

Supplemental Information:

SFPQ and Tau: critical factors contributing to rapid progression of Alzheimer's disease

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2 Materials and methods

2.1 Quantitative real-time PCR (qRT-PCR)

cDNA was synthesized from brain-derived total RNA (1 µg), using High Capacity cDNA Reverse Transcription Kit (Thermo Fisher Scientific). All primer pairs for qRT-PCR assays were designed with Primer 3 (Table 1). Reaction mixtures for RT-PCR were prepared by mixing 1 uL of 10x PCR reaction buffer (Roche), 1 uL of dimethylsulphoxide (DMSO) (Sigma), 0.5 uL of 1:1000 dilutions of SYBR Green (Sigma), 0.2 mmol of each dNTP (Roche), 0.15 units of Taq-polymerase, 10 pm/uL of forward and reverse primers and 1 uL of cDNA (1:10 diluted); the volume was increased to 20 uL with RNase-free water. Amplification was performed using Light Cycler 480 (Roche), with an initial denaturation at 95°C for 2 min, followed by 40-PCR cycles [(denaturation at 95°C for 30 seconds (sec), annealing at 56°C for 30 sec and extension at 72°C for 30 sec)]. Reactions were done in triplicates. No template controls were used to ensure reaction specificity. The data were analysed with Light Cycler 480 software SW1.5.1 (Roche) and values were normalised with GAPDH. The relative expression was calculated by comparative Ct method ($2^{-\Delta\Delta C_t}$) [45].

Table 1: List of primer pairs used in the study

Gene name	Direction	Sequence
<i>GAPDH</i>	<i>Forward</i>	TGGGTGTGAACCATGAGAAGTA
	<i>Reverse</i>	GAGTCCTTCCACGATACCAAAG
<i>SFPQ</i>	<i>Forward</i>	TGGGAAGTGACATGCGTACT
	<i>Reverse</i>	TGTTTGGGCCTTCGTACTCT
<i>TIA-1</i>	<i>Forward</i>	AGTTTCCTGGCCTGCATTTTC
	<i>Reverse</i>	ACACTCGAGCTGTCTTTCCT

2.2 Immunoblotting

Frontal cortex tissues were lysed from spAD, rpAD, sCJD (-MM1 & -VV2 subtypes) and non-demented control subjects, along with cortical tissues from mouse brains, as published previously [91]. Equal amounts of proteins (30-50 ug) from each brain lysate or cell lysate were resolved by molecular weight on a 12% SDS-PAGE polyacrylamide gel (prepared in house) or 4-12% Bis-Tris gels (NuPAGE™ 4-12% Bis-Tris Protein Gels, Invitrogen). The protein marker (Precision plus protein dual color standards, Bio-Rad, Germany) was used to visualize the correct separation of the proteins and to confirm the correct protein band sizes. After separation on the gel, proteins were transferred onto a polyvinylidene difluoride (PVDF) membrane, with a 0.45 µm pore size, using a semi-dry blot chamber (Bio-Rad, Hercules, USA) for one hr. The membranes were blocked for 1 hr at RT in blocking reagent (5% non-fat dry milk in 1x TBS-T or PBS-T), followed by incubation with primary antibodies at 4°C overnight. All the primary antibodies (total-tau, phospho-tau (S199), SFPQ, TIA-1, β-actin, and GAPDH) were diluted in blocking buffer. Dilution of all the primary antibodies is given in table (see Table 2). Next, the membranes were washed in 1x PBS-T/TBS-T and incubated with secondary antibodies coupled to horseradish peroxidase (HRP) for 60 min at RT. Protein bands were detected using the enhanced chemiluminescent (ECL) method with Chemi-Doc (Bio-Rad). The densitometric analysis was performed with Image Lab software (3.0.1).

Table 2: List of primary antibodies used in the study

Primary Antibody	Origin	Dilution (IB)	Dilution (IF)	Cat. No./ Company
Tau-5	Mouse	1: 500	1: 100	ab80579/Abcam
Anti-tau (T22), oligomeric	Rabbit	1: 1000	1: 250	ABN454/Sigma-Aldrich
Phospho-tau (S199)	Rabbit	1: 1000	1: 100	ab81268/Abcam
TIA-1	Rabbit	1: 500	1: 100	ab140595/Abcam
TIA-1	Mouse	1: 500	-	ab40693/Abcam
TIA-1(G-3)	Rabbit	1: 200	1: 100	sc-166247/Santa Cruz
TIA-1 (G-3) AlexaFluor 488	Mouse	-	1: 50	sc-166247/Santa Cruz
SFPQ	Rabbit	1: 500	1: 100	ab38148/Abcam
GAPDH	Mouse	1: 3000	-	G8795/Sigma-Aldrich
β -Actin	Mouse	1: 1000	-	ab8227/Abcam

2.3 Immunocytochemistry

The cells were grown in T75 flasks with the culture medium (DMEM, 10% FBS, 1% PS). At confluency (70–90%), cells were trypsinized and seeded (5×10^4) on glass coverslips (13 mm) in 24 well plates. After undergoing the stress treatment as described above, the cells were fixed with 4% PFA for 20 min at RT, followed by 3x washes with ice-cold PBS for 5 min each. Permeabilization was achieved using 0.2% Triton X-100 in PBS for 10 min, followed by 3x washes with PBS for 5 min each. To avoid non-specific binding, cells were incubated with blocking buffer (1% BSA, 10% FBS in PBS) for 30 min at RT. Primary antibodies (in case of double labelling, both antibodies) were diluted in 1% BSA in PBS, followed by overnight incubation at 4°C. The cells were washed 3x with PBS (each wash was for 5 min) followed by incubation with secondary antibodies (AlexaFluor 488 and AlexaFluor 546) diluted in 1% BSA in PBS for two hrs at RT in the dark. The cells were washed 3x with PBS for 5 min each in the dark to remove the nonspecific binding. The cells were then counterstained with DAPI (one min) or a RedDot 2 Far red nuclear stain (20 min). After nuclear staining, the cells were washed 3x with PBS, followed by mounting with one drop of mounting medium (immuno-mount, Thermo Fisher Scientific). The slides were stored in the dark at -20°C or +4°C. Detail procedure for imaging the slides has been provided in the Co-immunoprecipitation protocol described in the main Manuscript. The average number of stress granules in each cell was calculated using FIJI software.

2.4 Cell lysis and protein extraction

Total protein extracts were prepared from 70-90% confluent HeLa, HEK-293 and SH-SY5Y cells. After stress treatment, all the cell lines were washed with 1x PBS, scraped and resuspended in lysis buffer [(50 mM Tris-HCl, pH 8, 1% Triton X-100, 0.5% CHAPS, 1mM DTT, protease, and phosphatase inhibitors (Roche, Germany)]. Lysates were sonicated using an ultrasonicator on ice, followed by incubation for one hr at 4°C with shaking. The lysates were centrifuged at 14000 rpm for 30 min at 4°C. The supernatants were transferred to new tubes. To harvest cells after transient transfections, cells were trypsinized and washed with 1x PBS followed by centrifugation at 400×g for 5 min at 4°C. The washed cell pellets were lysed, and protein quantification was performed with Bradford assay.

2.5 MTS assay

Cells were grown in T75 flasks with the culture medium (DMEM, 10% FBS, 1% PS). At confluency (70–90%), cells were trypsinized and then washed with 1x PBS, and seeded (10×10^3) in 96-well plates and incubated for 18–24 hours at 37°C. Transfections were performed with WT-tau and P301L-tau plasmids for variable periods of time (24 and 48 hours). To measure cell viability, MTS assay (ab197010, Abcam) was used according to the manufacturer's instructions. The culture media was replaced with a fresh medium before treatment with MTS [3-(4, 5-dimethylthiazol-2-yl)-5-(3-carboxymethoxyphenyl)-2-(4-sulfophenyl)-2H-tetrazolium, inner salt]. To estimate the effect of tau-expression on cell viability, reduced MTS tetrazolium complex (colored formazan product) was measured. This conversion is a property of metabolically active cells. For color development, cells were incubated at 37°C for one hour and the absorbance measurement was taken at 490 nm using a Perkin Elmer Wallac 1420 Victor microplate reader (GMI, USA). Absorbance from the control wells (background) was subtracted from the experimental sample wells.

2.6 Trypan blue exclusion assay

Cell viability was also assessed through the trypan blue exclusion dye test. Briefly, the cell suspension in the culture medium (25 μ L) after trypsinization was mixed with 25 μ L of 0.4% trypan blue. After mixing, the 10 μ L of cell suspension was loaded onto hemocytometer. Both viable (colorless) and dead (blue) cells were counted in each large square of the haemocytometer under (40x) objective for both untreated (control) and sodium arsenite treated (stress) cells.

2.7 SWATH-MS (Sequential Windowed Acquisition of All Theoretical Fragment Ion Mass Spectra) for global proteomics

2.7.1. Library preparation

Analytical-grade reagents were used for protein extraction and digestion. Ampuwa water (Ampuwa sterile water, Handels GmbH, Germany) was used to prepare all buffers and solutions. To prepare spectral peptide library, digested protein extracts (normalized for protein amounts) from each sample were pooled to a total amount of 220 μ g and separated into fourteen staggered pooled fractions, using an Aekta pure (GE Healthcare) with a Hypersil Gold C18 column (Diam. 150x2,1 mm, Particle size: 3 μ). Digested proteins were analyzed on an Eksigent nanoLC425 nanoflow chromatography system associated with TripleTOF 5600⁺, a hybrid triple quadrupole TOF mass spectrometer with a Nanospray III ionization source (Ionspray voltage 2400V, Interface heater temperature 150°C, Sheath gas setting 12). The peptides were dissolved in loading buffer (0.1% formic acid, 2% acetonitrile in optima water (Thermo Scientific) to a final concentration of 0.3 μ g/ μ L and spiked with a synthetic peptide standard used for retention time alignment (iRT Standard, Schlieren, Schweiz). For every measurement, digested proteins (1.5 μ g) were enriched on a precolumn (PharmFluidics μ PAC Trapping Column) and separated on a PharmaFluidics μ PAC micro Chip based separations analytical column with 50 cm length) using a 120 min linear gradient of 5%–45% ACN, 0.1% FA) at a flow rate of 300 nL/min. Qualitative LC-MS/MS measurement was carried out using a Top 20 data-dependent acquisition (DDA) mode with a mass range of m/z 350–1250 for 250 milliseconds (ms). The resolution for data extraction was 30,000 full width at half maximum (FWHM). MS/MS scans of mass range m/z 180–1600 at a resolution of 17,500 FWHM for 85 ms and a precursor isolation width of 0.7 FWHM with a cycle time of 2.9 sec was used. For MS/MS, the criteria for precursor ions selection was: a

threshold intensity of more than 125 cps with charge states of 2+, 3+, and 4+, and the dynamic exclusion of 30 sec. In every reversed-phase fraction, two technical replicates were analyzed for the construction of the spectral library.

2.7.2 Quantitative SWATH measurement

For the SWATH measurement, MS/MS data was obtained using windows of 65 variable sizes across a mass range of 400-900 *m/z*. For each biological sample, two technical replicates were performed. Protein identifications were obtained using ProteinPilot Software version 5.0 build 4769 (AB Sciex) at “thorough” settings. MS/MS spectra were searched in the UniProtKB using *Homo sapiens* as reference proteome (revision 04/2018, 93661 entries) at a false discovery rate (FDR) of 1%. Spectral library and SWATH peak extraction were obtained in PeakView Software version 2.1 build 11041 (AB Sciex). Following retention time correction using the iRT standard, peak areas were extracted using information from the MS/MS library at 1% FDR. The peak areas were summed up to peptide and finally corresponding protein area values that were used for downstream statistical and functional analysis.

2.8 Bioinformatics Analysis

2.8.1 Differential enrichment analysis of RBPome

For a detailed analysis of the isolated RNA-binding proteomic candidates, two different approaches were used, here labeled approach A and B.

Approach A: to find out differentially enriched proteins in disease groups, pairwise t-tests (two-sided) were performed for all disease group combinations using Perseus software (version **1.5.0.31**). Missing or Zero values are observed in the data for several proteins in MS-based proteomics data. These values appear when the mass spectrometer cannot detect peptides having abundances below the censoring cutoff of the mass spectrometer. Such values are informative because they are below the lowest abundance observed for a peptide. In such situations, when quantitative values are missing in one group but are present in other groups, this more likely represents differences in abundance between groups, which might indicate interesting features specific to that group. Therefore, zero values were imputed by half of the minimum value of total spectrum count values, to have statistical analysis of the proteomic candidates (Approach A). Fold change (FC) for all comparisons was set at ± 1.5 and a p-value < 0.05 for significance. Proteins which were identified as significantly enriched were used to make heatmaps using Perseus software (version **1.5.0.31**). Volcano plots were also calculated using Perseus software, where FC was \log_2 -transformed, so that the data are centered on zero, while the p-values were transformed into $-\log_{10}$.

Approach B: given the exploratory nature of this discovery-based proteomics work-flow, the criteria were relaxed and proteins with a single quantitative value were included in the analysis to compare all the disease groups. To find similar and unique proteins, venn diagram was prepared using functional enrichment and analysis tool (FunRich).

2.8.2 Gene Ontology analysis and functional network mapping

To gain functional insights from proteomics data, three different enrichment strategies were used. Functional enrichment analysis was initially performed using Perseus software for significantly-enriched Gene Ontology

(GO) processes including the Biological Process and Molecular Function by Fisher’s exact-test. Then, overrepresentation enrichment analysis was performed using the web-based Gene Set Analysis Toolkit (WebGestalt), in the domains of Biological and Molecular Functions to have a GO Slim summary of enriched terms. Finally, an Ingenuity Pathway Analysis (IPA, Qiagen, USA) was performed to find out canonical pathways associated with up- and down-regulated proteins after tau-expression as described below.

2.8.3 Ingenuity Pathway Analysis (IPA)

The proteomic dataset containing the fold change and p-values of significantly regulated proteins was uploaded to IPA for core analysis (Qiagen, USA). The protein candidates from the submitted dataset generated top molecular networks based on Molecular and Biological Functions including canonical pathways, potential upstream regulators, and disease-based networks. The settings for analysis were based on direct and indirect relationships between differentially expressed proteins (DEPs), and were supported by experimentally reported data from human, mouse and rat studies [27]. Potential upstream regulators were designated as inhibited or activated according to the fold change and p-values ($-\log_{10}$ -p-values) [65] of the DEPs.

