

**Supplementary Table 1.** Proteins identified in tandem mass spectrometry-based comparison of young and aged adult primary neural stem/progenitor cells.

<i>IPI</i>	<i>Protein</i>	<i>ASAP Ratio</i>	<i>Peptides</i>	<i>Description/Pathway</i>
IPI00113141	Ctsd Citrate synthase	0.84	7	mitochondrial/TCA cycle
IPI00129928	Fh1 Fumarate hydratase	0.9	4	mitochondrial/TCA cycle
IPI00119114	Acadl Long-chain acyl-CoA dehydrogenase	0.84	6	mitochondrial/fatty acid oxidation
IPI00119458	Aldoc Fructose-bisphosphate aldolase C	0.89	6	mitochondrial/glycolysis
IPI00462072	Eno1 Alpha-enolase	0.7	16	cytoplasmic/glycolysis
IPI00342603	Ogdhl oxoglutarate dehydrogenase-like	0.56	1	mitochondrial/links TCA cycle to protein synthesis
IPI00136703	Ckb Creatine kinase B-type	0.71	38	cytoplasmic/phosphoprotein
IPI00468481	Atp5b ATP synthase subunit beta	0.68	10	mitochondrial/complex V (ATP synthesis)
IPI00130280	Atp5a1 ATP synthase subunit alpha	0.64	9	mitochondrial/complex V (ATP synthesis)
IPI00226073	Hnrpd Heterogeneous nuclear ribonucleoprotein F isoform 2	0.8	2	nuclear/RNA processing & stabilization
IPI00454016	Mat2a S-adenosylmethionine synthetase isoform type-2	0.8	1	cytoplasmic/methionine adenosyltransferase
IPI00318841	Eef1g Elongation factor 1-gamma	0.9	4	ribosomal/protein biosynthesis
IPI00119618	Canx Calnexin precursor	0.86	7	ER/protein processing & retention
IPI00608097	Npepps Aminopeptidase puromycin sensitive	0.68	7	nuclear/proteolysis, proliferation
IPI00122565	Gdi2 Rab GDP dissociation inhibitor beta isoform 1	0.87	5	membrane/signal transduction
IPI00111560	SET Phosphatase 2A inhibitor	0.79	3	nuclear/inhibits acetylation of histones
IPI00123129	Snd1 Staphylococcal nuclease domain-containing protein 1	0.66	5	nuclear/transcrip coactivator of STAT5/6
IPI00272033	Hist2h2ac Histone H2A type 2-C	0.7	7	nuclear/chromosomal stability & proliferation
IPI00312128	Trim28 Transcription intermediary factor 1-beta isoform 1	0.53	3	nuclear/transcriptional activator of TWIST
IPI00462752	Myo6 myosin VI (brain specific)	0.64	3	membrane/vesicle transport, neurite extension
IPI00762919	Hip1 Huntingtin interacting protein 1	0.88	3	membrane/vesicle transport, apoptosis
IPI00676914	Hypothetical protein similar to valosin isoform 1	0.88	16	golgi/phosprot breaks down stacks at mitosis
IPI00331556	Hspa4 Heat shock 70 kDa protein 4	0.88	9	cytoplasmic/stress response
IPI00116074	Aco2 Aconitate hydratase	1.12	3	mitochondrial/TCA cycle
IPI00336324	Mdh1 Malate dehydrogenase	1.55	2	cytoplasmic/TCA cycle
IPI00121833	Acaa1a 3-ketoacyl-CoA thiolase A	1.57	2	perioxosomal/fatty acid metabolism
IPI00154054	Acat1 Acetyl-CoA acetyltransferase	1.43	6	mitochondrial/mevalonate pathway
IPI00221402	Aldoa Fructose-bisphosphate aldolase A	1.53	5	mitochondrial/glycolysis
IPI00555069	Pgk1 Phosphoglycerate kinase 1	1.23	14	cytoplasmic/glycolysis
IPI00420706	Lrpprc Leucine-rich PPR motif-containing protein	2.32	2	mitochondrial/protein biosynthesis (esp CytoC ox)
IPI00130353	Vars Valyl-tRNA synthetase	2.18	4	mitochondrial/protein biosynthesis
IPI00458583	Hnrnpu heterogeneous nuclear ribonucleoprotein U	1.27	6	nuclear/mRNA processing and synthesis
IPI00128904	Pcbp1 Poly(rC)-binding protein 1	1.19	3	nuclear/RNA processing
IPI00118676	Eif4a1 Eukaryotic initiation factor 4A-I	1.29	11	ribosomal/RNA helicase

