

ДОПОЛНИТЕЛЬНЫЕ МАТЕРИАЛЫ

Катица И.Г., Казиева Л.Ш., Вавилов Н.Э., Згода В.Г., Копылов А.Т., Медведев А.Е., Бунеева О.А. (2023) Особенности поведенческих реакций и профиля изатин-связывающих белков мозга у крыс с индуцированным ротеноном экспериментальным паркинсонизмом. Биомедицинская химия, **69**(1), 46-54.

DOI: 10.18097/PBMC20236901046

Дополнительные материалы содержат полный перечень изатин-связывающих белков мозга крысы, полученный в результате масс-спектрометрической идентификации белков контрольных животных (Таблица S1) и животных с ротенон-индуцированным паркинсонизмом (Таблица S2). В Таблицах S3 и S4 представлены результаты протеомной идентификации изатин-связывающих белков мозга мыши, специфичных для МФТП-индуцированного паркинсонизма как в случае первичной (Таблица S3), так и в случае отсроченной (7 дней) реакции (Таблица S4) на введение нейротоксина МФТП.

Таблица S1. Протеомная идентификация изатин-связывающих белков мозга крысы (контроль, 160)

№	№ в базе Uniprot	Ген по Uniprot	Название белка по Uniprot
Белки/ферменты, участвующие в процессах генерации энергии и углеводного обмена			
22			
1	O88989	<i>Mdh1</i>	Malate dehydrogenase, cytoplasmic
2	P04636	<i>Mdh2</i>	Malate dehydrogenase, mitochondrial
3	P11980	<i>Pkm</i>	Pyruvate kinase PKM
4	P10860	<i>Glud1</i>	Glutamate dehydrogenase 1, mitochondrial
5	P07943	<i>Akr1b1</i>	Aldo-keto reductase family 1 member B1
6	P07323	<i>Eno2</i>	Gamma-enolase
7	F7FK15	<i>Pdha1</i>	Pyruvate dehydrogenase E1 component subunit alpha
8	P49432	<i>Pdhb</i>	Pyruvate dehydrogenase E1 component subunit beta, mitochondrial
9	P42123	<i>Ldhb</i>	L-lactate dehydrogenase B chain
10	P48500	<i>Tpi1</i>	Triosephosphate isomerase

11	P05065	<i>Aldoa</i>	Fructose-bisphosphate aldolase A
12	P00884	<i>Aldob</i>	Fructose-bisphosphate aldolase B
13	P09117	<i>Aldoc</i>	Fructose-bisphosphate aldolase C
14	G3V6P2	<i>Dlst</i>	Dihydrolipoyllysine-residue succinyltransferase component of 2-oxoglutarate dehydrogenase complex, mitochondrial
15	Q5XI78	<i>Ogdh</i>	2-oxoglutarate dehydrogenase, mitochondrial
16	Q920L2	<i>Sdha</i>	Succinate dehydrogenase [ubiquinone] flavoprotein subunit, mitochondrial
17	P04797	<i>Gapdh</i>	Glyceraldehyde-3-phosphate dehydrogenase
18	Q9ER34	<i>Aco2</i>	Aconitate hydratase, mitochondrial
19	P07335	<i>Ckb</i>	Creatine kinase B-type
20	P25809	<i>Ckmt1</i>	Creatine kinase U-type, mitochondrial
21	F1LP05	<i>Atp5f1a</i>	ATP synthase subunit alpha
22	G3V6D3	<i>Atp5f1b</i>	ATP synthase subunit beta
Белки, участвующие в образовании цитоскелета и экзоцитозе 49			
1	B2GUZ5	<i>Capza1</i>	F-actin-capping protein subunit alpha-1
2	P62944	<i>Ap2b1</i>	AP-2 complex subunit beta
3	P84092	<i>Ap2m1</i>	AP-2 complex subunit mu
4	P16086	<i>Sptan1</i>	Spectrin alpha chain, non-erythrocytic 1
5	Q6XD9	<i>Sptbn1</i>	Spectrin beta chain
6	Q07936	<i>Anxa2</i>	Annexin A2
7	Q9Z1P2	<i>Actn1</i>	Alpha-actinin-1
8	Q9QXQ0	<i>Actn4</i>	Alpha-actinin-4
9	P70566	<i>Tmod2</i>	Tropomodulin-2
10	Q5XIF6	<i>Tuba4a</i>	Tubulin alpha-4A chain
11	Q6AY56	<i>Tuba8</i>	Tubulin alpha-8 chain
12	Q6P9V9	<i>Tuba1b</i>	Tubulin alpha-1B chain
13	P85108	<i>Tubb2a</i>	Tubulin beta-2A chain
14	Q4QRB4	<i>Tubb3</i>	Tubulin beta-3 chain
15	G3V7C6	<i>Tubb4b</i>	Tubulin beta chain
16	Q9EPC6	<i>Pfn2</i>	Profilin-2
17	Q63198	<i>Cntn1</i>	Contactin-1
18	Q63610	<i>Tpm3</i>	Tropomyosin alpha-3 chain
19	P60711	<i>Actb</i>	Actin, cytoplasmic 1

20	P63259	<i>Actg1</i>	Actin, cytoplasmic 2
21	P61765	<i>Stxbp1</i>	Syntaxin-binding protein 1
22	Q71DI1	N/A	Dermcidin
23	Q91XN7	<i>Tpm1</i>	Tropomyosin alpha isoform
24	P23565	<i>Ina</i>	Alpha-internexin
25	P21575	<i>Dnm1</i>	Dynamin-1
26	P21707	<i>Syt1</i>	Synaptotagmin-1
27	P13084	<i>Npm1</i>	Nucleophosmin
28	P55067	<i>Ncan</i>	Neurocan core protein
29	D3ZY51	<i>Pkp1</i>	Plakophilin 1
30	P45592	<i>Cfl1</i>	Cofilin-1
31	P34926	<i>Map1a</i>	Microtubule-associated protein 1A
32	P15205	<i>Map1b</i>	Microtubule-associated protein 1B
33	O35179	<i>Sh3g2</i>	Endophilin-A1
34	O35964	<i>Sh3g1</i>	Endophilin-A2
35	P01041	<i>Cstb</i>	Cystatin-B
36	P47819	<i>Gfap</i>	Glial fibrillary acidic protein
37	P62628	<i>Dynlrb1</i>	Dynein light chain roadblock-type 1
38	P62815	<i>Atp6v1b2</i>	V-type proton ATPase subunit B, brain isoform
39	P50408	<i>Atp6v1f</i>	V-type proton ATPase subunit F
40	P46462	<i>Vcp</i>	Transitional endoplasmic reticulum ATPase
41	D4A133_	<i>Atp6v1a</i>	H(+)-transporting two-sector ATPase
42	P06686	<i>Atp1a2</i>	Sodium/potassium-transporting ATPase subunit alpha-2
43	G3V8C3	<i>Vim</i>	Vimentin
44	G3V8G4	<i>Bcan</i>	Brevican core protein
45	Q7M0E3	<i>Dstn</i>	Destrin
46	Q68FP1	<i>Gsn</i>	Gelsolin
47	F1LMV6	<i>Dsp</i>	Desmoplakin
48	Q5XI38	<i>Lcp1</i>	Lymphocyte cytosolic protein 1
49	Q6P0K8	<i>Jup</i>	Junction plakoglobin
Белки, участвующие в передаче сигнала и регуляции активности ферментов 18			
1	P07936	<i>Gap43</i>	Neuromodulin
2	P0DP29	<i>Calm1</i>	Calmodulin-1
3	P63100	<i>Ppp3r1</i>	Calcineurin subunit B type 1

