

CAROLINA COELHO, PH.D, FHEA

CONTACT INFORMATION

Geoffrey Pope Building, Room 325
Faculty of Health and Life Sciences
University of Exeter, Stocker Road, Exeter, UK EX4 4QD
Email: c.coelho@exeter.ac.uk **ORCID ID:** 0000-0002-7523-3031

ACADEMIC QUALIFICATIONS

PharmD Licenciante in Pharmaceutical Sciences
Faculdade de Farmácia da Universidade do Porto, Porto, Portugal 2007

PhD in Biomedical Sciences. *summa cum laude*, Universidade de Coimbra, Portugal 2013

APPOINTMENTS

Graduate Student & Initiation to Research
Faculdade de Medicina Universidade de Coimbra, Coimbra, Portugal 2007 - 2013

Graduate Student (visiting) & Post-Doctoral Fellow 2009 - 2014
Albert Einstein College of Medicine of Yeshiva University, Bronx, NY, USA

Post-Doctoral Fellow with Frederic Geissmann 2014 - 2015
King's College London, London, UK
Memorial Sloan Kettering Cancer Center, New York, NY, USA

Post-Doctoral Fellow with Arturo Casadevall 2015 - 2018
Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

Group Leader & Lecturer in Biosciences from 2019
Medical Research Council Centre for Medical Mycology (MRC CMM)
University of Exeter, Exeter, UK

RESEARCH GRANTS

Fundação para a Ciência e a Tecnologia PhD Scholarship, aprox £100,000, 2008-2012
including bench fees and full stipend for 4 years

GCRF University of Exeter grant, £5,000: Impact of *Acod1* upon infection with *C. neoformans*: link to the inflammasome? 2019

ISSF University of Exeter Pre-seed, £5,000: Immunometabolism of infected macrophages 2020

GW4 PhD Studentship UK-wide full stipend for 3.5 y and bench fees (ongoing recruitment of candidates) 2021-2024

Northcott Devon Medical Foundation Research Grant, £6,000, 2021-2022
collaborative grant with Dr. Jacqueline Whatmore, University of Exeter

AMS Springboard Award, £100,000: Dynamics of brain invasion by the pathogenic fungus *Cryptococcus neoformans* 2021-2023

ISSF University of Exeter Seedcorn, £20,000: Unravelling immunometabolism by bridging -omics and computational modelling 2022

Alzheimer's Research UK Southwest Network Pilot research grant £5,000: 2022-23
Investigating the role of pathogenic fungi in Alzheimer's disease

PUBLICATIONS (see ORCID for full list)

34 Peer-reviewed articles, of them 11 reviews
4 Book Chapters, 2 commentary **citations > 1500; h-index: 21; i10-index: 25**

AWARDS AND HONORS

PhD Scholarship PDBEB - “PhD Program in Experimental Biology and Biomedicine” from Centro de Neurociências da Universidade de Coimbra	2008-2012
Travel and Registration Award FEBS Advanced practical and lecture course “Comparative analysis of <i>in vitro</i> and <i>in vivo</i> <i>Candida albicans</i> -host interaction systems”	2009

MEASURES OF ESTEEM

Reviewer for UKRI MRC Grants and Fellowships, La Caixa Foundation Health Research Call, among others	since 2020
Examiner for PhD: R.Pevsner, University of Exeter	May 2021
Examiner for PhD upgrade, University of Exeter	
Emma Agnew	Feb 2021
George Vere	July 2021
Session Chair: Therapies and Vaccines for Eukaryotic Pathogens, Annual Conference of Microbiology Society, Belfast, UK, 2022	April 2022
Session Lead: Gordon Research Conference Immunology of Fungal Infections Galveston, Texas, USA	Jan 2023

INVITED TALKS (of 11 total)

1st Extracellular Vesicle Symposium , Baltimore, MD, USA	Mar 2018
20th Congress of ISHAM- International Society of Human & Medical Mycology, Amsterdam, Netherlands	Jun 2018
Gordon Research Conference Immunology of Fungal Infections , Galveston, TX, USA	Jan 2019
British Mycological Society Meeting , Aberdeen, UK	Sept 2019
FEBS Advanced Lecture Course HFP2022: Human Fungal Pathogens	May 2022
11th International Conference on Cryptococcus and Cryptococcosis , Kampala, Uganda	Jan 2023
Invited Seminar Series Pasteur Institute , Paris, France	Feb 2023

PROFESSIONAL ACTIVITIES (selected)

Young Scientist: ESCMID, ISHAM, AAAS	from 2016
Member: Microbiology Society, Eukaryotic Division	from 2019
Member: BSMM, BMS, BIA	from 2020
Organization of Conferences: won and lead competitive bid to organize 12 th International Conference on <i>Cryptococcus</i> and Cryptococcosis, Exeter, UK	June 2026
Associate Editor for Microbiology Spectrum, ASM	
>40 reviewed articles for Nature Communications, Cell Reports, Cell Host and Microbe, NPG Vaccines, Journal of Immunology, Scientific Reports, and others...	

