Supplementary Material (ESI) for Molecular BioSystems

Supplementary Table 1

Rank	Protein	IPI Mouse Acc. No.	MW (Da)	Specific Q	Specific UQ	Control Q	Control UQ	Lys Q	Lys UQ
1	PDE5 A	IPI00229355	99784	140	55	1	1	0	0
2	Lung carbonyl reductase	IPI00128642	25940	344	35	259	34	38	17
3	Apolipoprotein A-I	IPI00121209	30569	134	34	164	41	24	13
4	Serum albumin	IPI00131695	68675	42	30	42	26	135	37
5	Liver carboxylesterase N	IPI00138342	61123	28	18	23	17	1	1
6	Ribosyldihydronicotinamide dehydrogenase	IPI00266614	30485	39	17	39	15	0	0
7	Apolipoprotein E	IPI00323571	35848	23	15	17	9	5	5
8	Pyridoxal kinase	IPI00283511	34996	28	13	31	10	0	0
9	Delta(3,5)-Delta(2,4)-dienoyl-CoA isomerase	IPI00130804	36101	14	11	0	0	0	0
10	Hemoglobin subunit alpha	IPI00469114	14936	18	9	0	0	326	33
11	Lactoylglutathione lyase	IPI00321734	20662	12	9	5	5	0	0
12	hemoglobin, beta adult major chain	IPI00126208	15730	9	8	0	0	131	6
13	Igh-6 protein	IPI00468055	64874	11	7	0	0	2	2
14	PDE6 delta-subunit (PrBP)	IPI00115190	17330	8	6	2	2	0	0
15	Apolipoprotein A-II	IPI00111315	11301	35	5	42	6	5	2
16	Serum amyloid A-4 protein	IPI00135547	15070	8	5	7	3	0	0
17	NADPH-dependent retinol dehydrogenase/reductase	IPI00318750	29866	7	5	3	2	0	0
18	Afamin	IPI00130654	72228	8	5	1	1	0	0
19	Synaptic vesicle membrane protein VAT-1 homolog	IPI00126072	43078	4	4	4	4	2	2
20	Apolipoprotein A-IV	IPI00377351	45011	5	4	2	1	3	2
21	Apolipoprotein C-I	IPI00119676	9679	5	4	2	2	1	1
22	Keratin, type II cytoskeletal 1	IPI00625729	65076	7	4	9	2	0	0
23	Hemoglobin subunit beta-1	IPI00553333	15691	12	3	3	3	157	16
24	heat shock protein 8	IPI00323357	76494	5	3	2	2	19	8
25	Selenium-binding protein 1	IPI00110042	52335	3	3	1	1	9	7
26	Uteroglobin	IPI00113547	10502	5	3	2	1	8	4
27	Pulmonary surfactant-associated protein B	IPI00117977	41709	7	3	2	2	6	3
28	glycosylphosphatidylinositol specific phospholipase D1	IPI00225715	93609	4	3	7	5	0	0
29	Sulfated glycoprotein	IPI00321190	61403	3	3	3	3	0	0
30	Selenium binding protein 1	IPI00623845	52655	3	3	1	1	0	0
31	predicted: similar to PDE5	IPI00751552	64911	35	3	0	0	0	0
32	Glutathione S-transferase Mu 2	IPI00228820	25569	3	3	0	0	0	0
33	Hemoglobin subunit beta-2	IPI00316491	15729	2	2	0	0	101	23
34	Keratin, type II cytoskeletal 1b	IPI00462140	61342	5	2	5	5	0	0
35	Apolipoprotein C-III	IPI00114099	10965	4	2	4	4	0	0
36	Keratin 73	IPI00347110	58895	5	2	8	2	0	0
37	Keratin intermediate filament 16a	IPI00131209	52036	3	2	6	1	0	0
38	Carboxymethylenebutenolidase-like	IPI00153373	27883	3	2	0	0	0	0
39	Glutathione S-transferase Mu 1	IPI00230212	25823	2	1	1	1	7	5