4	Q05175	<i>Baspl</i>	Brain acid soluble protein 1
5	F1LQ63	<i>Tnr</i>	Tenascin-R
6	Q68G11	<i>Csnk2b</i>	Casein kinase II subunit beta
7	P35213	<i>Ywhab</i>	14-3-3 protein beta/alpha
8	P61983	<i>Ywhag</i>	14-3-3 protein gamma
9	P63102	<i>Ywhaz</i>	14-3-3 protein zeta/delta
10	P68255	<i>Ywhaq</i>	14-3-3 protein theta
11	P68511	<i>Ywhah</i>	14-3-3 protein eta
12	P62260	<i>Ywhae</i>	14-3-3 protein epsilon
13	Q5EBB0	<i>LOC298795</i>	Similar to 14-3-3 protein sigma
14	P59215	<i>Gnao1</i>	Guanine nucleotide-binding protein G(o) subunit alpha
15	P62716	<i>Ppp2cb</i>	Serine/threonine-protein phosphatase 2A catalytic subunit beta isoform
16	P62994	<i>Grb2</i>	Growth factor receptor-bound protein 2
17	P63329	<i>Ppp3ca</i>	Serine/threonine-protein phosphatase 2B catalytic subunit alpha isoform
18	B2RYX0	<i>Naca</i>	Naca protein
Антиоксидантные и защитные белки/ферменты 22			
1	P06761	<i>Hspa5</i>	Endoplasmic reticulum chaperone BiP
2	P11232	<i>Txn</i>	Thioredoxin
3	Q9Z0V6	<i>Prdx3</i>	Thioredoxin-dependent peroxide reductase, mitochondrial
4	P46413	<i>Gss</i>	Glutathione synthetase
5	Q63716	<i>Prdx1</i>	Peroxiredoxin-1
6	P35704	<i>Prdx2</i>	Peroxiredoxin-2
7	G3V7I0	<i>Prdx3</i>	Peroxiredoxin 3
8	Q9R063	<i>Prdx5</i>	Peroxiredoxin-5, mitochondrial
9	P34058	<i>Hsp90ab1</i>	Heat shock protein HSP 90-beta
10	P63039	<i>Hspd1</i>	60 kDa heat shock protein, mitochondrial
11	P63018	<i>Hspa8</i>	Heat shock cognate 71 kDa protein
12	P82995	<i>Hsp90aa1</i>	Heat shock protein HSP 90-alpha
13	Q9Z1B2	<i>Gstm5</i>	Glutathione S-transferase Mu 5
14	Q9JMG8	N/A	Dihydropyrimidinase-related protein
15	Q62950	<i>Crmp1</i>	Dihydropyrimidinase-related protein 1
16	P47942	<i>Dpysl2</i>	Dihydropyrimidinase-related protein 2

17	Q62952	<i>Dpysl3</i>	Dihydropyrimidinase-related protein 3
18	P48721	<i>Hspa9</i>	Stress-70 protein, mitochondrial
19	P04906	<i>Gstp1</i>	Glutathione S-transferase P
20	F1LRV4	<i>Hspa4</i>	Heat shock 70 kDa protein 4
21	F1M953	<i>Hspa9</i>	75 kDa glucose-regulated protein
22	Q5M7A7	<i>Cnrip1</i>	CB1 cannabinoid receptor-interacting protein 1
Белки-регуляторы экспрессии генов, клеточного деления и дифференцировки 40			
1	Q4KM71	<i>Sfpq</i>	Splicing factor proline and glutamine-rich
2	P84586	<i>Rbmxrtl</i>	RNA-binding motif protein, X chromosome retrogene-like
3	M0R907	<i>Snrpd3</i>	Small nuclear ribonucleoprotein Sm D3
4	I7FKL4	<i>Mbp</i>	Myelin basic protein
5	P60203	<i>Plp1</i>	Myelin proteolipid protein
6	M0R757	<i>LOC100360413</i>	Elongation factor 1-alpha
7	B5DEN5	<i>Eef1b2</i>	Elongation factor 1-beta
8	P05197	<i>Eef2</i>	Elongation factor 2
9	P61980	<i>Hnrnpk</i>	Heterogeneous nuclear ribonucleoprotein K
10	M0R735	<i>Syncrip</i>	Heterogeneous nuclear ribonucleoprotein Q
11	F1LNF1	<i>Hnrnpa2b1</i>	Heterogeneous nuclear ribonucleoproteins A2/B1
12	F2Z3R2	<i>Hnrnpl</i>	Heterogeneous nuclear ribonucleoprotein L
13	A0A0G2K7B3	<i>LOC100911576</i>	Heterogeneous nuclear ribonucleoproteins C1/C2-like
14	G3V9Q3	<i>Hnrnph1</i>	Heterogeneous nuclear ribonucleoprotein H
15	Q6URK4	<i>Hnrnpa3</i>	Heterogeneous nuclear ribonucleoprotein A3
16	Q9JJ54	<i>Hnrnpd</i>	Heterogeneous nuclear ribonucleoprotein D0
17	Q68A21	<i>Purb</i>	Transcriptional activator protein Pur-beta
18	F1LPS8	<i>Pura</i>	Transcriptional activator protein Pur-alpha
19	M0RDM4	<i>rCG_23111</i>	Histone H2A
20	M0R4L7	<i>Hist1h2bl</i>	Histone H2B
21	D3ZJ08	<i>Hist2h3c2</i>	Histone H3
22	P62804	<i>H4c2</i>	Histone H4
23	P29314	<i>Rps9</i>	40S ribosomal protein S9
24	P38983	<i>Rpsa</i>	40S ribosomal protein SA

