

Name: Roxana Octavia Carare MD PhD

**Present Appointment: Professor of Clinical Neuroanatomy**

Dates	Appointment
Aug 2016- present	Professor of Clinical Neuroanatomy
Aug 2014-July 2016	Associate Professor Clinical Neuroanatomy
Mar 2013-July 2014	Senior Lecturer Clinical Neurosciences, University of Southampton
Apr 2001-Feb 2013	Lecturer Anatomical Sciences, University of Southampton
Sept 1998-Apr 2001	Teaching Assistant, Anatomical Sciences, University of Southampton
1st April 1997 – 1st July 1997	Clinical Attachments: Accident & Emergency, Care of the Elderly, Internal Medicine – Stoke Mandeville Hospital, Aylesbury, Bucks
1st Aug 1996-1st Jan 1997	Clinical Attachment: General Surgery- St Columcille’s Hospital, Dublin
1st Feb 1996-31st July 1996	Senior resident in General Surgery- Colentina Hospital, Bucharest, Romania
1st Nov 1995-31st Jan 1996	Resident in Paediatrics- Fundeni Hospital, Bucharest, Romania
1st May 1995-30th Oct 1995	Resident in General Medicine- Colentina Hospital, Bucharest, Romania
1st Feb 1995-30th April 1995	Resident in General Surgery- Colentina Hospital, Bucharest, Romania

Date	Title of Award	Subject	Awarding Body
July 1994	Doctor of Medicine	General Medicine	University of Medicine and Pharmacy “Carol Davila” Bucharest, Romania
January 2006	PhD	Neuropathology	University of Southampton

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2. Schley D, *Carare-Nnadi RO*, Please CP, Perry VH, Weller RO. Mechanisms to explain the reverse perivascular transport of solutes out of the brain. *Journal of Theoretical Biology*, 2006, 238:962-974
3. Campbell S; *Carare-Nnadi RO*; Losey P.H; Anthony D. Loss of the atypical inflammatory response in juvenile and aged rats. *Neuropathology and Applied Neurobiology* 2007, 33, 108-120
4. *Carare RO*, Bernardes-Silva M, Newman TA, Page AM, Nicoll JAR, Perry VH, Weller RO. Solute, but not cells, drain from the brain parenchyma along basement membranes of capillaries and arteries. Significance for cerebral amyloid angiopathy and neuroimmunology. *Neuropathology and Applied Neurobiology* 2008 Apr;34(2):131-44. *The most cited article in Neuropathology and Neurobiology in 2010. Cited by 171 in Jan 2016.*
5. *Carare RO*, Goodwin M. A unique variation of the sciatic nerve. *Compendium of anatomical variants. Clinical Anatomy* 2008 Nov;21(8):800-1
6. De Silva P, *Carare RO*, Weller R.O. Failure of elimination of Amyloid-beta from the brain in Alzheimer’s Disease. Opportunities for prevention and therapy. *Progress in Neurology and Psychiatry*, 2008 May; 12(4):6-10
7. Weller RO, Subash M, Preston SD, Mazanti I, *Carare RO*. Perivascular drainage of amyloid beta peptides from the brain and its failure in cerebral amyloid angiopathy and Alzheimer’s disease. *Brain Pathol.* 2008 Apr;18(2):253-66.
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9. Weller RO, Djuanda E, Yow HY, *Carare RO*. Lymphatic drainage of the brain and the pathophysiology of neurological disease. *Acta Neuropathol.* 2009 Jan;117(1):1-14.

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12. Jowett A, Sheikh F, *Carare RO.*, Goodwin M. Posterolateral approach to the posterior malleolar fracture and the location of the sural nerve. *Foot and Ankle International* 2010 Oct;31(10):880-3
13. Coleman, P.G., *Carare RO*, Petrov, I., Forbes, E., Saigal, A., Spreadbury, J., Yap, A. & Kendrick, T. Spiritual belief, social support, physical functioning and depression among older people in rural areas in Bulgaria and Romania. *Ageing and Mental Health*, 2011, Apr 15(3), 327-333
14. Hawkes CA, Härtig W, Kacza J, Schliebs R, Weller R.O, Nicoll JAR, *Carare RO* Perivascular drainage of solutes is impaired in the ageing mouse brain and in the presence of cerebral amyloid angiopathy. *Acta Neuropathologica*, 2011, Apr 121(4), 431-443.
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120. Kleerekooper I, UK Biobank Eye and Vision Consortium. Associations of Alcohol consumption and smoking with disease risk and neurodegeneration in individuals with Multiple Sclerosis in the UK. *JAMA Netw Open.* 2022 Mar 1;5(3).
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122. UK Biobank Eye and Vision Consortium. The association between serum lipids and intraocular pressure. *Ophthalmology.* 2022 Sep;129(9):986-996. doi: 10.1016/j.ophtha.2022.04.023.