Table 3: Prion-like domain prediction score of RBPs from PLAAC database

Experimental group	SEQid	COREscore	PAPApprop
Cont., sCJD	sp Q12906 ILF3	30.688	0.092
Cont. rpAD, sCJD	sp P08247 SYPH	25.009	-0.105
Cont. spAD, sCJD	sp Q5D862 FILA2	24.633	0.109
Cont., spAD, rpAD, sCJD	sp P17600 SYN1	20.311	-0.054
Cont, sCJD	sp O43390 HNRPR	17.059	-0.049
Cont., sCJD	sp P09012 SNRPA	11.165	-0.146
spAD, rpAD	sp Q9UPA5 BSN	22.864	-0.044
spAD, rpAD, sCJD	sp P20073 ANXA7	17.868	-0.033
spAD, sCJD	sp Q92945 FUBP2	15.926	-0.065
spAD, rpAD, sCJD	sp P02671 FIBA	12.12	0.033
rpAD, sCJD	sp Q14103 HNRPD	30.124	0.164
rpAD, sCJD	sp P23246 SFPQ	28.671	-0.1
rpAD	sp P04156 PRIO	14.844	0.02
sCJD	sp Q92734 TFG	38.015	-0.005
sCJD	sp Q01844 EWS	34.368	0.057
sCJD	sp P22626 ROA2	30.362	0.043
sCJD	sp P09651 ROA1	28.381	0.093
sCJD	sp Q8WUM4 PDC6	26.882	0.049
sCJD	sp P50995 ANX11	19.803	-0.059

sCJD	sp Q9UBV8 PEF1	19.787	0.005
sCJD	sp P17931 LEG3	17.868	-0.033
sCJD	sp P49840 GSK3A	11.251	-0.103
sCJD	sp P14678 RSMB	10.958	-0.121
sCJD	sp O60506 HNRPQ	8.799	-0.019

PLAAC: Prion-like amino acid composition, SEQid: sequence id from fasta file, COREscore: max sum of PLAAC LLRs, PAPAprop: max score of PAPA prion propensities [81], Cont.: control, spAD: sporadic Alzheimer's disease, rpAD: rapidly progressive Alzheimer's disease, sCJD: sporadic Creutzfeldt-Jakob disease.

Table 4: Summary of cases. rpAD: rapid Alzheimer disease; spAD: sporadic AD; Cont: control; CJD: Creutzfeldt-Jakob disease; N: normal; Braak NFT: Braak neurofibrillary tangle pathology (0-VI); TAP: Thal α B phase (1-5); CERAD: Consortium to Establish a Registry for Alzheimer disease (C0-C3); NIA score: National Institute on Aging (A0-A3); PMI: post-mortem delay. ABC categorization: A: TAP: amyloid score; B: Baak NFT pathology; C: CERAD (CERAD-NIA-AA score)

No.	Case	Clinical diagnosis	Age	Gender	Disease duration (y)	PMI (hr)	TAP	Braak NFT	CERAD-(NIA-AA score)	NIA-AA score
1	rpAD1	CJD	70	Male	< 4	11:30	3	VI	C (C3)	A2, B3, C3
2	rpAD2	CJD	76	Female	< 4	18	4	VI	C (C3)	A3, B3, C3
3	rpAD3	CJD	79	Female	< 4	05:30	3	V	C (C3)	A2, B3, C3
4	rpAD4	CJD	83	Male	< 4	05:30	5	VI	C (C3)	A3, B3, C3
5	rpAD5	CJD	83	Male	< 4	08:20	3	V	C (C3)	A2, B3, C3
6	rpAD6	CJD	76	Male	< 4	06:30	4	VI	C (C3)	A3, B3, C3
7	rpAD7	CJD	78	Male	< 4	03:30	5	VI	C (C3)	A3, B3, C3
8	spAD1	AD	78	Male	> 4	09:30	4	V	C (C3)	A3, B3, C3
9	spAD2	AD	72	Female	> 4	09:30	3	V	C (C3)	A2, B3, C3
10	spAD3	AD	82	Female	> 4	01:45	4	VI	C (C3)	A3, B3, C3
11	spAD4	AD-mixed dementia	56	Female	> 4	07	4	VI	C (C3)	A3, B3; C3
12	spAD5	AD	87	Male	> 4	07:05	3	V	C (C3)	A2, B3, C3
13	spAD6	AD-mixed dementia	75	Female	> 4	04:15	4	V	C (C3)	A3, B3, C3
14	spAD7	AD	93	Male	> 4	03	3	V	C (C3)	A2, B3, C3
15	spAD8	AD	74	Female	-	5:30	4	V	C (C3)	A3, B3, C3
16	spAD9	AD	82	Male	-	3:45	4	V	C (C3)	A3, B3, C3
17	Cont1	N	69	Male	-	03:45	1	II	A (C1)	A1, B1, C1

18	Cont2	N	68	Male	-	10:55	0	I	0 (C0)	A0, B1, C0
19	Cont.3	N	64	Male	-	08:35	0	I	0 (C0)	A0, B1, C0
20	Cont.4	N	67	Male	-	14:40	0	I	0 (C0)	A0, B1, C0
21	Cont.5	N	74	Male	-	05:30	1	II	A (C1)	A1, B1, C1
22	Cont.6	N	86	Male	-	05:30	1	II	0 (C1)	A1, B1, C1
23	Cont.7	N	73	Female	-	15:45	0	I	0 (C0)	A0, B1, C0
24	Cont.8	N	61	Male	-	04:30	0	I	0 (C0)	A0, B1, C0
25	Cont.9	N	77	Male	-	06:55	1	I	A (C1)	A1, B1, C1

Table 5: Details of sporadic Creutzfeldt Jakob disease subtype cases: neuropathological examination of all these cases was performed in the context of suspected prion disease in all cases. When PrP^{SC} positivity was observed, additional pathologies such as amyloid deposits were described briefly.

No.	Case	Age	Gender	Disease duration (y)	Genotype	PMI (hr)	Amyloid deposits
1	sCJD (MM1)1	65	Male	<1	MM/MV1	09:45	"Numerous amorphous amyloid deposits in the isocortex"
2	sCJD (MM1)2	74	Female	<1	MM/MV1	07:50	"Countless, mostly diffuse amyloid deposits in the isocortex and in the central gray matter"
3	sCJD (MM1)3	61	Male	<1	MM/MV1	07	"Diffuse amyloid deposits in frontal and occipital lobes"
4	sCJD (MM1)4	66	Female	<1	MM/MV1	05:05	"No other relevant pathological findings"
5	sCJD (MM1)5	74	Female	<1	MM/MV1	11	"Numerous amyloid beta deposits in the isocortex, and in the allocortex"
6	sCJD (MM1)6	74	Male	<1	MM/MV1	04:50	"Numerous amyloid deposits in the isocortex"
7	sCJD (VV2)1	66	Male	<1	VV2	15:30	"No other relevant pathological findings"
8	sCJD (VV2)2	70	Female	<1	VV2	11	"Few diffuse amyloid deposits in frontal lobes"
9	sCJD (VV2)3	72	Female	<1	VV2	06	"No other relevant pathological findings"
10	sCJD (VV2)4	66	Female	<1	VV2	04	"No other relevant pathological findings"

Table 6: Unique and common proteins identified in each group after RNA pull-down and mass spectrometry analysis

<i>Disease Group</i>	<i>IDs</i>	<i>Uniprot Acc. No.</i>	<i>Protein names</i>	<i>Involvement in disease</i>
<i>spAD</i>	AEDO	Q96SZ5	2-aminoethanethiol dioxygenase	
	AL1L1	O75891	Cytosolic 10-formyltetrahydrofolate dehydrogenase	
	AL4A1	P30038	Delta-1-pyrroline-5-carboxylate dehydrogenase, mitochondrial	Hyperprolinemia 2
	AP2M1	Q96CW1	AP-2 complex subunit mu	
	ARP2	P61160	Actin-related protein 2	
	ARRB1	P49407	Beta-arrestin-1	
	ATPD	P30049	ATP synthase subunit delta, mitochondrial	Mitochondrial complex V deficiency, nuclear type 5
	CAD13	P55290	Cadherin-13	
	CADM4	Q8NFZ8	Cell adhesion molecule 4	
	CANB1	P63098	Calcineurin subunit B type 1	
	CAND1	Q86VP6	Cullin-associated NEDD8-dissociated protein 1	
	CAPZB	P47756	F-actin-capping protein subunit beta	
	CASA1	P47710	Alpha-S1-casein [Cleaved into: Casoxin-D]	
	CAZA1	P52907	F-actin-capping protein subunit alpha-1	
	CC50A	Q9NV96	Cell cycle control protein 50A	
	CD47	Q08722	Leukocyte surface antigen CD47	
	CLCA	P09496	Clathrin light chain A	
	CLH2	P53675	Clathrin heavy chain 2	
	CPLX2	Q6PUV4	Complexin-2	
	CSN2	P61201	COP9 signalosome complex subunit 2	
	CYFP2	Q96F07	Cytoplasmic FMR1-interacting protein 2	Epileptic encephalopathy, early infantile, 65
	DBNL	Q9UJU6	Drebrin-like protein	
	DC1L2	O43237	Cytoplasmic dynein 1 light intermediate chain 2	
	DCXR	Q7Z4W1	L-xylulose reductase	Pentosuria
	ECHA	P40939	Trifunctional enzyme subunit alpha, mitochondrial	Mitochondrial trifunctional protein deficiency
	ENOB	P13929	Beta-enolase	Glycogen storage disease 13
	FLNA	P21333	Filamin-A	Periventricular nodular heterotopia 1
	FLOT1	O75955	Flotillin-1	
	FUBP2	Q92945	Far upstream element-binding protein 2	
	GANAB	Q14697	Neutral alpha-glucosidase AB	Polycystic kidney disease 3 with or without polycystic liver disease
	GBB4	Q9HAV0	Guanine nucleotide-binding protein subunit beta-4	Charcot-Marie-Tooth disease, dominant, intermediate type, F
	GBG3	P63215	Guanine nucleotide-binding protein G	
GDE	P35573	Glycogen debranching enzyme	Glycogen storage disease 3	
GLU2B	P14314	Glucosidase 2 subunit beta	Polycystic liver disease 1 with or without kidney cysts	

GNAQ	P50148	Guanine nucleotide-binding protein G	Capillary malformations, congenital
GPD1L	Q8N335	Glycerol-3-phosphate dehydrogenase 1-like protein	Brugada syndrome 2
GPDM	P43304	Glycerol-3-phosphate dehydrogenase, mitochondrial	
HINT1	P49773	Histidine triad nucleotide-binding protein 1	Neuromyotonia and axonal neuropathy, autosomal recessive
HS74L	O95757	Heat shock 70 kDa protein 4L	
HSP76	P17066	Heat shock 70 kDa protein 6	
ICAM5	Q9UMF0	Intercellular adhesion molecule 5	
IDH3B	O43837	Isocitrate dehydrogenase [NAD] subunit beta, mitochondrial	Retinitis pigmentosa 46
IF4A1	P60842	Eukaryotic initiation factor 4A-I	
IF4B	P23588	Eukaryotic translation initiation factor 4B	
IPYR	Q15181	Inorganic pyrophosphatase	
KCC2A	Q9UQM7	Calcium/calmodulin-dependent protein kinase type II subunit alpha	Mental retardation, autosomal dominant 53
KCRM	P06732	Creatine kinase M-type	
KT3K	Q9HA64	Ketosamine-3-kinase	
L1CAM	P32004	Neural cell adhesion molecule L1	Hydrocephalus due to stenosis of the aqueduct of Sylvius
LASP1	Q14847	LIM and SH3 domain protein 1	
LIGO1	Q96FE5	Leucine-rich repeat and immunoglobulin-like domain-containing nogo receptor-interacting protein 1	Mental retardation, autosomal recessive 64
MAOM	P23368	NAD-dependent malic enzyme, mitochondrial	
MAP4	P27816	Microtubule-associated protein 4	
MK03	P27361	Mitogen-activated protein kinase 3	
MT1F	P04733	Metallothionein-1F	
NCHL1	O00533	Neural cell adhesion molecule L1-like protein	
NCKP1	Q9Y2A7	Nck-associated protein 1	
NCKX2	Q9UI40	Sodium/potassium/calcium exchanger 2	
NDRG1	Q92597	Protein NDRG1	Charcot-Marie-Tooth disease 4D
NEDD8	Q15843	NEDD8	
NEGR1	Q7Z3B1	Neuronal growth regulator 1	
NP1L4	Q99733	Nucleosome assembly protein 1-like 4	
NTRI	Q9P121	Neurotrimin	
ODPA	P08559	Pyruvate dehydrogenase E1 component subunit alpha, somatic form, mitochondrial	Pyruvate dehydrogenase E1-alpha deficiency
OLA1	Q9NTK5	Obg-like ATPase 1	
OPA1	O60313	Dynamin-like 120 kDa protein, mitochondrial	Optic atrophy 1
OPCM	Q14982	Opioid-binding protein/cell adhesion molecule	Ovarian cancer
PAK1	Q13153	Serine/threonine-protein kinase PAK 1	Intellectual developmental disorder with macrocephaly, seizures, and speech delay

	PAK3	O75914	Serine/threonine-protein kinase PAK 3	Mental retardation, X-linked 30
	PCSK1	Q9UHG2	ProSAAS	
	PCY2	Q99447	Ethanolamine-phosphate cytidyltransferase	
	PFKAL	P17858	ATP-dependent 6-phosphofructokinase, liver type	
	PFKAP	Q01813	ATP-dependent 6-phosphofructokinase, platelet type	
	PHIPL	Q96FC7	Phytanoyl-CoA hydroxylase-interacting protein-like	
	PLIN3	O60664	Perilipin-3	
	PPT1	P50897	Palmitoyl-protein thioesterase 1	Ceroid lipofuscinosis, neuronal, 1
	PTN11	Q06124	Tyrosine-protein phosphatase non-receptor type 11	LEOPARD syndrome 1
	QCR2	P22695	Cytochrome b-c1 complex subunit 2, mitochondrial	Mitochondrial complex III deficiency, nuclear 5
	RAB8B	Q92930	Ras-related protein Rab-8B	
	RALA	P11233	Ras-related protein Ral-A	
	RD23B	P54727	UV excision repair protein RAD23 homolog B	
	REEP5	Q00765	Receptor expression-enhancing protein 5	
	RHOC	P08134	Rho-related GTP-binding protein RhoC	
	SEMG1	P04279	Semenogelin-1	
	Septin-3	Q9UH03	Neuronal-specific septin-3	
	Septin-6	Q14141	Septin-6	
	Septin-9	Q9UHD8	Septin-9	
	SH3G1	Q99961	Endophilin-A2	
	SHLB2	Q9NR46	Endophilin-B2	
	SNAG	Q99747	Gamma-soluble NSF attachment protein	
	SPTN2	O15020	Spectrin beta chain, non-erythrocytic 2	Spinocerebellar ataxia 5
	SRC8	Q14247	Src substrate cortactin	
	SYNPO	Q8N3V7	Synaptopodin	
	TCAL5	Q5H9L2	Transcription elongation factor A protein-like 5	
	TCPB	P78371	T-complex protein 1 subunit beta	
	TCPQ	P50990	T-complex protein 1 subunit theta	
	TCTP	P13693	Translationally-controlled tumor protein	
rpAD	4F2	P08195	4F2 cell-surface antigen heavy chain	
	ACTA	P62736	Actin, aortic smooth muscle	
	ACY2	P45381	Aspartoacylase	Canavan disease
	ADDA	P35611	Alpha-adducin	
	ADT2	P05141	ADP/ATP translocase 2	
	AL7A1	P49419	Alpha-aminoadipic semialdehyde dehydrogenase	Pyridoxine-dependent epilepsy
	AMER2	Q8N7J2	APC membrane recruitment protein 2	
	AMPL	P28838	Cytosol aminopeptidase	
	ANK2	Q01484	Ankyrin-2	Long QT syndrome 4
	AOFA	P21397	Amine oxidase [flavin-containing] A	Brunner syndrome
	AOFB	P27338	Amine oxidase [flavin-containing] B	
	AP180	O60641	Clathrin coat assembly protein AP180	
	ASAH1	Q13510	Acid ceramidase	Farber lipogranulomatosis

