

Dr. ANNA MARIA CHIARINI

Education

- High School Certificate obtained at the Liceo Classico "Bellini Pastore" in Castiglione delle Stiviere (MN) (Italy), in July 1983.
- Degree in Biological Science obtained at the University of Milano in July 1988. Title of Thesis: "Studio dell'interazione tra acetilcolinesterasi e i gangliosidi".
- Certificate in Clinical Chemistry and Biochemistry obtained at the University of Milano in November 1992.
- Research Doctor (PhD) in Chronic & Degenerative Diseases, University of Verona, (May 2007)

Professional Experience

- Full-time Attendance (February 1987-July 1988) at the Department of Medical Chemistry and Biochemistry, directed by Prof. G. Tettamanti, University of Milan.
 - Researcher Activity with fellowship (September 1988-July 1993) at the Department of Medical Chemistry and Biochemistry, directed by Prof. G. Tettamanti, University of Milan.
 - Research Scientist (September 1993-August 1995) at the Roche Immunodiagnostic Research Laboratory, Roche S.p.A in Milan.
 - Research Scientist (September 1995-August 1996) at the Laboratory of Immunodiagnostic-R&D Hoffmann-La Roche in Basilea (Switzerland).
 - Researcher Activity with fellowship (February 1997-July 2002) at the Histology and Embriology Unit (directed by Prof. U. Armato), University of Verona.
 - Assistant Professor (October 2002-Present) (SSD: BIO/17 Histology) after winning a national contest (July 2002), at the Histology and Embriology Unit, University of Verona.
- Histology Teaching for Degree Courses in: Biomedical Laboratory Techniques, Nursing, in Medicine and Surgery, in Bioinformatic and Medical Biotechnology, University of Verona.

Scientific Research Activity

Since 1997 she has been responsible of the Biochemistry and Molecular Biology Laboratory, and since August 2004, she has been co-responsible of the Proteomic Laboratory of the Histology and Embriology Unit (directed by Prof. U. Armato), University of Verona.

During her activity she has developed and/or applied methods of culturing successfully in vitro human and mammalian cells: es. astrocytes, neurons, keratinocytes, fibroblasts, and different tumor cells.

Her main basic research topics have been:

- Study on the damage induced by beta-amyloid peptides in human neurons.
- Study on the role of beta-amyloid peptides in human astrocytes and their interactions with the Calcium sensing receptor.
- Biochemical and proteomic analysis of the induction mechanisms of the nitric oxide synthase-2 (NOS-2) by pro-inflammatory cytokines in human adult astrocytes.
- Biochemical study on the mechanisms of the nuclear lamina breakdown during cell apoptosis.
- Biochemical and proteomic study on the roles of the PKC isoenzymes during cell proliferation and apoptosis.
- Biochemical and proteomic study of PKC ζ signaling in human cervical carcinoma C4I cells
- Proteomic study of Adaptive Remodelling of Pulmonary Autograft Roots at a Late Stage After the Ross Procedure.
- Proteomic study of the human nonsyndromic thoracic aortic aneurysms
- Biochemical study on the role of the ratio Ap3A/Ap4A onto the differentiation and apoptosis of human cells.

Her main applied research topics has been:

- Production, banking and application of homo- and xenotransplants in the therapy of burns.
- Study on new models of artificial derma and skin.
- Investigation on innovative protein scaffolds for tissue engineering.

- Application of matrix-assisted laser desorption ionization-TOF (MALDI-TOF) mass spectrometry in the forensic medicine

She has participated as co-investigator in the following funded research projects:

§ *PRIN 1999*, the Italian Ministry for University & Scientific and Technological Research (about the validation of simple or composite silk fibroin scaffolds for human tissue engineering)

§ *PRIN 2005*, the Italian Ministry for University & Scientific and Technological Research (about the proteomic of the human nonsyndromic thoracic aortic aneurysms)

§ *PRIN 2007*, the Italian Ministry for University & Scientific and Technological Research (about the application of matrix-assisted laser desorption ionization-TOF (MALDI-TOF) mass spectrometry in the forensic medicine)

§ *Cariverona Foundation 2007-2008* - Cardiovascular Disease Projects (about the proteomics of the effects of continuous or pulsatile perfusion on human adult skeletal muscle and proteomics of vascular Assist Devices on myocardiocytes)