123. Yanrong Sun...Roxana O. Carare<sup>5,6\*</sup>, Lihua Qin<sup>1\*</sup> and Junhao Yan. The impairment of intramural periarterial drainage in brain after subarachnoid haemorrhage. *Acta Neuropathologica Communications* (2022) 10:187 <https://doi.org/10.1186/s40478-022-01492-8>

### Book Chapters

1. Weller RO, Carare RO; Boche D. Ageing and the accumulation of amyloid in brain parenchyma and blood vessel walls in Alzheimer's disease. *Encyclopedia of Neuroscience* 2009, Vol 1; pp 355-362. (L.R. Squire, Editor). Oxford: Academic Press.
2. Weller RO, Carare RO, Hawkes CA, Galea I. Chapter 19 – Pathophysiology of Lymphatic Drainage of the Central Nervous System. In *Multiple Sclerosis, A mechanistic view*. Elsevier, 2016. ISBN: 978-0-12-800763-1
3. Sharp MM, Page A, Morris A, Weller RO, Carare RO. Quantitative assessment of cerebral basement membranes using electron microscopy. *Methods Mol Biol.* 2017;1559:367-375.
4. Albargothy NJ, Sharp MM, Gatherer M, Morris A, Weller RO, Hawkes C, *Carare RO*. Investigating the Lymphatic Drainage of the Brain. *Essential Skills and Tools. Methods Mol Biol.* 2017;1559:343-365.

### Grants:

Sept 2012-Sept 2017: Alzheimer's Research UK: Interaction of systemic and central apolipoproteins in the pathogenesis and treatment of cerebral amyloid angiopathy, £264,589 (PI)

Sept 2014-Aug 2017: Biogen Ltd. Defining the connections between the subarachnoid space and the brain parenchyma. £75,000 (PI)

Aug 2014: Equipment grant: SP8 Confocal. Alzheimer's Research UK, £100,000 (Co-PI)

October 2014-January 2016: Invicro Ltd. Study of the pattern of intracerebral distribution of small molecules £66,870 (PI)

Feb 2015: Co-applicant for equipment grant (Nano-Zoomer XR). Alzheimer's Research UK, £100,000

October 2015-Sept 2019: ARUK: Co-PI Targeting perivascular innervation and vascular tone for improved clearance of  $\beta$ -amyloid from the brain. £88,440 (PI)

October 2015-Sept 2019: BBSRC CASE Studentship: Developing a new in vitro model for the study of perivascular clearance. £95,042 (PI)

March 2017-Feb 2018: Rosetrees Trust. Does maternal high fat diet lead to dementia? £25,000 (PI)

Sept 2013-Sept 2017. BBSRC: Physiology of perivascular drainage of the brain and how it is affected by advancing age. £600,000 (PI)

Aug 2016-Sept 2017: British Neuropathological Society. Aquaporin in white matter abnormalities £15,000 (PI)

Mar 2018-Feb 2020: United Neuroscience. New immunization strategies for Alzheimer's disease. £250,000 (PI)

Sept 2017-Dec 2020: Stroke Association. Vascular dementia: failure of fluid drainage from cerebral white matter. £200,131. (PI)

Sept 2017-Aug 2020: National Institute of Health, award to Binghamton, Cornell and Southampton Universities. Interdisciplinary assessment of IPAD, £51,700 (Southampton component) (Co-PI)

Oct 2017-Sept 2020: Medical Research Council UK & United Neurosciences: Immunization in alpha synucleinopathies. £70,000 (PI)

Aug 2020-July 2021 Alzheimer's Research UK: Adrenergic and cholinergic receptors of the blood vessels as key players in Alzheimer's disease. £99,924 (PI)

Apr 2020-Oct 2021: United Neuroscience. New immunization strategies for Alzheimer's disease. £167,799 (PI)

Apr 2019-Mar 2022: Japan Society of Science fellowship to Dr Satoshi Saito. The role of clusterin in facilitating IPAD. £164,000 (Co-PI)

Oct 2019-Oct 2021 Royal Society: Lysyl Oxidase (LOX) as facilitator of intramural periarterial drainage of the brain £24,000 (PI)

Jan 2021-Dec 2022 CODIAK Biosciences, Exosomes in Neurological diseases £373,727 (PI)

### Current active grants

May 2019-Apr 2023: Horizon 2020 TUBE-LC-MG-2018 £239,039

Sept 2020-Aug 2023. Bright Focus (USA- award with Michigan State University) Noradrenergic regulation of amyloid clearance in AD. Total \$285,000 . Southampton award: £109,647 (Co-PI)

Aug 2020-July 2023 Alzheimer's Association (USA): Targeting cerebral smooth muscle cell mitochondria in Alzheimer's disease \$44,583 (Co-PI)

May 2021-Apr 2023 VAXXINITY, "Effects of anti-tau immunization" £185,000 (PI)

May 2021-Apr 2023 ALCYONE, "Patterns of distribution of AAV9" £142,335 (PI)

May 2021-Apr 2022 Private Donation £50,000 from USA (PI)

Aug 2021-July 2022 YUMANITY "Targeting Stearoyl-CoA-Desaturase (SCD) in the Brain" £211,522 (PI)