AT2A2	P16615	Sarcoplasmic/endoplasmic reticulum calcium ATPase 2	Acrokeratosis verruciformis
ATP5H	O75947	ATP synthase subunit d, mitochondrial	
ATP5J	P18859	ATP synthase-coupling factor 6, mitochondrial	
ATP5L	O75964	ATP synthase subunit g, mitochondrial	
CALX	P27824	Calnexin	
CD44	P16070	CD44 antigen	
CDS2	O95674	Phosphatidate cytidyltransferase 2	
CLD11	O75508	Claudin-11	
CMC1	O75746	Calcium-binding mitochondrial carrier protein Aralar1	Epileptic encephalopathy, early infantile, 39
CO4A	P0C0L4	Complement C4-A	Complement component 4A deficiency
CO4B	P0C0L5	Complement C4-B	Systemic lupus erythematosus
COX41	P13073	Cytochrome c oxidase subunit 4 isoform 1, mitochondrial	
CPNS1	P04632	Calpain small subunit 1	
CUTA	O60888	Protein CutA	
DC1I2	Q13409	Cytoplasmic dynein 1 intermediate chain 2	
DDTL	A6NHG4	D-dopachrome decarboxylase-like protein	
EF2	P13639	Elongation factor 2	Spinocerebellar ataxia 26
ERMIN	Q8TAM6	Ermin	
FIS1	Q9Y3D6	Mitochondrial fission 1 protein	
GBG2	P59768	Guanine nucleotide-binding protein G	
GHC1	Q9H936	Mitochondrial glutamate carrier 1	Epileptic encephalopathy, early infantile, 3
GPM6B	Q13491	Neuronal membrane glycoprotein M6-b	
HEBP1	Q9NRV9	Heme-binding protein 1	
HNRPD	Q14103	Heterogeneous nuclear ribonucleoprotein D0	
HYEP	P07099	Epoxide hydrolase 1	
IMB1	Q14974	Importin subunit beta-1	
LAMP1	P11279	Lysosome-associated membrane glycoprotein 1	
LANC2	Q9NS86	LanC-like protein 2	
MAG	P20916	Myelin-associated glycoprotein	Spastic paraplegia 75, autosomal recessive
MRP	P49006	MARCKS-related protein	
MTAP2	P11137	Microtubule-associated protein 2	
MTPN	P58546	Myotrophin	
NDKA	P15531	Nucleoside diphosphate kinase A	
NDUA4	O00483	Cytochrome c oxidase subunit NDUF44	Leigh syndrome
ODO2	P36957	Dihydrolipoyllysine-residue succinyltransferase component of 2-oxoglutarate dehydrogenase complex, mitochondrial	Platelet-activating factor acetylhydrolase IB subunit beta
PA1B2	P68402		
PCBP2	Q15366	Poly(rC)-binding protein 2	
PGAM2	P15259	Phosphoglycerate mutase 2	Glycogen storage disease 10
PHB	P35232	Prohibitin	

PHB2	Q99623	Prohibitin-2	
PI42A	P48426	Phosphatidylinositol 5-phosphate 4-kinase type-2 alpha	
PRIO	P04156	Major prion protein	prion diseases, like: Creutzfeldt-Jakob disease
QCR1	P31930	Cytochrome b-c1 complex subunit 1, mitochondrial	
QCR6	P07919	Cytochrome b-c1 complex subunit 6, mitochondrial	
RAP1A	P62834	Ras-related protein Rap-1A	
SCG1	P05060	Secretogranin-1	
SCG2	P13521	Secretogranin-2	
SDHA	P31040	Succinate dehydrogenase [ubiquinone] flavoprotein subunit, mitochondrial	Mitochondrial complex II deficiency
Septin-4	O43236	Septin-4	
SERA	O43175	D-3-phosphoglycerate dehydrogenase	Phosphoglycerate dehydrogenase deficiency
SIRB1	O00241	Signal-regulatory protein beta-1	
SNG3	O43761	Synaptogyrin-3	
SV2A	Q7L0J3	Synaptic vesicle glycoprotein 2A	
SV2B	Q7L1I2	Synaptic vesicle glycoprotein 2B	
SYNJ1	O43426	Synaptojanin-1	Parkinson disease 20, early-onset
TBA1B	P68363	Tubulin alpha-1B chain	
TCPE	P48643	T-complex protein 1 subunit epsilon	Neuropathy, hereditary sensory, with spastic paraplegia, autosomal recessive
TENA	P24821	Tenascin	Deafness, autosomal dominant, 56
VA0D1	P61421	V-type proton ATPase subunit d 1	
VAT1	Q99536	Synaptic vesicle membrane protein VAT-1 homolog Voltage-dependent anion-selective channel protein 1	Voltage-dependent anion-selective channel protein 2 Voltage-dependent anion-selective channel protein 3
VDAC1	P21796		
VDAC2	P45880		
VDAC3	Q9Y277		
sCJD			
A2MG	P01023	Alpha-2-macroglobulin	
AACT	P01011	Alpha-1-antichymotrypsin	
ACO13	Q9NPJ3	Acyl-coenzyme A thioesterase 13	
ADHX	P11766	Alcohol dehydrogenase class-3	
AL1A1	P00352	Retinal dehydrogenase 1	
ALDR	P15121	Aldo-keto reductase family 1 member B1	
APEX1	P27695	DNA-(apurinic or apyrimidinic site) lyase	
APOA1	P02647	Apolipoprotein A-I	High density lipoprotein deficiency 2
ARP3	P61158	Actin-related protein 3	
ASGL1	Q7L266	Isoaspartyl peptidase/L-asparaginase	
BIEA	P53004	Biliverdin reductase A	Hyperbiliverdinemia
CAB39	Q9Y376	Calcium-binding protein 39	

CATA	P04040	Catalase	Acatlasemia
CD59	P13987	CD59 glycoprotein	Hemolytic anemia, CD59-mediated, with or without polyneuropathy
CLIC4	Q9Y696	Chloride intracellular channel protein 4	
CMBL	Q96DG6	Carboxymethylenebutenolidase homolog	
CPPED	Q9BRF8	Serine/threonine-protein phosphatase CPPED1	
DOPD	P30046	D-dopachrome decarboxylase	
DYL2	Q96FJ2	Dynein light chain 2, cytoplasmic	
EFHD2	Q96C19	EF-hand domain-containing protein D2	
FABP7	O15540	Fatty acid-binding protein, brain	
FAHD1	Q6P587	Acylpyruvase FAHD1, mitochondrial	
FBX2	Q9UK22	F-box only protein 2	
FIBB	P02675	Fibrinogen beta chain	Congenital afibrinogenemia
FIBG	P02679	Fibrinogen gamma chain	Congenital afibrinogenemia
FKBP4	Q02790	Peptidyl-prolyl cis-trans isomerase FKBP4	
G6PD	P11413	Glucose-6-phosphate 1-dehydrogenase	Anemia, non-spherocytic hemolytic, due to G6PD deficiency
GBRL2	P60520	Gamma-aminobutyric acid receptor-associated protein-like 2	
GGCT	O75223	Gamma-glutamylcyclotransferase	
GNAI2	P04899	Guanine nucleotide-binding protein G	
GNPI1	P46926	Glucosamine-6-phosphate isomerase 1	
GSHB	P48637	Glutathione synthetase	Glutathione synthetase deficiency
HMGB1	P09429	High mobility group protein B1	
HNRPK	P61978	Heterogeneous nuclear ribonucleoprotein K	Au-Kline syndrome
IDHC	O75874	Isocitrate dehydrogenase [NADP] cytoplasmic	Glioma
IDHP	P48735	Isocitrate dehydrogenase [NADP], mitochondrial	D-2-hydroxyglutaric aciduria 2
IGLL5	B9A064	Immunoglobulin lambda-like polypeptide 5	
ILF2	Q12905	Interleukin enhancer-binding factor 2	
KAD3	Q9UIJ7	GTP: AMP phosphotransferase AK3, mitochondrial	Phospholysine phosphohistidine inorganic pyrophosphate phosphatase
LHPP	Q9H008		
LKHA4	P09960	Leukotriene A-4 hydrolase	
MPI	P34949	Mannose-6-phosphate isomerase	Congenital disorder of glycosylation 1B
MT2	P02795	Metallothionein-2	
NNRE	Q8NCW5	NAD(P)H-hydrate epimerase	Encephalopathy, progressive, early-onset, with brain edema and/or leukoencephalopathy
NQO2	P16083	Ribosylidihyronicotinamide dehydrogenase	
NUDT5	Q9UKK9	ADP-sugar pyrophosphatase	
PDCD6	O75340	Programmed cell death protein 6	
PITH1	Q9GZP4	PITH domain-containing protein 1	

PROF2	P35080	Profilin-2	
PSA1	P25786	Proteasome subunit alpha type-1	
PSA2	P25787	Proteasome subunit alpha type-2	
PSA4	P25789	Proteasome subunit alpha type-4	
PSA5	P28066	Proteasome subunit alpha type-5	
PSA6	P60900	Proteasome subunit alpha type-6	
PSA7	O14818	Proteasome subunit alpha type-7	
PSB1	P20618	Proteasome subunit beta type-1	
PSB3	P49720	Proteasome subunit beta type-3	
PSB5	P28074	Proteasome subunit beta type-5	
PTGR1	Q14914	Prostaglandin reductase 1	
RAB21	Q9UL25	Ras-related protein Rab-21	
RAB5B	P61020	Ras-related protein Rab-5B	
RASK	P01116	GTPase KRas	Leukemia, acute myelogenous
RB11B	Q15907	Ras-related protein Rab-11B	Neurodevelopmental disorder with ataxic gait, absent speech, and decreased cortical white matter
RHOA	P61586	Transforming protein RhoA	
SH3L2	Q9UJC5	SH3 domain-binding glutamic acid-rich-like protein 2	
SKP1	P63208	S-phase kinase-associated protein 1	
SPB6	P35237	Serpin B6	Deafness, autosomal recessive, 91
SYWC	P23381	Tryptophan--tRNA ligase, cytoplasmic	Neuronopathy, distal hereditary motor, 9
TOLIP	Q9H0E2	Toll-interacting protein	
UBC12	P61081	NEDD8-conjugating enzyme Ubc12	

rpAD and sCJD

Common between rpAD and SCJD

A1AG1	P02763	Alpha-1-acid glycoprotein 1	
A1AT	P01009	Alpha-1-antitrypsin	Alpha-1-antitrypsin deficiency
ACTN1	P12814	Alpha-actinin-1	Bleeding disorder, platelet-type 15
ACYP2	P14621	Acylphosphatase-2	
AK1A1	P14550	Aldo-keto reductase family 1 member A1	
CD81	P60033	CD81 antigen	Immunodeficiency, common variable, 6
CYTB	P04080	Cystatin-B	Epilepsy, progressive myoclonic 1
DNJC5	Q9H3Z4	DnaJ homolog subfamily C member 5	Ceroid lipofuscinosis, neuronal, 4B
FRIL	P02792	Ferritin light chain	Hyperferritinemia with or without cataract
FSCN1	Q16658	Fascin	
GLTP	Q9NZD2	Glycolipid transfer protein	
GSTM2	P28161	Glutathione S-transferase Mu 2	
HPLN1	P10915	Hyaluronan and proteoglycan link protein 1	
LIS1	P43034	Platelet-activating factor acetylhydrolase IB subunit alpha	Lissencephaly 1
OTUB1	Q96FW1	Ubiquitin thioesterase OTUB1	
PDIA3	P30101	Protein disulfide-isomerase A3	
PEA15	Q15121	Astrocytic phosphoprotein PEA-15	

PIPNA	Q00169	Phosphatidylinositol transfer protein alpha isoform	
PPIA	P62937	Peptidyl-prolyl cis-trans isomerase A	
PTGDS	P41222	Prostaglandin-H2 D-isomerase	
QOR	Q08257	Quinone oxidoreductase	
RAB5C	P51148	Ras-related protein Rab-5C	
RIDA	P52758	2-iminobutanoate/2-iminopropanoate deaminase	
SCRN1	Q12765	Secernin-1	
SERC	Q9Y617	Phosphoserine aminotransferase	Phosphoserine aminotransferase deficiency
SFPQ	P23246	Splicing factor, proline- and glutamine-rich	
SH3L1	O75368	SH3 domain-binding glutamic acid-rich-like protein	
SNAA	P54920	Alpha-soluble NSF attachment protein	
SNAB	Q9H115	Beta-soluble NSF attachment protein	
SODM	P04179	Superoxide dismutase [Mn], mitochondrial	Microvascular complications of diabetes 6
TKT	P29401	Transketolase	Short stature, developmental delay, and congenital heart defects
TRFE	P02787	Serotransferrin	
UGPA	Q16851	UTP--glucose-1-phosphate uridylyltransferase	
VATH	Q9UI12	V-type proton ATPase subunit H	
VCP	P55072	Valosin containing protein	Inclusion body myopathy with early-onset Paget disease with or without frontotemporal dementia 1