25	Q6PDV6	<i>LOC100911847</i>	40S ribosomal protein S14
26	P62243	<i>Rps8</i>	40S ribosomal protein S8
27	P62856	<i>Rps26</i>	40S ribosomal protein S26
28	D4A4D5	<i>LOC498555</i>	60S acidic ribosomal protein P2
29	P05426	<i>Rpl7</i>	60S ribosomal protein L7
30	P62907	<i>Rpl10a</i>	60S ribosomal protein L10a
31	Q6P7R7	<i>Uba52</i>	60S ribosomal protein L40
32	P19945	<i>Rplp0</i>	60S acidic ribosomal protein P0
33	Q6NT88	<i>Cirbp</i>	Cold-inducible RNA-binding protein
34	Q6P6G9	<i>Hnrnpa1</i>	Helix-destabilizing protein
35	Q9QX80	<i>Hnrnpab</i>	CArG-binding factor A
36	P13383	<i>Ncl</i>	Nucleolin
37	D4A9L2	<i>Srsf1</i>	Serine/arginine-rich splicing factor 1
38	Q6PDU1	<i>Srsf2</i>	Serine/arginine-rich splicing factor 2
39	Q5PQK2	<i>Fus</i>	FUS RNA-binding protein
40	Q5FVM4	<i>Nono</i>	Non-POU domain-containing octamer-binding protein
Ферменты, участвующие в метаболизме белков, аминокислот и других азотистых соединений 9			
1	Q63654	<i>UBC</i>	Polyubiquitin (Fragment)
2	Q3ZAU6	<i>Rnf14</i>	R3BR-type E3 ubiquitin transferase
3	Q00981	<i>Uchl1</i>	Ubiq5uitin carboxyl-terminal hydrolase isozyyme L1
4	P60892	<i>Prps1</i>	Ribose-7phosphate pyrophosphokinase 1
5	P00507	<i>Got2</i>	Aspartate 9aminotransferase, mitochondrial
6	P09606	<i>Glul</i>	Glutamine synthetase
7	Q9JKB7	<i>Gda</i>	Guanine deaminase
8	G3V647	<i>Pdxk</i>	Pyridoxal kinase
9	P13233	<i>Cnp</i>	2,3-cyclic-nucleotide 3-phosphodiesterase

Таблица S2. Протеомная идентификация изатин-связывающих белков мозга крысы (ротенон, 215)

№	№ в базе Uniprot	Ген по Uniprot	Название белка по Uniprot
Белки/ферменты, участвующие в процессах генерации энергии и углеводного обмена			

27			
1	P04636	<i>Mdh2</i>	Malate dehydrogenase, mitochondrial
2	P48500	<i>Tpi1</i>	Triosephosphate isomerase
3	P49432	<i>Pdhb</i>	Pyruvate dehydrogenase E1 component subunit beta, mitochondrial OS=Rattus norvegicus
4	O88989	<i>Mdh1</i>	Malate dehydrogenase, cytoplasmic
5	P25809	<i>Ckmt1</i>	Creatine kinase U-type, mitochondrial
6	Q5BJX2	<i>Pdhx</i>	Dihydrolipoamide acetyltransferase component of pyruvate dehydrogenase complex
7	Q920L2	<i>Sdha</i>	Succinate dehydrogenase [ubiquinone] flavoprotein subunit, mitochondrial
8	Q5XI78	<i>Ogdh</i>	2-oxoglutarate dehydrogenase, mitochondrial
9	Q9ER34	<i>Aco2</i>	Aconitate hydratase, mitochondrial
10	P42123	<i>Ldhb</i>	L-lactate dehydrogenase B chain
11	P07323	<i>Eno2</i>	Gamma-enolase
12	P07335	<i>Ckb</i>	Creatine kinase B-type
13	P04797	<i>Gapdh</i>	Glyceraldehyde-3-phosphate dehydrogenase
14	P05065	<i>Aldoa</i>	Fructose-bisphosphate aldolase A
15	P00884	<i>Aldob</i>	Fructose-bisphosphate aldolase B
16	P09117	<i>Aldoc</i>	Fructose-bisphosphate aldolase C
17	P07943	<i>Akr1b1</i>	Aldo-keto reductase family 1 member B1
18	Q6P6R2	<i>Dld</i>	Dihydrolipoyl dehydrogenase, mitochondrial
19	P53534	<i>Pygb</i>	Glycogen phosphorylase, brain form (Fragment)
20	P11980	<i>Pkm</i>	Pyruvate kinase PKM
21	P10860	<i>Glud1</i>	Glutamate dehydrogenase 1, mitochondrial
22	D4A133	<i>Hogal</i>	4-hydroxy-2-oxoglutarate aldolase, mitochondrial
23	F7FKI5	<i>Pdhal</i>	Pyruvate dehydrogenase E1 component subunit alpha
24	G3V6P2	<i>Dlst</i>	Dihydrolipoyllysine-residue succinyltransferase component of 2-oxoglutarate dehydrogenase complex, mitochondrial
25	F1LP05	<i>Atp5f1a</i>	ATP synthase subunit alpha
26	G3V6D3	<i>Atp5f1b</i>	ATP synthase subunit beta
27	G3V7Y3	<i>Atp5f1d</i>	ATP synthase F1 subunit delta
Белки, участвующие в образовании цитоскелета и экзоцитозе 59			

