



Evaluación y desarrollo de modelos *in vitro* para la predicción de neurotoxicidad. Aproximación proteómica a la neurotoxicidad inducida por metilmercurio.

Tesis Doctoral presentada por

Iolanda Vendrell Monell

Barcelona, 2006

ANEXO I

7.- ANEXO I

Clasificación de las proteínas identificadas por MALDI-TOF o MALDI-TOF-TOF según la función molecular, proceso biológico o localización celular, siguiendo los criterios de la Gene Ontology Annotation, SWISS-PROT o según la base de datos de referencia de proteínas de cerebro de ratón publicada por Xixi et al. 2006

Spot Nº	Swiss-prot Nº	Full Name	Biological Process	Molecular function	Subcelular localization
94	Q8R0Y6	10-formyltetrahydrofolate dehydrogenase (EC 1.5.1.6)	Biosynthesis, one carbon compound metabolism,	oxidoreductase and transferase activity	—
102	P58252	Elongation factor 2 (EF-2)	Protein biosynthesis, protein metabolism;	Nucleic acid and nucleotide binding; hydrolase activity	—
142, 146	Q80V75	Fscn1 protein	Protein transport	Actin and protein binding	—
164	P38647	Stress-70 protein, mitochondrial precursor	Protein metabolism; cell growth maintenance; Response to stimulus (stress)	Heat shock protein activity and purine; nucleotide binding	Cytoplasm mitochondria
371	P14211	Calreticulin precursor	cell communication and cell adhesion	Chaperone; carbohydrate and metal ion binding	Cytoplasm; endoplasmatic reticulum; extracelular
424	Q03265	ATP synthase alpha chain, mitochondrial precursor (EC 3.6.3.14)	ATP biosynthesis; nucleic acid, nucleotide, and nucleoside metabolism; cell growth and/or maintenance	Hydrolase activity; nucleotide binding; carrier activity	Cytoplasm, membrane, mitochondrial
507a	P17182	Alpha enolase (EC 4.2.1.11)	Metabolism, glycolysis	Protein and magnesium ion binding; lyase activity	—
507b	Q9D8N0	Elongation factor 1-gamma	—	Nucleic acid binding	—
520, 656	Q04447	Creatine kinase, B chain (EC 2.7.3.2)	glucose metabolism; transport	Kinase and transferase activity	—
545	P97807	Fumarate hydratase 1, mitochondrial precursor (EC 4.2.1.2)	Carbohydrate metabolism	Carboxy-oxygen lyase activity;	mitochondria
599	Q9DB77	Ubiquinol-cytochrome C reductase complex core protein 2, mitochondrial precursor (EC 1.10.2.2)	—	—	—

Spot N°	Swiss-prot N°	Full Name	Biological Process	Molecular function	Subcellular localization
633	P63260 P60710	γ -Actin or β -actin	Cellular organization and biogenesis	Structural molecular activity	cytoplasm
672, 673	P05202	Aspartate aminotransferase, mitochondrial precursor (EC 2.6.1.1)	Amino acid metabolism; biosynthesis	Catalytic, transaminase and transferase activity	—
685, 694, 705	P05064	Fructose-bisphosphate aldolase A (EC 4.1.2.13)	Catabolism, alcohol, carbohydrate and cellular metabolism	Lyase activity	—
795	P08249	Malate dehydrogenase, mitochondrial precursor (EC 1.1.1.37)	—	—	—
796	P16125	L-lactate dehydrogenase B chain (EC 1.1.1.27)	Carbohydrate metabolism	oxidoreductase activity	—
827	P45376	Aldose reductase (EC 1.1.1.21)	—	—	—
842a	Q99LW9	Pyruvate dehydrogenase lipoamide beta	—	—	—
842b	O35639	Annexin A3	—	Calcium ion binding; phospholipase A2 inhibitor activity;	—
889	Q60932	Voltage-dependent anion-selective channel protein 1 (VDAC-1)	Cell growth and/or maintenance, cell-cell signaling, organismal physiological process, response to stress and learning	channel/pore class transporter activity	Mitochondria, extracellular, cytoplasm
894	Q9Z2L0	Voltage-dependent anion channel 1 [Rattus norvegicus]	Cell growth and/or maintenance; cell communication; organismal physiological process; response to stress and learning	Channel or pore class transporter activity	Mitochondria, extracellular cytoplasm
909	Q61166	Microtubule-associated protein RP/EB family member 1	—	—	cytoplasm
917	P68040	Guanine nucleotide-binding protein beta subunit 2-like 1	Protein metabolism; cell communication and signal transduction	Protein binding; hydrolase, kinase and receptor activity	—
943a	Q9Z1Q5	Chloride intracellular channel protein1	—	—	—
943b	P10605	Cathepsin B precursor (EC 3.4.22.1)	Catabolism and protein metabolism; cell growth and /or maintenance	Antioxidant; hydrolase, oxidoreductase and peroxidase activity	Cytoplasm, lysosome, extracellular
970	P67778	Prohibitin	—	—	—