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Rank	Protein	IPI Mouse Acc. No.	MW (Da)	Specific Q	Specific UQ	Control Q	Control UQ	Lys Q	Lys UQ
40	pregnancy zone protein	IPI00624663	165836	1	1	0	0	6	5
41	Tubulin beta-2C chain	IPI00109073	49813	1	1	0	0	3	3
42	Carbonyl reductase2	IPI00648012	16536	230	1	186	2	27	1
43	keratin complex 1, acidic, gene 10	IPI00136056	57024	1	1	8	6	0	0
44	Keratin, type II cytoskeletal 1	IPI00322209	54565	5	1	11	3	0	0
45	Keratin 2P	IPI00346834	62828	3	1	8	2	0	0
46	Type I keratin KA22	IPI00468696	50116	2	1	3	1	0	0
47	Pde5a 13 days embryo male testis cDNA	IPI00465762	3236	43	1	0	0	0	0
48	Serotransferrin	IPI00139788	76706	0	0	0	0	38	22
49	Talin-1	IPI00465786	269813	0	0	0	0	30	22
50	Dihydropyrimidinase-related protein 2	IPI00114375	62260	0	0	0	0	23	16
51	Vinculin	IPI00405227	116570	0	0	0	0	19	14
52	Myosin heavy chain IX	IPI00123181	226360	0	0	0	0	18	14
53	Fructose-bisphosphate aldolase A	IPI00221402	39207	0	0	0	0	19	12
54	transgelin 2	IPI00117007	24239	0	0	0	0	19	12
55	Tubulin beta-5 chain	IPI00117352	49653	0	0	0	0	15	12
56	Filamin-A (Alpha-filamin)	IPI00131138	274979	0	0	0	0	13	12
57	Transketolase	IPI00137409	67614	0	0	0	0	17	10
58	High mobility group protein B1	IPI00420261	24746	0	0	0	0	17	10
59	Retinal dehydrogenase 1	IPI00626662	54319	0	0	0	0	14	10
60	Tubulin alpha-2 chain	IPI00117348	50134	0	0	0	0	11	10
61	Tubulin alpha-1 chain	IPI00110753	50118	0	0	0	0	11	10
62	Catalase	IPI00312058	59617	0	0	0	0	13	9
63	fibrinogen, alpha polypeptide	IPI00115522	61309	0	0	0	0	12	8
64	Aldehyde dehydrogenase	IPI00111218	56520	0	0	0	0	9	8
65	Peroxiredoxin-1	IPI00121788	22160	0	0	0	0	8	8
66	Alpha-enolase	IPI00342547	46993	0	0	0	0	8	8
67	Malate dehydrogenase	IPI00323592	35579	0	0	1	1	13	7
68	Moesin	IPI00110588	67620	0	0	0	0	15	7
69	Peptidyl-prolyl cis-trans isomerase A	IPI00554989	17823	0	0	0	0	14	7
70	ortholog of human and rat SEC14-like 3	IPI00380873	46067	0	0	0	0	13	7
71	Peroxiredoxin-6	IPI00555059	24723	0	0	0	0	12	7
72	Profilin-1	IPI00224740	14808	0	0	0	0	12	7
73	14-3-3 protein zeta/delta	IPI00116498	27754	0	0	0	0	11	7
74	Pyruvate kinase isozyme M2	IPI00407130	57986	0	0	0	0	10	7
75	Microtubule-associated protein 4	IPI00408119	117511	0	0	0	0	9	7
76	Poly(rC)-binding protein 1	IPI00128904	37480	0	0	0	0	7	7
77	Aldose reductase	IPI00223757	35584	0	0	0	0	7	7
78	Hemoglobin, beta adult major chain	IPI00110658	15184	0	0	9	5	272	6