PhD SUPERVISION

Clara Freitas (international and co-supervisor) <i>Viva in February 2023</i>
Daniel Jones (co-supervisor) 2021- 2024
Mres (2 students) undergraduates(4 students in research projects)

(1) Contact Information

Department of Clinical and Biomedical Sciences, University of Exeter.
Hatherly Laboratories, Prince of Wales Road, Exeter, EX4 4PS, UK.

Email: j.witton@exeter.ac.uk

Telephone: +44 (0) 1392 727 583

(2) Appointments

Lecturer in Neuroscience, University of Exeter, July 2019 – present.

Visiting Researcher, University of Bristol, Sep 2021 – present.

Honorary Lecturer, University of Bristol, July 2019 – Oct 2020.

Elizabeth Blackwell Institute Bridging Fellow, University of Bristol, Jan 2019 – June 2019.

Alzheimer's Research UK Fellow, University of Bristol, Jan 2016 – Dec 2018.

Postdoctoral Research Assistant, University of Bristol. Oct 2014 – Dec 2015.

MRC Centenary Award Fellow, University of Bristol. Oct 2013 – Sep 2014.

(3) Academic Qualifications

Academic Professional (Research): Level 7 (Distinction), University of Exeter, 2021.

Ph.D. in Physiology and Pharmacology, University of Bristol, 2014.

BSc(Hons) in Neuroscience with Industrial Experience (1st Class), University of Manchester, 2009.

(4) Publications

1. Craig MT, **Witton J**. A cellular switchboard in memory circuits. *Science*. 2022; 377(6603): 262.
2. Walsh C, Ridler T, Garrido MG, **Witton J**, Randall AD, Brown JT. β bursting in the retrosplenial cortex is a neurophysiological correlate of environmental novelty which is disrupted in a mouse model of Alzheimer's disease. *Journal of Neuroscience*. 2022; 42(37): 7094.
3. Ridler T, **Witton J**, Phillips KG, Randall AD, Brown JT. Impaired speed coding and grid cell periodicity in a mouse model of tauopathy. *Elife*. 2020; 9: e59045.
4. Jackson JS*, **Witton J***, Johnson JD, Ahmed Z, Ward M, Randall AD, Hutton ML, Issac JT, O'Neill MJ, Ashby MC. Altered synapse stability in the early stages of tauopathy. *Cell Reports*. 2017; 18(13): 3063. (*Co-first author).
5. Booth C*, **Witton J***, Jones MW, Randall AD, Brown JT. Alterations to intrinsic pyramidal neuron properties and pathway-specific synaptic dysfunction underlie deficits in hippocampal network function in a mouse model of tauopathy. *Journal of Neuroscience*. 2016; 36(2): 350. (*Co-first author).
6. **Witton J**, Staniaszek LE, Bartsch U, Randall AD, Jones MW, Brown JT. Disrupted hippocampal sharp-wave ripple-associated spike dynamics in a transgenic mouse model of dementia. *Journal of Physiology*. 2016; 594(16): 4615.
7. **Witton J***, Padmashri R*, Zinyuk LE*, Popov VI, Kraev I, Line SJ, Jensen TP, Tedoldi A, Cummings D, Tybulewicz VJL, Fisher EMC, Bannerman DM, Randall AD, Brown JT, Edwards FA, Rusakov DA, Stewart MG, Jones MW. Hippocampal circuit dysfunction in the Tc1 mouse model of Down syndrome. *Nature Neuroscience*. 2015; 18(9): 1291. (*Co-first author).
8. Rodriguez JJ, Noristani HN, Hilditch T, Olabarria M, Yeh CY, **Witton J**, Verkhratsky A. Increased densities of resting and activated microglia in the dentate gyrus follow senile plaque formation in the CA1 subfield of the hippocampus in a triple transgenic model of Alzheimer's disease. *Neuroscience Letters*. 2013; 552: 129.
9. Forsyth LH, **Witton J**, Brown JT, Randall AD, Jones MW. In vitro and in vivo recording of local field potential oscillations in mouse hippocampus. *Current Protocols in Mouse Biology*. 2012; 2: 273.
10. **Witton J**, Brown JT, Jones MW, Randall AD. Altered synaptic plasticity in the mossy fibre pathway of transgenic mice expressing mutant amyloid precursor protein. *Molecular Brain*. 2010; 3: 32.
11. Randall AD, **Witton J**, Booth C, Hynes-Allen A, Brown JT. The functional neurophysiology of the amyloid precursor protein (APP) processing pathway. *Neuropharmacology*. 2010; 59(4-5): 243.
12. Rodriguez JJ, **Witton J**, Olabarria M, Noristani HN, Verkhratsky A. Increase in the density of resting microglia precedes neuritic plaque formation and microglial activation in a transgenic model of Alzheimer's disease. *Cell Death & Disease*. 2010; 1: e1.