Jul 2021-Jul 2023: PCE Romania- Clusterin as a therapeutic agent in Alzheimer's disease 249,635 EUR (PI)  
Jan 2022-July 2022 ALNYLAM "Biodistribution of RNAi Agents in Mouse brain by Confocal Imaging Analysis", £59,666 (PI)  
Mar 2022-Feb 2024 NIH" Perlecan Domain V as a therapeutic VCID strategy for the clearance of amyloid beta from the brain in cerebral amyloid angiopathy", £ 76,645 (Co-PI)

#### Roles and activities

Visiting Knowledge Exchange Fellow, University of Winchester, Home Office Licensed Teacher of Anatomy. Honorary Consul for Romania. British Neuroscience Association, British Neuropathological Society, Federation of European Neuroscience Societies, International Brain Research Organisation, British Association of Clinical Anatomists, Anatomical Society, International Alzheimer's Disease Forum, Association for the Study of Medical Education. Member of the Scientific Committee for Cerebral Amyloid Angiopathy 2014. Member of Scientific Committee for Vas-Cog 2015, 2020. Invited member of Cerebral Autoregulation Research Network. Associate Editor Frontiers in Aging Neuroscience; Fluids and Barriers in the CNS. Reviewer for Acta Neuropathologica, Neuropathology and Applied Neurobiology, Clinical Anatomy, Experimental Neurology, Alzheimer's Society, Alzheimer's Research UK, EU Commission, Brain Canada. Member of British Neuropathological Society Academic Committee; Organising Committee Alzheimer's Disease International 2016, Pool of Experts BBSRC, Member of Alzheimer's Association International Society to Advance Alzheimer Research and Treatment (ISTAART) and Co-Chair Communications for Alliance of Women in Alzheimer's Research (AWARE). Brain Ageing Classification Working Group (2020-), Visiting Professor, University of Craiova, Romania, University of Targu Mures, Romania; Member Dept of Health COMEAP advisory committee on pollution effects on the brain. "La Caixa" Foundation Health Research Selection Committee - Neuroscience High Level Expert panel (2020), Scientific Expert Reviewer for Italian Ministry of Health and Romanian Ministry of Science and Health (2019, 2020). Rainwater Prize Committee (2019-); Future Leaders Fellowships Peer Review College (2019-); Editorial Board member Acta Neuropathologica Communications (2020-) Vice Chair of the Vascular Cognitive Disorders PIA Executive Committee of the Alzheimer's Association International Society to Advance Alzheimer's Research and Treatment (ISTAART); Honorary Secretary to the British Neuropathological Society (2022-); Chair of Scientific Committee Vas-Cog (2022-); Mentor Alzheimer's Research UK Fellows (2022-2023)

Leadership: Only European Committee Member for the USA National Plan to address Alzheimer's disease, NIH, 2016, 2019. Lead for the Interdisciplinary Dementia and Ageing Centre (IDeAC) University of Southampton, UK. Deputy Head of School of Clinical and Experimental Sciences, University of Southampton, Founder and lead for Clearance of Interstitial and Cerebrospinal Fluids (CLIC- Alzheimer's Association USA). Regional Lead for Deep Dementia Phenotyping (DEMON) Network. MRC Dementias Platform UK Vascular Experimental Medicine group. Vice Chair of the Vascular Cognitive Disorders PIA Executive Committee of the Alzheimer's Association International Society to Advance Alzheimer's Research and Treatment (ISTAART); Chair of the Scientific Expertise team of Multiple Sclerosis Society, UK; Scientific Secretary of the British Neuropathological Society 2022-2024; Head of School of Clinical and Experimental Sciences, University of Southampton (600 staff, 2022-)

**Prizes:** Best research images at the 2011 Transmission Electron Microscopy British Society meeting; 2011 Ambassador's Prize for most accomplished Romanian Researcher in UK, Vice-Chancellor Award for Best Teacher, University of Southampton, 2013; Best poster (senior author) Alzheimer's Research UK 2014, 3<sup>rd</sup> prize poster Glia Magdeburg (Germany), 2014. Staff Achievement Award, University of Southampton 2014; best oral presentation British Association of Clinical Anatomists, 2015; Dementia Leader Award, Alzheimer's Society 2015, 1<sup>st</sup> prize Anatomical Society 2015, Venus Influential Woman of the Year 2016.

Consultancy: ROCHE pharmaceuticals, ALCYONE, ALNYLAM, Vaxxinity



### Roles in Education

All levels of Anatomy teaching. Marker Intermediate and Finals Examinations. Programme Lead for the Masters in Medical Sciences, Faculty of Medicine, University of Southampton, 2010-2016. External Examiner, University of Sheffield, KCL, QMUL and Newcastle. Supervisor/co-supervisor for 8PhD students, 4MSc, 12MMedSc, 9BSc, 59BM5 project students. Securing on average £15,000 bursary funding for MMedSc students annually from British Neuropathological Society, Pathological Society, Anatomical Society. Advisor for PhD Students in Binghamton University, USA, University of Zurich, Switzerland, University of Lund, Sweden, University of Fukui, Japan, Vanderbilt University, USA.