§ *FSE (Social European Fund 2010)*

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§ *Joint Project 2014: University of Verona-AB Analitica s.r.l. Advances in Biomedicine.*

Referee:

She is member of the Editorial Board of the following journals: *Molecular Medicine Reports, International Scholarly Research Notices.*

She has been Referee for the scientific journals: *Biomaterials, Biochemistry and Cell Biology, Brain Research, Gerontology, Heliyon, Jove, International Journal of Molecular Medicine, International Journal of Oncology, Molecular Medicine Reports, Neurological Research, Neuroscience, Oncology Letters, Proteomics.*

Professional Society Memberships:

Member of the Professional Order of Biologists.

Member of HUPO (Human Protein Organization).

Member of Italian Histology Society

Publications:

52 full papers in International Scientific Journals.

10 articles or chapters in Books and Proceedings of National and International Congress.

85 Communications at National and International Congress

1 Patent

Citations - 875 (September 2017) H-index= 18 (*Scopus and Web of Science*)

Citations - 1227 (September 2017) H-index= 20 (*Google scholar*)

Scientific publications

Full papers

1. Effect of phospholipase C from *Bacillus cereus* on the release of membrane bound sialidase from pig brain. A. Chiarini, A. Fiorilli, C. Siniscalco, G. Tettamanti and B. Venerando. *Journal of Neurochemistry* 55, 1576-1584, (1990). IF₍₂₀₁₆₎ 4.083
2. Occurrence of sialidase activity in two distinct and highly homogeneous populations of lysosomes prepared from the brain of developing mouse. A. Fiorilli, C. Siniscalco, A. Chiarini, L. Di Francesco, B. Venerando and G. Tettamanti. *FEBS Letters* 282, 235-238, (1991). IF₍₂₀₁₆₎ 3.623
3. Human erythrocyte sialidase is linked to the plasma membrane by a glycosylphosphatidylinositol anchor and partly located on the outer surface. A. Chiarini, A. Fiorilli, L. Di Francesco, B. Venerando and G. Tettamanti. *Glyconjugate Journal*, 10, 64-71, (1993). IF₍₂₀₁₆₎ 2.186