1	D3ZQ45	<i>Dsg1</i>	Desmoglein 1
2	D3ZUY8	<i>Ap2a1</i>	AP-2 complex subunit alpha
3	C6L8E0	<i>Dbn1</i>	Drebrin E
4	P13084	<i>Npm1</i>	Nucleophosmin
5	D3ZY51	<i>Pkp1</i>	Plakophilin 1
6	D3ZZ99	<i>Add1</i>	Alpha-adducin
7	G3V7C6	<i>Tubb4b</i>	Tubulin beta chain
8	G3V8C3	<i>Vim</i>	Vimentin
9	G3V8G4	<i>Bcan</i>	Brevican core protein
10	F1LMV6	<i>Dsp</i>	Desmoplakin
11	Q6P0K8	<i>Jup</i>	Junction plakoglobin
12	F1LU27	<i>Focad</i>	Focadhesin
13	P16086	<i>Sptan1</i>	Spectrin alpha chain, non-erythrocytic 1
14	Q6XD99	<i>Sptbn1</i>	Spectrin beta chain
15	Q9QXQ0	<i>Actn4</i>	Alpha-actinin-4
16	P21575	<i>Dnm1</i>	Dynamin-1
17	P21707	<i>Syt1</i>	Synaptotagmin-1
18	P23565	<i>Ina</i>	Alpha-internexin
19	P34926	<i>Map1a</i>	Microtubule-associated protein 1A
20	Q71DI1	N/A	Dermcidin
21	Q91XN7	<i>Tpm1</i>	Tropomyosin alpha isoform
22	O35179	<i>Sh3gl2</i>	Endophilin-A1
23	O35964	<i>Sh3gl1</i>	Endophilin-A2
24	P01041	<i>Cstb</i>	Cystatin-B
25	P47819	<i>Gfap</i>	Glial fibrillary acidic protein
26	P46462	<i>Vcp</i>	Transitional endoplasmic reticulum ATPase
27	P45592	<i>Cfl1</i>	Cofilin-1
28	P08082	<i>Cltb</i>	Clathrin light chain B
29	P15205	<i>Map1b</i>	Microtubule-associated protein 1B
30	P18484	<i>Ap2a2</i>	AP-2 complex subunit alpha-2
31	P19527	<i>Nefl</i>	Neurofilament light polypeptide
32	P50408	<i>Atp6v1f</i>	V-type proton ATPase subunit F
33	Q5XIF6	<i>Tuba4a</i>	Tubulin alpha-4A chain
34	Q6AY56	<i>Tuba8</i>	Tubulin alpha-8 chain

35	Q63198	<i>Cntn1</i>	Contactin-1
36	Q63610	<i>Tpm3</i>	Tropomyosin alpha-3 chain
37	Q68FP1	<i>Gsn</i>	Gelsolin
38	Q6AY84	<i>Scrn1</i>	Secernin-1
39	Q6P9V9	<i>Tuba1b</i>	Tubulin alpha-1B chain
40	Q7M0E3	<i>Dstn</i>	Dextrin
41	D4A315	N/A	Actin-depolymerizing factor
42	Q9EPC6	<i>Pfn2</i>	Profilin-2
43	P55067	<i>Ncan</i>	Neurocan core protein
44	P61765	<i>Stxbp1</i>	Syntaxin-binding protein 1
45	P62815	<i>Atp6v1b2</i>	V-type proton ATPase subunit B, brain isoform
46	P06686	<i>Atp1a2</i>	Sodium/potassium-transporting ATPase subunit alpha-2
47	Q9Z1P2	<i>Actn1</i>	Alpha-actinin-1
48	Q64715	<i>Map2</i>	Microtubule-associated protein
49	P62628	<i>Dynlrb1</i>	Dynein light chain roadblock-type 1
50	P62944	<i>Ap2b1</i>	AP-2 complex subunit beta
51	P84092	<i>Ap2m1</i>	AP-2 complex subunit mu
52	P62744	<i>Ap2s1</i>	AP-2 complex subunit sigma
53	B2GUZ5	<i>Capza1</i>	F-actin-capping protein subunit alpha-1
54	Q4QRB4	<i>Tubb3</i>	Tubulin beta-3 chain
55	P63259	<i>Actg1</i>	Actin, cytoplasmic 2
56	P60711	<i>Actb</i>	Actin, cytoplasmic 1
57	P70566	<i>Tmod2</i>	Tropomodulin-2
58	P85108	<i>Tubb2a</i>	Tubulin beta-2A chain
59	Q07936	<i>Anxa2</i>	Annexin A2
Белки, участвующие в передаче сигнала и регуляции активности ферментов 30			
1	P35213	<i>Ywhab</i>	14-3-3 protein beta/alpha
2	P63102	<i>Ywhaz</i>	14-3-3 protein zeta/delta
3	P68255	<i>Ywhaq</i>	14-3-3 protein theta
4	P68511	<i>Ywhah</i>	14-3-3 protein eta
5	P61983	<i>Ywhag</i>	14-3-3 protein gamma
6	P62260	<i>Ywhae</i>	14-3-3 protein epsilon
7	P59215	<i>Gnao1</i>	Guanine nucleotide-binding protein G(o) subunit alpha

8	B2RYX0	<i>Naca</i>	Naca protein
9	P62994	<i>Grb2</i>	Growth factor receptor-bound protein 2
10	Q68G11	<i>Csnk2b</i>	Casein kinase II subunit beta
11	P19139	<i>Csnk2a1</i>	Casein kinase II subunit alpha
12	P05545	<i>Serpina3k</i>	Serine protease inhibitor A3K
13	P20651	<i>Ppp3cb</i>	Serine/threonine-protein phosphatase 2B catalytic subunit beta isoform
14	P62716	<i>Ppp2cb</i>	Serine/threonine-protein phosphatase 2A catalytic subunit beta isoform
15	A0A0G2JYA4	<i>LOC100362453</i>	Serine/threonine-protein phosphatase
16	P63329	<i>Ppp3ca</i>	Serine/threonine-protein phosphatase 2B catalytic subunit alpha isoform
17	F1LQ63	<i>Tnr</i>	Tenascin R, isoform CRA_b
18	P63100	<i>Ppp3r1</i>	Calcineurin subunit B type 1
19	Q5M7A7	<i>Cnrip1</i>	CB1 cannabinoid receptor-interacting protein 1
20	Q5EBB0	<i>LOC298795</i>	Similar to 14-3-3 protein sigma
21	G3V9A3	<i>Sfn</i>	RCG31390
22	P0DP29	<i>Calml</i>	Calmodulin-1
23	P02767	<i>Ttr</i>	Transthyretin
24	P06761	<i>Hspa5</i>	Endoplasmic reticulum chaperone BiP
25	P07936	<i>Gap43</i>	Neuromodulin
26	Q8VBU2	<i>Ndrg2</i>	Protein NDRG2
27	Q05175	<i>Baspl</i>	Brain acid soluble protein 1
28	Q32PX7	<i>Fubp1</i>	Far upstream element-binding protein 1
29	Q568Z9	<i>Phyhip</i>	Phytanoyl-CoA hydroxylase-interacting protein
30	F1LMN8	<i>Khdrbs3</i>	KH domain-containing, RNA-binding, signal transduction-associated protein 3
Антиоксидантные и защитные белки/ферменты 20			
1	Q62950	<i>Crmp1</i>	Dihydropyrimidinase-related protein 1
2	Q62952	<i>Dpysl3</i>	Dihydropyrimidinase-related protein 3
3	P46413	<i>Gss</i>	Glutathione synthetase
4	Q9Z1B2	<i>Gstm5</i>	Glutathione S-transferase Mu 5
5	F1M953	<i>Hspa9</i>	75 kDa glucose-regulated protein
6	P35704	<i>Prdx2</i>	Peroxiredoxin-2

