

**Supplementary Table.** Modified proteins by carbonylation, AGE and HNE identified during aging and age related diseases.

Protein	Species	Organ / Tissue	Condition / Model	Reference #
Alpha-enolase	Human, Mice	Brain, Cerebellum	Alzheimer, Parkinson, Lewy Bodies, Huntington	2, 3, 4, 6, 9, 11, 17, 20, 34
Glyceraldehyde-3-phosphate dehydrogenase	Human, Mice, Rat	Brain, Liver, Eyes	Alzheimer, Lewy Bodies, Huntington, Aging	2, 3, 13, 14, 31, 34
Actin, cytoplasmic 1	Human, Mice, Mongolian gerbils, Rat	Brain, Bronchoalveolar fluid	Alzheimer, Huntington, Aging	2, 6, 11, 10, 17, 25, 30, 34
Triosephosphate isomerase	Human, Mice	Brain	Alzheimer	2, 13, 20, 34
Dihydropyrimidinase-related protein 2	Human, Mice	Brain, Spinal cord	Alzheimer, ALS, Aging	6, 13, 9, 10, 17, 22, 33,
ATP synthase subunit alpha, mitochondrial	Human, Mice	Brain	Alzheimer, Huntington	2, 11, 34
Glutamine synthetase	Human, Mice, Rat	Brain, Eyes	Alzheimer, Glaucoma, Aging	2, 6, 9, 14, 17, 31, 34
Fructose-bisphosphate aldolase A	Human, Mice	Brain	Alzheimer, Aging	3, 7, 10, 33, 65
Glial fibrillary acidic protein	Human, Mice	Brain	Alzheimer, Huntington	6, 9, 10, 15, 27, 34
Voltage-dependent anion-selective channel protein 1	Human	Brain	Alzheimer	2, 34
Heat shock cognate 71 kDa protein	Human, Mice	Brain	Alzheimer, Huntington	2, 4, 30
Ubiquitin carboxyl-terminal hydrolase isozyme L1	Human	Brain, Cerebellum	Alzheimer, Parkinson	2, 14, 34
Phosphatidylethanolamine-binding protein 1	Human, Mice	Brain, Liver	Alzheimer, Aging	2, 11, 34
Superoxide dismutase [Cu-Zn]	Human, Mice, Rat	Brain, Cerebellum, Liver	Alzheimer, ALS, Aging	34, 51, 29, 33
ATP synthase subunit beta, mitochondrial	Human, Rat	Brain, Skeletal Muscle	Alzheimer, Diabetes	6, 7, 31
Elongation factor Tu, mitochondrial	Human	Brain	Alzheimer	11, 10, 34
78 kDa glucose-regulated protein	Human, Mice	Brain, Liver	Alzheimer, Aging	31, 28
Dystrophin-related protein 2	Human, Mice	Brain	Alzheimer, aging	2, 4, 20, 25
Gamma-enolase	Human	Brain	Alzheimer	2, 6, 34
Glutamate dehydrogenase 1, mitochondrial	Human, Mongolian gerbils	Brain	Alzheimer	6, 7, 15
60 kDa heat shock protein, mitochondrial	Human, Rat	Brain	Alzheimer	6, 13
Carbonic anhydrase 2	Human	Brain, Cerebellum	Alzheimer	2, 27
Fructose-bisphosphate aldolase C	Human, Mice	Brain	Alzheimer, Huntington	7, 15, 27
Pyruvate kinase isozymes M1/M2	Human	Brain	Alzheimer, Huntington	9, 11
Beta-enolase	Human	Brain	Alzheimer	2
Peroxioredoxin-1	Human, Rat	Brain	Huntington, Parkinson, Aging	5, 15, 29
Aconitate hydratase, mitochondrial	Human	Brain	Alzheimer, Huntington,	7, 15, 51, 34
Peroxioredoxin-6	Human	Brain	Parkinson, Huntington,	5, 15, 34
Superoxide dismutase [Mn], mitochondrial	Human, Rat	Brain	Alzheimer, Aging	29, 34
Peptidyl-prolyl cis-trans isomerase NIMA-interacting 1	Human	Brain	Alzheimer	2, 9
Peroxioredoxin-2	Human, Mice	Brain	Alzheimer, Parkinson, Huntington	5, 15
Phosphoglycerate mutase 1	Human, Rat	Brain	Alzheimer	13, 27