Spot N°	Swiss-prot N°	Full Name	Biological Process	Molecular function	Subcellular localization
1001	P63101	Protein kinase C inhibitor protein-1	—	Protein binding	—
1009, 1012, 1026	Q9DBJ1	Phosphoglycerate mutase 1 (EC 5.4.2.1; EC 5.4.2.4; EC 3.1.3.13)	Nucleoside, nucleotic and nucleic acid metabolism	Hydrolase, transferase and isomerase activity	—
1044	Q9R0P9	Ubiquitin carboxyl-terminal hydrolase isozyme L1 (EC 3.4.19.12)	Prostaglandin biosynthesis	Protein binding, hydrolase activity, peptidase activity	—
1058	P17751	Triosephosphate isomerase	Biosynthesis; catabolism, alcohol, lipid, vitamin, carbohydrate and cellular metabolism	Isomerase activity	—
1065, 1069	O08709	Peroxioredoxin 6 (EC 1.11.1.15)	Catabolism and lipid metabolism, catabolism; Response to reactive oxygen	Antioxidant, peroxidase; hydrolase and oxidoreductase activity	Cytoplasm, lisosome
1087	Q9D6J6	NADH-ubiquinone oxidoreductase 24kDa subunit, mitochondrial precursor (EC 1.6.5.3; EC 1.6.99.3)	Phosphorous metabolism; electon transport	Ion transporter and oxidoreductase activity	Cytoplasm; mitochondria
1106	P63028	Translationally controlled tumor protein	Protein metabolism	Protein binding	—
1114	Q99LX0	DJ-1	Cell growth and manteinance	RNA binding	—
1115	P37804	Transgelin	—	—	—
1118	P35700	Peroxioredoxin 1 (EC 1.11.1.15)	Metabolism (oxigen and ROS metabolism), response to oxidative stress	Antioxidant; oxidoreductase and peroxidase activity	—
1128	P09671	Superoxide dismutase (Mn) mitochondrial precursor (EC 1.15.1.1)	Metabolism; response to stimulus (oxygen species)	Metal ion binding, oxidoreductase activity	Cytoplasm; mitochondria
1142	P70296	Phosphatidylethanol amine-binding protein	—	Nucleotid and lipid binding, endopeptidase inhibitor activity	—
1182	P18760	Cofilin, non muscle isoform	—	Actin binding	—
1184	Q01768	Nucleoside diphosphate kinase B (EC 2.7.4.6)	—	Kinase and transferase activity; Nucleotide binding; Isomerase activity	Nucleus
1205	P17742	Peptidyl-prolyl cis-trans insomerase A (EC 5.2.1.8)	Protein metabolism; protein folding	—	Cytosol
1206					
1209	P08228	Cu/Zn superoxide dismutase (EC 1.15.1.1)	Response to oxidative stress	Antioxidant; metal ion binding	Cytosol; mitochondria
1211	P99029	Peroxioredoxin 5, mitochondrial precursor (EC 1.11.1.15)	Cell growth and/or maintenance	Antioxidant activity; peroxisome organization and biogenesis	Mitochondria; peroxisome; cytoplasm

Spot N°	Swiss-prot N°	Full Name	Biological Process	Molecular function	Subcelular localization
1220	P61089	Ubiquitin-conjugating enzyme E2 N (EC 6.3.2.19)	Cell differentiation; regulation of cell cycle	Ligase activity	—
1237	Q05816	Fatty acid-binding protein, epidermal	Cell growth and maintenance	Lipid binding; transporter activity	—
1249	P51880	Fatty acid-binding protein, brain	Cell growth and maintenance; cytoskeleton organization	Lipid binding; transporter activity	—
1252	P70349	Histidina triad nucleotide-binding protein 1	Actin cytoskeleton organization	Hydrolase activity	Nucleus
1253	P62962	Profilin I	Neuronal migration, cell differentiation, neurogenesis	Protein binding, actin binding	
1255	P32848	Parvalbumin alpha	Muscle development	Calcium ion binding	cytoplasm
1263	Q9JJU8	SH3-binding domain glutamic acid-rich protein like	Cytoskeletal organization biogenesis	—	—
1268	P16045	Galectin-1	Cell communication, cell adhesion	Carbohydrate and protein binding	cytoplasm
1284	P43024	Cytochrome c oxidase polypeptide VIa-liver, mitochondrial [Precursor] (EC 1.9.3.1)	electron transport	Carrier and ion transporter activity; oxidoreductase activity	Cytoplasm, membrane, mitochondria
1378	P47738	Aldehyde dehydrogenase AHD-M1 (EC 1.2.1.3)	metabolism	oxidoreductase activity	mitochondria
1553	P55809	Succinyl-CoA:3-ketoacid-coenzyme A transferase 1, mitochondrial precursor (EC 2.8.3.5)	Carbohydrate metabolism	Transferase activity	Mitochondria