7	G3V7I0	<i>Prdx3</i>	Peroxiredoxin 3
8	Q9R063	<i>Prdx5</i>	Peroxiredoxin-5
9	P11232	<i>Txn</i>	Thioredoxin
10	Q63716	<i>Prdx1</i>	Peroxiredoxin-1
11	P34058	<i>Hsp90ab1</i>	Heat shock protein HSP 90-beta
12	P63018	<i>Hspa8</i>	Heat shock cognate 71 kDa protein
13	P82995	<i>Hsp90aa1</i>	Heat shock protein HSP 90-alpha
14	P63039	<i>Hspd1</i>	60 kDa heat shock protein, mitochondrial
15	P47942	<i>Dpysl2</i>	Dihydropyrimidinase-related protein 2
16	Q9JMG8	N/A	Dihydropyrimidinase-related protein
17	B6DYP7	<i>Gsta2</i>	Glutathione transferase
18	P00502	<i>Gsta1</i>	Glutathione S-transferase alpha-1
19	P04906	<i>Gstp1</i>	Glutathione S-transferase P
20	F1LRV4	<i>Hspa4</i>	Heat shock 70 kDa protein 4
Белки-регуляторы экспрессии генов, клеточного деления и дифференцировки 65			
1	I7FKL4	<i>Mbp</i>	Myelin basic protein
2	M0R735	<i>Syncrip</i>	Heterogeneous nuclear ribonucleoprotein Q
3	M0R757	<i>LOC100360413</i>	Elongation factor 1-alpha
4	B5DEN5	<i>Eef1b2</i>	Elongation factor 1-beta
5	P05197	<i>Eef2</i>	Elongation factor 2
6	D4A9L2	<i>Srsf1</i>	Serine/arginine-rich splicing factor 1
7	P61354	<i>Rpl27</i>	60S ribosomal protein L27
8	M0R907	<i>Snrpd3</i>	Small nuclear ribonucleoprotein Sm D3
9	M0R961	<i>Khsrp</i>	Far upstream element-binding protein 2
10	M0RD75	<i>Rps6</i>	40S ribosomal protein S6
11	M0RDM4	<i>rCG_23111</i>	Histone H2A
12	P12001	<i>Rpl18</i>	60S ribosomal protein L18
13	Q9Z0U8	<i>pRM10</i>	Nucleic acid binding factor pRM10
14	Q6NT88	<i>Cirbp</i>	Cold-inducible RNA-binding protein
15	Q6P6G9	<i>Hnrnpa1</i>	Helix-destabilizing protein
16	M0R4L7	<i>Hist1h2bl</i>	Histone H2B
17	P62804	<i>H4c2</i>	Histone H4
18	B0BNA7	<i>Eif3i</i>	Eukaryotic translation initiation factor 3 subunit I
19	P29314	<i>Rps9</i>	40S ribosomal protein S9

20	P62856	<i>Rps26</i>	40S ribosomal protein S26
21	P13471	<i>Rps14</i>	40S ribosomal protein S14
22	P62902	<i>Rpl31</i>	60S ribosomal protein L31
23	P62907	<i>Rpl10a</i>	60S ribosomal protein L10a
24	F1LYQ7	<i>LOC680700</i>	Ribosomal protein
25	Q5PQK2	<i>Fus</i>	RNA-binding protein
26	Q5PQR0	<i>Raly</i>	RALY heterogeneous nuclear ribonucleoprotein
27	Q566E4	<i>Hnrnpr</i>	Heterogeneous nuclear ribonucleoprotein R
28	Q6P7R7	<i>Uba52</i>	60S ribosomal protein L40
29	Q642E2	<i>Rpl28</i>	60S ribosomal protein L28
30	F2Z3R2	<i>Hnrnpl</i>	Heterogeneous nuclear ribonucleoprotein L
31	Q3SWU3	<i>Hnrnpdl</i>	Heterogeneous nuclear ribonucleoprotein D-like
32	F1LPS8	<i>Pura</i>	Transcriptional activator protein Pur-alpha
33	B5DF91	<i>Elavl1</i>	ELAV-like protein 1
34	Q4KM71	<i>Sfpq</i>	Splicing factor proline and glutamine-rich
35	P84586	<i>Rbmxl</i>	RNA-binding motif protein, X chromosome retrogene-like
36	Q6P790	<i>Rpl6</i>	60S ribosomal protein L6 (Fragment)
37	A0A0G2K7B3	<i>LOC100911576</i>	Heterogeneous nuclear ribonucleoproteins C1/C2-like
38	A0A0G2JXW4	<i>Hnrnpc</i>	Heterogeneous nuclear ribonucleoprotein C, isoform CRA_a
39	P62243	<i>Rps8</i>	40S ribosomal protein S8
40	F1M2E9	<i>LOC100361259</i>	60S ribosomal protein L13
41	Q5FVM4	<i>Nono</i>	Non-POU domain-containing octamer-binding protein
42	B2RZB7	<i>Snrpd1</i>	Small nuclear ribonucleoprotein Sm D1
43	F1M013	<i>Rpl7a</i>	60S ribosomal protein L7a
44	P05426	<i>Rpl7</i>	60S ribosomal protein L7
45	B5DEP7	<i>Snrpg</i>	Small nuclear ribonucleoprotein G
46	G3V6I9	<i>Rpl26</i>	60S ribosomal protein L26
47	D4A1Z2		KOW domain-containing protein
48	Q9JJ54	<i>Hnrnpd</i>	Heterogeneous nuclear ribonucleoprotein D0
49	G3V9Q3	<i>Hnrnph1</i>	Heterogeneous nuclear ribonucleoprotein H
50	G3V7Z8	<i>Pabpn1</i>	Poly(A) binding protein, nuclear 1, isoform CRA_a
51	P19945	<i>Rplp0</i>	60S acidic ribosomal protein P0