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IPI00122862	Mthfd1 C-1-tetrahydrofolate synthase	1.13	2	cytoplasmic/amino acid biosynthesis
IPI00114733	Serpinh1 Serpin H1 precursor	1.15	7	ER/protein biosynthesis (esp collagen)
IPI00307837	Eef1a1 Elongation factor 1-alpha 1	1.2	16	ribosomal/protein biosynthesis
IPI00466069	Eef2 Elongation factor 2	1.31	13	ribosomal/protein biosynthesis
IPI00115679	Ganab Isoform 2 of Neutral alpha-glucosidase AB precursor	1.15	2	ER/protein processing (esp glycoprotein)
IPI00129526	Hsp90b1 Endoplasmic precursor	1.2	16	ER/protein processing & transport
IPI00320217	Cct2 T-complex protein 1 subunit beta	1.13	6	cytoplasmic/protein folding (esp actin)
IPI00123313	Uba1 Ubiquitin-like modifier-activating enzyme 1 X	1.14	13	cytoplasmic/proteolysis
IPI00169916	Cltc Clathrin heavy chain 1	1.35	7	membrane/vesicle transport
IPI00409936	Ipo5 Isoform 2 of Importin subunit beta-3	1.31	3	cytoplasmic/nuclear transport
IPI00420569	Atp1a2 Na/K-transporting ATPase subunit alpha-2	1.12	4	membrane/ion pump & phosphoprotein
IPI00229080	Hsp90ab1 Heat shock protein 84b	1.21	5	cytoplasmic/stress response
IPI00457611	Sept9 Isoform 1 of Septin-9	2.3	1	nuclear/negative regulation of cell cycle
IPI00111013	Ctsd Cathepsin D precursor	1.00	2	cytoplasmic/proteolysis
IPI00112129	Gatm Glycine amidinotransferase, mitochondrial precursor	0.99	2	mitochondrial/amine biosynthesis
IPI00113214	Usp5 Ubiquitin carboxyl-terminal hydrolase 5	1.00	3	nuclear/proteolysis
IPI00115620	Psat1 Phosphoserine aminotransferase	1.00	3	cytoplasmic/amino acid biosynthesis
IPI00117288	Hnrpab Heterogeneous nuclear ribonucleoprotein A/B	1.00	2	nuclear/RNA synthesis
IPI00118899	Actn4 Alpha-actinin-4	1.00	3	cytoplasmic/nuclear transport
IPI00119689	Ap2b1 Isoform 1 of AP-2 complex subunit beta-1	1.00	3	membrane/clathrin vesicle assembly
IPI00121515	Caprin1 cytoplasmic activation/proliferation-associated protein 1	1.00	2	cytoplasmic/neuronal differentiation
IPI00135231	Idh1 0 day neonate lung cDNA	1.00	3	mitochondrial/TCA cycle
IPI00224626	Sept7 cell division cycle 10 homolog	1.08	4	cytoplasmic/spindle formation & mitosis
IPI00230086	Hnrpd Isoform 2 of Heterogeneous nuclear ribonucleoprotein D0	1.00	3	nuclear/RNA synthesis
IPI00230440	Ahcy Adenosylhomocysteinase	1.00	4	cytoplasmic/amino acid biosynthesis
IPI00317794	Ncl Nucleolin	1.00	4	nuclear/RNA binding and transcription
IPI00321647	Eif3c Eukaryotic translation initiation factor 3 subunit C	1.00	2	cytoplasmic/protein synthesis
IPI00459487	Suclg2 Isoform 1 of Succinyl-CoA ligase beta-chain, mitochondrial precursor	1.00	2	mitochondrial/TCA cycle
IPI00110827	Acta1 Alpha actin	0.99	14	cytoskeletal/cytoskeleton
IPI00120886	Ybx1 Nuclease-sensitive element-binding protein 1	1.00	3	cytoplasmic/RNA stabilization & translation
IPI00122339	Thoc4 Isoform 2 of THO complex subunit 4	1.00	8	nuclear/mRNA synthesis
IPI00555055	H2afv Histone H2AV	1.00	4	nuclear/chromosomal stability & proliferation
IPI00123604	Rpsa 40S ribosomal protein SA	1.01	2	membrane/non-integrin laminin receptor
IPI00130144	Ephx1 Microsomal epoxide hydrolase	1.00	2	microsomal/catabolism & detoxification