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Rank	Protein	IPI Mouse Acc. No.	MW (Da)	Specific Q	Specific UQ	Control Q	Control UQ	Lys Q	Lys UQ
79	Aconitate hydratase	IPI00116074	85448	0	0	3	2	8	6
80	Destrin	IPI00127942	18373	0	0	0	0	11	6
81	Serine protease inhibitor A3K	IPI00131830	46864	0	0	0	0	11	6
82	Tropomyosin 3, gamma	IPI00459570	28879	0	0	0	0	11	6
83	Annexin A5	IPI00317309	35736	0	0	0	0	9	6
84	Annexin A3	IPI00132722	36224	0	0	0	0	9	6
85	Transitional endoplasmic reticulum ATPase	IPI00622235	89161	0	0	0	0	8	6
86	Malate dehydrogenase, cytoplasmic	IPI00336324	36363	0	0	0	0	8	6
87	Protein S100-A9	IPI00222556	12900	0	0	0	0	7	6
88	Transaldolase	IPI00124692	37371	0	0	0	0	7	6
89	60 kDa heat shock protein	IPI00308885	60939	0	0	0	0	6	6
90	RAGE	IPI00122231	42635	0	0	0	0	6	6
91	Annexin A2	IPI00468203	38529	0	0	0	0	6	6
92	Rho GDP-dissociation inhibitor 1	IPI00322312	23259	0	0	0	0	6	6
93	Elongation factor 1-alpha 1	IPI00307837	50737	0	0	0	0	10	5
94	Flavin reductase	IPI00113996	22048	0	0	0	0	10	5
95	Cofilin 1	IPI00407543	24778	0	0	0	0	10	5
96	Heat shock protein 1, beta	IPI00229080	83208	0	0	0	0	9	5
97	Alpha-1-antitrypsin	IPI00123924	45958	0	0	0	0	9	5
98	Peroxiredoxin-2	IPI00117910	21630	0	0	0	0	8	5
99	Indolethylamine N-methyltransferase	IPI00114628	29442	0	0	0	0	8	5
100	Phosphoglycerate mutase 1	IPI00457898	28684	0	0	0	0	8	5
101	Bisphosphoglycerate mutase	IPI00221663	29830	0	0	0	0	7	5
102	Annexin A1	IPI00230395	38587	0	0	0	0	6	5
103	Fatty acid-binding protein, adipocyte	IPI00116705	14501	0	0	0	0	8	4
104	Hemopexin	IPI00128484	51323	0	0	0	0	8	4
105	Glutathione S-transferase A3	IPI00331241	25213	0	0	0	0	7	4
106	Long of Complement C3	IPI00323624	186640	0	0	0	0	7	4
107	Carbonic anhydrase 2	IPI00121534	28943	0	0	0	0	7	4
108	tyrosine 3-monooxygenase	IPI00230682	28069	0	0	0	0	7	4
109	Triosephosphate isomerase	IPI00467833	26563	0	0	0	0	7	4
110	Fatty acid synthase	IPI00113223	272411	0	0	0	0	6	4
111	heterogeneous nuclear ribonucleoprotein	IPI00405058	32443	0	0	0	0	6	4
112	Kininogen-1	IPI00129225	47880	0	0	0	0	6	4
113	Calponin-2	IPI00116649	33138	0	0	0	0	6	4
114	Fatty acid-binding protein, epidermal	IPI00114162	14988	0	0	0	0	6	4
115	Peroxiredoxin-5	IPI00129517	21880	0	0	0	0	6	4
116	Annexin A4	IPI00353727	35843	0	0	0	0	6	4
117	Protein CGI-38 homolog	IPI00133557	18948	0	0	0	0	5	4