*spAD
and
sCJD*

Common between spAD and sCJD

	O43488	Aflatoxin B1 aldehyde reductase member 2	
CYBP	Q9HB71	Calcyclin-binding protein	
DDAH2	O95865	N(G), N(G)-dimethylarginine dimethylaminohydrolase 2	
ECH1	Q13011	Delta(3,5)-Delta (2,4)-dienoyl-CoA isomeras, mitochondrial	
ENOPH	Q9UHY7	Enolase-phosphatase E1	
FPPS	P14324	Farnesyl pyrophosphate synthase	Porokeratosis 9, multiple types (POROK9)
GLO2	Q16775	Hydroxyacylglutathione hydrolase, mitochondrial	
GLOD4	Q9HC38	Glyoxalase domain-containing protein 4	
GMFB	P60983	Glia maturation factor beta	
GSTM1	P09488	Glutathione S-transferase Mu 1	
GSTM3	P21266	Glutathione S-transferase Mu 3	
LGUL	Q04760	Lactoylglutathione lyase	
LSAMP	Q13449	Limbic system-associated membrane protein	
MK01	P28482	Mitogen-activated protein kinase 1	
NCDN	Q9UBB6	Neurochondrin	
PGM2L	Q6PCE3	Glucose 1,6-bisphosphate synthase	

	PP2BB	P16298	Serine/threonine-protein phosphatase 2B catalytic subunit beta isoform	
	RAB2A	P61019	Ras-related protein Rab-2A	
	RAB5A	P20339	Ras-related protein Rab-5A	
	TAGL	Q01995	Transgelin	
<i>spAD and rpAD</i>	Common between spAD and rpAD			
	AKA12	Q02952	A-kinase anchor protein 12	
	ANXA7	P20073	Annexin A7	
	APOE	P02649	Apolipoprotein E	Hyperlipoproteinemia 3
	AQP4	P55087	Aquaporin-4	
	AT2B1	P20020	Plasma membrane calcium-transporting ATPase 1	
	AT2B2	Q01814	Plasma membrane calcium-transporting ATPase 2	
	AT2B3	Q16720	Plasma membrane calcium-transporting ATPase 3	Spinocerebellar ataxia, X-linked 1
	AT2B4	P23634	Plasma membrane calcium-transporting ATPase 4	
	AT5F1	P24539	ATP synthase F	
	ATPG	P36542	ATP synthase subunit gamma, mitochondrial	
	BCAS1	O75363	Breast carcinoma-amplified sequence 1	
	BSN	Q9UPA5	Protein bassoon	
	CADM2	Q8N3J6	Cell adhesion molecule 2	
	CXA1	P17302	Gap junction alpha-1 protein	Oculodentodigital dysplasia
	EAA1	P43003	Excitatory amino acid transporter 1	Episodic ataxia 6
	EAA2	P43004	Excitatory amino acid transporter 2	Epileptic encephalopathy, early infantile, 41
	F10A1	P50502	Hsc70-interacting protein	
	FIBA	P02671	Fibrinogen alpha chain	Congenital afibrinogenemia
	HECAM	Q14CZ8	Hepatocyte cell adhesion molecule	Leukoencephalopathy, megalencephalic, with subcortical cysts, 2A
	MAON	Q16798	NADP-dependent malic enzyme, mitochondrial	
	MOG	Q16653	Myelin-oligodendrocyte glycoprotein	Narcolepsy 7
	MT1G	P13640	Metallothionein-1G	
	MT3	P25713	Metallothionein-3	
	NCAM2	O15394	Neural cell adhesion molecule 2	
	NCAN	O14594	Neurocan core protein	
	NHRF1	O14745	Na (+)/H (+) exchange regulatory cofactor NHE-RF1	Nephrolithiasis/osteoporosis, hypophosphatemic, 2
	NPTN	Q9Y639	Neuroplastin	
	NRCAM	Q92823	Neuronal cell adhesion molecule	
	OXR1	Q8N573	Oxidation resistance protein 1	
PADI2	Q9Y2J8	Protein-arginine deiminase type-2		
PALM	O75781	Paralemmin-1		
PDIA6	Q15084	Protein disulfide-isomerase A6		
PFKAM	P08237	ATP-dependent 6-phosphofructokinase, muscle type	Glycogen storage disease 7	

PLCB1	Q9NQ66	1-phosphatidylinositol 4,5-bisphosphate phosphodiesterase beta-1	Epileptic encephalopathy, early infantile, 12
PRRT2	Q7Z6L0	Proline-rich transmembrane protein 2	Episodic kinesigenic dyskinesia 1
PTMA	P06454	Prothymosin alpha	
PTPRZ	P23471	Receptor-type tyrosine-protein phosphatase zeta	
RAB6B	Q9NRW1	Ras-related protein Rab-6B	
RTN1	Q16799	Reticulon-1	
RTN4	Q9NQC3	Reticulon-4	
S10AD	Q99584	Protein S100-A13	
SH3L3	Q9H299	SH3 domain-binding glutamic acid-rich-like protein 3	
SNG1	O43759	Synaptogyrin-1	
TENR	Q92752	Tenascin-R	
TYB4	P62328	Thymosin beta-4	
VPP1	Q93050	V-type proton ATPase 116 kDa subunit a isoform 1	

Table 7: Tau-up regulated proteins: list of unique and common proteins (with their $-\log_{10}p$ -values), that were upregulated after expression of either WT-tau or P301L-tau

No.	UniProt ID	UniProt Accession	Protein names	(WT vs Cont.) (p-values)	(P301L vs Cont.) (p-values)
1	IST1	P53990	IST1 homolog	2.80404	
2	XCT	Q9UPY5	Cystine/glutamate transporter	2.70942	
3	ITPR3	Q14573	Inositol 1,4,5-trisphosphate receptor type 3	3.74147	
4	CAD13	P55290	Cadherin-13	3.29636	
5	TMEDA	P49755	Transmembrane emp24 domain-containing protein 10	2.79315	
6	APC7	Q9UJX3	Anaphase-promoting complex subunit 7	2.64649	
7	PXDC2	Q6UX71	Plexin domain-containing protein 2	2.60679	
8	PLCA	Q99943	1-acyl-sn-glycerol-3-phosphate acyltransferase alpha	2.77202	
9	NUDC1	Q96RS6-2	NudC domain-containing protein 1	2.58966	
10	SYUG	O76070	Gamma-synuclein	3.30288	
11	A0A1W2PS43	A0A1W2PS43	Lysosome membrane protein 2	3.00432	
12	F8VX04	F8VX04	Sodium-coupled neutral amino acid transporter 1	3.15582	
13	RAB18	Q9NP72	Ras-related protein Rab-18	2.60603	
14	Q5VZR0	Q5VZR0	Golgi-associated plant pathogenesis-related protein 1	2.6549	
15	CD44	P16070	CD44 antigen	2.89138	

16	COX2	P00403	Cytochrome c oxidase subunit 2	2.89006
17	PYRG1	P17812	CTP synthase 1	2.64826
18	C9JYN0	C9JYN0	Synaptophysin-like protein 1	3.73999
19	E7ER44	E7ER44	Lactotransferrin	5.61449
20	K7ENL2	K7ENL2	WW domain-binding protein 2	3.25965
21	IF16	Q16666	Gamma-interferon-inducible protein 16	2.54071
22	A0A1B0GWC0	A0A1B0GW C0	Carnitine O-palmitoyltransferase 2, mitochondrial	3.83877
23	A0A087WX97	A0A087WX9 7	Bcl-2-like protein 13	3.19665
24	RND3	P61587	Rho-related GTP-binding protein RhoE	3.65369
25	PODXL	O00592	Podocalyxin	5.52997
26	MOT1	P53985	Monocarboxylate transporter 1	4.65667
27	CLIC4	Q9Y696	Chloride intracellular channel protein 4	4.5989
28	A0A075B730	A0A075B73 0	Epiplakin	2.80249
29	S38A2	Q96QD8	Sodium-coupled neutral amino acid transporter 2	3.7117
30	TPBG	Q13641	Trophoblast glycoprotein	3.97711
31	LAT1	Q01650	Large neutral amino acids transporter small subunit 1	6.21328
32	SQOR	Q9Y6N5	Sulfide: quinone oxidoreductase, mitochondrial	3.5484
33	E9PEB5	E9PEB5	Far upstream element-binding protein 1	3.65134
34	AAAT	Q15758	Neutral amino acid transporter B	4.73081
35	AHNK2	Q8IVF2	Protein AHNAK2	2.93411
36	RTN4	Q9NQC3-2	Reticulon-4	2.78976
37	AT1A1	P05023-4	Sodium/potassium-transporting ATPase subunit alpha-1	2.80245
38	A0A087X054	A0A087X05 4	Hypoxia up-regulated protein 1	2.67896
39	J3KPF3	J3KPF3	4F2 cell-surface antigen heavy chain	3.40599
40	VINC	P18206	Vinculin	2.67223
41	SYWC	P23381-2	Tryptophan--tRNA ligase, cytoplasmic	2.87585
42	UAP1	Q16222	UDP-N-acetylhexosamine pyrophosphorylase	2.53642

43	PLST	P13797	Plastin-3		2.62095
Common in both WT- and P301L-tau expressing cells					
44	Tau	P10636-6	Microtubule-associated protein tau	9.66209	9.99752
45	STX12	Q86Y82	Syntaxin-12	4.38935	3.90083
46	A0A0A0MRJ7	A0A0A0MRJ7	Coagulation factor V	2.79996	2.55125
47	TSP1	P07996	Thrombospondin-1	4.63034	3.69623
48	STOM	P27105	Erythrocyte band 7 integral membrane protein	2.63921	4.70864
49	AT1B1	P05026	Sodium/potassium-transporting ATPase subunit beta-1	4.36966	4.04487
50	SNG2	O43760	Synaptogyrin-2	3.38169	3.37281
51	SODM	P04179	Superoxide dismutase [Mn], mitochondrial	4.35392	4.21758
52	E9PR17	E9PR17	CD59 glycoprotein	4.06777	5.10992
53	MOT4	O15427	Monocarboxylate transporter 4	3.57067	3.15312
54	RAI3	Q8NFJ5	Retinoic acid-induced protein 3	5.11684	3.4051
55	RTN3	O95197-3	Reticulon-3	2.89615	2.83528
56	FLNB	O75369-8	Filamin-B	4.65931	4.00561
57	QCR1	P31930	Cytochrome b-c1 complex subunit 1, mitochondrial	3.85388	5.56346
58	B4DKB2	B4DKB2	Endothelin-converting enzyme 1	2.89353	2.60173
59	VDAC2	P45880	Voltage-dependent anion-selective channel protein 2	3.02634	3.84069
60	ANXA3	P12429	Annexin A3	2.89038	4.15502
61	BIP	P11021	Endoplasmic reticulum chaperone BiP	4.09375	5.35755
62	ANXA4	P09525	Annexin A4	4.25635	3.6306
63	A0A0G2JIW1	A0A0G2JIW1	Heat shock 70 kDa protein 1B	3.97859	2.54103

Table 8: Tau down-regulated proteins: list of unique and common proteins (with their $-\log_{10}p$ -values), that were down-regulated after expression of either WT-tau or P301L-tau

No.	UniProt ID	UniProt Accession	Protein names	WT vs Cont. (p-values)	P301L vs Cont. (p-values)
1	CAPZB	P47756-2	F-actin-capping protein subunit beta	2.90632	
2	CLIC1	O00299	Chloride intracellular channel protein 1	2.74343	
3	1433E	P62258	14-3-3 protein epsilon	2.97992	
4	PDLI7	Q9NR12	PDZ and LIM domain protein 7	2.87187	
5	DHPR	P09417	Dihydropteridine reductase	3.29976	
6	TBB4B	P68371	Tubulin beta-4B chain	2.61161	

7	CYBP	Q9HB71	Calcyclin-binding protein	4.20659
8	GSH0	P48507	Glutamate--cysteine ligase regulatory subunit	3.64493
9	IDHC	O75874	Isocitrate dehydrogenase [NADP] cytoplasmic	3.18656
10	CRK	P46108	Adapter molecule crk	2.66295
11	LKHA4	P09960	Leukotriene A-4 hydrolase	3.07686
12	LDHA	P00338	L-lactate dehydrogenase A chain	2.60496
13	COF1	P23528	Cofilin-1	2.86394
14	PSME3	P61289	Proteasome activator complex subunit 3	2.59093
15	XPO6	Q96QU8	Exportin-6	2.63751
16	PFKAM	P08237	ATP-dependent 6-phosphofructokinase, muscle type	2.77411
17	METK2	P31153	S-adenosylmethionine synthase isoform type-2	2.59551
18	I3L0H8	I3L0H8	ATP-dependent RNA helicase DDX19A	3.00712
19	A0A087WYT3	A0A087WYT3	Prostaglandin E synthase 3	6.25017
20	MBB1A	Q9BQG0	Myb-binding protein 1A	3.31109
21	GANAB	Q14697-2	Neutral alpha-glucosidase AB	3.99331
22	RPAC1	O15160	DNA-directed RNA polymerases I and III subunit RPAC1	2.95675
23	6PGD	P52209	6-phosphogluconate dehydrogenase, decarboxylating	3.15286
24	F2Z2Y4	F2Z2Y4	Pyridoxal kinase	3.349
25	KTHY	P23919	Thymidylate kinase	4.05072
26	ACADM	P11310-2	Medium-chain specific acyl-CoA dehydrogenase, mitochondrial	3.37726
27	RT27	Q92552	28S ribosomal protein S27, mitochondrial	2.65651
28	A0A1B0GW77	A0A1B0GW77	Alpha-aminoadipic semialdehyde dehydrogenase	2.57993
29	IPYR	Q15181	Inorganic pyrophosphatase	2.56092
30	KPYM	P14618	Pyruvate kinase PKM	3.3471
31	TWF1	Q12792	Twinfilin-1	3.16219
32	MCM6	Q14566	DNA replication licensing factor MCM6	2.98343
33	I3L2B0	I3L2B0	Clustered mitochondria protein homolog	3.14353
34	KPRA	Q14558	Phosphoribosyl pyrophosphate synthase-associated protein 1	2.88641
35	ERO1A	Q96HE7	ERO1-like protein alpha	3.48398
36	AP3D1	O14617	AP-3 complex subunit delta-1	2.64148
37	Q5QPM7	Q5QPM7	Proteasome inhibitor PI31 subunit	2.779
38	TNPO3	Q9Y5L0	Transportin-3	3.19029
39	NAT10	Q9H0A0	RNA cytidine acetyltransferase	2.60558
40	F6WQW2	F6WQW2	Ran-specific GTPase-activating protein	2.6097
41	HAT1	O14929	Histone acetyltransferase type B catalytic subunit	2.61858
42	E7ESZ7	E7ESZ7	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 10, mitochondrial	3.34015
43	A0A1B0GWE8	A0A1B0GWE8	Cathepsin D	3.59333
44	APEX1	P27695	DNA-(apurinic or apyrimidinic site) lyase	2.573

