
Contents

<i>Series Preface</i>	<i>v</i>
<i>Preface</i>	<i>vii</i>
<i>Contributors</i>	<i>xiii</i>
PART I ANIMAL MODELING: GENERAL AND ETHICAL ASPECTS AND DRUG DISCOVERY PIPELINE	
1 General Introduction to Animal Models of Human Conditions.	3
<i>Peter Paul De Deyn and Debby Van Dam</i>	
2 Animal Models of Dementia: Ethical Considerations.	15
<i>I. Anna S. Olsson and Peter Sandøe</i>	
3 The Role of Rodent Models in the Drug Discovery Pipeline for Dementia	35
<i>Debby Van Dam and Peter Paul De Deyn</i>	
PART II METHODOLOGICAL CONSIDERATIONS WHEN DEVELOPING ANIMAL MODELS OF DEMENTIA	
4 Species, Strain, and Gender Issues in the Development and Validation of Animal Models of Dementia	53
<i>Annemie Van Dijck, Debby Van Dam, and Peter Paul De Deyn</i>	
5 Transgenic and Gene Targeted Models of Dementia	77
<i>Ronald A. Conlon</i>	
6 Transgenic Animals and Intellectual Property Concerns	91
<i>Susan L. Stoddard and James A. Rogers, III</i>	
PART III VALIDATION OF ANIMAL MODELS OF DEMENTIA	
7 Pathological Validation of Animal Models of Dementia.	99
<i>Daniel Pirici, Christine Van Broeckhoven, and Samir Kumar-Singh</i>	
8 Behavioral Validation in Animal Models of Dementia	143
<i>Debby Van Dam, Annemie Van Dijck, and Peter Paul De Deyn</i>	
9 Pharmacological Validation in Animal Models of Dementia.	155
<i>Hugo Geerts</i>	
10 Validation of Animal Models of Dementia: Neurochemical Aspects	169
<i>Giancarlo Pepeu and Maria Cristina Rosi</i>	
11 Validation of Dementia Models Employing Neuroimaging Techniques	187
<i>Greet Vanhoutte, Adriaan Campo, and Annemie Van der Linden</i>	

PART IV ANIMAL MODELS OF ALZHEIMER'S DISEASE

12	Drosophila Melanogaster as a Model Organism for Dementia	223
	<i>Maria E. Giannakou and Damian C. Crowther</i>	
13	Caenorhabditis elegans as a Model Organism for Dementia.	241
	<i>Tjakko J. Van Ham and Ellen A.A. Nollen</i>	
14	Zebrafish (Danio rerio) as a Model Organism for Dementia	255
	<i>Rob Willemsen, Sandra van't Padje, John C. van Swieten, and Ben A. Oostra</i>	
15	Spontaneous Vertebrate Models of Alzheimer Dementia: Selectively Bred Strains (SAM Strains).	271
	<i>Renā A. Sowell and D. Allan Butterfield</i>	
16	Lesion-Induced Vertebrate Models of Alzheimer Dementia.	295
	<i>Adolfo Toledano and Maria Isabel Álvarez</i>	
17	Aβ Infusion and Related Models of Alzheimer Dementia	347
	<i>Patricia A. Lawlor and Deborah Young</i>	
18	APP-Based Transgenic Models: The PDAPP Model	371
	<i>Jacob M. Basak and David M. Holtzman</i>	
19	APP-Based Transgenic Models: The Tg2576 Model	387
	<i>Robert M.J. Deacon</i>	
20	APP-Based Transgenic Models: The APP23 Model.	399
	<i>Debby Van Dam and Peter Paul De Deyn</i>	
21	Presenilin-Based Transgenic Models of Alzheimer's Dementia.	415
	<i>Yuji Yoshiike and Akihiko Takashima</i>	
22	APOE-Based Models of "Pre-Dementia"	439
	<i>Patrick M. Sullivan</i>	
23	TAU Models	449
	<i>Nicolas Sergeant and Luc Buée</i>	
24	The 3xTg-AD Mouse Model: Reproducing and Modulating Plaque and Tangle Pathology	469
	<i>Michael Sy, Masashi Kitazawa, and Frank LaFerla</i>	

PART V ANIMAL MODELS OF NON-ALZHEIMER NEURODEGENERATIVE DISEASE

25	Cognitive Dysfunction in Genetic Mouse Models of Parkinsonism	485
	<i>Sheila M. Fleming, J. David Jentsch, and Marie-Françoise Chesselet</i>	
26	Mouse Models of Metachromatic Leukodystrophy and Adrenoleukodystrophy.	493
	<i>Patrick Aubourg, Caroline Sevin, and Nathalie Cartier</i>	
27	Animal Models of Amyotrophic Lateral Sclerosis.	515
	<i>Ludo Van Den Bosch</i>	
28	Animal Models of Frontotemporal Dementia	533
	<i>Hana N. Dawson and Daniel T. Laskowitz</i>	

PART VI ANIMAL MODELS OF VASCULAR DEMENTIA

- 29 CADASIL: Molecular Mechanisms and Animal Models. 551
Karl J. Fryxell
- 30 Spontaneously Hypertensive Rat (SHR): An Animal Model
of Vascular Brain Disorder 577
Francesco Amenta and Daniele Tomassoni

PART VII ANIMAL MODELS OF NORMAL PRESSURE HYDROCEPHALUS

- 31 Animals Models of Normal Pressure Hydrocephalus 615
Petra M. Klinge

PART VIII ANIMAL MODELS OF TRAUMATIC DEMENTIA

- 32 Animal Models of Traumatically-Induced Dementia 643
Jennifer E. Slemmer, Mohammad Z. Hossain, and John T. Weber

PART IX ANIMAL MODELS OF TOXIC DEMENTIA

- 33 Animal Models of Alcohol-Induced Dementia 665
Angela Maria Ribeiro and Silvia R. Castanheira Pereira
- 34 Animal Models of Metallic Dementia 685
Luigi F. Rodella
- Index* 727



<http://www.springer.com/978-1-60761-897-3>

Animal Models of Dementia

De Deyn, P.P.; Van Dam, D. (Eds.)

2011, XVI, 732 p., Hardcover

ISBN: 978-1-60761-897-3

A product of Humana Press