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Rank	Protein	IPI Mouse Acc. No.	MW (Da)	Specific Q	Specific UQ	Control Q	Control UQ	Lys Q	Lys UQ
118	LIM and SH3 domain protein 1	IPI00125091	29976	0	0	0	0	5	4
119	Electron transfer flavoprotein subunit beta	IPI00121440	27474	0	0	0	0	5	4
120	Alpha-2-HS-glycoprotein	IPI00128249	37306	0	0	0	0	4	4
121	zyxin	IPI00387422	60527	0	0	0	0	4	4
122	Succinyl-CoA ligase [GDP-forming] subunit alpha	IPI00406442	34977	0	0	0	0	4	4
123	Alpha-1-antitrypsin	IPI00117857	45806	0	0	0	0	8	3
124	Thymosin beta-4	IPI00228757	5035	0	0	0	0	8	3
125	Spectrin alpha chain, erythrocyte	IPI00323230	279981	0	0	0	0	8	3
126	14-3-3 protein theta	IPI00408378	27761	0	0	0	0	7	3
127	3-ketoacyl-CoA thiolase, mitochondrial	IPI00226430	41840	0	0	0	0	6	3
128	Elongation factor 2	IPI00466069	95167	0	0	0	0	5	3
129	78 kDa glucose-regulated protein	IPI00319992	72406	0	0	0	0	5	3
130	phosphoglycerate kinase 1	IPI00230002	44533	0	0	0	0	5	3
131	Ankyrin-1	IPI00119871	202531	0	0	0	0	5	3
132	Glutathione S-transferase P 1	IPI00555023	23461	0	0	0	0	4	3
133	Myl6 protein	IPI00354819	16943	0	0	0	0	4	3
134	Gelsolin	IPI00117167	85924	0	0	0	0	4	3
135	glutamate-ammonia ligase (glutamine synthase)	IPI00626790	42144	0	0	0	0	4	3
136	Erythrocyte of Band 3 anion transport protein	IPI00120761	103122	0	0	0	0	4	3
137	lysozyme	IPI00107952	18295	0	0	0	0	4	3
138	Extracellular superoxide dismutase [Cu-Zn]	IPI00114319	27374	0	0	0	0	4	3
139	Nucleoside diphosphate kinase A	IPI00131459	17190	0	0	0	0	4	3
140	EH domain-containing protein-2	IPI00402968	61158	0	0	0	0	3	3
141	Cysteine and glycine-rich protein 1	IPI00123891	20434	0	0	0	0	3	3
142	Coronin-1C	IPI00124820	53104	0	0	0	0	3	3
143	Murinoglobulin-1	IPI00123223	165281	0	0	0	0	3	3
144	Transthyretin	IPI00127560	15758	0	0	0	0	3	3
145	GTPase, IMAP family	IPI00187462	38027	0	0	0	0	3	3
146	Histone H1.4	IPI00223714	21830	0	0	0	0	3	3
147	Carbonyl reductase [NADPH] 1	IPI00314191	30579	0	0	0	0	3	3
148	Histidine triad nucleotide-binding protein 1	IPI00108189	13628	0	0	0	0	3	3
149	Beta-1-globin (Fragment)	IPI00663327	15691	0	0	0	0	83	2
150	Endoplasmin	IPI00129526	92461	0	0	0	0	13	2
151	Superoxide dismutase	IPI00130589	16433	0	0	0	0	7	2
152	Heat-shock protein beta-1	IPI00128522	22996	0	0	0	0	4	2
153	Tropomyosin alpha-4 chain	IPI00421223	28319	0	0	0	0	4	2
154	Stress-70 protein	IPI00133903	73511	0	0	0	0	4	2
155	14-3-3 protein gamma	IPI00230707	28154	0	0	0	0	4	2
156	Annexin A6	IPI00310240	75274	0	0	0	0	4	2

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Rank	Protein	IPI Mouse Acc. No.	MW (Da)	Specific Q	Specific UQ	Control Q	Control UQ	Lys Q	Lys UQ
157	Translationally-controlled tumor protein	IPI00129685	19445	0	0	0	0	4	2
158	Four and a half LIM domains protein 1	IPI00309997	31870	0	0	0	0	3	2
159	Fibrinogen beta chain	IPI00279079	54736	0	0	0	0	3	2
160	Acidic leucine-rich nuclear phosphoprotein 32 family memb	IPI00314736	28520	0	0	0	0	3	2
161	Transforming protein RhoA	IPI00315100	21765	0	0	0	0	3	2
162	Isocitrate dehydrogenase [NAD] subunit alpha	IPI00459725	39621	0	0	0	0	3	2
163	tensin 1	IPI00378438	201363	0	0	0	0	3	2
164	Periaxin	IPI00469952	147669	0	0	0	0	3	2
165	ATP citrate lyase	IPI00126248	120781	0	0	0	0	3	2
166	60S ribosomal protein L23a	IPI00461456	17678	0	0	0	0	3	2
167	Carboxylesterase 3	IPI00387289	61771	0	0	0	0	3	2
168	Proteasome subunit alpha type 1	IPI00283862	29529	0	0	0	0	3	2
169	Coronin-1B	IPI00124819	53894	0	0	0	0	3	2
170	eukaryotic translation elongation factor 1	IPI00118875	31274	0	0	0	0	3	2
171	cell division cycle 10 homolog	IPI00224626	50631	0	0	0	0	3	2
172	LIM and SH3 protein	IPI00120023	31094	0	0	0	0	3	2
173	Glutathione peroxidase 1	IPI00319652	22265	0	0	0	0	3	2
174	Chloride intracellular channel protein 1	IPI00130344	26864	0	0	0	0	3	2
175	55 kDa erythrocyte membrane protein	IPI00137706	52210	0	0	0	0	3	2
176	Protein S100-A8	IPI00230768	10146	0	0	0	0	3	2
177	Chloride intracellular channel protein 4	IPI00135977	28581	0	0	0	0	3	2
178	Nonhistone chromosomal protein HMG-14	IPI00338745	10003	0	0	0	0	3	2
179	Long-chain specific acyl-CoA dehydrogenase	IPI00119114	47891	0	0	8	5	1	1
180	Medium-chain specific acyl-CoA dehydrogenase	IPI00134961	46464	0	0	3	3	1	1
181	EH-domain containing 4-KJR (Fragment)	IPI00318671	61636	0	0	0	0	4	1
182	Proteasome subunit alpha	IPI00420745	27492	0	0	0	0	3	1
183	Keratin 2	IPI00622240	70906	0	0	11	8	0	0
184	Keratin, type I cytoskeletal 19	IPI00112947	44525	2	0	4	0	0	0
185	Tubulin beta-2A chain	IPI00338039	49889	0	0	0	0	14	0
186	Nucleoside diphosphate kinase B	IPI00127417	17345	0	0	0	0	4	0
187	Dihydropyrimidinase-related protein 3	IPI00122349	61919	0	0	0	0	4	0
188	Keratin, type II cytoskeletal 5	IPI00139301	61750	0	0	11	0	0	0