Neurofilament light polypeptide	Human, Mice	Brain	Alzheimer, Aging	6, 20
Vimentin	Human	Brain	Alzheimer	6
Malate dehydrogenase, cytoplasmic	Human, Rat	Brain, broncho alveolar fluid	Alzheimer, Aging	7, 30
Cytochrome b-c1 complex subunit 1, mitochondrial	Human	Brain	Alzheimer	6
Actin, cytoplasmic 2	Human, Mongolian gerbils	Brain	Alzheimer	6, 15
Phosphoglucomutase-1	Human	Brain	Alzheimer	3
Alpha-crystallin B chain	Human	Brain	Alzheimer, Huntington	16
Phosphoglycerate kinase 1	Human	Brain	Alzheimer	11, 34
Heat shock 70 kDa protein 1A/1B	Human	Brain	Alzheimer	1, 11, 27
Stress-70 protein, mitochondrial	Human, Mice	Brain	Alzheimer	1, 12
Creatine Kinase BB	Human	Brain	Alzheimer	14, 26
Tubulin alpha-4A chain	Human	Brain	Alzheimer	6
Tubulin alpha-1C chain	Human	Brain	Alzheimer	6
Tubulin beta-2C chain	Human	Brain	Alzheimer	6
Tubulin beta chain	Human	Brain	Alzheimer	25
L-lactate dehydrogenase C chain	Human	Brain	Alzheimer	3
Guanine nucleotide-binding protein G(1)/G(S)/G(T) subunit beta-1	Human	Brain	Alzheimer	6
Eukaryotic translation initiation factor 3 subunit J	Human	Brain	Alzheimer	11
Leungin	Human, Rat	Brain	Alzheimer	13
L-lactate dehydrogenase A chain	Human	Brain	Alzheimer	3
L-lactate dehydrogenase B chain	Human	Brain	Alzheimer	2, 11
Proteasome subunit alpha type-1	Human	Brain	Alzheimer	1, 10
Protein disulfide-isomerase	Mice	Liver	Aging	18
Putative malate dehydrogenase 1B	Rat	Brain	Alzheimer	35
Cytoplasmic aconitate hydratase	Human, Mice, Rat	Brain	Alzheimer	1
9-3-3 protein zeta/delta	Human, Mice, Rat	Brain	Alzheimer	1
Protein DJ-1	Human	Brain	Parkinson	36
Hemoglobin subunit beta	Human, Mice, Rat	Brain	Alzheimer	1
9-3-3 protein gamma	Human, Mice, Rat	Brain	Alzheimer	1
Sodium/potassium-transporting ATPase subunit alpha-1	Human, Mice, Rat	Brain	Alzheimer	1
Hippocampus abundant transcript-like protein 1	Human	Brain	Alzheimer	14
NADH-ubiquinone oxidoreductase	Rat	Skeletal Muscle	Aging	41
NADH dehydrogenase (ubiquinone) Fe-S protein 7	Rat	Skeletal Muscle	Aging	41
Acetyl-CoA acetyltransferase	Rat	Skeletal Muscle	Aging	41
Carbonyl reductase [NADPH]	Human	Brain	Parkinson	11
Serine/threonine-protein kinase 8	Human, Mice, Rat	Brain	Alzheimer	1
Laminin subunit gamma-1	Mice	Brain	Alzheimer	37
Calpain-8	Mice	Brain	Alzheimer	37
Beta-synuclein	Human	Brain	Parkinson	38
Pyruvate dehydrogenase E1 component subunit alpha, mitochondrial	Rat	Brain	Alzheimer	13
V-type proton ATPase 116 kDa subunit a isoform 2	Human, Mice, Rat	Brain	Alzheimer	1
Syntaxin-binding protein 1	Rat	Brain	Alzheimer	13
Medium-chain specific acyl-CoA dehydrogenase, mitochondrial	Human	Brain	Alzheimer	1
Short-chain specific acyl-CoA dehydrogenase, mitochondrial	Human	Brain	Alzheimer	1
Transcription elongation factor SPT5	Human	Brain	Alzheimer	1
Serine/threonine-protein kinase SRPK1	Human	Brain	Alzheimer	1
Mitogen-activated protein kinase MLT	Human	Brain	Alzheimer	2
Transketolase	Human	Brain	Alzheimer	1