52	P13383	<i>Ncl</i>	Nucleolin
53	F1LNF1	<i>Hnrnpa2b1</i>	Heterogeneous nuclear ribonucleoproteins A2/B1
54	P38983	<i>Rpsa</i>	40S ribosomal protein SA
55	P61980	<i>Hnrnpk</i>	Heterogeneous nuclear ribonucleoprotein K
56	Q68A21	<i>Purb</i>	Transcriptional activator protein Pur-beta
57	P60203	<i>Plp1</i>	Myelin proteolipid protein
58	P60892	<i>Prps1</i>	Ribose-phosphate pyrophosphokinase 1
59	Q6PDU1	<i>Srsf2</i>	Serine/arginine-rich splicing factor 2
60	Q6URK4	<i>Hnrnpa3</i>	Heterogeneous nuclear ribonucleoprotein A3
61	D4A4D5	<i>LOC498555</i>	60S acidic ribosomal protein P2
62	D3ZXF9	<i>Mrpl12</i>	Mitochondrial ribosomal protein L12
63	D3ZJ08	<i>Hist2h3c2</i>	Histone H3
64	D4A6G6	<i>LOC100362339</i>	40S ribosomal protein S19
65	D4ABK7	<i>Hnrnp3</i>	Heterogeneous nuclear ribonucleoprotein H3 (2H9) (Predicted), isoform CRA_c
Ферменты, участвующие в метаболизме белков, аминокислот и других азотистых соединений 12			
1	Q00981	<i>Uchl1</i>	Ubiquitin carboxyl-terminal hydrolase isozyme L1
2	Q3ZAU6	<i>Rnf14</i>	RBR-type E3 ubiquitin transferase
3	Q45QL2	<i>Gnb4</i>	Guanine nucleotide binding protein beta 4 (Fragment)
4	Q4V8H5	<i>Dnpep</i>	Aspartyl aminopeptidase
5	Q63654	<i>UBC</i>	Polyubiquitin (Fragment)
6	P00507	<i>Got2</i>	Aspartate aminotransferase, mitochondrial
7	Q9JKB7	<i>Gda</i>	Guanine deaminase
8	P09034	<i>Ass1</i>	Argininosuccinate synthase
9	Q6PCU3	<i>Glul</i>	Glutamine synthetase
10	P52759	<i>Rida</i>	2-iminobutanoate/2-iminopropanoate deaminase
11	G3V647	<i>Pdxk</i>	Pyridoxal kinase
12	P13233	<i>Cnp</i>	2,3-cyclic-nucleotide 3-phosphodiesterase
Ферменты, участвующие в метаболизме липидов 2			
1	P07483	<i>Fabp3</i>	Fatty acid-binding protein, heart
2	Q07523	<i>Hao2</i>	Hydroxyacid oxidase 2

Таблица S3. Протеомная идентификация изатин-связывающих белков мозга мыши (39), специфичных для МФТП-индуцированного паркинсонизма.

№	№ в базе Uniprot	Ген по Uniprot	Название белка по Uniprot
Белки/ферменты, участвующие в процессах генерации энергии и углеводного обмена 1			
1	P30275	<i>Ckmt1</i>	Creatine kinase, ubiquitous mitochondrial precursor
Белки, участвующие в образовании цитоскелета и экзоцитозе 12			
1	P17426	<i>Ap2a1</i>	AP-2 complex, subunit alpha-1
2	Q9DBG3	<i>Ap2b1</i>	AP-2 complex, subunit beta-1
3	<u>Q8BW94</u>	<i>Dnah3</i>	Dynein heavy chain 3, axonemal
4	<u>Q6NVD0</u>	<i>Frem2</i>	FRAS1-related extracellular matrix protein 2
5	P52293	<i>Kpna2</i>	Importin subunit alpha-2
6	A2AG50	<i>Map7d2</i>	MAP7 domain-containing protein 2
7	<u>Q69ZN7</u>	<i>Myof</i>	Myoferlin
8	<u>O08808</u>	<i>Diaph1</i>	Protein diaphanous homolog 1
9	<u>A2ASS6</u>	<i>Ttn</i>	Titin
10	<u>Q61037</u>	<i>Tsc2</i>	Tuberin
11	P68368	<i>Tuba4a</i>	Tubulin alpha -4A chain
12	Q9JJZ2	<i>Tuba8</i>	Tubulin alpha -8 chain
Белки, участвующие в передаче сигнала и регуляции активности ферментов 10			
1	Q60662	<i>Akap4</i>	A-kinase anchor protein 4 precursor
2	P11798	<i>Camk2a</i>	Calcium/calmodulin-dependent protein kinase type II alpha subunit
3	<u>Q60992</u>	<i>Vav2</i>	Guanine nucleotide exchange factor VAV2
4	<u>Q6ZQB6</u>	<i>Ppip5k2</i>	Inositol hexakisphosphate and diphosphoinositol-pentakisphosphate kinase 2
5	<u>Q3UVX5</u>	<i>Grm5</i>	Metabotropic glutamate receptor 5
6	<u>Q61026</u>	<i>Ncoa2</i>	Nuclear receptor coactivator 2
7	<u>P70335</u>	<i>Rock1</i>	Rho-associated protein kinase 1
8	<u>Q7TPD2</u>	<i>Fam185a</i>	Protein FAM185A
9	<u>P00520</u>	<i>Abl1</i>	Proto-oncogene tyrosine-protein kinase ABL1
10	<u>Q922K9</u>	<i>Frk</i>	Tyrosine-protein kinase FRK
Антиоксидантные и защитные белки/ферменты 2			