45	LNP	Q9C0E8	Endoplasmic reticulum junction formation protein lunapark	3.024
46	PARK7	Q99497	Protein/nucleic acid deglycase DJ-1	3.53845
47	PP2AA	P67775	Serine/threonine-protein phosphatase 2A catalytic subunit alpha isoform	2.85783
48	DUS23	Q9BVJ7	Dual specificity protein phosphatase 23	2.6001
49	NUP43	Q8NFH3	Nucleoporin Nup43	2.92109
50	TF3C4	Q9UKN8	General transcription factor 3C polypeptide 4	2.85149
51	UBA3	Q8TBC4	NEDD8-activating enzyme E1 catalytic subunit	2.85788
52	B1AH49	B1AH49	3-mercaptopyruvate sulfurtransferase	4.16312
53	ABCD3	P28288	ATP-binding cassette sub-family D member 3	2.89151
54	Q5QPR3	Q5QPR3	Cyclin-dependent kinase 11A	3.07425
55	D6RG13	D6RG13	40S ribosomal protein S3a	3.40351
56	B7Z4B8	B7Z4B8	Heterogeneous nuclear ribonucleoprotein U-like protein 1	3.80247
57	AN32E	Q9BTT0	Acidic leucine-rich nuclear phosphoprotein 32 family member E	3.0431
58	HPBP1	Q9NZL4	Hsp70-binding protein 1	3.14118
59	PAIRB	Q8NC51	Plasminogen activator inhibitor 1 RNA-binding protein	2.72168
60	CDK1	P06493	Cyclin-dependent kinase 1	6.03772
61	X6RLT1	X6RLT1	Negative elongation factor C/D	2.93622
62	TNAP2	Q03169	Tumor necrosis factor alpha-induced protein 2	2.62938
63	MLKL	Q8NB16	Mixed lineage kinase domain-like protein	3.39344
64	E7ETK0	E7ETK0	40S ribosomal protein S24	3.59647
65	DHX36	Q9H2U1	ATP-dependent DNA/RNA helicase DHX36	3.02912
66	TBCC	Q15814	Tubulin-specific chaperone C	2.65875
67	RL6	Q02878	60S ribosomal protein L6	3.71789
68	TOM34	Q15785	Mitochondrial import receptor subunit TOM34	3.64649
69	HP1B3	Q5SSJ5	Heterochromatin protein 1-binding protein 3	3.88668
70	C19L1	Q69YN2	CWF19-like protein 1	2.65963
71	RS17	P08708	40S ribosomal protein S17	3.74528
72	E7ESA6	E7ESA6	Focal adhesion kinase 1	2.64713
73	AP3M1	Q9Y2T2	AP-3 complex subunit mu-1	2.75333
74	M0QXD6	M0QXD6	General transcription factor IIF subunit 1	2.56235
75	WNT5A	P41221	Protein Wnt-5a	2.59575
76	GMD5	O60547	GDP-mannose 4,6 dehydratase	3.08654
77	I3L0X5	I3L0X5	Sperm-associated antigen 7	3.3113
78	E9PH64	E9PH64	NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 9	2.95705
79	MIPEP	Q99797	Mitochondrial intermediate peptidase	2.7807
80	A0A087WZR9	A0A087WZR9	Pyrraline-5-carboxylate reductase	5.26058
81	CHIP	Q9UNE7	E3 ubiquitin-protein ligase CHIP	2.93915

82	TBCE	Q15813	Tubulin-specific chaperone E	2.57258
83	SAAL1	Q96ER3	Protein SAAL1	2.84296
84	SYRC	P54136	Arginine--tRNA ligase, cytoplasmic	3.68764
85	HTAI2	Q9BUP3	Oxidoreductase HTATIP2	2.52883
86	GRP75	P38646	Stress-70 protein, mitochondrial	3.35915
87	PSB3	P49720	Proteasome subunit beta type-3	2.82347
88	GSTP1	P09211	Glutathione S-transferase P	3.25767
89	RAB7A	P51149	Ras-related protein Rab-7a	2.95429
90	TCPG	P49368	T-complex protein 1 subunit gamma	3.5822
91	RAB9A	P51151	Ras-related protein Rab-9A	2.60002
92	PHB	P35232	Prohibitin	2.76765
93	RS27A	P62979	Ubiquitin-40S ribosomal protein S27a	3.44529
94	E7EQR4	E7EQR4	Ezrin	2.70739
95	RIR1	P23921	Ribonucleoside-diphosphate reductase large subunit	2.55098
96	J3QQT2	J3QQT2	60S ribosomal protein L17	2.99247
97	SRP68	Q9UHB9	Signal recognition particle subunit SRP68	3.01785
98	SMD3	P62318	Small nuclear ribonucleoprotein Sm D3	3.12363
99	SYQ	P47897	Glutamine--tRNA ligase	2.65577
100	H3BQI1	H3BQI1	Dynein light chain roadblock-type 2	2.72107
101	MCM5	P33992	DNA replication licensing factor MCM5	2.94611
102	Q8WVC2	Q8WVC2	40S ribosomal protein S21	2.76124
103	NDUS3	O75489	NADH dehydrogenase [ubiquinone] iron-sulfur protein 3, mitochondrial	3.63337
104	RL7	P18124	60S ribosomal protein L7	2.73981
105	C9JA28	C9JA28	Translocon-associated protein subunit gamma	3.0665
106	S4R3E9	S4R3E9	NEDD8-MDP1 readthrough	3.09505
107	VIME	P08670	Vimentin	3.24861
108	I3L504	I3L504	Eukaryotic translation initiation factor 5A-1	2.65408
109	TM109	Q9BVC6	Transmembrane protein 109	3.52926
110	DRG1	Q9Y295	Developmentally-regulated GTP-binding protein 1	3.14037
111	SMD1	P62314	Small nuclear ribonucleoprotein Sm D1	3.54617
112	H0YEN5	H0YEN5	40S ribosomal protein S2	3.76272
113	MCM3	P25205-2	DNA replication licensing factor MCM3	3.01339
114	ARF6	P62330	ADP-ribosylation factor 6	3.18205
115	RL7A	P62424	60S ribosomal protein L7a	3.56152
116	BZW2	Q9Y6E2	Basic leucine zipper and W2 domain-containing protein 2	4.20893
117	A0A0A0MTN0	A0A0A0MTN0	Cullin-2	2.85465
118	THOP1	P52888	Thimet oligopeptidase	3.49956
119	J3QRI7	J3QRI7	60S ribosomal protein L26	5.03306
120	ATPO	P48047	ATP synthase subunit O, mitochondrial	2.73623
121	LSM3	P62310	U6 snRNA-associated Sm-like protein LSM3	3.12073

122	SRP14	P37108	Signal recognition particle 14 kDa protein	2.97832
123	NCBP2	P52298	Nuclear cap-binding protein subunit 2	2.55743
124	RAN	P62826	GTP-binding nuclear protein Ran	2.58877
125	J3KQ48	J3KQ48	Peptidyl-tRNA hydrolase 2, mitochondrial	4.00593
126	TXD17	Q9BRA2	Thioredoxin domain-containing protein 17	3.25391
127	MGST1	P10620	Microsomal glutathione S-transferase 1	2.82746
128	SNX1	Q13596	Sorting nexin-1	2.5274
129	HNRPF	P52597	Heterogeneous nuclear ribonucleoprotein F	2.89938
130	RL13	P26373	60S ribosomal protein L13	3.9096
131	A0A087WUD3	A0A087WUD3	Oligosaccharyltransferase complex subunit OSTC	2.65514
132	RS28	P62857	40S ribosomal protein S28	5.78257
133	J3KTA4	J3KTA4	Probable ATP-dependent RNA helicase DDX5	4.43944
134	DDX6	P26196	Probable ATP-dependent RNA helicase DDX6	2.70974
135	ZC3HF	Q8WU90	Zinc finger CCCH domain-containing protein 15	2.64774
136	RM21	Q7Z2W9	39S ribosomal protein L21, mitochondrial	3.18026
137	ULA1	Q13564	NEDD8-activating enzyme E1 regulatory subunit	3.12154
138	RL11	P62913	60S ribosomal protein L11	4.33191
139	RS11	P62280	40S ribosomal protein S11	3.57281
140	RS8	P62241	40S ribosomal protein S8	4.43922
141	RL21	P46778	60S ribosomal protein L21	3.30215
142	A0A087X0X3	A0A087X0X3	Heterogeneous nuclear ribonucleoprotein M	2.92309
143	RS23	P62266	40S ribosomal protein S23	4.45084
144	ATD3A	Q9NVI7-2	ATPase family AAA domain-containing protein 3A	2.65768
145	RL23	P62829	60S ribosomal protein L23	4.39359
146	2A5D	Q14738-3	Serine/threonine-protein phosphatase 2A 56 kDa regulatory subunit delta isoform	3.24429
147	RS13	P62277	40S ribosomal protein S13	5.13601
148	G5E9Q6	G5E9Q6	Profilin	3.91099
149	RL12	P30050	60S ribosomal protein L12	4.5988
150	XPO5	Q9HAV4	Exportin-5	2.81304
151	DDX23	Q9BUQ8	Probable ATP-dependent RNA helicase DDX23	3.09004
152	RL27	P61353	60S ribosomal protein L27	5.56322
153	E5RI99	E5RI99	60S ribosomal protein L30	4.79294
154	SHIP2	O15357	Phosphatidylinositol 3,4,5-trisphosphate 5-phosphatase 2	2.93228
155	PRP6	O94906	Pre-mRNA-processing factor 6	4.71226
156	SYDM	Q6PI48	Aspartate--tRNA ligase, mitochondrial	4.19994
157	KIF2A	O00139-2	Kinesin-like protein KIF2A	2.70644
158	J3QR09	J3QR09	Ribosomal protein L19	2.74218
159	OCAD2	Q56VL3	OCIA domain-containing protein 2	4.79686
160	J3QSV6	J3QSV6	Ribosomal L1 domain-containing protein 1	4.28401
161	RL38	P63173	60S ribosomal protein L38	2.93381

162	A0A087X2D0	A0A087X2D0	Serine/arginine-rich-splicing factor 3		4.36894
163	GPI8	Q92643	GPI-anchor transamidase		2.86273
164	NU160	Q12769	Nuclear pore complex protein Nup160		2.76185
165	SMYD3	Q9H7B4	Histone-lysine N-methyltransferase SMYD3		3.32229
166	YMEL1	Q96TA2	ATP-dependent zinc metalloprotease YME1L1		2.84011
167	PDCD4	Q53EL6	Programmed cell death protein 4		3.59557
168	TMED1	Q13445	Transmembrane emp24 domain-containing protein 1		2.72926
169	RCN2	Q14257	Reticulocalbin-2		3.22922
170	R39L5	Q59GN2	Putative 60S ribosomal protein L39-like 5		5.63947
171	SRP09	P49458	Signal recognition particle 9 kDa protein		4.54385
172	TSR1	Q2NL82	Pre-rRNA-processing protein TSR1 homolog		2.96676
173	DYR	P00374	Dihydrofolate reductase		4.23334
174	DHX8	Q14562	ATP-dependent RNA helicase DHX8		2.56375
175	RIPK1	Q13546	Receptor-interacting serine/threonine-protein kinase 1		3.70312
Common in both WT- and P301L- tau expressing cells					
176	F8WCF6	F8WCF6	Actin-related protein 2/3 complex subunit 4	3.33715	4.14691
177	RACK1	P63244	Receptor of activated protein C kinase 1	3.39824	4.51018
178	SYDC	P14868	Aspartate--tRNA ligase, cytoplasmic	2.74959	2.57307
179	EIF3K	Q9UBQ5	Eukaryotic translation initiation factor 3 subunit K	2.81828	4.58194
180	H9KV45	H9KV45	Ubiquitin-conjugating enzyme E2 D3	2.67823	5.42209
181	Q5JR08	Q5JR08	Rho-related GTP-binding protein RhoC	3.44748	3.81268
182	PROF1	P07737	Profilin-1	3.07127	4.69295
183	FPPS	P14324	Farnesyl pyrophosphate synthase	3.80014	3.24431
184	Q5VV89	Q5VV89	Microsomal glutathione S-transferase 3	3.6279	4.42465
185	SYK	Q15046	Lysine--tRNA ligase	3.9661	3.1659
186	PUR2	P22102	Trifunctional purine biosynthetic protein adenosine-3 [Includes: Phosphoribosylamine--glycine ligase	2.81901	2.93211
187	SND1	Q7KZF4	Staphylococcal nuclease domain-containing protein 1	3.019	3.608
188	C9JZR2	C9JZR2	Catenin delta-1	2.6207	2.99525
189	CAN2	P17655	Calpain-2 catalytic subunit	3.42537	3.11891
190	AAAS	Q9NRG9	Aladin	4.28764	4.41039
191	SYLC	Q9P2J5	Leucine--tRNA ligase, cytoplasmic	3.39758	3.6911
192	RNZ2	Q9BQ52	Zinc phosphodiesterase ELAC protein 2	3.34161	3.22
193	TIF1B	Q13263	Transcription intermediary factor 1-beta	3.23108	3.44094
194	EIF3B	P55884	Eukaryotic translation initiation factor 3 subunit B	4.32237	4.51386
195	PPIA	P62937	Peptidyl-prolyl cis-trans isomerase A	3.8054	4.17
196	H0YAK1	H0YAK1	G-rich sequence factor 1	3.46677	2.53854

