

BIOGRAPHICAL SKETCH

NAME Dodd, Peter Ronald		POSITION TITLE Reader in Biochemistry, SCMB, UQ	
EDUCATION: INSTITUTION AND LOCATION	DEGREE	YEAR	FIELD OF STUDY
University of Sydney, Australia	BSc Hons	1967	Biochemistry & Chemistry
University of London, Imperial College, UK	PhD	1973	Neurochemistry

RESEARCH AND PROFESSIONAL EXPERIENCE

A. Research Interests.

My work aims to dissect the components of synaptic signaling in vulnerable and relatively spared areas of the brains of AD cases and matched controls. For 30 years¹ I have been developing molecular techniques to study human brain obtained at autopsy using a range of tissue processing protocols, including a widely cited method for preparing synaptosomes². Key for the present work are a series of demonstrations that functionally and morphologically intact synaptosomes can be prepared from human brain if appropriate tissue processing protocols are used³⁻⁸. This allows us to isolate the synaptosomal sub-fractions where different components of the signaling cascade reside, thereby markedly enhancing the precision of our analyses^{17,19,22,23}. A crucial distinction between our brain bank and most others is our slow-freezing method: snap freezing in liquid nitrogen, which is widely used, destroys membrane integrity on thawing, and eliminates the formation of intact nerve-ending particles^{4,7}. We use both hypothesis-driven and discovery-driven approaches^{5,10}; we were the first to apply microarray analysis to the human brain. I have experience in analyzing and interpreting autopsy data, and in dealing with potential confounds such as agonal state, post mortem interval, age, gender, etc¹³; many examples can be found among my publications.

B Positions and Employment

1967 Teaching Fellow, Department of Biochemistry, University of Sydney.
 1968–1972 Postgraduate Fellow, Department of Biochemistry, Imperial College, University of London.
 1973–1978 Postdoctoral Fellow, Department of Biochemistry, Imperial College, University of London.
 1978–1979 Postdoctoral Fellow, Department of Physiology, St George's Hospital Medical School, London.
 1979–1983 Senior Research Officer, MRC Neuroendocrinology Unit, Newcastle upon Tyne, UK.
 1983–1989 NHMRC Senior Research Officer, Department of Pharmacology, University of Sydney.
 1989–1997 Head of Neuroscience Unit & NHMRC Senior Res. Fellow, Royal Brisbane Hosp. Res. Found.
 1998–2004 NHMRC Principal Research Fellow, and Reader, SMMS, University of Queensland
 2005– Associate Professor and Reader, SMMS/SCMB, University of Queensland.

Professional Memberships

1988– Australia and New Zealand Society for Neuropathology; 1998–2000, Secretary-Treasurer.
 1990–2004 National Association of Research Fellows of NHMRC; 1995–1998, Queensland Rep.
 1994– International Society for Biomedical Research on Alcoholism (ISBRA); Pan-Pacific Representative, 2006–
 1994– Asia-Pacific Society for Neurochemistry (APSN); 1994–1996, Member of Council; 1996–1998 Secretary; 1998–2002, President; 2002–2006, Immediate Past President.
 2005– International Drug Abuse Research Society (IDARS), Founder and Executive Member.
 2005– Alzheimer's Association; 2006–, Member of Scientific and Medical Panel
 2007– Asia Pacific Society for Alcoholism and Addiction Research (APSAAR), Founder and Executive Member 2007–, Membership Secretary 2009–, Vice-President 2010–

Currently also a member of the following Professional Societies (from): International Society for Neurochemistry 1975–; Australian Neuroscience Society 1984–; Society for Neuroscience USA 1986–; New York Academy of Sciences 1990–; Research Society on Alcoholism USA 1994–; American Society for Neurochemistry 1996–.

Some relevant publications (from 160 total; H Index = 35) [# cites]

- 1 **Dodd PR**, Hardy JA, Bradford HF, Bennett GW, Edwardson JA, Harding BN (1979) Metabolic and secretory processes in nerve-endings isolated from post-mortem brain *Neurosci Lett* **11**, 87–92 [16]
- 2 **Dodd PR**, Hardy JA, Oakley AE, Edwardson JA, Perry EK, Delaunoy J-P (1981) A rapid method for preparing synaptosomes: comparison with alternative procedures *Brain Res* **226**, 107–118 [369]
- 3 **Dodd PR**, Hardy JA, Oakley AE, Strong A (1981) Synaptosomes prepared from fresh human cerebral cortex: morphology, respiration and release of transmitter amino acids *Brain Res* **224**, 419–425 [22]