1	P63017	<i>Hspa8</i>	Heat shock cognate 71 kDa protein
2	P35700	<i>Prdx1</i>	Peroxiredoxin-1
Белки-регуляторы экспрессии генов, клеточного деления и дифференцировки 10			
1	P49312	<i>Hnrnpa1</i>	Heterogeneous nuclear ribonucleoprotein A1
2	O35737	<i>Hnrnph1</i>	Heterogeneous nuclear ribonucleoprotein H
3	P70333	<i>Hnrnph2</i>	Heterogeneous nuclear ribonucleoprotein H2
4	<u>Q6PB66</u>	<i>Lrpprc</i>	Leucine-rich PPR motif-containing protein
5	<u>A6H619</u>	<i>Phrf1</i>	PHD and RING finger domain-containing protein 1
6	<u>P11103</u>	<i>Parp1</i>	Poly [ADP-ribose] polymerase 1
7	Q8VIG6	<i>Traip</i>	Splicing factor, praline-and glutamine-rich
8	<u>Q8C033</u>	<i>Arhgef10</i>	Rho guanine nucleotide exchange factor 10
9	P42669	<i>Pura</i>	Transcriptional activator protein Pur-alpha
10	<u>Q99LC8</u>	<i>Eif2b1</i>	Translation initiation factor eIF-2B subunit alpha
Ферменты, участвующие в метаболизме белков, аминокислот и других азотистых соединений 2			
1	P28063	<i>Psmb8</i>	Proteasome subunit beta type-8
2	Q80V42	<i>Cpm</i>	Carboxypeptidase M
Ферменты, участвующие в метаболизме липидов 2			
1	<u>Q8CAY6</u>	<i>Acat2</i>	Acetyl-CoA acetyltransferase, cytosolic
2	Q9DBF1	<i>Aldh7a1</i>	Alpha-aminoadipic semialdehyde dehydrogenase

Таблица S4. Протеомная идентификация изатин-связывающих белков мозга мыши (110), специфичных для отдаленного эффекта (7 дней) МФТП-индуцированного паркинсонизма

№	№ в базе Uniprot	Ген по Uniprot	Название белка по Uniprot
Белки/ферменты, участвующие в процессах генерации энергии и углеводного обмена 2			
1	<u>Q64467</u>	<i>Gapdhs</i>	Glyceraldehyde-3-phosphate dehydrogenase, testis-specific
2	P06151	<i>Ldha</i>	L-lactate dehydrogenase A chain
Белки, участвующие в образовании цитоскелета и экзоцитозе 21			
1	<u>Q8BFX3</u>	<i>Kctd3</i>	BTB/POZ domain-containing protein KCTD3
2	<u>A2АНС3</u>	<i>Camsap1</i>	Calmodulin-regulated spectrin-associated protein 1
3	<u>Q9Z0H8</u>	<i>Clip2</i>	CAP-Gly domain-containing linker protein 2

4	<u>Q68FD5</u>	<i>Cltc</i>	Clathrin heavy chain 1
5	<u>A2AGT5</u>	<i>Ckap5</i>	Cytoskeleton-associated protein 5
6	<u>Q91XQ0</u>	<i>Dnah8</i>	Dynein heavy chain 8, axonemal
7	<u>P70429</u>	<i>Evl</i>	Ena/VASP-like protein
8	<u>P43006</u>	<i>Slc1a2</i>	Excitatory amino acid transporter 2
9	<u>Q8BIE6</u>	<i>Frmd4a</i>	FERM domain-containing protein 4A
10	<u>P13020</u>	<i>Gsn</i>	Gelsolin
11	<u>Q02566</u>	<i>Myh6</i>	Myosin-6
12	<u>Q99MZ6</u>	<i>Myo7b</i>	Myosin-VIIb
13	<u>O55103</u>	<i>Prx</i>	Periaxin
14	<u>Q62261</u>	<i>Sptbn1</i>	Spectrin beta chain, brain 1
15	<u>Q88935</u>	<i>Syn1</i>	Synapsin-1
16	<u>P26039</u>	<i>Tln1</i>	Talin-1
17	<u>A2ASS6</u>	<i>Ttn</i>	Titin
18	<u>P68369</u>	<i>Tuba1a</i>	Tubulin alpha-1A chain
19	<u>P05213</u>	<i>Tuba1b</i>	Tubulin alpha-1B chain
20	<u>P68373</u>	<i>Tuba1c</i>	Tubulin alpha-1C chain
21	<u>Q64727</u>	<i>Vcl</i>	Vinculin
Белки, участвующие в передаче сигнала и регуляции активности ферментов 36			
1	<u>O35348</u>	<i>Colq</i>	Acetylcholinesterase collagenic tail peptide
2	<u>Q60662</u>	<i>Akap4</i>	A-kinase anchor protein 4
3	<u>Q9WTQ5</u>	<i>Akap12</i>	A-kinase anchor protein 12
4	<u>Q920R0</u>	<i>Als2</i>	Alsin
5	<u>Q6PA06</u>	<i>Atl2</i>	Atlastin-2
6	<u>Q8K449</u>	<i>Abca9</i>	ATP-binding cassette sub-family A member 9
7	<u>P48754</u>	<i>Brca1</i>	Breast cancer type 1 susceptibility protein homolog
8	<u>Q9WUF3</u>	<i>Casp8ap2</i>	CASP8-associated protein 2
9	<u>Q8K389</u>	<i>Cdk5rap2</i>	CDK5 regulatory subunit-associated protein 2
10	<u>A2AF47</u>	<i>Dock11</i>	Dedicator of cytokinesis protein 11
11	<u>Q69ZL1</u>	<i>Fgd6</i>	FYVE, RhoGEF and PH domain-containing protein 6
12	<u>Q9D6F4</u>	<i>Gabra4</i>	Gamma-aminobutyric acid receptor subunit alpha-4
13	<u>Q8K013</u>	<i>Gtpbp10</i>	GTP-binding protein 10
14	<u>Q8VEL9</u>	<i>Rem2</i>	GTP-binding protein REM 2
15	<u>Q8K394</u>	<i>Plcl2</i>	Inactive phospholipase C-like protein 2

