum protein ERp29 precursor	ERP29	P52555	2 (5)	Biosynthetic proteins		
Epithelial-cadherin precursor	CDH1	Q9R0T4	8 (16)	Adhesion proteins and collagens	I	
Frizzled 1 precursor	FZD1	Q08463	1 (1)	Membrane receptors	III	RT-PCR
Galectin-3	LGALS3	P08699	3 (7)	Miscellaneous proteins		
Glutathione S-transferase theta-2	GSTT2	P30713	1 (2)	Stress proteins		
Golgi apparatus protein 1 precursor	GLG1	Q62638	2 (4)	Adhesion proteins and collagens	I	

GTP:AMP phosphotransferase mitochondrial	AK3	P29411	1 (1)	Metabolism Proteins	
GTP-binding protein ARD-1	TRIM23	P36407	1 (1)	Small GTP binding proteins and related proteins	
Heat-shock protein beta-3	HSPB3	Q9QZ58	1 (1)	Chaperone	
Hemoglobin beta-1 subunit	HBB	P02091	2 (4)	Miscellaneous proteins	
Heparin-binding growth factor 2 precursor	FGF2	P13109	1 (2)	Miscellaneous proteins	
Histone H2A 1		P02262	6 (18)	Nuclear proteins	
Histone H2B		Q00715	2 (4)	Nuclear proteins	
Histone H3	H3F3B	P84245	3 (4)	Nuclear proteins	
Hyaluronan and proteoglycan link protein 2 precursor	HAPLN2	Q9ESM2	1 (5)	Secreted proteins	
Insulin-like growth factor 1 receptor precursor	IGF1R	P24062	3 (4)	Membrane receptors	I
Integrin beta-1 precursor	ITGB1	P49134	24 (54)	Adhesion proteins and collagens	I
Lactadherin precursor	MFGE8	P70490	3 (6)	Miscellaneous proteins	
Major vault protein	MVP	Q62667	4 (4)	Miscellaneous proteins	
Myosin regulatory light chain 2-B, smooth muscle isoform	RLC-B	P18666	2 (2)	Cytoskeletal Proteins and Linkers/Molecular Motors	
Neural cell adhesion molecule L1 precursor	L1CAM	Q05695	2 (2)	Adhesion proteins and collagens	I
Neuropilin-1 precursor	NRP1	Q9QWJ9	2 (2)	Membrane receptors	I
Nucleobindin-1 precursor	NUCB1	Q63083	1 (1)	Miscellaneous proteins	
Peptidyl-prolyl cis-trans isomerase B precursor	PPIB	P24368	2 (3)	Biosynthetic proteins	
Peroxiredoxin-1	PRDX1	Q63716	3 (3)	Stress proteins	
Peroxiredoxin-5, mitochondrial precursor	PRDX5	Q9R063	1 (2)	Stress proteins	
Phosphatidylethanolamine-binding protein	PBP	P31044	1 (1)	Signaling proteins	
Poly [ADP-ribose] polymerase 1	PARP1	P27008	1 (1)	Stress proteins	
Probable G-protein coupled receptor 116 precursor	GPR116	Q9WVT0	2 (4)	Membrane receptors	III

Programmed cell death 6-interacting protein	PDCD6IP	Q9QZA2	1 (1)	Apoptosis proteins	
Prolyl 4-hydroxylase alpha-1 subunit precursor	P4HA1	P54001	1 (2)	Biosynthetic proteins	
Prostaglandin F2 receptor negative regulator precursor	PTGFRN	Q62786	1 (2)	Miscellaneous proteins	I
Proto-oncogene C-crk	CRK	Q63768	1 (2)	Signaling proteins	
Pyruvate carboxylase, mitochondrial precursor	PC	P52873	13 (17)	Metabolism Proteins	
Ras-related protein Rab-1B	RAB1B	P10536	1 (1)	Small GTP binding proteins and related proteins	
Replication protein A 32 kDa subunit	RPA2	Q63528	1 (1)	Nuclear proteins	
Serine/threonine-protein phosphatase PP1-gamma catalytic subunit	PPP1CC	P63088	1 (1)	Protein phosphatases	
Single-stranded DNA-binding protein, mitochondrial precursor	SSBP1	P28042	1 (2)	Stress proteins	
SPARC precursor	SPARC	P16975	1 (1)	Secreted proteins	
Succinate dehydrogenase [ubiquinone] iron-sulfur protein	SDHB	P21913	1 (1)	Metabolism Proteins	
Superoxide dismutase [Cu-Zn]	SOD1	P07632	1 (2)	Stress proteins	
Superoxide dismutase [Mn], mitochondrial precursor	SOD2	P07895	1 (2)	Stress proteins	
T-complex protein 1 subunit delta	CCT4	Q7TPB1	2 (3)	Chaperone	
Thioredoxin	TXN	P11232	1 (2)	Stress proteins	
Trimethyllysine dioxygenase, mitochondrial precursor	TMLHE	Q91ZW6	1 (1)	Biosynthetic proteins	
14-3-3 protein zeta/delta	YWHAZ	P63102	1 (1)	Signaling proteins	
150 kDa oxygen-regulated protein precursor	HYOU1	Q63617	5 (5)	Chaperones	
3,2-trans-enoyl-CoA isomerase, mitochondrial precursor	DCI	P23965	3 (4)	Biosynthetic proteins	
3-hydroxyacyl-CoA dehydrogenase type-2	HADH2	O70351	9 (11)	Metabolism proteins	
3-hydroxyisobutyrate dehydrogenase, mitochondrial precursor	HIBADH	P29266	1 (1)	Miscellaneous proteins	
3-ketoacyl-CoA thiolase, mitochondrial	ACAA2	P13437	5 (5)	Metabolism proteins	
47 kDa heat shock protein precursor	SERPINH1	P29457	2 (2)	Chaperones	

60 kDa heat shock protein, mitochondrial precursor	HSPD1	P63039	17 (19)	Chaperones	
60S acidic ribosomal protein P0	RPLP0	P19945	6 (7)	Biosynthetic proteins	
60S ribosomal protein L11	RPL11	P62914	1 (1)	Biosynthetic proteins	
60S ribosomal protein L18	RPL18	P12001	1 (1)	Biosynthetic proteins	
60S ribosomal protein L6	RPL6	P21533	1 (1)	Biosynthetic proteins	
60S ribosomal protein L7	RPL7	P05426	1 (1)	Biosynthetic proteins	
78 kDa glucose-regulated protein precursor	HSPA5	P06761	14 (18)	Biosynthetic proteins	
Acetyl-CoA acetyltransferase, mitochondrial precursor	ACAT1	P17764	9 (23)	Metabolism proteins	
Actin, alpha cardiac	ACTC	P68035	19 (265)	Cytoskeletal proteins and linkers/molecular motors	
Actin, cytoplasmic 2	ACTG1	P63259	13 (114)	Cytoskeletal proteins and linkers/molecular motors	
Acyl-CoA dehydrogenase, long-chain specific, mitochondrial precursor	ACADL	P15650	3 (6)	Metabolism proteins	
Acyl-CoA dehydrogenase, short/branched chain specific, mitochondrial precursor	ACADSB	P70584	1 (1)	Metabolism proteins	
Acyl-CoA dehydrogenase, very-long-chain specific, mitochondrial precursor	ACADVL	P45953	4 (10)	Metabolism proteins	
ADP/ATP translocase 1	SLC25A4	Q05962	2 (2)	Transporters and channels	III
ADP/ATP translocase 2	SLC25A5	Q09073	4 (16)	Transporters and channels	III
Aldose reductase	AKR1B1	P07943	8 (27)	Stress proteins	
Alpha crystallin B chain	CRYAB	P23928	3 (5)	Chaperones	
Alpha-actinin-1	ACTN1	Q9Z1P2	7 (10)	Cytoskeletal proteins and linkers/molecular motors	
Alpha-actinin-4	ACTN4	Q9QXQ0	26 (56)	Cytoskeletal proteins and linkers/molecular motors	