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IPI00322096	Paics Multifunctional protein ADE2	1.00	2	cytoplasmic/purine biosynthesis
IPI00321308	Aars Alanyl-tRNA synthetase, cytoplasmic	1.00	3	cytoplasmic/protein synthesis
IPI00130391	Prss3 Prss1 protease	1.00	2	cytoplasmic/proteolysis
IPI00330804	Hsp90aa1 Heat shock protein HSP 90-alpha	1.00	2	cytoplasmic/mitochondrial stress response
IPI00120415	Rtn4 Isoform 3 of Reticulon-4	1.00	2	ER/neurite outgrowth inhibitor
IPI00124954	Kif5b Kinesin-1 heavy chain	1.00	2	cytoskeletal/trafficking of organelles
IPI00125971	Psmc6 26S protease regulatory subunit S10B	1.00	1	cytoplasmic/proteolysis
IPI00133528	Golph3 Golgi phosphoprotein 3	1.00	1	golgi/phosphoprotein
IPI00318545	Bpnt1 3'(2'),5'-bisphosphate nucleotidase 1	1.00	1	cytoplasmic/signal transduction (AMP)
IPI00318614	Idh2 Isocitrate dehydrogenase [NADP], mitochondrial precursor	1.00	1	mitochondrial/TCA cycle
IPI00339916	Eprs Bifunctional aminoacyl-tRNA synthetase	1.00	1	cytoplasmic/protein synthesis
IPI00755181	Krt10 keratin complex 1	1.00	1	cytoskeletal/protein binding
IPI00228633	Gpi1 Glucose-6-phosphate isomerase	1.00	1	cytoplasmic/glycolysis
IPI00113223	Fasn Fatty acid synthase	1.00	1	cytoplasmic/fatty acid synthesis
IPI00222917	Plekhm3 Isoform 1 of Pleckstrin homology domain-containing family M member 3	1.00	1	cytoplasmic/signal transduction
IPI00405227	Vcl Vinculin	1.00	1	membrane/cell adhesion
IPI00267295	Psmd1 26S proteasome non-ATPase regulatory subunit 1	1.00	1	proteasome/proteolysis
IPI00387232	Nsf1c Isoform 3 of NSF1 cofactor p47	1.00	1	golgi/phosprot breaks down stacks at mitosis
IPI00119138	Uqcrc2 Cytochrome b-c1 complex subunit 2, mitochondrial precursor	1.00	2	mitochondrial/complex III
IPI00315550	Glx3 Glutaredoxin-3	1.00	2	cytoplasmic/redox homeostasis
IPI00283611	Hk1 Isoform HK1-SA of Hexokinase-1	1.00	1	cytoplasmic/glycolysis
IPI00420385	Sept11 Isoform 3 of Septin-11	1.00	1	nuclear/cell cycle
IPI00135640	Psmc5 26S protease regulatory subunit 8	1.00	2	cytoplasmic/proteolysis
IPI00120245	Itgav Integrin alpha-V precursor	1.00	1	membrane/cell adhesion
IPI00133066	Psmd12 Bone marrow macrophage cDNA	1.00	1	proteasome/proteolysis
IPI00130661	Tpp1 Tripeptidyl-peptidase 1 precursor	1.00	1	lysosome/proteolysis
IPI00111412	Rpl4 60S ribosomal protein L4	1.00	1	cytoplasmic/RNA synthesis
IPI00134854	Fndc8 Isoform 1 of Fibronectin type III domain-containing protein 8	1.00	1	membrane/glycoprotein synapse binding
IPI00115607	Hadhb Trifunctional enzyme subunit beta, mitochondrial precursor	1.00	1	mitochondrial/fatty acid metabolism
IPI00466919	Pgd 6-phosphogluconate dehydrogenase	1.00	1	cytoplasmic/pentose phosphate pathway
IPI00119305	Pa2g4 Proliferation-associated protein 2G4	1.00	1	nuclear/ErbB-induced cell cycle arrest
IPI00116991	Hars Histidyl-tRNA synthetase	1.00	1	cytoplasmic/protein synthesis
IPI00129178	Oat Ornithine aminotransferase, mitochondrial precursor	1.00	1	mitochondrial/protein biosynthesis
IPI00121149	Rrbp1 Isoform 3 of Ribosome-binding protein 1	1.00	1	ER/protein transport