197	EIF3G	O75821	Eukaryotic translation initiation factor 3 subunit G	2.72457	3.04545
198	Q32Q12	Q32Q12	Nucleoside diphosphate kinase	3.00854	3.04007
199	EFTU	P49411	Elongation factor Tu, mitochondrial	3.64175	3.42478
200	RS3	P23396	40S ribosomal protein S3	2.61813	3.38603
201	MTREX	P42285	Exosome RNA helicase MTR4	2.57741	2.61761
202	RS26	P62854	40S ribosomal protein S26	2.66498	3.15958
203	RS16	P62249	40S ribosomal protein S16	2.87042	5.66172
204	A0A087WZT3	A0A087WZT3	BolA-like protein 2	2.62918	3.9663
205	LANC1	O43813	Glutathione S-transferase LANCL1	4.28469	3.09074
206	CND3	Q9BPX3	Condensin complex subunit 3	2.9969	2.66232
207	AIMP2	Q13155	Aminoacyl tRNA synthase complex-interacting multifunctional protein 2	3.83739	3.0309
208	G3V325	G3V325	ATP5MF-PTCD1 readthrough	4.35305	4.77429
209	TGM2	P21980	Protein-glutamine gamma-glutamyltransferase 2	3.47902	2.55024
210	RS18	P62269	40S ribosomal protein S18	3.20805	4.17992
211	RS14	P62263	40S ribosomal protein S14	2.67833	4.25944
212	C9JXB8	C9JXB8	60S ribosomal protein L24	2.98512	4.69503
213	MGST2	Q99735	Microsomal glutathione S-transferase 2	2.68604	3.32233
214	RL13A	P40429	60S ribosomal protein L13a	2.87139	4.09016
215	SNR40	Q96DI7	U5 small nuclear ribonucleoprotein 40 kDa protein	2.83902	2.94416
216	SRP54	P61011	Signal recognition particle 54 kDa protein	3.37647	3.10435
217	CUL4A	Q13619	Cullin-4A	5.00644	2.58406
218	UCK2	Q9BZX2	Uridine-cytidine kinase 2	2.99612	2.78459
219	K7EP65	K7EP65	60S ribosomal protein L22	3.68703	6.73393
220	RS19	P39019	40S ribosomal protein S19	3.54415	7.35693
221	TSYL1	Q9H0U9	Testis-specific Y-encoded-like protein 1	2.66813	3.09096
222	E9PJD9	E9PJD9	60S ribosomal protein L27a	3.04224	5.20122
223	VPS45	Q9NRW7	Vacuolar protein sorting-associated protein 45	2.73297	4.2448
224	M0R3D6	M0R3D6	60S ribosomal protein L18a	3.29172	4.15871
225	RS6	P62753	40S ribosomal protein S6	2.85538	3.91982
226	H7C2W9	H7C2W9	60S ribosomal protein L31	2.97225	6.33005
227	NUCL	P19338	Nucleolin	3.49248	4.59942
228	A0A0D9SG12	A0A0D9SG12	ATP-dependent RNA helicase DDX3X	2.69323	4.56215
229	CDC73	Q6P1J9	Parafibromin	3.60285	2.99202
230	APT	P07741	Adenine phosphoribosyltransferase	3.34193	2.61598
231	E7ENU7	E7ENU7	Ribosomal protein L15	3.97322	2.8185
232	G3BP1	Q13283	Ras GTPase-activating protein-binding protein 1	3.04396	3.61278
233	K7ERT8	K7ERT8	60S ribosomal protein L23a	4.22784	5.36401
234	J3QQ67	J3QQ67	60S ribosomal protein L18	2.66443	2.95231
235	XRCC6	P12956	X-ray repair cross-complementing protein 6	3.48879	3.75823
236	M0R0R2	M0R0R2	40S ribosomal protein S5	4.26617	5.14718
237	RFC5	P40937	Replication factor C subunit 5	4.36703	3.35394

238	F8W727	F8W727	60S ribosomal protein L32	3.74762	5.39745
239	MD2L1	Q13257	Mitotic spindle assembly checkpoint protein MAD2A	2.92545	2.98028
240	D6RAN4	D6RAN4	60S ribosomal protein L9	3.31616	4.19725
241	RL4	P36578	60S ribosomal protein L4	2.85467	3.7287
242	RL36	Q9Y3U8	60S ribosomal protein L36	4.53022	5.5977
243	SSBP	Q04837	Single-stranded DNA-binding protein, mitochondrial	5.65442	4.22935
244	RS10	P46783	40S ribosomal protein S10	3.25188	3.02068
245	C9JZ11	C9JZ11	Replication factor C subunit 4	2.62627	3.47232
246	XRCC5	P13010	X-ray repair cross-complementing protein 5	2.60763	3.48406
247	AMPN	P15144	Aminopeptidase N	3.75088	3.23543
248	GTF2I	P78347	General transcription factor II-I	2.60151	3.52247
249	RS7	P62081	40S ribosomal protein S7	3.97012	3.42622
250	C9JQV0	C9JQV0	Uncharacterized protein C7orf50	2.86837	2.93894
251	ACOX3	O15254	Peroxisomal acyl-coenzyme A oxidase 3	2.7579	4.58583

Table 9: Top 5 networks identified from IPA analysis in WT-tau expressing cells

ID	Associated network functions	Score
1	RNA damage and repair, protein synthesis, cancer	61
2	DNA replication, recombination, and repair, cellular assembly and organization, cell morphology	41
3	Cell cycle, cellular function and maintenance, molecular transport	28
4	Cellular movement, haematological system development and function, immune cell trafficking	21
5	Organismal injury and abnormalities, cellular movement, skeletal and muscular system development and function	17

Table 10: Top 5 networks identified from IPA analysis in P301L-tau expressing cells

ID	Associated network functions	Score
1	RNA damage and repair, protein synthesis, cancer	55
2	Cellular assembly and organization, cellular compromise, cellular function and maintenance	52
3	Nucleic acid metabolism, small molecule biochemistry, digestive system development and function	27
4	Cellular compromise, developmental disorder, endocrine system disorders	22
5	Developmental disorder, endocrine system disorders, organ morphology	11

Table 11: Significantly enriched proteins in all comparisons (rpAD vs Cont, spAD vs Cont, sCJD vs Cont, rpAD vs spAD, spAD vs sCJD, rpAD vs sCJD) are listed

No.	Proteins	Accession No.	rpAD/cont	spAD/cont	sCJD/cont	rpAD/spAD	spAD/sCJD	rpAD/sCJD
1	Clathrin coat assembly protein AP180	AP180	+	+	+			
2	60 kDa heat shock protein, mitochondrial	CH60	+	+	+			
3	N(G),N(G)-dimethylarginine dimethylaminohydrolase 1	DDAH1		+	+		+	+
4	Filaggrin-2	FILA2	+	+	+			
5	Fascin	FSCN1	+	+	+		+	
6	Guanine nucleotide-binding protein G(o) subunit alpha	GNAO		+	+			
7	Lysozyme C	LYSC	+	+	+			
8	Microtubule-associated protein 1A	MAP1A	+	+	+			
9	Protein kinase C and casein kinase substrate in neurons protein 1	PACN1	+	+	+			
10	Ras-related protein Rab-1A	RAB1A	+	+	+		+	
11	Rho-related GTP-binding protein RhoB	RHOB		+	+	+		
12	Ribonuclease inhibitor	RINI	+	+	+	+	+	
13	Prosaposin	SAP		+	+	+	+	
14	Secernin-1	SCRN1		+	+			
15	Septin-7	Septin-7	+	+	+	+		
16	Protein-glutamine gamma-glutamyltransferase E	TGM3	+	+	+			
17	14-3-3 protein sigma	1433S			+			
18	3-hydroxyisobutyrate dehydrogenase, mitochondrial	3HIDH			+		+	+
19	6-phosphogluconate dehydrogenase	6PGD	+		+	+	+	
20	Alpha-1-acid glycoprotein 1	A1AG1			+		+	
21	Alpha-1-antitrypsin	A1AT	+		+	+	+	
22	Alpha-2-macroglobulin	A2MG			+		+	+
23	Alpha-1-antichymotrypsin	AACT			+		+	
24	Aspartate aminotransferase, cytoplasmic	AATC	+		+	+	+	
25	Aconitate hydratase, mitochondrial	ACON	+		+		+	
26	Alpha-actinin-1	ACTN1			+		+	+
27	Acylphosphatase-2	ACYP2	+		+	+	+	
28	Beta-adducin	ADDB			+		+	+
29	Alcohol dehydrogenase class-3	ADHX			+		+	+
30	Retinal dehydrogenase 1	AL1A1			+		+	
31	Delta-1-pyrroline-5-carboxylate dehydrogenase, mitochondrial	AL4A1			+		+	
32	Alpha-aminoadipic semialdehyde dehydrogenase	AL7A1	+		+		+	+

33	4-trimethylaminobutyraldehyde dehydrogenase	AL9A1			+		+	
34	Aldehyde dehydrogenase, mitochondrial	ALDH2	+		+	+	+	+
35	Fructose-bisphosphate aldolase A	ALDOA			+		+	
36	Fructose-bisphosphate aldolase C	ALDOC			+		+	
37	Aldose reductase	ALDR			+		+	
38	Cytosol aminopeptidase	AMPL			+		+	
39	Annexin A2	ANXA2			+		+	
40	Annexin A5	ANXA5			+	+	+	
41	Annexin A6	ANXA6	+		+		+	
42	Annexin A7	ANXA7			+			
43	AP-2 complex subunit beta	AP2B1			+		+	+
44	Apolipoprotein E	APOE			+			
45	ADP-ribosylation factor 1	ARF1			+		+	
46	Aflatoxin B1 aldehyde reductase member 2	ARK72			+		+	
47	Actin-related protein 2	ARP2			+		+	+
48	Sodium/potassium-transporting ATPase subunit beta-1	AT1B1			+		+	
49	ATP synthase subunit beta, mitochondrial	ATPB			+		+	
50	Cytosolic acyl coenzyme A thioester hydrolase	BACH			+		+	+
51	Myc box-dependent-interacting protein 1	BIN1	+		+			
52	Carbonic anhydrase 1	CAH1			+		+	
53	Carbonic anhydrase 2	CAH2			+	+	+	
54	Cullin-associated NEDD8-dissociated protein 1	CAND1			+		+	
55	Adenylyl cyclase-associated protein 1	CAP1			+		+	
56	Cathepsin D	CATD	+		+		+	
57	F-actin-capping protein subunit alpha-2	CAZA2			+		+	
58	Carbonyl reductase [NADPH] 1	CBR1			+		+	
59	Cell division control protein 42 homolog	CDC42			+			
60	10 kDa heat shock protein, mitochondrial	CH10	+		+		+	
61	Citrate synthase, mitochondrial	CISY	+		+		+	
62	Cytosolic non-specific dipeptidase	CNDP2			+		+	
63	CB1 cannabinoid receptor-interacting protein 1	CNRP1			+		+	
64	Contactin-1	CNTN1			+			
65	Cofilin-1	COF1			+	+	+	
66	Copine-5	CPNE5			+		+	
67	Cytochrome c	CYC	+		+	+	+	
68	2,4-dienoyl-CoA reductase, mitochondrial	DECR			+		+	

69	Glutamate dehydrogenase 1, mitochondrial	DHE3	+		+		+	+
70	Dihydropteridine reductase	DHPR			+			
71	Dihydrolipoyl dehydrogenase, mitochondrial	DLDH			+		+	+
72	D-dopachrome decarboxylase	DOPD			+		+	
73	Dihydropyrimidinase-related protein 1	DPYL1			+			
74	Dihydropyrimidinase-related protein 3	DPYL3			+		+	
75	Dihydropyrimidinase-related protein 5	DPYL5			+		+	
76	Dynein light chain 2, cytoplasmic	DYL2			+		+	
77	Delta(3,5)-Delta(2,4)-dienoyl-CoA isomerase, mitochondrial	ECH1			+			
78	Enoyl-CoA hydratase, mitochondrial	ECHM	+		+	+	+	
79	Enoyl-CoA delta isomerase 1, mitochondrial	ECI1			+		+	
80	Elongation factor 1-gamma	EF1G			+		+	
81	Alpha-enolase	ENOA			+		+	
82	Enolase-phosphatase E1	ENOPH			+		+	
83	S-formylglutathione hydrolase	ESTD			+		+	
84	Electron transfer flavoprotein subunit alpha, mitochondrial	ETFA			+		+	
85	Ezrin	EZRI			+		+	+
86	Hsc70-interacting protein	F10A1	+		+		+	
87	Protein FAM49B	FA49B			+	+	+	
88	Fatty acid-binding protein, heart	FABPH			+		+	
89	Acylpyruvase FAHD1, mitochondrial	FAHD1			+		+	
90	Fibrinogen beta chain	FIBB			+		+	
91	Fibrinogen gamma chain	FIBG			+		+	
92	Filaggrin	FILA			+			
93	Ferritin heavy chain	FRIH			+	+	+	
94	Ferritin light chain	FRIL			+		+	
95	Fumarate hydratase, mitochondrial	FUMH	+		+			
96	Glucose-6-phosphate isomerase	G6PI			+		+	
97	4-aminobutyrate aminotransferase, mitochondrial	GABT	+		+		+	
98	Guanine nucleotide-binding protein G(I)/G(S)/G(T) subunit beta-1	GBB1			+		+	
99	Rab GDP dissociation inhibitor alpha	GDIA	+		+		+	
100	Rab GDP dissociation inhibitor beta	GDIB	+		+	+	+	
101	Rho GDP-dissociation inhibitor 1	GDIR1			+		+	
102	Gelsolin	GELS			+		+	

103	Gamma-glutamylcyclotransferase	GGCT			+		+	
104	Glutamine synthetase	GLNA			+		+	+
105	Glyoxalase domain-containing protein 4	GLOD4			+		+	
106	Neuronal membrane glycoprotein M6-a	GPM6A	+		+		+	
107	Stress-70 protein, mitochondrial	GRP75			+		+	
108	Glutathione S-transferase Mu 1	GSTM1			+		+	+
109	Glutathione S-transferase Mu 2	GSTM2			+		+	+
110	Glutathione S-transferase Mu 3	GSTM3			+		+	+
111	Glutathione S-transferase omega-1	GSTO1			+		+	+
112	Glutathione S-transferase P	GSTP1			+		+	
113	Guanine deaminase	GUAD			+		+	+
114	Haloacid dehalogenase-like hydrolase domain-containing protein 2	HDHD2			+		+	
115	Heterogeneous nuclear ribonucleoprotein D0	HNRPD			+			
116	Heterogeneous nuclear ribonucleoprotein K	HNRPK			+		+	
117	Hyaluronan and proteoglycan link protein 1	HPLN1			+		+	
118	Hypoxanthine-guanine phosphoribosyltransferase	HPRT	+		+	+	+	+
119	Haptoglobin	HPT			+		+	+
120	Heat shock protein 105 kDa	HS105			+		+	+
121	Heat shock protein HSP 90-alpha	HS90A			+		+	
122	Heat shock protein HSP 90-beta	HS90B			+		+	
123	Heat shock 70 kDa protein 4	HSP74			+		+	
124	Hexokinase-1	HXK1			+		+	
125	Immunoglobulin gamma-1 heavy chain	IGG1	+		+	+	+	
126	Immunoglobulin heavy constant alpha 1	IGHA1			+		+	
127	Immunoglobulin heavy constant gamma 2	IGHG2			+		+	
128	Immunoglobulin heavy constant gamma 3	IGHG3	+		+	+	+	
129	Immunoglobulin heavy constant gamma 4	IGHG4	+		+	+	+	
130	Immunoglobulin kappa constant	IGKC	+		+	+	+	
131	Inositol monophosphatase 1	IMPA1			+		+	
132	GTP:AMP phosphotransferase AK3, mitochondrial	KAD3			+		+	
133	Pyruvate kinase PKM	KPYM			+		+	
134	LanC-like protein 1	LANC1	+		+	+	+	
135	Galectin-1	LEG1	+		+			
136	Malate dehydrogenase, cytoplasmic	MDHC			+		+	