Alpha-enolase	ENO1	P04764	8 (9)	Metabolism proteins		
Annexin A1	ANXA1	P07150	8 (16)	Membrane trafficking proteins		
Annexin A2	ANXA2	Q07936	21 (55)	Membrane trafficking proteins		
Annexin A5	ANXA5	P14668	4 (6)	Membrane trafficking proteins		
Annexin A6	ANXA6	P48037	4 (4)	Membrane trafficking proteins		
AP-2 complex subunit alpha-2	AP2A2	P18484	1 (1)	Membrane trafficking proteins		
AP-2 complex subunit beta-1	AP2B1	P62944	2 (4)	Membrane trafficking proteins		
Arginase-2, mitochondrial precursor	ARG2	O08701	2 (2)	Biosynthetic proteins		
Aspartate aminotransferase, mitochondrial precursor	GOT2	P00507	8 (10)	Biosynthetic proteins		
ATP synthase alpha chain, mitochondrial precursor	ATP5A1	P15999	18 (74)	Metabolism proteins		
ATP synthase beta chain, mitochondrial precursor	ATP5B	P10719	23 (42)	Metabolism proteins		
ATP synthase gamma chain, mitochondrial	ATP5C1	P35435	3 (3)	Metabolism proteins		
Beta-catenin	CTNNB1	Q9WU82	6 (7)	Signaling proteins		
Calnexin precursor	CANX	P35565	13 (27)	Chaperones	I	
Calpain small subunit 1	CAPNS1	Q64537	2 (2)	Protein degradation pathways		
Calreticulin precursor	CALR	P18418	3 (4)	Chaperones		
Calumenin precursor	CALU	O35783	1 (1)	Miscellaneous proteins		
Catalase	CAT	P04762	1 (1)	Stress proteins		
CD166 antigen precursor	ALCAM	O35112	1 (2)	Adhesion proteins and collagens	I	RT-PCR
Ceruloplasmin precursor	CP	P13635	2 (2)	Secreted proteins		
Clathrin heavy chain	CLTC	P11442	10 (13)	Membrane trafficking proteins		

Cytochrome c oxidase subunit 2	MTCO2	P00406	1 (1)	Metabolism proteins	III
Dihydrolipoyllysine-residue acetyltransferase component of pyruvate dehydrogenase complex	DLAT	P08461	2 (4)	Metabolism proteins	
Dihydrolipoyllysine-residue succinyltransferase component of 2- oxoglutarate dehydrogenase complex, mitochondrial precursor	DLST	Q01205	1 (1)	Metabolism proteins	
Elongation factor 1-alpha 1	EEF1A1	P62630	4 (5)	Biosynthetic proteins	
Elongation factor 1-alpha 2	EEF1A2	P62632	4 (11)	Biosynthetic proteins	
Elongation factor 2	EEF2	P05197	3 (3)	Biosynthetic proteins	
Enoyl-CoA hydratase, mitochondrial precursor	ECHS1	P14604	3 (3)	Biosynthetic proteins	
Gamma-enolase	ENO2	P07323	2 (2)	Metabolism proteins	
Glutamate dehydrogenase 1, mitochondrial precursor	GLUD1	P10860	5 (5)	Metabolism proteins	
Glutaminase kidney isoform, mitochondrial precursor	GLS	P13264	2 (3)	Metabolism proteins	
Glutathione peroxidase 1	GPX1	P04041	1 (1)	Stress proteins	
Glyceraldehyde-3-phosphate dehydrogenase	GAPDH	P04797	7 (17)	Metabolism proteins	
Glycerol-3-phosphate dehydrogenase, mitochondrial precursor	GPD2	P35571	2 (4)	Metabolism proteins	
GTP-binding nuclear protein Ran	RAN	P62828	1 (1)	Small GTP binding proteins and related proteins	
Guanine nucleotide-binding protein beta subunit 2-like 1	GNB2L1	P63245	1 (1)	Heterotrimeric G proteins	
Guanine nucleotide-binding protein G	GNAI2	P04897	7 (8)	Heterotrimeric G proteins	
Heat shock 70 kDa protein 1A/1B	HSPA1A	Q07439	12 (26)	Chaperones	
Heat shock cognate 71 kDa protein	HSPA8	P63018	6 (10)	Chaperones	
Heat shock protein HSP 90-beta	HSP90AB1	P34058	10 (11)	Chaperones	
Heat shock-related 70 kDa protein 2	HSPA2	P14659	4 (4)	Chaperones	
Heat-shock protein beta-1	HSPB1	P42930	6 (10)	Chaperones	
Hexokinase-1	HK1	P05708	2 (3)	Metabolism proteins	

Histone H1.0	H1F0	P43278	1 (1)	Nuclear proteins	
Histone H1.2	HIST1H1C	P15865	1 (1)	Nuclear proteins	
Histone H4 [Contains: Osteogenic growth peptide	HIST1H4B	P62804	1 (1)	Nuclear proteins	
Integrin alpha-1 precursor	ITGA1	P18614	2 (2)	Adhesion proteins and collagens	I
Interferon-induced GTP-binding protein Mx2	MX2	P18589	1 (1)	Membrane trafficking proteins	
Isovaleryl-CoA dehydrogenase, mitochondrial precursor	IVD	P12007	2 (4)	Metabolism proteins	
Keratin, I cytoskeletal 19	KRT19	Q63279	5 (12)	Cytoskeletal proteins and linkers/molecular motors	
Keratin, II cytoskeletal 8	KRT8	Q10758	9 (29)	Cytoskeletal proteins and linkers/molecular motors	
Lamin-A	LMNA	P48679	5 (7)	Cytoskeletal proteins and linkers/molecular motors	
Laminin beta-2 chain precursor	LAMB2	P15800	2 (2)	Adhesion proteins and collagens	
L-lactate dehydrogenase A chain	LDHA	P04642	3 (3)	Metabolism proteins	
Malate dehydrogenase, mitochondrial precursor	MDH2	P04636	9 (32)	Metabolism proteins	
Methylmalonate-semialdehyde dehydrogenase [acylating], mitochondrial precursor	ALDH6A1	Q02253	5 (7)	Metabolism proteins	
Moesin	MSN	O35763	3 (3)	Cytoskeletal proteins and linkers/molecular motors	
Myosin Id	MYO1D	Q63357	6 (9)	Cytoskeletal proteins and linkers/molecular motors	
Myosin light polypeptide 6	MYL6	Q64119	1 (3)	Cytoskeletal proteins and linkers/molecular motors	
Myosin-10	MYH10	Q9JLT0	71 (141)	Cytoskeletal proteins and linkers/molecular motors	