4. Cytosolic sialidase from pig brain: a protein complex containing catalytic and protective units. B. Venerando, A. Fiorilli, L. Di Francesco, [A. Chiarini](#), E. Monti, D. Zizioli, G. Tettamanti *Biochimica et Biophysica Acta* 1208, 229-237, (1994). IF₍₂₀₁₆₎ 7.281
5. Changes in nuclear protein kinase C-delta holoenzyme, its catalytic fragments, and activity in polyomavirus transformed pyF111 rat fibroblasts while proliferating and following exposure to apoptogenic topoisomerase-II inhibitors. I. Dal Pra, J.F. Whitfield, [A. Chiarini](#) and U. Armato *Experimental Cell Research* 249,147-160 (1999). IF₍₂₀₁₆₎ 3.546
6. "What are the roles of the protein kinase Cs, particularly protein kinase C-delta in apoptosis?" U. Armato, J.F. Whitfield, [A. Chiarini](#), and I. Dal Pra *Current Topics in Biochemical Research* 1, 1-18 (1999).
7. Increased activity of the protein kinase C-delta holoenzyme in the cytoplasmic particulate fraction precedes the activation of caspases in polyomavirus-transformed pyF111 rat fibroblasts exposed to calphostin C or topoisomerase-II inhibitors. I. Dal Pra, J.F. Whitfield, [A. Chiarini](#), and U. Armato *Experimental Cell Research* 255,171-183 (2000). IF₍₂₀₁₆₎ 3.546
8. Protein kinase C-βII is an apoptotic lamin kinase in polyomavirus-transformed, etoposide-treated pyF111 rat fibroblasts. [A. Chiarini](#), J.F. Whitfield, U. Armato, I. Dal Pra *J. BIOL. CHEM.* 277: 18827-18839 (10.1074/jbc.M111921200) (2002). IF₍₂₀₁₆₎ 4.125
9. Silk fibroin/poly(carbonate)-urethane as a substrate for cell growth: *in vitro* interactions with human cells. [A. Chiarini](#), P. Petrini, S. Bozzini, I. Dal Pra, U. Armato *BIOMATERIALS*, 24: 789-799 (2003). IF₍₂₀₁₆₎ 8.402
10. Silk-fibroin-coated 3D polyurethane scaffolds for tissue engineering:interactions with normal human fibroblasts. I. Dal Pra, P. Petrini, [A. Chiarini](#), S. Bozzini, S. Farè, U. Armato *TISSUE ENG*, 9: 1113-1121 (2003). IF₍₂₀₁₆₎ 3.485
11. De novo engineering of reticular connective tissue by silk fibroin nonwoven materials. I. Dal Pra, G. Freddi, J. Minic, [A. Chiarini](#), U. Armato *BIOMATERIALS*, 26: 1987-1999 (2005). IF₍₂₀₁₆₎ 8.402
12. The BH4 (Tetrahydrobiopterin)-dependent activation, but not the expression, of inducible NOS (Nitric oxide synthase)-2 in proinflammatory Cytokine-stimulated, cultured normal astrocytes is mediated by MEK-ERK kinases. [A. Chiarini](#) I. Dal Pra, R. Gottardo, F. Bortolotti, J.F. Whitfield, U. Armato *J.Cell.Biochem.*, 94: 731-743 (2005). IF₍₂₀₁₆₎ 3.085
13. Roles of Ca²⁺ and the Ca²⁺-Sensing Receptor (CaSR) in the Expression of Inducible NOS (Nitric Oxide Synthase)-2 and Its BH4 (Tetrahydrobiopterin)-Dependent Activation in Cytokine-Stimulated Adult Human Astrocytes I. DalPra, [A. Chiarini](#), E. Nemeth, U. Armato, J.F. Whitfield. *J.Cell.Biochem.*, 96: 428-438 (2005). IF₍₂₀₁₆₎ 3.085
14. Soluble amyloid β-peptide and myelin basic protein strongly stimulate, alone and in synergism with combined proinflammatory cytokines, the expression of functional nitric oxide synthase-2 in normal adult human astrocytes. [A. Chiarini](#), I. Dal Pra, L. Menapace, R. Pacchiana, J.F. Whitfield, U. Armato *Int.J.Mol.Med.*,16: 801-807 (2005). IF₍₂₀₁₆₎ 2.341
15. VP-16 (etoposide) and calphostin C trigger different nuclear but akin cytoplasmic patterns of changes in the distribution and activity of protein kinase C-beta I in polyomavirus-transformed pyF111 rat fibroblasts. [A. Chiarini](#), J.F. Whitfield, U. Armato, I. Dal Pra *Int J Mol Med.*, 17: 111-20 (2006). IF₍₂₀₁₆₎ 2.341
16. Comano's (Trentino) thermal water interferes with the expression and secretion of vascular endothelial growth factor-A protein isoforms by cultured human psoriatic keratinocytes: a potential mechanism of its anti-psoriatic action. [A. Chiarini](#), I. Dal Pra, R. Pacchiana, L. Menapace, G. Zumiani., M. Zanoni., U. Armato. *Int J Mol Med.*, 18: 17-25 (2006). IF₍₂₀₁₆₎ 2.341
17. Novel dermo-epidermal equivalents on silk fibroin-based formic acid-crosslinked three-dimensional nonwoven devices with prospective applications in human tissue engineering/regeneration/repair. I. Dal Pra, [A. Chiarini](#), A. Boschi, G. Freddi, U. Armato *Int J Mol Med.*, 18: 241-247 (2006). IF₍₂₀₁₆₎ 2.341
18. Comano's (Trentino) thermal water interferes with interleukin-6 production and secretion and with cytokeratin-16 expression by cultured human psoriatic keratinocytes: further potential

