

Debby Van Dam

Neurochemistry & Behaviour
Department of Biomedical Sciences
Institute Born-Bunge
University of Antwerp



BSc Biomedical Sciences, University of Antwerp, 1996

MSc Biochemistry – Medical Biochemistry, University of Antwerp, 1998

PhD in Science - Biochemistry, University of Antwerp, 2004

Postgraduate Certificate of Laboratory animal science: FELASA category C, University of Antwerp, 2006

Postdoctoral researcher at the University of Antwerp, since 2004

E-mail: debby.vandam@ua.ac.be

Phone: +32 (0)3 265 26 43

Fax: +32 (0)3 265 26 18

Keywords

Mouse modelling – Behavioural Neuroscience – Cognition – Dementia – Alzheimer's disease

Science

Alzheimer's disease (AD) is the most frequent form of neurodegenerative disease resulting in progressive loss of memory and cognitive abilities. AD is vastly becoming a major medical and social-economical problem in our ageing society. Despite intense research, pathophysiological mechanisms underlying AD and related disorders are still insufficiently documented. Valid animal models are essential in research ensuing elucidation of human disease processes and testing of potential therapeutic strategies. The valid APP23 transgenic mouse model is used to further study underlying pathophysiological mechanisms related to soluble aggregates of the amyloid-beta peptide and reactivation of the cell cycle in neurons, with presumed effects at the neurochemical, electrophysiological, morphological and behavioural level. Correlations between behavioural changes and neurotransmitters alterations are studied employing HPLC. Given the high predictive validity of the APP23 model, it is used to assess treatment efficacy of various new treatment strategies, symptomatic or disease-modifying. APP23 mice form the basis for models for mixed types of dementia by introduction of a vascular component through crossing with atherogenic ApoE knockout mice and application of middle cerebral artery occlusion. Debby Van Dam is the coordinator of the Rodent Behavioural Research Unit which functions as a core facility for other researchers seeking in-depth cognitive and behavioural screening of rodent models for various disease of the CNS and PNS. Behavioural observations may be linked to histopathological, biochemical and neurochemical parameters.

Selected Publications

Van Dam D, D'Hooge R, Staufenbiel M, Van Ginneken C, Van Meir F, De Deyn PP (2003) Age-dependent cognitive decline in the APP23 model precedes amyloid deposition. *Eur J Neurosci*.17(2):388-96. (I.F. 2003: 3.872)

Van Dam D, De Deyn PP (2006) Drug discovery in dementia: the role of rodent models. *Nat Rev Drug Discov*. 5(11):956-70. (I.F. 2006: 20.970)

Van Dam D, De Deyn PP (2006) Cognitive evaluation of disease-modifying efficacy of galantamine and memantine in the APP23 model. *Eur Neuropsychopharmacol*. 16(1):59-69. (I.F. 2006: 3.794)

Van Dam D, Lenders G, De Deyn PP (2006) Effect of Morris water maze diameter on visual-spatial learning in different mouse strains. *Neurobiol Learn Mem.* 85(2):164-72. (I.F. 2006: 3.596)

Sevin C, Benraiss A, **Van Dam D**, Bonnin D, Nagels G, Verot L, Laurendeau I, Vidaud M, Gieselmann V, Vanier M, De Deyn PP, Aubourg P, Cartier N (2006) Intracerebral adeno-associated virus-mediated gene transfer in rapidly progressive forms of metachromatic leukodystrophy. *Hum Mol Genet.* 15(1):53-64. (I.F. 2006: 8.099)

Hudry E, **Van Dam D**, Kulik W, De Deyn PP, Stet FS, Ahouansou O, Benraiss A, Delacourte A, Bougnères P, Aubourg P, Cartier N (2010) Adeno-associated Virus Gene Therapy With Cholesterol 24-Hydroxylase Reduces the Amyloid Pathology Before or After the Onset of Amyloid Plaques in Mouse Models of Alzheimer's Disease. *Mol Ther.* 18(1):44-53. (I.F. 2008: 5.970)