Long-chain-fatty-acid-CoA ligase 1	Rat	Skeletal Muscle	Aging	41
Propionyl-CoA carboxylase alpha chain	Rat	Skeletal Muscle	Aging	41
Prohibitin	Rat	Skeletal Muscle	Aging	41
Glutamate dehydrogenase	Rat	Skeletal Muscle, Liver	Aging	41, 42
Short chain 3-hydroxyacyl-CoA dehydrogenase	Rat	Skeletal Muscle	Aging	41
Proteasome subunit beta type-4	Human	Brain	Alzheimer	1
Glutathione S-transferase P	Human	Brain	Huntington	16
Vesicle-fusing ATPase	Human	Brain	Alzheimer	1
Catalase	Rat	Liver	Aging	42
Ornithine carbamoyltransferase	Rat	Liver	Aging	42
Cathepsin D	Human	Brain	Pick	39
E3 ubiquitin-protein ligase parkin	Human	Brain	Parkinson	40
Tubulin alpha-1A chain	Human	Brain	Alzheimer	6
Tubulin alpha-1B chain	Human	Brain	Alzheimer	6
Succinate dehydrogenase (ubiquinone) iron-sulfur protein	Rat	Skeletal Muscle	Aging	41
Carnitine O-acetyltransferase	Rat	Skeletal Muscle	Aging	41
Guanine nucleotide-binding protein	Human	Brain	Alzheimer	6
9-3-3 protein zeta/delta	Human	Brain	Alzheimer	11

Fibrinogen gamma chain	Human	Plasma	Alzheimer	8
Alpha-1-antitrypsin	Human	Plasma	Alzheimer	8
Gamma-soluble NSF attachment protein	Human	Brain, Cerebellum	Alzheimer	10
9-3-3 protein zeta/delta	Rat	Brain	Alzheimer	13
Tubulin beta-2B chain	Rat	Brain	Alzheimer	13
Tubulin alpha-1A chain	Rat	Brain	Alzheimer	13
Beta-synuclein	Rat	Brain	Alzheimer	13
Tubulin alpha-1B chain	Human	Brain	Huntington	16
Glutathione peroxidase 1	Human	Brain	Huntington	16
Glutathione peroxidase 6	Human	Brain	Huntington	16
Ubiquinol-cytochrome-c reductase complex core protein	Rat	Skeletal Muscle	Aging	41
Aspartate aminotransferase	Rat	Skeletal Muscle	Aging	41
Trifunctional enzyme alpha subunit	Rat	Skeletal Muscle	Aging	41
Trifunctional enzyme beta subunit	Rat	Skeletal Muscle	Aging	41
Ferritin light chain	Human	Brain	Huntington	16
Rab GDP dissociation inhibitor beta	Human	Brain	Huntington	16
Dynamin-1	Mice	Brain	Aging	17
L-lactate dehydrogenase B chain	Mice	Brain	Aging	17
Alpha-internexin	Mice	Brain	Aging	17
Profilin-2	Mice	Brain	Alzheimer	19
Coronin-1A	Mice	Brain	Alzheimer	19
L-lactate dehydrogenase B chain	Mice	Brain	Aging	20
Heat shock protein HSP 50-alpha	Mice	Brain	Aging	20
Serotransferrin	Mice	Liver	Aging	21
Serum albumin	Mice	Liver	Aging	21
Formimidoyltransferase-cyclodeaminase	Mice	Liver	Aging	21
Selenin-binding protein 1	Mice	Liver	Aging	21
Arginase-1	Mice	Liver	Aging	21
Sorbitol dehydrogenase	Mice	Liver	Aging	21
Fructose-1,6-bisphosphatase 1	Mice	Liver	Aging	21
Regucalcin	Mice	Liver	Aging	21
Electron transfer flavoprotein subunit alpha, mitochondrial	Mice	Liver	Aging	21
Glutathione S-transferase Mu 1	Mice	Liver	Aging	21
Apolipoprotein A-1	Mice	Liver	Aging	21
Heat shock 70 kDa protein 1A	Human, Mice	Brain, Spinal cord	Alzheimer, ALS	22, 34
Neurofilament medium polypeptide	Human	Brain	Alzheimer	24
Cytochrome c oxidase subunit 5A, mitochondrial	Human	Brain	Alzheimer	24
Cathepsin D	Human	Brain	Alzheimer	24