Myosin-11	MYH11	Q63862	7 (33)	Cytoskeletal proteins and linkers/molecular motors		
Myosin-9	MYH9	Q62812	67 (137)	Cytoskeletal proteins and linkers/molecular motors		
NADH-ubiquinone oxidoreductase 24 kDa subunit, mitochondrial precursor	NDUFV2	P19234	1 (1)	Metabolism proteins		
Neurofilament triplet H protein	NEFH	P16884	1 (1)	Cytoskeletal proteins and linkers/molecular motors		
Peroxisomal multifunctional enzyme 2	HSD17B4	P97852	5 (6)	Metabolism proteins		
Phosphate carrier protein, mitochondrial precursor	SLC25A3	P16036	2 (5)	Transporters and channels	III	
Plastin-3	PLS3	Q63598	3 (4)	Cytoskeletal proteins and linkers/molecular motors		
Plectin 1	PLEC1	P30427	9 (11)	Cytoskeletal proteins and linkers/molecular motors		
Podocalyxin precursor	PODXL	Q9WTQ2	1 (1)	Adhesion proteins and collagens	I	RT-PCR
Profilin-1	PFN1	P62963	1 (2)	Cytoskeletal proteins and linkers/molecular motors		
Programmed cell death protein 8, mitochondrial precursor	PDCD8	Q9JM53	6 (8)	Apoptosis proteins		
Prohibitin	PHB	P67779	5 (6)	Miscellaneous proteins		
Propionyl-CoA carboxylase beta chain, mitochondrial precursor	PCCB	P07633	4 (5)	Metabolism proteins		
Prostaglandin G/H synthase 1 precursor	PTGS1	Q63921	3 (5)	Signaling proteins		
Protein disulfide-isomerase A3 precursor	PDIA3	P11598	14 (24)	Biosynthetic proteins		
Protein disulfide-isomerase A4 precursor	PDIA4	P38659	3 (3)	Biosynthetic proteins		
Protein disulfide-isomerase A6 precursor	PDIA6	Q63081	4 (4)	Biosynthetic proteins		

Protein disulfide-isomerase precursor	P4HB	P04785	6 (6)	Biosynthetic proteins	
Pyruvate dehydrogenase E1 component alpha subunit, somatic form, mitochondrial precursor	PDHA1	P26284	2 (5)	Metabolism proteins	
Pyruvate dehydrogenase E1 component beta subunit, mitochondrial precursor	PDHB	P49432	4 (6)	Metabolism proteins	
Pyruvate kinase isozymes M1/M2	PKM2	P11980	14 (28)	Metabolism proteins	
Ras-related protein Rab-14	RAB14	P61107	2 (3)	Small GTP binding proteins and related proteins	
Ras-related protein Rab-1A	RAB1A	Q6NYB7	1 (1)	Small GTP binding proteins and related proteins	
Serum albumin precursor	ALB	P02770	6 (7)	Secreted proteins	
Short chain 3-hydroxyacyl-CoA dehydrogenase, mitochondrial precursor	HADHSC	Q9WVK7	2 (2)	Metabolism proteins	
Sodium/potassium-transporting ATPase alpha-1 chain precursor	ATP1A1	P06685	26 (134)	Ion pumps	III
Sodium/potassium-transporting ATPase alpha-3 chain	ATP1A3	P06687	15 (63)	Ion pumps	III
Sodium/potassium-transporting ATPase beta-1 chain	ATP1B1	P07340	6 (14)	Ion pumps	II
Sodium/potassium-transporting ATPase beta-3 chain	ATP1B3	Q63377	1 (3)	Ion pumps	II
Spectrin alpha chain, brain	SPTAN1	P16086	70 (151)	Cytoskeletal proteins and linkers/molecular motors	
Spectrin beta chain, brain 2	SPTBN2	Q9QWN8	51 (94)	Cytoskeletal proteins and linkers/molecular motors	
Stress-70 protein, mitochondrial precursor	HSPA9	P48721	14 (16)	Chaperones	
Succinate dehydrogenase [ubiquinone] flavoprotein subunit, mitochondrial precursor	SDHA	Q920L2	3 (4)	Metabolism proteins	
Transitional endoplasmic reticulum ATPase	VCP	P46462	3 (3)	Membrane trafficking proteins	
Transketolase	TKT	P50137	1 (1)	Metabolism proteins	

Trifunctional enzyme alpha subunit, mitochondrial precursor	HADHA	Q64428	13 (16)	Metabolism proteins	
Trifunctional enzyme beta subunit, mitochondrial precursor	HADHB	Q60587	2 (2)	Metabolism proteins	
Triosephosphate isomerase	TPI1	P48500	5 (6)	Biosynthetic proteins	
Tubulin alpha-1 chain	TUBA1	P68370	11 (29)	Cytoskeletal proteins and linkers/molecular motors	
Tubulin alpha-2 chain	TUBA2	Q6P9V9	3 (7)	Cytoskeletal proteins and linkers/molecular motors	
Tubulin beta chain		P04691	3 (10)	Cytoskeletal proteins and linkers/molecular motors	
Ubiquinol-cytochrome-c reductase complex core protein 2, mitochondrial precursor	UQCRC2	P32551	10 (26)	Metabolism proteins	
Ubiquitin	RPS27A	P62989	1 (9)	Protein degradation pathways	
Vacuolar ATP synthase subunit B, brain isoform	ATP6V1B2	P62815	2 (2)	Metabolism proteins	
Vimentin	VIM	P31000	2 (2)	Cytoskeletal proteins and linkers/molecular motors	
Voltage-dependent anion-selective channel protein 2	VDAC2	P81155	4 (8)	Transporters and channels	III

a, Number of peptides identified with their total hit number in the parenthesis; b, Collecting duct database (CDDb) family group names; c, Membrane protein types: I, one membrane spanning helix with an extracellular N^o-terminus; II, one membrane spanning helix with an extracellular C^o-terminus; III, multiple membrane spanning helices; GPI, glycosylphosphatidylinositol-linked; d, Protein identifications confirmed by RT-PCR.

Table S-5. Number of proteins identified from the non-fixed perfusion- and incubation-biotinylated inner medullary collecting ducts (IMCDs).

Non-fixed perfusion-biotinylated IMCDs				
Peptide number ^a	Original database search ^b	Reversed database search ^c	Net difference ^d	Manually accepted identification ^e
1	497	452	45	32
2	78	67	11	20
3	25	12	13	17
4	12	2	10	10
>4	41	0	41	38
Total	653	533	120	117
Non-fixed incubation-biotinylated IMCDs				
Peptide number ^a	Original database search ^b	Reversed database search ^c	Net difference ^d	Manually accepted identification ^e
1	140	19	121	91
2	44	1	43	41
3	29	0	29	27
4	18	0	18	15
>4	65	0	65	61
Total	296	20	276	235

a, Number of peptides identified for particular proteins; b, Number of proteins passing the default criteria of the Bioworks/Sequest search algorithm using the Swiss-Prot database; c, Same as b except the sequences in the database were reversed; d, Estimated number of proteins likely to be valid identifications; e, Number of proteins passing manual spectrum inspection.

Table S-6. Proteins identified from the non-fixed perfusion- and incubation-biotinylated inner medullary collecting ducts (IMCDs).