16	<u>Q60751</u>	<i>Igf1r</i>	Insulin-like growth factor 1 receptor
17	<u>Q80SU7</u>	<i>Gvin1</i>	Interferon-induced very large GTPase 1
18	<u>P97378</u>	<i>Il12rb2</i>	Interleukin-12 receptor beta-2 chain
19	<u>Q5HZI1</u>	<i>Mtus1</i>	Mitochondrial tumor suppressor 1 homolog
20	<u>Q9JI33</u>	<i>Ntn4</i>	Netrin-4
21	<u>Q9Z1S5</u>	<i>Septin3</i>	Neuronal-specific septin-3
22	<u>Q61194</u>	<i>Pik3c2a</i>	Phosphatidylinositol-4-phosphate 3-kinase C2 domain-containing alpha polypeptide
23	<u>P22005</u>	<i>Penk</i>	Proenkephalin-A
24	<u>P97805</u>	<i>Fam3d</i>	Protein FAM3D
25	<u>Q8BG95</u>	<i>Ppp1r12b</i>	Protein phosphatase 1 regulatory subunit 12B
26	<u>Q8BNA6</u>	<i>Fat3</i>	Protocadherin Fat 3
27	<u>P59598</u>	<i>Asxl1</i>	Putative Polycomb group protein ASXL1
28	<u>Q6PGN3</u>	<i>Dclk2</i>	Serine/threonine-protein kinase DCLK2
29	<u>Q80XP9</u>	<i>Wnk3</i>	Serine/threonine-protein kinase WNK3
30	<u>Q18PI6</u>	<i>Cd84</i>	SLAM family member 5
31	<u>Q5S003</u>	<i>Spag17</i>	Sperm-associated antigen 17
32	<u>Q80XQ2</u>	<i>Tbc1d5</i>	TBC1 domain family member 5
33	<u>Q8CIR4</u>	<i>Trpm6</i>	Transient receptor potential cation channel subfamily M member 6
34	<u>P08103</u>	<i>Hck</i>	Tyrosine-protein kinase HCK
35	<u>P24604</u>	<i>Tec</i>	Tyrosine-protein kinase Tec
36	<u>Q78JW9</u>	<i>Ubfd1</i>	Ubiquitin domain-containing protein UBFD1
Антиоксидантные и защитные белки/ферменты 5			
1	<u>P19437</u>	<i>Ms4a1</i>	B-lymphocyte antigen CD20
2	<u>P56198</u>	<i>Cidec</i>	Cell death activator CIDE-3
3	<u>P30415</u>	<i>Nktr</i>	NK-tumor recognition protein
4	<u>P11983</u>	<i>Tcp1</i>	T-complex protein 1 subunit alpha B
5	<u>P80316</u>	<i>Cct5</i>	T-complex protein 1 subunit epsilon
Белки-регуляторы экспрессии генов, клеточного деления и дифференцировки 37			
1	<u>Q8R4I1</u>	<i>Atxn7</i>	Ataxin-7
2	<u>Q6A058</u>	<i>Armcx2</i>	Armadillo repeat-containing X-linked protein 2
3	<u>A2A4P0</u>	<i>Dhx8</i>	ATP-dependent RNA helicase DHX8
4	<u>Q3UHR0</u>	<i>Bahcc1</i>	BAH and coiled-coil domain-containing protein 1

5	Q35218	<i>Cpsf2</i>	Cleavage and polyadenylation specificity factor subunit 2
6	Q8BRN9	<i>Cc2d1b</i>	Coiled-coil and C2 domain-containing protein 1B
7	Q6V3W6	<i>Drc7</i>	Coiled-coil domain-containing protein 135
8	Q9JIC3	<i>Dclre1a</i>	DNA cross-link repair 1A protein
9	Q64511	<i>Top2b</i>	DNA topoisomerase 2-beta SV=2
10	Q6GQV7	<i>Edrf1</i>	Erythroid differentiation-related factor 1
11	Q8BJW6	<i>Eif2a</i>	Eukaryotic translation initiation factor 2A
12	Q8QZY1	<i>Eif3l</i>	Eukaryotic translation initiation factor 3 subunit L
13	P97789	<i>Xrn1</i>	5'-3' exoribonuclease 1
14	Q9JIB4	<i>Gtf2h2</i>	General transcription factor IIIH subunit 2
15	Q810T2	<i>Ccnb3</i>	G2/mitotic-specific cyclin-B3
16	Q8BRH4	<i>Kmt2c</i>	Histone-lysine N-methyltransferase MLL3
17	Q8BU30	<i>Iars1</i>	Isoleucyl-tRNA synthetase, cytoplasmic
18	Q9WUU9	<i>Mcm3ap</i>	80 kDa MCM3-associated protein
19	Q8CG19	<i>Ltbp1</i>	Latent-transforming growth factor beta-binding protein 1
20	Q925J9	<i>Med1</i>	Mediator of RNA polymerase II transcription subunit 1
21	Q9JL19	<i>Ncoa6</i>	Nuclear receptor coactivator 6
22	Q8BZH4	<i>Pogz</i>	Pogo transposable element with ZNF domain
23	Q14BI7	<i>Tdrd9</i>	Putative ATP-dependent RNA helicase TDRD9
24	Q8C4A5	<i>Asxl3</i>	Putative Polycomb group protein ASXL3
25	Q9CPS7	<i>Pno1</i>	RNA-binding protein PNO1
26	Q9Z180	<i>Setbp1</i>	SET-binding protein
27	Q6A026	<i>Pds5a</i>	Sister chromatid cohesion protein PDS5 homolog A
28	Q924W5	<i>Smc6</i>	Structural maintenance of chromosomes protein 6
29	Q62440	<i>Tle1</i>	Transducin-like enhancer protein 1
30	Q08122	<i>Tle3</i>	Transducin-like enhancer protein 3
31	Q61313	<i>Tfap2b</i>	Transcription factor AP-2 beta
32	Q61687	<i>Atrx</i>	Transcriptional regulator ATRX
33	Q80WC3	<i>Tnrc18</i>	Trinucleotide repeat-containing gene 18 protein
34	P61407	<i>Tdrd6</i>	Tudor domain-containing protein 6
35	Q9D2D7	<i>Znf687</i>	Zinc finger protein 687
36	Q8BV42	<i>Znf786</i>	Zinc finger protein 786

37	<u>Q5SSH7</u>	<i>Zzef1</i>	Zinc finger ZZ-type and EF-hand domain-containing protein 1
Ферменты, участвующие в метаболизме белков, аминокислот и других азотистых соединений 6			
1	<u>O88967</u>	<i>Yme111</i>	ATP-dependent metalloprotease YME1L1
2	<u>Q09M02</u>	<i>Agb15</i>	Cytosolic carboxypeptidase-like protein 5
3	<u>Q8CDU4</u>	<i>Fbxl13</i>	F-box/LRR-repeat protein 13
4	<u>Q80WP8</u>	<i>Gad11</i>	Glutamate decarboxylase-like protein 1
5	<u>P97467</u>	<i>Pam</i>	Peptidyl-glycine alpha-amidating monooxygenase
6	<u>Q9DBN4</u>	<i>P33monox</i>	UPF0498 protein KIAA1191
Ферменты, участвующие в метаболизме липидов 3			
1	<u>Q9QUJ7</u>	<i>Acs14</i>	Long-chain-fatty-acid--CoA ligase 4
2	<u>O08601</u>	<i>Mttp</i>	Microsomal triglyceride transfer protein large subunit
3	<u>O88492</u>	<i>Plin4</i>	Perilipin-4