Peptidyl-prolyl cis-trans isomerase A	Human	Brain	Alzheimer	24
Septin-11	Human	Brain	Alzheimer	24
Malate dehydrogenase, mitochondrial	Human	Brain	Alzheimer	25
Mitogen-activated protein kinase 1	Human	Brain	Alzheimer	27
Syntaxin-binding protein 1	Human	Brain	Alzheimer	27
Putative heat shock protein HSP 50-beta 2	Human	Brain	Alzheimer	34
Voltage-dependent anion-selective channel protein 1	Human	Brain	Alzheimer	34
Pyruvate kinase isozymes R/L	Human	Brain	Alzheimer	34
L-lactate dehydrogenase B chain	Human	Brain	Alzheimer	34
Malate dehydrogenase, mitochondrial	Human	Brain	Alzheimer	34
Tubulin alpha-1A chain	Human	Brain	Alzheimer	34
Eukaryotic translation initiation factor 4 gamma 1	Human	Brain	Alzheimer	34
Cofilin-1	Rat	Brain	Aging	29
Peptidyl-prolyl cis-trans isomerase A	Rat	Brain	Aging	29
Adenylate kinase isoenzyme 1	Rat	Brain	Aging	29
9-3-3 protein epsilon	Rat	Bronchoalveolar fluid	Aging	30
60S ribosomal protein L13	Rat	Bronchoalveolar fluid	Aging	30
Actin, cytoplasmic 2	Rat	Bronchoalveolar fluid	Aging	30
Serum albumin	Rat	Bronchoalveolar fluid	Aging	30
Alpha-1-antitrypsinase	Rat	Bronchoalveolar fluid	Aging	30
Alpha-1-inhibitor 3	Rat	Bronchoalveolar fluid	Aging	30
Alpha-2-HS-glycoprotein	Rat	Bronchoalveolar fluid	Aging	30
Annexin A5	Rat	Bronchoalveolar fluid	Aging	30
AP-2 complex subunit mu	Rat	Bronchoalveolar fluid	Aging	30
Bifunctional protein NCOAT	Rat	Bronchoalveolar fluid	Aging	30
Ceruloplasmin	Rat	Bronchoalveolar fluid	Aging	30
Complement C3	Rat	Bronchoalveolar fluid	Aging	30
Ferritin light chain 1	Rat	Bronchoalveolar fluid	Aging	30
Fetuin-B	Rat	Bronchoalveolar fluid	Aging	30
Gelsolin	Rat	Bronchoalveolar fluid	Aging	30
Hemopexin	Rat	Bronchoalveolar fluid	Aging	30
Liver carboxylesterase 1	Rat	Bronchoalveolar fluid	Aging	30
Macrophage-capping protein	Rat	Bronchoalveolar fluid	Aging	30
Peroxiredoxin-6	Rat	Bronchoalveolar fluid	Aging	30
Polymeric immunoglobulin receptor	Rat	Bronchoalveolar fluid	Aging	30
Protein Plunc	Rat	Bronchoalveolar fluid	Aging	30
Pulmonary surfactant-associated protein A	Rat	Bronchoalveolar fluid	Aging	30
Pulmonary surfactant-associated protein D	Rat	Bronchoalveolar fluid	Aging	30
Serine protease inhibitor A3K	Rat	Bronchoalveolar fluid	Aging	30
Serine protease inhibitor A3L	Rat	Bronchoalveolar fluid	Aging	30
Serotransferrin	Rat	Bronchoalveolar fluid	Aging	30
Cationic trypsin-3	Rat	Bronchoalveolar fluid	Aging	30
Vitamin D-binding protein	Rat	Bronchoalveolar fluid	Aging	30
Desmin	Rat	Skeletal muscle	Diabetes	31
Actin, alpha skeletal muscle	Rat	Skeletal muscle	Diabetes	31
Myosin light chain 1/2, skeletal muscle isoform	Rat	Skeletal muscle	Diabetes	31
Heat shock-related 70 kDa protein 2	Rat	Glaucoma	Eyes	32

## Supplementary References

1. Martínez, A., Portero-Otín, M., Pamplona, R., & Ferrer, I. (2006). Protein targets of oxidative damage in human neurodegenerative diseases with abnormal protein aggregates. *Brain pathology* 20(2), 281-57.