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IPI00137409	Tkt Transketolase	1.00	1	cytoplasmic/pentose phosphate pathway
IPI00135700	Rik XTP3-transactivated gene A protein homolog	1.00	1	ER/protein binding and signal transduction
IPI00621272	Nhp2l1 NHP2-like protein 1	1.00	1	nuclear/mRNA synthesis and processing
IPI00123342	Hyou1 Hypoxia up-regulated protein 1 precursor	1.00	1	ER/cell stress (protective during hypoxia)
IPI00109109	Sod2 Superoxide dismutase [Mn], mitochondrial precursor	1.00	1	mitochondrial/removal of superoxide radicals
IPI00127558	Acox1 Peroxisomal acyl-coenzyme A oxidase 1	1.00	1	peroxisome/fatty acid oxidation
IPI00138892	Uba52 similar to ubiquitin A-52 residue ribosomal protein fusion product 1	1.00	1	ribosomal/protein synthesis
IPI00112963	Ctnna1 Catenin alpha-1	1.00	1	cytoskeletal/cell adhesion
IPI00402982	Tmod2 Isoform 1 of Tropomodulin-2	1.00	1	cytoskeletal/protein binding and assembly
IPI00119239	Psmb6 Proteasome subunit beta type-6 precursor	1.00	1	cytoplasmic/proteolysis
IPI00127267	Gldc Glycine dehydrogenase, mitochondrial precursor	1.00	2	mitochondrial/glycine metabolism
IPI00123202	Atxn10 Ataxin-10	1.00	1	cytoplasmic/induces neurite extension
IPI00337893	Pdha1 Pyruvate dehydrogenase E1 component subunit alpha	1.00	1	mitochondrial/glycolysis
IPI00347110	Krt73 Keratin, type II cytoskeletal 73	1.00	1	cytoskeletal/protein binding
IPI00471246	Ivd Isovaleryl-CoA dehydrogenase, mitochondrial precursor	1.00	1	mitochondrial/oxidoreductase
IPI00124281	Myo1b myosin IB	1.00	1	cytoplasmic/neurite extension
IPI00120495	Prmt1 Isoform 1 of Protein arginine N-methyltransferase 1	1.00	2	nuclear/signal transduction
IPI00229859	Eif3b Eif3b protein	1.00	1	cytoplasmic/protein synthesis
IPI00126072	Vat1 Synaptic vesicle membrane protein VAT-1 homolog	1.00	1	membrane/oxidoreductase
IPI00264211	Xpo5 11 days embryo whole body cDNA	1.00	1	nuclear/export of proteins and RNA
IPI00115097	Copb2 Coatamer subunit beta'	1.00	1	ER-Golgi/protein transport and synthesis
IPI00123624	Rik Protein KIAA1967 homolog	1.00	1	cytoplasmic/phosphoprotein

20–50% increase = ASAP ratio 1.20-1.49  
 20–50% decrease = ASAP ratio 0.67-0.83

50–100% increase = ASAP ratio 1.50-2.00  
 50–100% decrease = ASAP ratio 0.51-0.66