Protein name	Gene name	Accession	Ion (n) ^a	CDDB family ^b	Type ^c	P/I
14-3-3 protein beta/alpha	YWHAB	P35213	2 (4)	Signaling proteins		P
14-3-3 protein epsilon	YWHAE	P62260	6 (9)	Signaling proteins		P
14-3-3 protein eta	YWHAH	P68511	3 (11)	Signaling proteins		P
14-3-3 protein theta	YWHAQ	P68255	6 (13), 1(1)	Signaling proteins		P, I
14-3-3 protein zeta/delta	YWHAZ	P63102	6 (15), 1 (1)	Signaling proteins		P, I
150 kDa oxygen-regulated protein precursor	HYOU1	Q63617	5 (5)	Chaperones		I
26S protease regulatory subunit 8	PSMC5	P62198	1 (1)	Protein degradation pathways		I
3,2-trans-enoyl-CoA isomerase, mitochondrial precursor	DCI	P23965	3 (4)	Biosynthetic proteins		I
3-hydroxyacyl-CoA dehydrogenase type-2	HADH2	O70351	9 (11)	Metabolism proteins		I
3-hydroxyisobutyrate dehydrogenase, mitochondrial precursor	HIBADH	P29266	1 (1)	Miscellaneous proteins		I
3-ketoacyl-CoA thiolase, mitochondrial	ACAA2	P13437	5 (5)	Metabolism proteins		I
3-mercaptopyruvate sulfurtransferase	MPST	P97532	2 (2)	Metabolism proteins		I
40S ribosomal protein S14	RPS14	P13471	1 (1)	Biosynthetic proteins		I
40S ribosomal protein S2	RPS2	P27952	1 (1)	Biosynthetic proteins		I
40S ribosomal protein S3	RPS3	P62909	1 (1)	Biosynthetic proteins		I
40S ribosomal protein S3a	RPS3A	P49242	2 (2)	Biosynthetic proteins		I
40S ribosomal protein S8	RPS8	P62243	1 (1)	Biosynthetic proteins		I
40S ribosomal protein SA	RPSA	P38983	4 (5), 2 (3)	Biosynthetic proteins		P, I
47 kDa heat shock protein precursor	SERPINH1	P29457	2 (2)	Chaperones		I
60 kDa heat shock protein, mitochondrial precursor	HSPD1	P63039	17 (19)	Chaperones		I
60S acidic ribosomal protein P0	RPLP0	P19945	6 (7)	Biosynthetic proteins		I

60S ribosomal protein L11	RPL11	P62914	1 (1)	Biosynthetic proteins	I
60S ribosomal protein L18	RPL18	P12001	1 (1)	Biosynthetic proteins	I
60S ribosomal protein L3	RPL3	P21531	1 (1)	Biosynthetic proteins	I
60S ribosomal protein L31	RPL31	P62902	1 (1)	Biosynthetic proteins	I
60S ribosomal protein L4	RPL4	P50878	1 (1)	Biosynthetic proteins	I
60S ribosomal protein L6	RPL6	P21533	1 (1)	Biosynthetic proteins	I
60S ribosomal protein L7	RPL7	P05426	1 (1)	Biosynthetic proteins	I
60S ribosomal protein L7a	RPL7A	P62425	1 (1)	Biosynthetic proteins	I
78 kDa glucose-regulated protein precursor	HSPA5	P06761	14 (28), 14 (18)	Chaperones	P, I
Acetyl-CoA acetyltransferase, mitochondrial precursor	ACAT1	P17764	9 (23)	Metabolism proteins	I
Actin, alpha cardiac	ACTC	P68035	19 (265)	Cytoskeletal proteins and linkers/molecular motors	I
Actin, alpha skeletal muscle	ACTA1	P68136	20 (42)	Cytoskeletal proteins and linkers/molecular motors	P
Actin, cytoplasmic 1	ACTB	P60711	12 (34)	Cytoskeletal proteins and linkers/molecular motors	P
Actin, cytoplasmic 2	ACTG1	P63259	13 (114)	Cytoskeletal proteins and linkers/molecular motors	I
Actin-related protein 2/3 complex subunit 1B	ARPC1B	O88656	2 (2)	Cytoskeletal proteins and linkers/molecular motors	I
Acyl-CoA dehydrogenase, long-chain specific, mitochondrial precursor	ACADL	P15650	3 (6)	Metabolism proteins	I
Acyl-CoA dehydrogenase, medium-chain specific, mitochondrial precursor	ACADM	P08503	2 (3)	Metabolism proteins	I

Acyl-CoA dehydrogenase, short/branched chain specific, mitochondrial precursor	ACADSB	P70584	1 (1)	Metabolism proteins		I
Acyl-CoA dehydrogenase, very-long-chain specific, mitochondrial precursor	ACADVL	P45953	4 (10)	Metabolism proteins		I
Adenosylhomocysteinase	AHCY	P10760	1 (1)	Biosynthetic proteins		I
Adipocyte-derived leucine aminopeptidase precursor	ARTS1	Q9JJ22	1 (1)	Aminopeptidases		I
ADP/ATP translocase 1	SLC25A4	Q05962	2 (2)	Transporters and channels	III	I
ADP/ATP translocase 2	SLC25A5	Q09073	4 (16)	Transporters and channels	III	I
Afadin- and alpha-actinin-binding protein	SSX2IP	Q8CGZ2	1 (3)	Tight junction proteins		I
Aldehyde dehydrogenase 1A3	ALDH1A3	Q8K4D8	1 (1)	Metabolism proteins		I
Aldose reductase	AKR1B1	P07943	16 (62), 8(27)	Stress proteins		P, I
Alkaline phosphatase, tissue-nonspecific isozyme precursor	ALPL	P08289	1 (1)	Protein phosphatases	GPI	P
Alpha crystallin B chain	CRYAB	P23928	1 (1), 3 (5)	Chaperones		P, I
Alpha-1-antiproteinase precursor	SERPINA1	P17475	10 (12)	Secreted proteins		P
Alpha-actinin-1	ACTN1	Q9Z1P2	9 (16), 7(10)	Cytoskeletal proteins and linkers/molecular motors		P, I
Alpha-actinin-4	ACTN4	Q9QXQ0	5 (9), 26 (56)	Cytoskeletal proteins and linkers/molecular motors		P, I
Alpha-enolase	ENO1	P04764	8 (9)	Metabolism proteins		I
AMBP protein precursor	AMBP	Q64240	5 (15)	Secreted proteins		P
Aminopeptidase B	RNPEP	O09175	1 (1)	Secreted proteins		I
Amyotrophic lateral sclerosis 2 chromosomal region candidate gene 3 protein homolog	TRAK2	Q8R2H7	1 (52)	Membrane trafficking proteins		P
Annexin A1	ANXA1	P07150	5 (16), 8 (16)	Membrane trafficking proteins		P, I
Annexin A2	ANXA2	Q07936	7 (15), 21 (55)	Membrane trafficking proteins		P, I
Annexin A4	ANXA4	P55260	3 (3)	Membrane trafficking proteins		I