2. Sultana, R., Perluigi, M., Butterfield, AL. (2006). Protein Oxidation and Lipid Peroxidation in Brain of Subjects with Alzheimer's Disease: Insights into Mechanism of Neurodegeneration from redox Proteomics. *Antioxidants & Redox Signaling* 8(12), 1933-1944.
3. Gómez, A., & Ferrer, I. (2005). Increased oxidation of certain glycolysis and energy metabolism enzymes in the frontal cortex in Lewy body diseases. *Journal of neuroscience research*, 87(4), 602-13.
4. Castegna, A., Aksenov, M., Thongboonkerd, V., Klein, J. B., Pierce, W. M., Booze, R., Markesbery, W. R., et al. (2002). Proteomic identification of oxidatively modified proteins in Alzheimer's disease. Brain. Part II dihydropyrimidinase-related protein 2, alpha-enolase and heat shock cognate. *Journal of Neurochemistry* 71, 1517-1527.
5. Lee, Y. M., Park, S. H., Shin, D.I., Hwang, J.-Y., Park, B., Park, Y.-J., Lee, T. H., et al. (2008). Oxidative modification of peroxiredoxin is associated with drug-induced apoptotic signaling in experimental models of Parkinson disease. *Journal of Neurochemistry* 105, 103-113.
6. Pamplona, R., Dalfó, E., Ayala, V., Bellmunt, M. J., PRat, J., Ferrer, I., & Portero-Otín, M. (2005). Proteins in Human Brain cortex are modified by oxidation, glycooxidation, and lipoxidation. Effects of Alzheimer disease and identification of lipoxidation targets. *The Journal of biological chemistry*, 280(15), 14515-30.
7. Korolainen, M. a, Goldsteins, G., Nyman, T. a, Alafuzoff, I., Koistinaho, J., & Pirttilä, T. (2006). Oxidative modification of proteins in the frontal cortex of Alzheimer's disease Brain. *Neurobiology of aging*, 27(1), 42-53.
8. Choi, J., Malakowsky, C. A., Talent, J. M., Conrad, C. C., & Gracy, R. W. (2002). Identification of oxidized plasma proteins in Alzheimer's disease. *Biochemical & Biophysical Research Communications*. 293, 1566-1570.
9. Butterfield, D. A., Poon, H. F., St Clair, D., Keller, J. N., Pierce, W. M., Klein, J. B., & Markesbery, W. R. (2006). Redox proteomics identification of oxidatively modified hippocampal proteins in mild cognitive impairment: insights into the development of Alzheimer's disease. *Neurobiology of disease*, 15(2), 153-32.
10. Sultana, R., Boyd-Kimball, D., Poon, H. F., Cai, J., Pierce, W. M., Klein, J. B., Merchant, M., et al. (2006). Redox proteomics identification of oxidized proteins in Alzheimer's disease hippocampus and Cerebellum: an approach to understand pathological and biochemical alterations in AD. *Neurobiology of aging*, 27(11), 1564-76.
11. Reed, T., Perluigi, M., Sultana, R., Pierce, W. M., Klein, J. B., Turner, D. M., Coccia, R., et al. (2008). Redox proteomic identification of 4-hydroxy-2-nonenal-modified Brain proteins in amnesic mild cognitive impairment: insight into the role of lipid peroxidation in the progression and pathogenesis of Alzheimer's disease. *Neurobiology of aging*, 29(12), 1913-1923.