137	Malate dehydrogenase, mitochondrial	MDHM			+		+	
138	Mitogen-activated protein kinase 1	MK01			+			
139	Methylmalonate-semialdehyde dehydrogenase [acylating], mitochondrial	MMSA			+		+	
140	Moesin	MOES			+		+	+
141	NAD kinase 2, mitochondrial	NAKD2			+		+	
142	Neural cell adhesion molecule 1	NCAM1			+			
143	Neurocan core protein	NCAN	+		+	+	+	
144	Neurochondrin	NCDN			+		+	+
145	Neurofascin	NFASC			+		+	
146	NAD(P)H-hydrate epimerase	NNRE			+		+	
147	Neuronal cell adhesion molecule	NRCAM			+		+	
148	Protein/nucleic acid deglycase DJ-1	PARK7			+	+	+	
149	Poly(rC)-binding protein 2	PCBP2			+		+	
150	Protein disulfide-isomerase	PDIA1			+		+	+
151	Protein disulfide-isomerase A6	PDIA6			+		+	
152	ATP-dependent 6-phosphofructokinase, muscle type	PFKAM			+		+	+
153	Phosphoglycerate mutase 1	PGAM1			+			
154	Brevican core protein	PGCB	+		+		+	
155	Phosphoglycerate kinase 1	PGK1			+		+	
156	Phosphoglucomutase-1	PGM1			+		+	+
157	Protein-L-isoaspartate(D-aspartate) O-methyltransferase	PIMT			+		+	+
158	Junction plakoglobin	PLAK			+			
159	Pyridoxal phosphate phosphatase	PLPP			+			
160	Protein phosphatase 1 regulatory subunit 7	PP1R7			+		+	
161	Serine/threonine-protein phosphatase 2A catalytic subunit alpha isoform	PP2AA			+		+	
162	Serine/threonine-protein phosphatase 2B catalytic subunit alpha isoform	PP2BA			+		+	+
163	Serine/threonine-protein phosphatase 5	PPP5			+		+	+
164	Palmitoyl-protein thioesterase 1	PPT1	+		+			
165	Peroxiredoxin-1	PRDX1			+		+	
166	Peroxiredoxin-2	PRDX2			+		+	
167	Peroxiredoxin-5, mitochondrial	PRDX5			+		+	
168	Peroxiredoxin-6	PRDX6			+	+	+	
169	Profilin-1	PROF1			+	+	+	
170	Profilin-2	PROF2			+		+	+

171	Puromycin-sensitive aminopeptidase	PSA			+		+	+
172	Proteasome subunit alpha type-4	PSA4			+		+	+
173	Proteasome subunit alpha type-6	PSA6			+		+	
174	Proteasome subunit alpha type-7	PSA7			+		+	+
175	Proteasome subunit beta type-4	PSB4			+		+	
176	Proteasome subunit beta type-6	PSB6			+		+	
177	Prostaglandin-H2 D-isomerase	PTGDS			+		+	+
178	Receptor-type tyrosine-protein phosphatase zeta	PTPRZ			+		+	+
179	Multifunctional protein ADE2	PUR6			+		+	+
180	Quinone oxidoreductase	QOR			+		+	
181	Ras-related protein Rab-2A	RAB2A			+			
182	Ras-related protein Rab-5A	RAB5A			+		+	+
183	Ras-related protein Rab-5B	RAB5B			+			
184	Ras-related protein Rab-5C	RAB5C			+		+	
185	Ras-related protein Rab-7a	RAB7A			+		+	+
186	Ras-related C3 botulinum toxin substrate 1	RAC1			+		+	+
187	Radixin	RADI			+		+	+
188	GTP-binding nuclear protein Ran	RAN			+		+	
189	Transforming protein RhoA	RHOA			+			
190	2-iminobutanoate/2-iminopropanoate deaminase	RIDA			+	+	+	
191	40S ribosomal protein S16	RS16			+			
192	Reticulon-1	RTN1			+			
193	U2 small nuclear ribonucleoprotein B"	RU2B			+			
194	Adenosylhomocysteinase	SAHH			+		+	+
195	S-adenosylhomocysteine hydrolase-like protein 1	SAHH2			+		+	+
196	Selenium-binding protein 1	SBP1			+	+	+	
197	Septin-11	Septin-11	+		+		+	
198	Septin-2	Septin-2	+		+	+	+	
199	Phosphoserine aminotransferase	SERC			+		+	
200	Endophilin-A1	SH3G2			+		+	+
201	Superoxide dismutase [Cu-Zn]	SODC			+			
202	Superoxide dismutase [Mn], mitochondrial	SODM	+		+	+	+	
203	Serpin B3	SPB3			+			
204	Spectrin beta chain, non-erythrocytic 1	SPTB2			+		+	+
205	Spectrin alpha chain, non-erythrocytic 1	SPTN1			+		+	
206	Single-stranded DNA-binding protein, mitochondrial	SSBP			+			

207	Succinate-semialdehyde dehydrogenase, mitochondrial	SSDH			+		+	+
208	Stress-induced-phosphoprotein 1	STIP1			+		+	
209	Syntaxin-1B	STX1B	+		+			
210	Synapsin-2	SYN2			+		+	
211	Transgelin-3	TAGL3	+		+	+	+	
212	Transaldolase	TALDO			+		+	
213	T-complex protein 1 subunit theta	TCPQ			+		+	
214	Tenascin-R	TENR			+			
215	Transitional endoplasmic reticulum ATPase	TERA	+		+			
216	Acetyl-CoA acetyltransferase, mitochondrial	THIL	+		+			
217	Thy-1 membrane glycoprotein	THY1			+		+	+
218	Transketolase	TKT	+		+	+	+	
219	Triosephosphate isomerase	TPIS			+	+	+	
220	Serotransferrin	TRFE			+		+	
221	Ubiquitin-conjugating enzyme E2 variant 2	UB2V2			+		+	
222	Polyubiquitin-B	UBB			+	+	+	
223	UTP--glucose-1-phosphate uridylyltransferase	UGPA			+		+	
224	V-type proton ATPase catalytic subunit A	VATA			+		+	+
225	V-type proton ATPase subunit B, brain isoform	VATB2			+		+	
226	V-type proton ATPase subunit E 1	VATE1			+		+	+
227	V-type proton ATPase subunit H	VATH			+			
228	Visinin-like protein 1	VISL1			+		+	
229	14-3-3 protein epsilon	1433E		+		+	+	
230	14-3-3 protein eta	1433F		+			+	
231	Serum albumin	ALBU		+			+	
232	Plasma membrane calcium-transporting ATPase 2	AT2B2	+	+			+	+
233	Cell adhesion molecule 2	CADM2		+		+	+	
234	Cell adhesion molecule 3	CADM3		+			+	
235	Cell cycle exit and neuronal differentiation protein 1	CEND	+	+			+	+
236	Hydroxyacylglutathione hydrolase, mitochondrial	GLO2		+		+		
237	Microtubule-associated protein 1B	MAP1B		+				
238	MARCKS-related protein	MRP	+	+			+	+
239	Metallothionein-2	MT2	+	+			+	+
240	Metallothionein-3	MT3		+			+	+
241	Neurogranin	NEUG	+	+			+	+
242	Neuroplastin	NPTN	+	+			+	+
243	Oxidation resistance protein 1	OXR1		+		+		
244	ProSAAS	PCSK1		+			+	

245	Synaptojanin-1	SYNJ1		+				
246	Alpha-synuclein	SYUA		+			+	
247	Ubiquitin-like modifier-activating enzyme 1	UBA1		+				
248	Aspartate aminotransferase, mitochondrial	AATM				+	+	
249	L-aminoadipate-semialdehyde dehydrogenase-phosphopantetheinyl transferase	ADPPT					+	
250	ADP/ATP translocase 1	ADT1				+		+
251	Amine oxidase [flavin-containing] A	AOFA						+
252	Amine oxidase [flavin-containing] B	AOFB	+			+		+
253	Actin-related protein 2/3 complex subunit 1A	ARC1A					+	
254	Acid ceramidase	ASAH1					+	
255	Sodium/potassium-transporting ATPase subunit alpha-3	AT1A3	+					
256	Sodium/potassium-transporting ATPase subunit beta-2	AT1B2						+
257	ATP synthase F(0) complex subunit B1, mitochondrial	AT5F1						+
258	ATP synthase subunit d, mitochondrial	ATP5H	+			+		+
259	ATP synthase-coupling factor 6, mitochondrial	ATP5J	+			+		+
260	ATP synthase subunit g, mitochondrial	ATP5L	+			+		+
261	ATP synthase subunit O, mitochondrial	ATPO				+		+
262	Biliverdin reductase A	BIEA					+	
263	Calmodulin-1	CALM1				+		+
264	Catalase	CATA					+	
265	CD81 antigen	CD81	+			+		+
266	CDGSH iron-sulfur domain-containing protein 1	CISD1	+			+		+
267	Clusterin	CLUS					+	
268	Cofilin-2	COF2				+	+	
269	Lambda-crystallin homolog	CRYL1					+	
270	Ketimine reductase mu-crystallin	CRYM					+	
271	Versican core protein	CSPG2					+	
272	Cysteine and glycine-rich protein 1	CSRP1					+	
273	Excitatory amino acid transporter 1	EAA1				+	+	+
274	Excitatory amino acid transporter 2	EAA2	+					
275	Electron transfer flavoprotein subunit beta	ETFB					+	
276	Fatty acid-binding protein, epidermal	FABP5					+	
277	Growth arrest-specific protein 7	GAS7					+	

278	Glial fibrillary acidic protein	GFAP					+	
279	78 kDa glucose-regulated protein	GRP78				+	+	
280	Very-long-chain (3R)-3-hydroxyacyl-CoA dehydratase 3	HACD3						+
281	Hepatocyte cell adhesion molecule	HECAM	+			+		+
282	Delta-aminolevulinic acid dehydratase	HEM2					+	
283	Heat shock 70 kDa protein 1A	HS71A					+	
284	Heat shock-related 70 kDa protein 2	HSP72					+	
285	Heat shock cognate 71 kDa protein	HSP7C					+	
286	Isocitrate dehydrogenase [NADP] cytoplasmic	IDHC					+	
287	Immunoglobulin lambda constant 2	IGLC2				+	+	
288	Immunoglobulin superfamily member 8	IGSF8	+					
289	LIM and SH3 domain protein 1	LASP1					+	
290	Myelin-associated glycoprotein	MAG					+	
291	Microtubule-associated protein 6	MAP6	+				+	+
292	Myristoylated alanine-rich C-kinase substrate	MARCS				+		+
293	Myelin basic protein	MBP					+	
294	Macrophage migration inhibitory factor	MIF					+	
295	Myelin-oligodendrocyte glycoprotein	MOG				+		+
296	Metallothionein-1F	MT1F					+	
297	Myotrophin	MTPN				+		
298	Myelin proteolipid protein	MYPR				+		+
299	Protein NDRG1	NDRG1	+					
300	Protein NDRG2	NDRG2	+					
301	Dihydropyridyllysine-residue succinyltransferase component of 2-oxoglutarate dehydrogenase complex, mitochondrial	ODO2					+	
302	Platelet-activating factor acetylhydrolase IB subunit beta	PA1B2					+	
303	Programmed cell death 6-interacting protein	PDC61					+	
304	Phosphatidylethanolamine-binding protein 1	PEBP1				+	+	
305	Phosphatidylinositol-binding clathrin assembly protein	PICAL				+		
306	Phosphatidylinositol transfer protein alpha isoform	PIPNA					+	
307	Plectin	PLEC					+	
308	Serine/threonine-protein phosphatase 1G	PP1G					+	

309	Peptidyl-prolyl cis-trans isomerase A	PPIA					+	
310	Peptidyl-prolyl cis-trans isomerase B	PPIB					+	
311	PRA1 family protein 3	PRAF3						+
312	Proline-rich transmembrane protein 2	PRRT2	+			+		+
313	Proteasome subunit alpha type-3	PSA3					+	
314	Prothymosin alpha	PTMA						+
315	Glycogen phosphorylase, brain form	PYGB					+	
316	Cytochrome b-c1 complex subunit 1, mitochondrial	QCR1	+			+		+
317	UV excision repair protein RAD23 homolog B	RD23B						+
318	Protein S100-B	S100B	+			+		+
319	Protein S100-A1	S10A1	+			+		
320	Neutral amino acid transporter A	SATT						+
321	Succinate dehydrogenase [ubiquinone] flavoprotein subunit, mitochondrial	SDHA	+			+		+
322	SH3 domain-binding glutamic acid-rich-like protein	SH3L1	+			+		
323	Tyrosine-protein phosphatase non-receptor type substrate 1	SHPS1	+					+
324	Beta-soluble NSF attachment protein	SNAB	+					
325	Synaptogyrin-3	SNG3	+					
326	Serpin B6	SPB6					+	
327	Syntaxin-12	STX12					+	
328	Synaptotagmin-1	SYT1					+	
329	Transcription elongation factor A protein-like 3	TCAL3					+	
330	Toll-interacting protein	TOLIP					+	
331	Thioredoxin-like protein 1	TXNL1					+	
332	Thymosin beta-10	TYB10					+	
333	Thymosin beta-4	TYB4					+	
334	Ubiquitin-conjugating enzyme E2 L3	UB2L3	+			+		
335	Ubiquitin-conjugating enzyme E2 N	UBE2N				+	+	
336	Up-regulated during skeletal muscle growth protein 5	USMG5	+			+		+
337	Vesicle-associated membrane protein 2	VAMP2	+			+		
338	Voltage-dependent anion-selective channel protein 2	VDAC2						+

Annexure

Uncropped blots

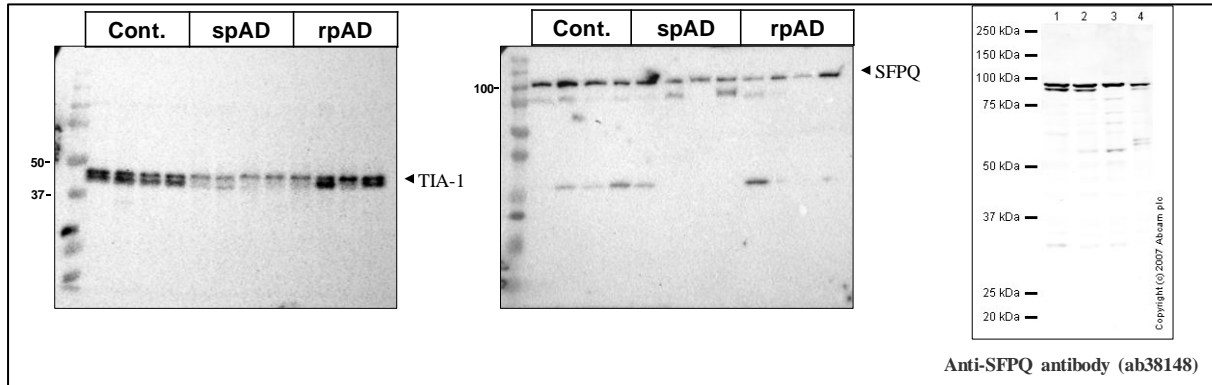


Fig. 5a uncropped blots: Additional bands for SFPQ: We are unsure as to the identity of these extra bands. For reference abcam image has been displayed showing additional bands.