Annexin A5	ANXA5	P14668	1 (1), 4 (6)	Membrane trafficking proteins		P, I
Annexin A6	ANXA6	P48037	4 (4)	Membrane trafficking proteins		I
AP-2 complex subunit alpha-2	AP2A2	P18484	1 (1)	Membrane trafficking proteins		I
AP-2 complex subunit beta-1	AP2B1	P62944	2 (4)	Membrane trafficking proteins		I
Aquaporin-1	AQP1	P29975	4 (37), 4 (5)	Transporters and channels	III	P, I
Aquaporin-2	AQP2	P34080	2 (9), 3 (7)	Transporters and channels	III	P, I
Aquaporin-4	AQP4	P47863	3 (4), 1 (1)	Transporters and channels	III	P, I
Arginase-2, mitochondrial precursor	ARG2	O08701	2 (2)	Biosynthetic proteins		I
Aspartate aminotransferase, mitochondrial precursor	GOT2	P00507	8 (10)	Biosynthetic proteins		I
ATP synthase alpha chain, mitochondrial precursor	ATP5A1	P15999	18 (74)	Metabolism proteins		I
ATP synthase B chain, mitochondrial precursor	ATP5F1	P19511	6 (6)	Metabolism proteins		I
ATP synthase beta chain, mitochondrial precursor	ATP5B	P10719	23 (42)	Metabolism proteins		I
ATP synthase gamma chain, mitochondrial	ATP5C1	P35435	3 (3)	Metabolism proteins		I
ATP-citrate synthase	ACLY	P16638	4 (5)	Biosynthetic proteins		I
Band 3 anion transport protein	SLC4A1	P23562	1 (1)	Transporters and channels	III	I
Barttin	BSND	Q8R2H3	7 (47)	Transporters and channels	III	P
Basigin precursor	BSG	P26453	2 (2)	Transporters and channels	I	I
Beta-catenin	CTNNB1	Q9WU82	6 (7)	Signaling proteins		I
Calcium-binding protein p22	CHP	P61023	1 (1), 1 (1)	Membrane trafficking proteins		P, I
Calcyclin	S100A11	Q6B345	1 (1)	Biosynthetic proteins		I (RT- PCR)
Calnexin precursor	CANX	P35565	2 (7), 13 (27)	Chaperones	I	P, I
Calpain small subunit 1	CAPNS1	Q64537	2 (2)	Protein degradation pathways		I

Calpain-1 catalytic subunit	CAPN1	P97571	5 (6)	Protein degradation pathways		I
Calpain-2 catalytic subunit precursor	CAPN2	Q07009	1 (1)	Protein degradation pathways		I
Calponin-3	CNN3	P37397	1 (1)	Cytoskeletal proteins and linkers/molecular motors		P
Calreticulin precursor	CALR	P18418	3 (4)	Chaperones		I
Calumenin precursor	CALU	O35783	1 (1)	Miscellaneous proteins		I
Carbonic anhydrase 4 precursor	CA4	P48284	1 (4)	Transporters and channels (related)	GPI	P (RT-PCR)
Carnitine O-palmitoyltransferase I, liver isoform	CPT1A	P32198	3 (4)	Metabolism proteins	III	I
Casein kinase II subunit alpha	CSNK2A1	P19139	1 (1)	Protein kinases, serine/threonine		I
Catalase	CAT	P04762	1 (1)	Stress proteins		I
Caveolin-1	CAV1	P41350	1 (4)	Membrane trafficking proteins	III	I
CD151 antigen	CD151	Q9QZA6	1 (1)	Adhesion proteins and collagens	III	I
CD166 antigen precursor	ALCAM	O35112	1 (2)	Adhesion proteins and collagens	I	I (RT-PCR)
CD48 antigen precursor	CD48	P10252	3 (4)	Signaling proteins	GPI	P
CD59 glycoprotein precursor	CD59	P27274	1 (5)	Miscellaneous proteins	GPI	P (RT-PCR)
Ceruloplasmin precursor	CP	P13635	40 (111), 2 (2)	Secreted proteins		P, I
Chloride channel protein ClC-Ka	CLCNKA	Q06393	2 (3)	Transporters and channels	III	I
Class I histocompatibility antigen, Non-RT1	RT1-AW2	P15978	1 (4)	Miscellaneous proteins	I	I
Clathrin heavy chain	CLTC	P11442	11 (11), 10 (13)	Membrane trafficking proteins		P, I
Clathrin light chain A	CLTA	P08081	3 (7)	Membrane trafficking proteins		P
Clathrin light chain B	CLTB	P08082	1 (2)	Membrane trafficking proteins		P
Clusterin precursor	CLU	P05371	13 (35)	Secreted proteins		P
Coatomer subunit beta	COPB	P23514	2 (2)	Membrane trafficking proteins		I

Complement C3 precursor	C3	P01026	5 (11)	Secreted proteins		P
Contactin-1 precursor	CNTN1	Q63198	2 (2)	Signaling proteins	GPI	P
Core histone macro-H2A.1	H2AFY	Q02874	3 (4)	Nuclear proteins		P
Corticosteroid 11-beta-dehydrogenase isozyme 2	HSD11B2	P50233	5 (6)	Steroid metabolizing enzymes		I
Creatine kinase, ubiquitous mitochondrial precursor	CKMT1	P25809	1 (1)	Metabolism proteins		I
Cytochrome b5 outer mitochondrial membrane isoform precursor	CYB5M	P04166	1 (2)	Metabolism proteins		P
Cytochrome c oxidase subunit 2	MTCO2	P00406	1 (1)	Metabolism proteins	III	I
Cytochrome c oxidase subunit 4 isoform 1, mitochondrial precursor	COX4I1	P10888	1 (1)	Metabolism proteins		P
Cytoplasmic dynein 1 intermediate chain 2	DYNC1I2	Q62871	1 (1)	Cytoskeletal proteins and linkers/molecular motors		I
Cytosolic acyl coenzyme A thioester hydrolase	ACOT7	Q64559	1 (2)	Metabolism proteins		P
D-beta-hydroxybutyrate dehydrogenase, mitochondrial precursor	BDH1	P29147	1 (1)	Miscellaneous proteins		I
Desmin	DES	P48675	3 (4)	Cytoskeletal proteins and linkers/molecular motors		P
Dihydrolipoyllysine-residue acetyltransferase component of pyruvate dehydrogenase complex	DLAT	P08461	2 (4)	Metabolism proteins		I
Dihydrolipoyllysine-residue succinyltransferase component of 2-oxoglutarate dehydrogenase complex, mitochondrial precursor	DLST	Q01205	1 (1)	Metabolism proteins		I
Dihydropyridine-sensitive L-type, calcium channel alpha-2/delta subunits precursor	CACNA2D1	P54290	7 (24)	Transporters and channels	III	P
Disks large homolog 1	DLG1	Q62696	7 (13)	Anchor scaffold proteins		P
Dynein heavy chain, cytosolic	DYNC1H1	P38650	9 (11)	Cytoskeletal proteins and linkers/molecular motors		I
Elongation factor 1-alpha 2	EEF1A2	P62632	4 (6), 4 (11)	Biosynthetic proteins		P, I