12. Choi, J., Forster, M. J., McDonald, S. R., Weintraub, S. T., Carroll, C. a, & Gracy, R. W. (2004). Proteomic identification of specific oxidized proteins in ApoE-knockout mice: relevance to Alzheimer's disease. *Free radical biology & medicine*, 47(1), 10-20.
13. Boyd-Kimball, D., Sultana, R., Poon, H. F., Lynn, B. C., Casamenti, F., Pepeu, G., Klein, J. B., et al. (2006). Proteomic identification of proteins specifically oxidized by intracerebral injection of amyloid beta-peptide (1-42) into Rat Brain: implications for Alzheimer's disease. *Neuroscience*, 132(2), 313-17.
14. Castegna, A., Aksenov, M., Thongboonkerd, V., Klein, J. B., Pierce, W. M., Booze, R., Markesbery, W. R., et al. (2002). Proteomic identification of oxidatively modified proteins in Alzheimer's disease Brain. Part II: creatine kinase BB, glutamine synthase and ubiquitin carboxy terminal hydrolase. *Free radical biology & medicine*, 33(4), 562-571.
15. Argüelles, S., Cano, M., Machado, A., & Ayala, A. (2011). Effect of aging and oxidative stress on elongation factor-2 in hypothalamus and hypophysis. *Mechanisms of ageing and development*, 132(1-2), 554.

16. Sorolla, M. A., Reverter-Branchat, G., Tamarit, J., Ferrer, I., Ros, J., & Cabisco, E. (2008). Proteomic and oxidative stress analysis in Human Brain samples of Huntington disease. *Free radical biology & medicine*, 45(5), 667-78.
17. Poon, H. F., Vaishnav, R. a, Getchell, T. V., Getchell, M. L., & Butterfield, D. A. (2006). Quantitative proteomics analysis of differential protein expression and oxidative modification of specific proteins in the Brains of old Mice.
18. Rabek, J. P., Boylston III, W. H., & Papaconstantinou, J. (2003). Carbonylation of ER chaperone proteins in aged mouse liver. *Biochemical and Biophysical Research Communications*, 305(3), 566-572.
19. Poon, H. F., Farr, S. a, Banks, W. a, Pierce, W. M., Klein, J. B., Morley, J. E., & Butterfield, D. A. (2005). Proteomic identification of less oxidized Brain proteins in aged senescence-accelerated mice following administration of antisense oligonucleotide directed at the Abeta region of amyloid precursor protein. *Molecular Brain research*,
20. Poon, H. F., Castegna, a, Farr, S. a, Thongboonkerd, V., Lynn, B. C., Banks, W. a, Morley, J. E., et al. (2004). Quantitative proteomics analysis of specific protein expression and oxidative modification in aged senescence-
21. Chaudhuri, A. R., de Waal, E. M., Pierce, A., Van Remmen, H., Ward, W. F., & Richardson, A. (2006). Detection of protein carbonyls in aging liver tissue: A fluorescence-based proteomic approach. *Mechanisms of ageing and*
22. Perluigi, M., Fai Poon, H., Hensley, K., Pierce, W. M., Klein, J. B., Calabrese, V., De Marco, C., et al. (2005). Proteomic analysis of 4-hydroxy-2-nonenal-modified proteins in G93A-SOD1 transgenic mice model of familial amyotrophic lateral sclerosis. *Free radical biology & medicine*, 38(7), 960-8.
23. Sorolla, M. A., Rodríguez-Colman, M. J., Tamarit, J., Ortega, Z., Lucas, J. J., Ferrer, I., Ros, J., et al. (2010). Protein oxidation in Huntington disease affects energy production and vitamin B6 metabolism. *Free radical biology &*
24. Aluise, C. D., Robinson, R. a S., Beckett, T. L., Murphy, M. P., Cai, J., Pierce, W. M., Markesbery, W. R., et al. (2010). Preclinical Alzheimer disease: Brain oxidative stress, Abeta peptide and proteomics. *Neurobiology of disease*,
25. Reed, T. T., Pierce, W. M., Markesbery, W. R., & Butterfield, D. A. (2009). Proteomic identification of HNE-bound proteins in early Alzheimer disease: Insights into the role of lipid peroxidation in th progression of AD. *Brain research*,
26. Aksenov, M. Y., Aksenova, M. V., Butterfield, D. a., Geddes, J. W., & Markesbery, W. R. (2001). Protein oxidation in the Brain in Alzheimer's disease. *Neuroscience*, 103(2), 373-383.