- mechanisms of its anti-psoriatic action. A. Chiarini, I. Dal Pra, R. Pacchiana, G. Zumiani., M. Zanoni., U. Armato. *Int J Mol Med.*, 18: 1073-1079 (2006). IF₍₂₀₁₆₎ 2.341
19. *In vitro* and *in vivo* characteristics of frozen/thawed neonatal split-skin strips: A novel biologically active dressing for areas of severe, acute or chronic skin loss. A. Chiarini, I. Dal Pra, U. Armato *Int J Mol Med.*, 19: 245-255 (2007). IF₍₂₀₁₆₎ 2.341
 20. Comano's (Trentino) thermal water interferes with tumour necrosis factor- α expression and interleukin-8 production and secretion by cultured human psoriatic keratinocytes: yet other mechanism of its anti-psoriatic action. I. Dal Pra, A. Chiarini, R. Pacchiana, G. Zumiani, M. Zanoni, U. Armato. *Int J Mol Med.*, 19: 373-379 (2007). IF₍₂₀₁₆₎ 2.341
 21. Emerging concepts of how β -amyloid proteins and pro-inflammatory cytokines might collaborate to produce an 'Alzheimer brain'. I. Dal Pra, A. Chiarini, R. Pacchiana, B. Chakravarthy, J.F. Whitfield, U. Armato. *Mol.Med.Rep.* 1: 173-178 (2008). IF₍₂₀₁₆₎ 1.692
 22. Photoexcited Calphostin C selectively destroys nuclear lamin B1 in neoplastic human and rat cells – A novel mechanism of action of a photodynamic tumor therapy agent. A. Chiarini, J.F. Whitfield, R. Pacchiana, U. Armato, I. Dal Pra. *Biochimica et Biophysica Acta –Molecular Cell Research* 1783(9):1642-53 (2008). IF₍₂₀₁₆₎ 4.521
 23. Proteomic analysis of GTP cyclohydrolase 1 multi-protein complexes in cultured normal adult human astrocytes under both basal and cytokine-activated conditions. A. Chiarini, U. Armato, R. Pacchiana, I. Dal Pra. *Proteomics* 9(7):1850-1860 (2009). IF₍₂₀₁₆₎ 4.041
 24. Calcium-sensing receptor (CaSR) in human brain's pathophysiology: roles in Late Onset Alzheimer's Disease (LOAD). A. Chiarini, I. Dal Pra, M. Marconi, B. Chakravarthy, J.F. Whitfield, U. Armato. *Curr. Pharmacol. Biotechnol.* 10(3): 317-326 (2009). IF₍₂₀₁₆₎ 3.098
 25. Calphostin C, a remarkable multimodal photodynamic killer of neoplastic cells by selective nuclear lamin B1 destruction and apoptogenesis (Review). A. Chiarini, J.F. Whitfield, R. Pacchiana, M. Marconi, U. Armato, I. Dal Prà. *Oncol Rep.* 23(4):887-92. (2010). IF₍₂₀₁₆₎ 2.662
 26. Amyloid β 25–35, an amyloid β 1-42 surrogate, and proinflammatory cytokines stimulate VEGF-A secretion by cultured, early passage, normoxic adult human cerebral astrocytes. A. Chiarini, J.F. Whitfield, C. Bonafini, B. Chakravarthy, U. Armato I. Dal Pra., *J. Alzheimers Dis.* 21(3): 915-926. (2010). IF₍₂₀₁₆₎ 3.731
 27. The p75 neurotrophin receptor is localized to primary cilia in adult murine hippocampal dentate gyrus granule cells. B. Chakravarthy, C. Gaudet, M. Ménard, T. Atkinson, A. Chiarini, I. Dal Prà, J.F. Whitfield. *Biochem Biophys Res Commun.* 401(3):458-62 (2010). IF₍₂₀₁₆₎ 2.466
 28. The Amyloid- β 42 Proxy, Amyloid- β 25–35, Induces Normal Human Cerebral Astrocytes to Produce Amyloid- β 42. I. Dal Pra, J.F. Whitfield, R. Pacchiana, C. Bonafini, A. Talacchi, B. Chakravarthy, U. Armato, A. Chiarini. *J. Alzheimers Dis.* 24 (2):335-347 (2011). IF₍₂₀₁₆₎ 3.731
 29. Is Alzheimer's Disease at Least Partly a Ciliopathy? U. Armato, B. Chakravarthy, A. Chiarini, I. Dal Prà, J.F. Whitfield *Journal. of Alzheimer's disease & Parkinsonism* 1(1): 1-3 (2011).
 30. Will silk fibroin nanofiber scaffolds ever hold a useful place in Translational Regenerative Medicine? U. Armato, I. Dal Prà, A. Chiarini, G. Freddi *International Journal. of Burns and trauma*, 1 (1):27-33 (2011).
 31. Paradigm-Changing Surprise from Dentate Gyrus Granule Cells—Cilium-Localized p75NTR May Drive Their Progenitor Cell Proliferation. U. Armato, B. Chakravarthy, A. Chiarini, I. Dal Prà, J.F. Whitfield *Journal. of Alzheimer's disease & Parkinsonism* 1(2): (2011).
 32. Leptin, Sonic Hedgehogs, and Neurogenesis—A Primary Cilium's Tale. U. Armato, B. Chakravarthy, A. Chiarini, F. Chioffi, I. Dal Prà, J.F. Whitfield. *Journal. of Alzheimer's disease & Parkinsonism* 2(1): (2012).
 33. Direct screening of herbal blends for new synthetic cannabinoids by MALDI-TOF MS. R. Gottardo, A. Chiarini, I. Dal Prà, C. Seri, C. Rimondo, G. Serpelloni, U. Armato, F. Tagliaro. *J Mass Spectrom.*, 47(1):141-6 (2012) IF₍₂₀₁₆₎ 2.422.
 34. Role-Shifting PKC ζ Fosters Its Own Proapoptotic Destruction by Complexing with Bcl10 at the Nuclear Envelope of Human Cervical Carcinoma Cells: A Proteomic and Biochemical Study. A.