Elongation factor 2	EEF2	P05197	3 (3)	Biosynthetic proteins	I
Enoyl-CoA hydratase, mitochondrial precursor	ECHS1	P14604	3 (3)	Biosynthetic proteins	I
Epithelial-cadherin precursor	CDH1	Q9R0T4	5 (78)	Adhesion proteins and collagens	I P
Fatty aldehyde dehydrogenase	ALDH3A2	P30839	1 (2)	Metabolism proteins	I
Fibrinogen beta chain precursor	FGB	P14480	3 (5)	Secreted proteins	P
Fructose-bisphosphate aldolase A	ALDOA	P05065	2 (2)	Metabolism proteins	I
Fumarate hydratase, mitochondrial precursor	FH	P14408	2 (2)	Metabolism proteins	I
Galectin-3	LGALS3	P08699	1 (4)	Adhesion proteins and collagens	P
Gamma-enolase	ENO2	P07323	2 (2)	Metabolism proteins	I
Glial fibrillary acidic protein, astrocyte	GFAP	P47819	3 (77), 1 (19)	Cytoskeletal proteins and linkers/molecular motors	P, I
Glutamate dehydrogenase 1, mitochondrial precursor	GLUD1	P10860	5 (5)	Metabolism proteins	I
Glutaminase kidney isoform, mitochondrial precursor	GLS	P13264	2 (3)	Metabolism proteins	I
Glutathione peroxidase 1	GPX1	P04041	21 (102), 1 (1)	Stress proteins	P, I
Glutathione peroxidase 2	GPX2	P83645	2 (5)	Stress proteins	P
Glutathione peroxidase 3 precursor	GPX3	P23764	9 (38)	Secreted proteins	P
Glutathione peroxidase 6 precursor	GPX6	Q64625	3 (5)	Stress proteins	P
Glutathione S-transferase Mu 2	GSTM2	P08010	1 (1)	Stress proteins	I
Glyceraldehyde-3-phosphate dehydrogenase	GAPDH	P04797	7 (17)	Metabolism proteins	I
Glycerol kinase	GK	Q63060	1 (1)	Metabolism proteins	I
Glycerol-3-phosphate dehydrogenase, mitochondrial precursor	GPD2	P35571	2 (4)	Metabolism proteins	I
Glycogen phosphorylase, brain form	PYGB	P53534	5 (6)	Metabolism proteins	I
Golgi apparatus protein 1 precursor	GLG1	Q62638	2 (2)	Biosynthetic proteins	P

Golgi resident protein GCP60	ACBD3	Q7TNY6	3 (4)	Biosynthetic proteins	P
GTP-binding nuclear protein Ran	RAN	P62828	1 (1)	Small GTP binding proteins and related proteins	I
Guanine nucleotide-binding protein alpha-11 subunit	GNA11	Q9JID2	3 (3)	Heterotrimeric G proteins	I
Guanine nucleotide-binding protein beta subunit 2-like 1	GNB2L1	P63245	1 (1)	Heterotrimeric G proteins	I
Guanine nucleotide-binding protein beta subunit 4	GNB4	O35353	2 (6)	Heterotrimeric G-proteins	P
Guanine nucleotide-binding protein G	GNAI2	P04897	1 (1), 7 (8)	Heterotrimeric G proteins	P, I
Guanine nucleotide-binding protein G	GNAI3	P08753	1 (2)	Heterotrimeric G-proteins	P
Guanine nucleotide-binding protein G	GNAQ	P82471	2 (2)	Heterotrimeric G proteins	I
Guanine nucleotide-binding protein G	GNB1	P54311	1 (2)	Heterotrimeric G-proteins	P
Guanine nucleotide-binding protein G	GNB2	P54313	1 (2), 3 (3)	Heterotrimeric G proteins	P, I
Heat shock 70 kDa protein 1A/1B	HSPA1A	Q07439	4 (9), 12 (26)	Chaperones	P, I
Heat shock cognate 71 kDa protein	HSPA8	P63018	15 (30), 6 (10)	Chaperones	P, I
Heat shock protein HSP 90-beta	HSP90AB1	P34058	10 (11)	Chaperones	I
Heat shock-related 70 kDa protein 2	HSPA2	P14659	1 (1), 4 (4)	Chaperones	P, I
Heat-shock protein beta-1	HSPB1	P42930	6 (10)	Chaperones	I
Heme oxygenase 2	HMOX2	P23711	1 (1)	Miscellaneous proteins	I
Hemoglobin alpha-1/2 subunit	HBA1	P01946	5 (8)	Binding proteins	P
Hemoglobin beta-1 subunit	HBB	P02091	2 (13)	Binding proteins	P
Hemoglobin beta-2 subunit		P11517	4 (15)	Binding proteins	P
Heterogeneous nuclear ribonucleoprotein A1	HNRPA1	P04256	1 (2)	Nuclear proteins	I
Heterogeneous nuclear ribonucleoprotein A3	HNRPA3	Q6URK4	3 (3)	Nuclear proteins	I
Heterogeneous nuclear ribonucleoprotein D0	HNRPD	Q9JJ54	2 (3)	Nuclear proteins	I
Heterogeneous nuclear ribonucleoprotein K	HNRPK	P61980	3 (4)	Nuclear proteins	I
Hexokinase-1	HK1	P05708	2 (3)	Metabolism proteins	I

Histone H1.0	H1F0	P43278	1 (1)	Nuclear proteins		I
Histone H1.2	HIST1H1C	P15865	1 (1)	Nuclear proteins		I
Histone H2B		Q00715	2 (2)	Nuclear proteins		P
Histone H2B, testis	HIST1H2B A	Q00729	1 (3), 1 (1)	Nuclear proteins		P, I
Histone H4	HIST1H4B	P62804	3 (12), 1 (1)	Nuclear proteins		P, I
Hydroxymethylglutaryl-CoA lyase, mitochondrial precursor	HMGCL	P97519	1 (1)	Metabolism proteins		I
Ig kappa chain C region, A allele		P01836	2 (4)	Secreted proteins		P
Ig kappa chain C region, B allele		P01835	2 (5)	Secreted proteins		P
Inositol 1,4,5-trisphosphate receptor 1	ITPR1	P29994	1 (2)	Transporters and channels	III	I
Inositol 1,4,5-trisphosphate receptor 2	ITPR2	P29995	1 (1)	Transporters and channels	III	I
Integrin alpha-1 precursor	ITGA1	P18614	2 (2)	Adhesion proteins and collagens	I	I
Intercellular adhesion molecule 1 precursor	ICAM1	Q00238	1 (1)	Adhesion proteins and collagens	I	I
Interferon-induced GTP-binding protein Mx2	MX2	P18589	1 (1)	Membrane trafficking proteins		I
Interferon-induced GTP-binding protein Mx3	MX3	P18590	1 (1)	Membrane trafficking proteins		I
Isovaleryl-CoA dehydrogenase, mitochondrial precursor	IVD	P12007	2 (4)	Metabolism proteins		I
Keratin, II cytoskeletal 8	KRT8	Q10758	9 (29)	Cytoskeletal proteins and linkers/molecular motors		I
Keratin, type I cytoskeletal 19	KRT19	Q63279	15 (81), 15 (12)	Cytoskeletal proteins and linkers/molecular motors		P, I
Keratin, type I cytoskeletal 20	KRT20	P25030	4 (65), 2 (5)	Cytoskeletal proteins and linkers/molecular motors		P, I
Kinesin-like protein KIF2C	KIF2C	Q62909	2 (4)	Cytoskeletal proteins and linkers/molecular motors		P
Lamin-A	LMNA	P48679	3 (3), 5 (7)	Cytoskeletal proteins and linkers/molecular motors		P, I