27. Alzheimer, E., Perluigi, M., Newman, S. F., & Pierce, W. M. (2010). Redox Proteomic Analysis of Carbonylated Brain Proteins in Mild Cognitive Impairment. *Antioxidant & Redox Signaling*, 12(3), 327-336.
28. Nabeshi, H., Oikawa, S., Inoue, S., Nishino, K., & Kawanishi, S. (2006). Proteomic analysis for protein carbonyl as an indicator of oxidative damage in senescence-accelerated Mice. *Free radical research*, 40(11), 1173-81.
29. Wang, Q., Zhao, X., He, S., Liu, Y., An, M., & Ji, J. (2010). Differential proteomics analysis of specific carbonylated proteins in the temporal cortex of aged Rats: the deterioration of antioxidant system. *Neurochemical*
30. Umstead, T. M., Freeman, W. M., Chinchilli, V. M., & Phelps, D. S. (2009). Age-related changes in the expression and oxidation of Bronchoalveolar lavage proteins in the Rat. *American journal of physiology*, 296(1), L14-29.
31. Oh-Ishi M, Ueno T & Maeda T. (2003). Proteomic method detects oxidatively induced protein carbonyls in muscles of a diabetes model otsuka long-evans tokushima fatty rat. *Free Radical Biology & Medicine*, 34(1), 11-22.
32. Tezel, G., Yang, X., & Cai, J. (2005). Proteomic identification of oxidatively modified retinal proteins in a chronic pressure-induced rat model of glaucoma. *Investigative ophthalmology & visual science*, 46(9), 3177-87.
33. Ferrante, R. J., Browne, S. E., Shinobu, L. a, Bowling, a C., Baik, M. J., MacGarvey, U., Kowall, N. W., et al. (1997). Evidence of increased oxidative damage in both sporadic and familial amyotrophic lateral sclerosis. *Journal of*

34. Reed, T. T. (2011). Lipid peroxidation and neurodegenerative disease. *Free radical biology & medicine*, 51(7), 1302
35. Sultana R, Newman SF, Abdul HM, Cai J, Pierce WM, Klein JB et al (2006) Protective effect of D609 against amyloid-beta1-42-induced oxidative modification of neuronal proteins: redox proteomics study. *Journal of*
36. Choi J, Sullards MC, Olzmann JA, Rees HD, Weintraub ST, Bostwick DE et al (2006). Oxidative damage of DJ-1 is linked to sporadic Parkinson and Alzheimer diseases. *Journal of Biological Chemistry* 281:10816–10824.
37. Shin SJ, Lee SE, Boo JH, Kim M, Yoon YD, Kim SI, Mook-Jung I (2004). Profiling proteins related to amyloid deposited Brain of Tg2576 Mice. *Proteomics* 4:3359–3368.
38. Dalfó E, Ferrer I (2008). Early  $\alpha$ -synuclein lipoxidation in neocortex in Lewy body diseases. *Neurobiology of*
39. Ilieva EV, Naudí A, Kichev A, Ferrer I, Pamplona R, Portero-Otín M (2010). Loss of the Stress Transducers Nrf2 and Grp78/BiP in Pick's Disease. *Free Radical Biology & medicine* 15:48(10):1302-10.
40. Chinta SJ, Andersen JK (2008). Redox imbalance in Parkinson's disease. *Biochemical et Biophysical Acta*
41. Meany DL, Xie H, Thompson LV, Arriaga EA, Griffin TJ (2007). Identification of carbonylated proteins from enriched rat skeletal muscle mitochondria using affinity chromatography-stable isotope labeling and tandem mass
42. Hamelin M, Mary J, Vostry M, Friguet B, Bakala H. (2007). Glycation damage targets glutamate dehydrogenase in the rat liver mitochondrial matrix during aging. *FEBS J.* 274(22): 5949-61.