- Chiarini, M. Marconi, R. Pacchiana, I. Dal Pra, J. Wu, U. Armato *J. Prot. Res.* 11 (8): 3996-4012 (2012). IF₍₂₀₁₆₎ 4.268
35. The calcium-sensing receptor: a novel Alzheimer's disease crucial target? U. Armato, C. Bonafini, B. Chakravarthy, R. Pacchiana, A. Chiarini, J. F. Whitfield, I. Dal Prà *J. Neurol.Sci* 322: 137-140 (2012). IF₍₂₀₁₆₎ 2.295.
 36. Calcium-sensing receptor antagonist (calcilytic) NPS 2143 specifically blocks the increased secretion of endogenous A β 42 prompted by exogenous fibrillary or soluble A β 25-35 in human cortical astrocytes and neurons-Therapeutic relevance to Alzheimer's disease. U. Armato, A. Chiarini, B. Chakravarthy F. Chioffi, R. Pacchiana, E. Colarusso, J.F. Whitfield, I. Dal Prà *Biochimica et Biophysica Acta- Molecular basis of disease* 1832: 1634-1652 (2013). IF₍₂₀₁₆₎ 5.476.
 37. The A β peptides-activated calcium-sensing receptor stimulates the production and secretion of vascular endothelial growth factor-A by normoxic adult human cortical astrocytes. I. Dal Prà, Armato, F. Chioffi, R. Pacchiana, L. Gui, A. Chiarini *Neuromolecular Med.*, 16(4): 645-657. (2014). IF₍₂₀₁₆₎ 3.287
 38. Combining immunofluorescence with in situ proximity ligation assay: a novel imaging approach to monitor protein-protein interactions in relation to subcellular localization. R. Pacchiana, M. Abbate, U. Armato, I. Dal Prà, A. Chiarini *Histochem Cell Biol* 142: 593-600 (2014). IF₍₂₀₁₆₎ 2.553
 39. Calcium-Sensing Receptors of Human Astrocyte-Neuron Teams: Amyloid- β -Driven Mediators and Therapeutic Targets of Alzheimer's Disease. I. Dal Prà, A. Chiarini, R. Pacchiana, E. Gardenal, B. Chakravarthy, J. F. Whitfield, U. Armato *Current Neuropharmacology*, 12, 353-364 (2014). IF₍₂₀₁₆₎ 3.365
 40. Calcium-Sensing Receptors of Human Astrocyte-Neuron Teams: Amyloid-Driven Mediators and Therapeutic Targets of Alzheimer's Disease. I. Dal Prà, A. Chiarini, R. Pacchiana, E. Gardenal, B. Chakravarthy, J.F. Whitfield, U. Armato. *World Biomedical Frontiers*, 1(8):1-4 (2014).
 41. Do Astrocytes Collaborate with Neurons in Spreading the "Infectious" A β and Tau Drivers of Alzheimer's Disease? I. Dal Prà, A. Chiarini, L. Gui, B. Chakravarthy, R. Pacchiana, E. Gardenal, J.F. Whitfield, U. Armato *Neuroscientist* 21: 9-29 (2015). IF₍₂₀₁₆₎ 7.391
 42. Antagonizing amyloid-beta/calcium-sensing receptor signaling in human astrocytes and neurons: a key to halt Alzheimer's disease progression? I. Dal Prà, A. Chiarini, U. Armato *Neural Regen Res.*, 10(2):213-218 (2015). IF₍₂₀₁₆₎ 1.769
 43. Preventing the spread of Alzheimer's disease neuropathology: A role for calcilytics? A. Chiarini, E. Gardenal, J.F. Whitfield, B. Chakravarthy, U. Armato, I. Dal Pra. *Curr Pharm Biotechnol.* 16(8):696-706 (2015). IF₍₂₀₁₆₎ 3.098
 44. Bcl10 crucially nucleates proapoptotic complexes including PDK1, PKC ζ , and caspase-3 at the nuclear envelope of etoposide-treated human cervical carcinoma C4-I cells. A. Chiarini, D. Liu, U. Armato, I. Dal Prà. *Int J Mol Med.* 36(6):845-856 (2015). IF₍₂₀₁₆₎ 2.341
 45. The possible roles of the dentate granule cell's leptin and other ciliary receptors in Alzheimer's Neuropathology. J.F. Whitfield, A. Chiarini, I. Dal Prà, U. Armato, B. Chakravarthy. *Cells.* 4(3):253-274 (2015).
 46. Evidence for caspase-dependent programmed cell death along with repair processes in affected skeletal muscle in patients with mitochondrial disorders. V. Guglielmi, G. Vattemi, R. Chignola, A. Chiarini, M. Marini, I. Dal Pra, M. Di Chio, C. Chiamulera, U. Armato, G. Tomelleri. *Clinical Science* 130(3):167-181 (2016). IF₍₂₀₁₆₎ 4.936
 47. Calcium-sensing receptors of human neural cells play crucial roles in Alzheimer's disease. A. Chiarini, U. Armato, L. Daisong, I. Dal Prà *Frontiers in Physiology, section Integrative Physiology* 7:134. doi: 10.3389/fphys.2016.00134 (2016). IF₍₂₀₁₆₎ 4.134
 48. Biocompatible Silk Noil-Based Three-Dimensional Carded-Needled Nonwoven Scaffolds Guide the Engineering of Novel Skin Connective Tissue. A. Chiarini, G. Freddi, L. Daisong, U. Armato I. Dal Prà *Tissue Eng Part A.* 22(15-16):1047-60 (2016). IF₍₂₀₁₆₎ 3.485
 49. Increased Calcium-Sensing Receptor Immunoreactivity in the Hippocampus of a Triple Transgenic Mouse Model of Alzheimer's Disease. E. Gardenal, A. Chiarini, U. Armato, I. Dal Prà,