Lamin-B1	LMNB1	P70615	7 (15), 1 (2)	Cytoskeletal proteins and linkers/molecular motors		P, I
Laminin beta-2 chain precursor	LAMB2	P15800	2 (3), 2 (2)	Adhesion proteins and collagens		P, I
LIN-7 homolog A	LIN7A	Q9Z250	1 (1)	Anchor scaffold proteins		P
LIN-7 homolog C	LIN7C	Q792I0	5 (7)	Anchor scaffold proteins		P
Lipid phosphate phosphohydrolase 3	PPAP2B	P97544	1 (2)	Metabolism proteins	III	I
L-lactate dehydrogenase A chain	LDHA	P04642	3 (3)	Metabolism proteins		I
L-lactate dehydrogenase B chain	LDHB	P42123	1 (1)	Metabolism proteins		I
Lysosome-associated membrane glycoprotein 1 precursor	LAMP1	P14562	1 (1)	Membrane trafficking proteins	I	I
Malate dehydrogenase, mitochondrial precursor	MDH2	P04636	9 (32)	Metabolism proteins		I
Merlin	NF2	Q63648	1 (2)	Cytoskeletal proteins and linkers/molecular motors		P
Methylmalonate-semialdehyde dehydrogenase [acylating], mitochondrial precursor	ALDH6A1	Q02253	5 (7)	Metabolism proteins		I
Mitochondrial 2-oxoglutarate/malate carrier protein	SLC25A11	P97700	2 (3)	Transporters and channels	III	I
Moesin	MSN	O35763	2 (2), 3 (3)	Cytoskeletal proteins and linkers/molecular motors		P, I
Monocarboxylate transporter 2, MCT2	SLC16A7	Q63344	1 (2)	Transporters and channels	III	I (RT-PCR)
Monocyte differentiation antigen CD14 precursor	CD14	Q63691	3 (6)	Signaling proteins	GPI	P
Monoglyceride lipase	MGLL	Q8R431	1 (1)	Metabolism proteins		I
Multifunctional protein ADE2 [Includes: Phosphoribosylaminoimidazole-succinocarboxamide synthase	PAICS	P51583	2 (3)	Biosynthetic proteins		I
Myosin heavy chain, fast skeletal muscle, embryonic	MYH3	P12847	1 (1)	Cytoskeletal proteins and linkers/molecular motors		I

Myosin Ib	MYO1A	Q05096	3 (4)	Cytoskeletal proteins and linkers/molecular motors	I
Myosin Id	MYO1D	Q63357	1 (1), 6 (9)	Cytoskeletal proteins and linkers/molecular motors	P, I
Myosin Ie	MYO1E	Q63356	2 (2)	Cytoskeletal proteins and linkers/molecular motors	I
Myosin light polypeptide 6	MYL6	Q64119	1 (3)	Cytoskeletal proteins and linkers/molecular motors	I
Myosin-10	MYH10	Q9JLT0	4 (18), 71 (141)	Cytoskeletal proteins and linkers/molecular motors	P, I
Myosin-11	MYH11	Q63862	7 (33)	Cytoskeletal proteins and linkers/molecular motors	I
Myosin-5B	MYO5B	P70569	1 (1)	Cytoskeletal proteins and linkers/molecular motors	I
Myosin-9	MYH9	Q62812	67 (137)	Cytoskeletal proteins and linkers/molecular motors	I
Na(+)/H(+) exchange regulatory cofactor NHE-RF2 (NHERF-2) (Tyrosine kinase activator protein 1) (TKA-1)	SLC9A3R2	Q920G2	1 (1)	Cytoskeletal proteins and linkers/molecular motors	I
NADH-ubiquinone oxidoreductase 24 kDa subunit, mitochondrial precursor	NDUFV2	P19234	1 (1)	Metabolism proteins	I
Neurabin-2	PPP1R9B	O35274	1 (2)	Cytoskeletal proteins and linkers/molecular motors	P
Neurofilament triplet H protein	NEFH	P16884	1 (1)	Cytoskeletal proteins and linkers/molecular motors	I
Nuclease sensitive element-binding protein 1	YBX1	P62961	1 (1)	Miscellaneous proteins	I

Nucleolin	NCL	P13383	1 (1)	Nuclear proteins		I
Ornithine aminotransferase, mitochondrial precursor	OAT	P04182	1 (1)	Biosynthetic proteins		I
Peripherin	PRPH	P21807	3 (15)	Cytoskeletal proteins and linkers/molecular motors		P
Peroxiredoxin-1	PRDX1	Q63716	3 (5)	Stress proteins		P
Peroxiredoxin-5, mitochondrial precursor	PRDX5	Q9R063	1 (1)	Stress proteins		P
Peroxiredoxin-6	PRDX6	O35244	2 (2)	Stress proteins		I
Peroxisomal multifunctional enzyme 2	HSD17B4	P97852	5 (6)	Metabolism proteins		I
Phosphate carrier protein, mitochondrial precursor	SLC25A3	P16036	2 (5)	Transporters and channels	III	I
Phosphoglycerate kinase 1	PGK1	P16617	1 (1)	Metabolism proteins		I
Phospholipid hydroperoxide glutathione peroxidase, nuclear	GPX4	Q91XR8	5 (18)	Stress proteins		P
Plastin-3	PLS3	Q63598	3 (4)	Cytoskeletal proteins and linkers/molecular motors		I
Plectin 1	PLEC1	P30427	9 (11)	Cytoskeletal proteins and linkers/molecular motors		I
Podocalyxin precursor	PODXL	Q9WTQ2	1 (1)	Adhesion proteins and collagens	I	I (RT-PCR)
Potassium-transporting ATPase alpha chain 2	ATP12A	P54708	2 (3)	Ion pumps	III	I
Profilin-1	PFN1	P62963	1 (2)	Cytoskeletal proteins and linkers/molecular motors		I
Programmed cell death protein 8, mitochondrial precursor	PDCD8	Q9JM53	1 (1), 6 (8)	Apoptosis proteins		P, I
Prohibitin	PHB	P67779	5 (6)	Miscellaneous proteins		I
Propionyl-CoA carboxylase beta chain, mitochondrial precursor	PCCB	P07633	5 (8), 4 (5)	Metabolism proteins		P, I
Prostaglandin G/H synthase 1 precursor	PTGS1	Q63921	3 (5)	Signaling proteins		I
Prostasin precursor	PRSS8	Q9ES87	1 (2)	Metabolism proteins		P

Protein disulfide-isomerase A3 precursor	PDIA3	P11598	14 (24)	Biosynthetic proteins		I
Protein disulfide-isomerase A4 precursor	PDIA4	P38659	3 (3)	Biosynthetic proteins		I
Protein disulfide-isomerase A6 precursor	PDIA6	Q63081	2 (2), 4 (4)	Biosynthetic proteins		P, I
Protein disulfide-isomerase precursor	P4HB	P04785	6 (7), 6 (6)	Biosynthetic proteins		P, I
Protein KIAA0152 precursor	KIAA0152	Q5FVQ4	1 (2)	Miscellaneous proteins	I	P
Pyruvate dehydrogenase E1 component alpha subunit, somatic form, mitochondrial precursor	PDHA1	P26284	2 (5)	Metabolism proteins		I
Pyruvate dehydrogenase E1 component beta subunit, mitochondrial precursor	PDHB	P49432	4 (6)	Metabolism proteins		I
Pyruvate kinase isozymes M1/M2	PKM2	P11980	14 (28)	Metabolism proteins		I
Ras-related protein Rab-14	RAB14	P61107	2 (3)	Small GTP binding proteins and related proteins		I
Ras-related protein Rab-1A	RAB1A	Q6NYB7	1 (1)	Small GTP binding proteins and related proteins		I
Ras-related protein Rab-7	RAB7	P09527	2 (2)	Small GTP binding proteins and related proteins		I
Reticulon-4	RTN4	Q9JK11	8 (24)	Membrane trafficking proteins	III	I
Retinal dehydrogenase 1	ALDH1A1	P51647	4 (4)	Metabolism proteins		I
S100 calcium-binding protein A4	S100A4	P05942	1 (1)	Biosynthetic proteins		I
Serine/threonine-protein phosphatase 2A catalytic subunit alpha isoform	PPP2CA	P63331	3 (4)	Protein phosphatases		P
Serine/threonine-protein phosphatase PP1-alpha catalytic subunit	PPP1CA	P62138	4 (7)	Protein phosphatases		P
Serine/threonine-protein phosphatase PP1-beta catalytic subunit	PPP1CB	P62142	3 (6)	Protein phosphatases		P
Serine/threonine-protein phosphatase PP1-gamma catalytic subunit	PPP1CC	P63088	9 (14)	Protein phosphatases		P
Serum albumin precursor	ALB	P02770	6 (7)	Secreted proteins		I