Fig. S1

A Pde5a cGMP-specific 3',5'-cyclic phosphodiesterase
Mouse IPI00229355, Mass: 99.78 KDa

MERAGPNSVRSQQQRDPDWVEAWLDDHRDFTFSYFIRKATRDMVNAWFSE
RVHNIPVCKEGIRAHTESCSCSLQQSPHADNTTPGAPARKISASEFDRPL
RPIVVKDSEGTVSFLSDSGKKEQMPLTPPRFDSDEGDQCSRLLELVKDIS
SHLDVTALCHKIFLHIHGLISADRYTLFLVCEDSSKDKFLISRLFDVAEG
STLEEASNNCIRLEWNKGIVGHVAAFGEPLNIKDAYEDPRFNAEVDQITG
YKTQSILCMPIKNHREEVVGVAQAINKKSGNGGTFTEKDEKDFAAYLAFC
GIVLHNAQLYETSLLENKRNQVLLDLASLIFEEQQSLEVILKKIAATIIS
FMQVQKCTIFIVDEDCPDSFSRVFHMECEEVGKPSDPLTREQDANKINYM
YAQYVKNTMEPLNIPDVTKDKRFPWTNENMGHVNTPCIGSLLCTPIKNGK
KNKVIGVCQLVNKMEENTGKIKAFNQNDEQFLEAFVIFCGLGIQNTQMYE
AVERAMAKQMVTLEVLSYHASAAEEETRELQALSAAVVPSAQTLKITDFS
FSDFELSDLETALCTIRMFTDLNLVQNFQMKHEVLCRWILSVKKNYRKNV
AYHNWRHAFNTAQCMFAALKAGKIQNKLTDLETLALLIAALSHDLDHRGV
NNSYIQRSEHPLAQLYCHSIMEHHHFDQCLMILNSPGNQILSGLSIDEYK
TTLKIIKQAILATDLALYIKRRGEFFELIRKNQFSFEDPLQKELFLAMLM
TACDLSAITKPWPIQQRIAELVAAEFFDQGDRERKELNMEPADLMNREKK
NKIPSMQVGFIDAICLQLYEALTHVSEDCLPLLDGCRKNRQKWQALAEQQ
EKMLLNGESSQGKRD

B Pde5a 13 days embryo male testis cDNA: Mouse IPI00465762
cGMP-binding cGMP specific phosphodiesterase homolog , Mass: 32.36 KDa

MLPFGDKTRDMVNAWFSERVHNIPVCKEGIRAHTESCSCSLQQSPHADNT
TPGAPARKISASEFDRPLRPIVVKDSEGTVSFLSDSGKKEQMPLTPPRFD
LSDEGDQCSRLELVKDISSHLDVTALCHKIFLHIHGLISADRYSLFLVCE
DSSKDKFLISRLFDVAEGSTLEEASNNCIRLEWNKGIVGHVAAFGEPLNI
KDAYEDPRFNAEVDQITGYKTQSILCMPIKNHREEVVGVAQAINKKSGNG
GTFTEKDEKVTKPEAGMMPAERDSFSLWHMTSGVRPC

C Pde6d Retinal rod rhodopsin-sensitive
cGMP 3',5'-cyclic phosphodiesterase
Mouse IPI00115190, Mass: 17.45 KDa

MSAKDERARDILRGFKLNWMNLRDAETGKILWQGTEDLSVPGVEHEARVP
KKILKCKAVSRELNFSSAEQMEKFRLEQKVYFKGQCLEEWFFEFGFVIPN
STNTWQSLIEAAPESQMMPASVLTGNVIIETKFFDDDLLVSTSKVRLFYV