- A. Verkhatsky and J. J. Rodríguez Arellano *Frontiers in Neuroscience* (2017) doi: 10.3389/fnins.2017.00081. IF₍₂₀₁₆₎ 3.566
50. Amyloid β -exposed human astrocytes overproduce phospho-Tau and overrelease it within exosomes, effects suppressed by calcilytic NPS 2143--Further implications for Alzheimer's therapy. A. Chiarini, U. Armato, E. Gardenal, L. Gui and I. Dal Prà *Frontiers in Neuroscience* (2017) doi: 10.3389/fnins.2017.0027. IF₍₂₀₁₆₎ 3.566
51. Targeting Human Astrocytes' Calcium-sensing Receptors for Treatment of Alzheimer's Disease. A. Chiarini, U. Armato, J. Withfield, I. Dal Prà *Current Pharmaceutical Design* (2017) doi: 10.2174/1381612823666170710162509. IF₍₂₀₁₆₎ 2.611
52. Calcium-Sensing Receptor Antagonist NPS 2143 Restores Amyloid Precursor Protein Physiological Non-Amyloidogenic Processing in A β -Exposed Adult Human Astrocytes. A. Chiarini, U. Armato, D. Liu, I. Dal Prà *Scientific Reports* 7, Article number: 1277 (2017) doi:10.1038/s41598-017-01215-3. IF₍₂₀₁₆₎ 4.259

Patent

WO2013098588 A1 - Use of calcilytic drugs as a pharmacological approach to the treatment and prevention of Alzheimer's disease, Alzheimer's disease-related disorders, and down's syndrome neuropathies