Short chain 3-hydroxyacyl-CoA dehydrogenase, mitochondrial precursor	HADHSC	Q9WVK7	2 (2)	Metabolism proteins		I
Sideroflexin-3	SFXN3	Q9JHY2	3 (4)	Transporters and channels	III	I
Sodium/potassium-transporting ATPase alpha-1 chain precursor	ATP1A1	P06685	26 (134)	Ion pumps	III	I
Sodium/potassium-transporting ATPase alpha-3 chain	ATP1A3	P06687	15 (63)	Ion pumps	III	I
Sodium/potassium-transporting ATPase alpha-4 chain	ATP1A4	Q64541	2 (3)	Ion pumps	III	I
Sodium/potassium-transporting ATPase beta-1 chain	ATP1B1	P07340	6 (14)	Ion pumps	II	I
Sodium/potassium-transporting ATPase beta-3 chain	ATP1B3	Q63377	1 (3)	Ion pumps	II	I
Sodium/potassium-transporting ATPase gamma chain	FXYD2	Q04679	1 (1)	Ion pumps	II	I
Spectrin alpha chain, brain	SPTAN1	P16086	81 (157), 70 (151)	Cytoskeletal proteins and linkers/molecular motors		P, I
Spectrin beta chain, brain 2	SPTBN2	Q9QWN8	51 (94)	Cytoskeletal proteins and linkers/molecular motors		I
S-phase kinase-associated protein 1A	SKP1A	Q6PEC4	1 (2)	Protein degradation pathway		P
Stress-70 protein, mitochondrial precursor	HSPA9	P48721	14 (16)	Chaperones		P, I
Succinate dehydrogenase [ubiquinone] flavoprotein subunit, mitochondrial precursor	SDHA	Q920L2	1 (1)	Metabolism proteins		P
Succinate dehydrogenase [ubiquinone] flavoprotein subunit, mitochondrial precursor	SDHA	Q920L2	3 (4)	Metabolism proteins		I
Succinyl-CoA ligase [GDP-forming] alpha-chain, mitochondrial precursor	SUCLG1	P13086	1 (1)	Miscellaneous proteins		I
Superoxide dismutase [Mn], mitochondrial precursor	SOD2	P07895	1 (1)	Stress proteins		P
Syntaxin-7	STX7	O70257	1 (1)	Membrane trafficking proteins	II	I
T-cell surface glycoprotein CD1d precursor	CD1D	Q63493	1 (1)	Adhesion proteins and collagens	I	I
T-complex protein 1 subunit alpha	CCT1	P28480	1 (1)	Chaperones		I

Thy-1 membrane glycoprotein precursor	THY1	P01830	2 (5)	Adhesion proteins and collagens	GPI	P
Timeless homolog	TIMELESS	Q9Z2Y1	2 (2)	Nuclear proteins		P
Transitional endoplasmic reticulum ATPase	VCP	P46462	3 (3)	Membrane trafficking proteins		I
Transketolase	TKT	P50137	1 (1)	Metabolism proteins		I
Transthyretin precursor	TTR	P02767	2 (2)	Secreted proteins		P
Trifunctional enzyme alpha subunit, mitochondrial precursor	HADHA	Q64428	13 (16)	Metabolism proteins		I
Trifunctional enzyme beta subunit, mitochondrial precursor	HADHB	Q60587	2 (2)	Metabolism proteins		I
Triosephosphate isomerase	TPI1	P48500	4 (6), 5 (6)	Biosynthetic proteins		P, I
Tropomyosin 1 alpha chain	TPM1	P04692	6 (9), 3 (4)	Cytoskeletal proteins and linkers/molecular motors		P, I
Tropomyosin alpha-4 chain	TPM4	P09495	3 (3)	Cytoskeletal proteins and linkers/molecular motors		I
Tropomyosin beta chain	TPM2	P58775	1 (1)	Cytoskeletal proteins and linkers/molecular motors		I
Tubulin alpha-1 chain	TUBA1	P68370	11 (29)	Cytoskeletal proteins and linkers/molecular motors		I
Tubulin alpha-2 chain	TUBA2	Q6P9V9	3 (7)	Cytoskeletal proteins and linkers/molecular motors		I
Tubulin alpha-6 chain	TUBA6	Q6AYZ1	1 (1)	Cytoskeletal proteins and linkers/molecular motors		I
Tubulin beta chain		P04691	3 (10)	Cytoskeletal proteins and linkers/molecular motors		I
Tubulointerstitial nephritis antigen-like precursor	TINAGL1	Q9EQT5	1 (3)	Secreted proteins		P
Ubiquinol-cytochrome c reductase iron-sulfur subunit, mitochondrial precursor	UQCRFS1	P20788	1 (1)	Metabolism proteins		I

Ubiquinol-cytochrome-c reductase complex core protein 2, mitochondrial precursor	UQCRC2	P32551	10 (26)	Metabolism proteins		I
Ubiquitin	RPS27A	P62989	4 (23), 1 (9)	Protein degradation pathway		P, I
Unc-13 homolog D	UNC13D	Q9R189	2 (3)	Membrane trafficking proteins		P
Uromodulin precursor	UMOD	P27590	1 (1)	Miscellaneous proteins	GPI	P
Vacuolar ATP synthase subunit B, brain isoform	ATP6V1B2	P62815	2 (2)	Metabolism proteins		I
Versican core protein precursor	CSPG2	Q9ERB4	2 (2)	Secreted proteins		P
Vesicle-associated membrane protein-associated protein A	VAPA	Q9Z270	1 (1)	Membrane trafficking proteins	II	I (RT-PCR)
Vimentin	VIM	P31000	39 (230), 2 (2)	Cytoskeletal proteins and linkers/molecular motors		P, I
Voltage-dependent anion-selective channel protein 1	VDAC1	Q9Z2L0	7 (23), 4 (5)	Transporters and channels	III	P, I
Voltage-dependent anion-selective channel protein 2	VDAC2	P81155	11 (46), 4 (8)	Transporters and channels	III	P, I

a, Number of peptides identified with their total hit number in the parenthesis; b, Collecting duct database (CDDb) family group names; c, Membrane protein types: I, one membrane spanning helix with an extracellular N'-terminus; II, one membrane spanning helix with an extracellular C'-terminus; III, multiple membrane spanning helices; GPI, glycosylphosphatidylinositol-linked; d, Protein identified in perfusion (P) and/or incubation (I) biotinylation method. Identifications confirmed by RT-PCR are indicated.