- 4 Hardy JA, **Dodd PR**, Oakley AE, Perry RH, Edwardson JA, Kidd AM (1983) Metabolically active synaptosomes can be prepared from frozen rat and human brain *J Neurochem* **40**, 608–614 [75]
- 5 Hardy JA, **Dodd PR** (1983) Metabolic and functional studies on post-mortem human brain *Neurochem Int* **5**, 253–266 [47]
- 6 Wester P, Bateman DE, **Dodd PR**, Edwardson JA, Hardy JA, Kidd AM et al (1985) Agonal status affects the metabolic activity of nerve endings isolated from autopsy brain *Neurochem Pathol* **3**, 169–180 [25]
- 7 **Dodd PR**, Hardy JA, Baig FB, Kidd AM, Bird ED, Watson WEJ, Johnston GAR (1986) Optimization of freezing, storage, and thawing conditions for the preparation of metabolically active synaptosomes from frozen rat and human brain *Neurochem Pathol* **4**, 177–198 [50]
- 8 **Dodd PR**, Hambley JW, Cowburn RF, Hardy JA (1988) A comparison of methodologies for the study of functional transmitter neurochemistry in human brain *J Neurochem* **50**, 1333–1345 [70]
- 9 Hutton M., Lendon C. L., Rizzu P., Baker M., Froelich S., Houlden H., Pickering-Brown S., Chakraverty S, Isaacs A, Grover A, ... **Dodd PR**, ... Hardy JA, Goate A, van Swieten J, Mann D, Lynch T, Heutink P (1998) Association of missense and 5'-splice-site mutations in tau with the inherited dementia FTDP-17. *Nature* **393**, 702–705 [1,376]
- 10 Hawkins A, **Dodd PR** (2000) Localisation of GABAA receptor subunits in the CNS using RT-PCR. *Brain Res. Brain Res. Prot.* **6**, 47–52 [1]
- 11 Lewohl JM, Miles MF, Wang L, **Dodd PR**, Harris RA (2000) Gene expression in human alcoholism: microarray analysis of frontal cortex *Alcohol Clin Exp Res* **24**, 1873–1882 [164]
- 12 Scott HL, Tannenberg AEG, Pow DV, **Dodd PR** (2002) Aberrant expression of glutamate transporter EAAT1 in Alzheimer's disease. *J. Neurosci.* **22**, RC206 (1–5) [62]
- 13 Hynd MR, Lewohl JM, Scott HL, **Dodd PR** (2003) Biochemical and molecular studies using human autopsy brain tissue *J Neurochem* **85**, 543–562 [99]
- 14 Hynd MR, Scott HL, **Dodd PR** (2004) Selective loss of NMDA receptor NR1 subunit isoforms in Alzheimer's disease. *J. Neurochem.* **89**, 240–247 [14]
- 15 Hynd MR, Scott HL, **Dodd PR** (2004) Differential expression of NMDA receptor NR2 isoforms in Alzheimer's disease. *J. Neurochem.* **90**, 913–919 [27]
- 16 Tsai VW-W, Scott HL, Lewis RJ, **Dodd P. R.** (2005) The rôle of Group I metabotropic glutamate receptors in neuronal excitotoxicity in Alzheimer's disease. *Neurotox. Res.* **7**, 125–141 [15]
- 17 Tannenberg RK, Scott HL, Tannenberg AEG, **Dodd PR** (2006) Selective loss of synaptic proteins in Alzheimer disease: evidence for increased severity with APOEε4. *Neurochem. Int.* **49**, 631–639 [19]
- 18 Walton HS, **Dodd PR** (2007) Glutamate-glutamine cycling in Alzheimer's disease. *Neurochem. Int.* **50**, 1052–1066 [21]
- 19 Agarwal S, Tannenberg RK, **Dodd PR** (2008) Reduced expression of the inhibitory synapse scaffolding protein gephyrin in Alzheimer disease. *J. Alzheimers Dis.* **14**, 313–321 [3]
- 20 Gebhardt FM, Scott HA, **Dodd PR** (2010) Housekeepers for accurate transcript expression analysis in Alzheimer's disease autopsy brain tissue. *Alzheimers Dement.* **6**, 465–474
- 21 Gebhardt FM, Mitrovic AD, Gilbert DF, Vandenberg RJ, Lynch JW, **Dodd PR** (2010) Exon-skipping splice variants of excitatory amino acid transporter-2 (EAAT2) form heteromeric complexes with full-length EAAT2. *J. Biol. Chem.* **285**, 31313–31324
- 22 Proctor DT, Coulson EJ, **Dodd PR** (2010) Reduction in post-synaptic scaffolding PSD-95 and SAP-102 protein levels in the Alzheimer inferior temporal cortex is correlated with disease pathology. *J. Alzheimers Dis.* **21**, 795–811
- 23 Scott HA, Gebhardt FM, Mitrovic AD, Vandenberg RJ, **Dodd PR** (2010) Glutamate transporter variants reduce glutamate uptake in Alzheimer's disease. *Neurobiol. Aging* **32**, 553.e1–553.e11
- 24 Proctor DT, Coulson EJ, **Dodd PR** (2011) Post-synaptic scaffolding protein interactions with glutamate receptors in synaptic dysfunction and Alzheimer's disease. *Prog. Neurobiol.* **93**, 509–511

Additional recent publications of importance to the field

- 1 **Dodd PR**, Beckmann AM, Davidson MS, Wilce PA (2000) Glutamate-mediated transmission, alcohol, and alcoholism *Neurochem Int* **37**, 509–533 [89]
- 2 Lewohl JM, **Dodd PR**, Mayfield RD, Harris RA (2001) Application of DNA microarrays to the study of human alcoholism *J Biomed Sci* **8**, 28–36 [53]
- 3 Mayfield RD, Lewohl JM, **Dodd PR**, Liu J, Harris RA (2002) Patterns of gene expression are altered in the frontal and motor cortices of human alcoholics *J Neurochem* **81**, 802–813 [141]
- 4 **Dodd PR** (2002) Excited to death: different ways to lose your neurones *Biogerontology* **3**, 51–56 [23]
- 5 Hynd MR, Scott HL, **Dodd PR** (2004) Glutamate-mediated excitotoxicity and neurodegeneration in Alzheimer's disease *Neurochem Int* **45**, 583–595 [187]