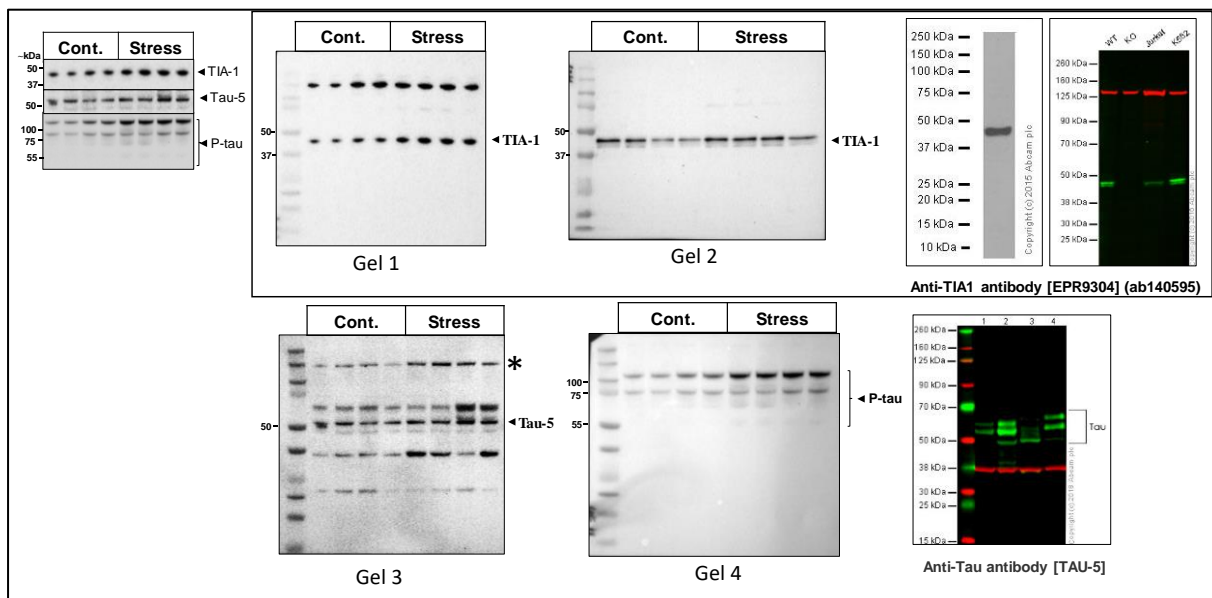


Fig. 7f uncropped blots: For TIA-1, two banding patterns have been reported, in 12 % gels, a double band pattern and in gradient gels (4-12 %), a single band pattern. We have run TIA-1 in both gradient (**Gel 1**, representative blot in the Manuscript) and in 12% gel (**Gel 2**) for confirmation. Abcam images for the antibody are also displayed on the right side. **Gel 3:** Tau-5 antibody, Tau-5 detects total tau both phosphorylated and unphosphorylated form of tau protein. Different isoforms of tau are reported between 75-50 kDa and tau cleavage products below 50 kDa. Star * represents high molecular weight phosphorylated oligomeric species of tau as Tau-5 also detects phosphorylated tau.

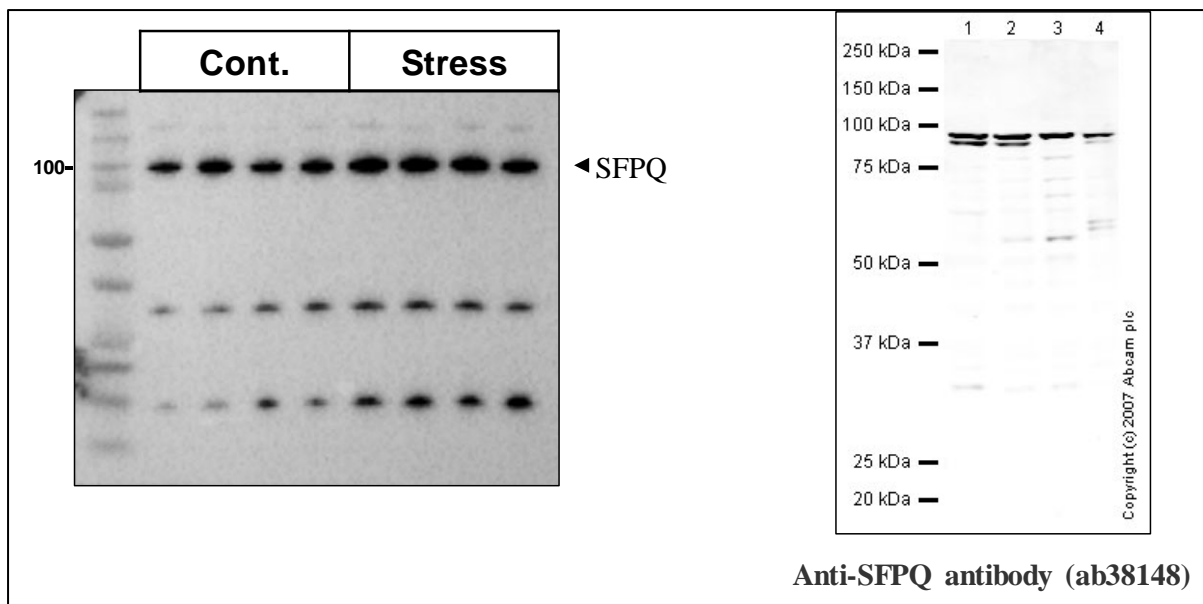


Fig. 8d uncropped blots: Additional bands for SFPQ: We are unsure as to the identity of these extra bands. For reference abcam image has been attached.

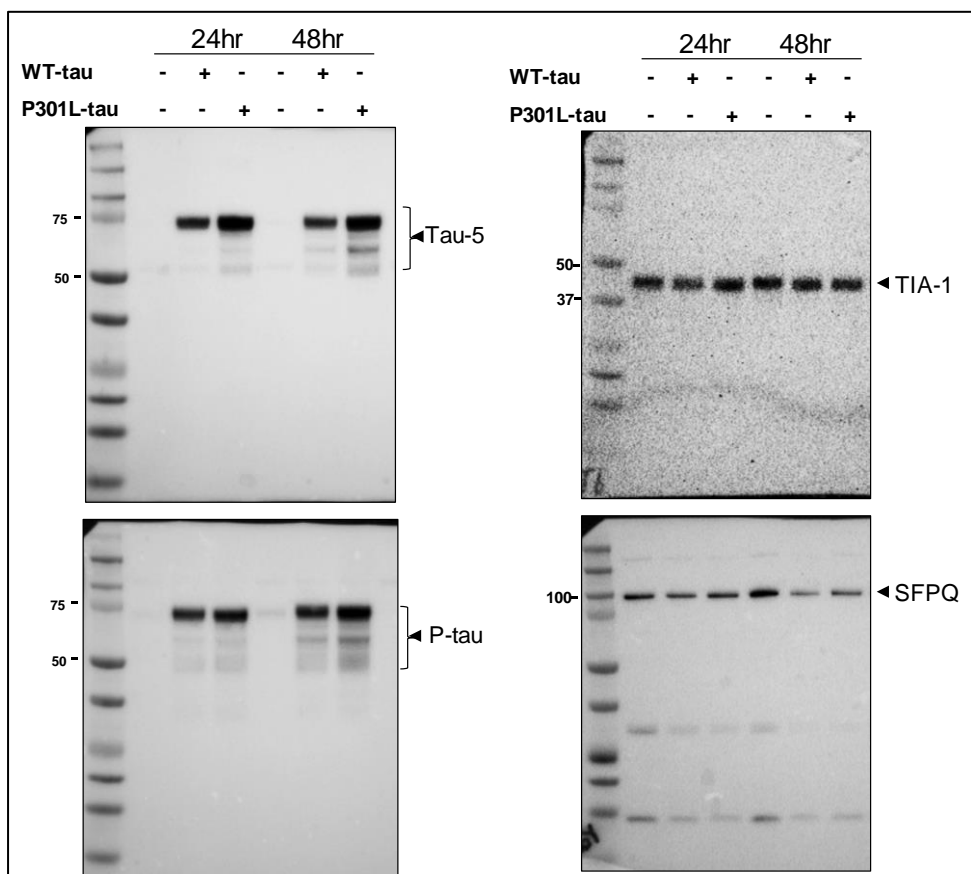


Fig. 9 uncropped blots: Representative immunoblot images for tau, p-tau, SFPQ and TIA-1 after transient transfection of WT-tau or P301L-tau (0N4R) in HeLa cells. All bands for tau and its phosphorylated form were cut and identified by Mass spectrometry to confirm the identification of Tau after Transfection.

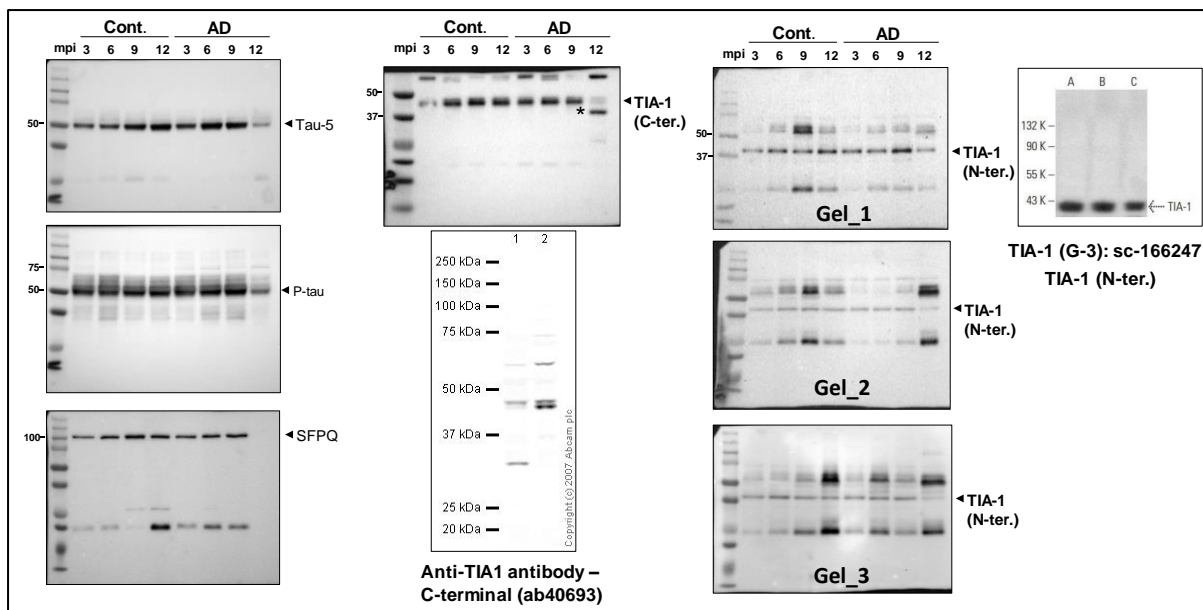
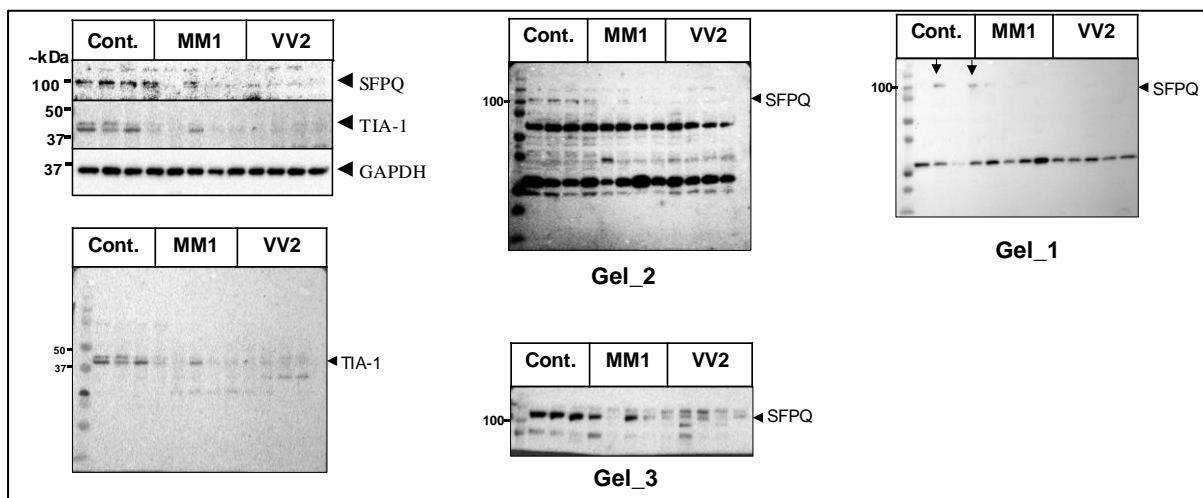


Fig. 11a uncropped blots: Representative full blots and reference blots of corresponding antibodies are displayed. For TIA-1 (N-terminal), 3 different gels have been displayed. We are unsure of these additional bands which are appearing with TIA-1 (N-terminal).



Supplementary Fig. 2a uncropped blot: Representative full blots, For TIA-1 a typical double band pattern was observed. For SFPQ, **Gel_1:** As the expression of SFPQ was very low in particularly MM1 and VV2, and bands were visible only in controls (**refer to arrows in Gel-1**). Another gel is displayed (**Gel-2**), where concentration of secondary antibody was increased to enhance detection of SFPQ, which has resulted in high background bands. A third gel (**Gel-3**) is displayed as well for reference, where upper part of the membrane was probed with SFPQ to increase specificity, showing a good expression of SFPQ.