Preprint articles under review

1. Brady E, Griffiths J, Andrianova L, Saito T, Saido T, Randall AD, Tamagnini F, **Witton J***, Craig MT*. Alterations to parvalbumin-expressing interneuron function and associated network oscillations in the hippocampal – medial prefrontal cortex circuit during natural sleep in APP^{NL-G-F} mice. *BioRxiv*. 2022. DOI: <https://doi.org/10.1101/2022.02.08.479119>. (*Co-corresponding author).

(5) Research Grants (past 5 years)

- ARUK South West Network Centre (Coordinator). 2022-23, £148,189.
- BRACE Pilot Grant (Co-I), *Can non-invasive ultrasound change the course of Alzheimer's disease pathology through gamma entrainment?* 2021-22, £24,633.
- GW4 Generator Grant (Co-I), *GliaSound: investigating the potential of ultrasound stimulation as a regulator of neuroimmune function*. 2021-22, £19,488.
- ARUK Network Small Project Grant (PI), *GliaLight: real time monitoring of neuroinflammatory reactivity induced by a novel sensory dementia therapy*. 2020-21. £4,739.
- BBSRC 18ALERT (Co-I), *BrainSight: Imaging neural codes over the life-course*. 2019-20, £202,999.
- ARUK Network Small Project Grant (PI), *Open Ephys starter kit for neurophysiological investigations in mouse models of dementia*. 2019-20, £4,800.
- ARUK Network Small Project Grant (PI), *Optomechanical components for in vivo fluorescence imaging in mice using head-mounted miniature microscopes*. 2019, £4,858.
- Elizabeth Blackwell Institute Research Fellow Bridging Fund Fellowship, *Synaptic and neuronal circuit dysfunction in a mouse model of tauopathy-associated dementia*, 2019-20, £48,000.
- Alzheimer's Research UK Fellowship, *Dysfunctional synaptic and neuronal network encoding in a mouse model of tauopathy-associated dementia*, 2016-19, £196,674.

(6) UKRI-funded PhD Studentships

- BBSRC South West Biosciences DTP Studentship (Co-I), *Probing the function of dopaminergic inputs to the cerebellum*. 2022-26.
- BBSRC South West Biosciences DTP Studentship (PI), *Cholinergic modulation of spatial memory in cortical brain circuits*. 2021-25.
- MRC GW4 Biomed DTP Studentship (Co-I), *Neuron-microglia interactions during neuronal network oscillations: implications for dementia*. 2019-23.
- MRC GW4 Biomed DTP Studentship (PI), *Does disrupted retrosplenial cortex connectivity underlie spatial memory impairments in prodromal Alzheimer's disease?* 2018-22.
- MRC GW4 Biomed DTP Studentship (PI), *An investigation of medial prefrontal cortex – hippocampal circuit function in a novel mouse model of familial Alzheimer's disease*. 2017-21.
- MRC GW4 Biomed DTP Studentship (Co-I), *Relationship between synaptic dysfunction and degeneration in a rodent model of dementia*. 2016-20.

(7) Invited Talks and Symposia

University of Glasgow, Centre for Neuroscience. May 2022.
Alzheimer's Research UK. Online. September 2021.
Alzheimer's Research UK Bristol-Bath Network Conference. Online. July 2020.
University of Exeter, Neuroscience Seminar Series. Oct 2019.
Alzheimer's Research UK Conference Early Careers Day. London, UK. Mar 2018.
University of Edinburgh, Centre for Discovery Brain Sciences. Sep 2017.
University College Cork, Ireland. School of Biochemistry and Cell Biology. Sep 2017.
GW4 Early Career Neuroscientist Day. Bristol, UK. Sep 2015.
University of Bristol, Neural Dynamics Forum. May 2015.

(8) Other Awards

University of Exeter Educational Inspirer Award, 2022.
Fellow of the Higher Education Academy, 2021.

(9) Other Professional Activities

Coordinator, Alzheimer's Research UK South West Network Centre, Jan 2022 – present.
Ad hoc peer review: (journals) *Frontiers in Neurology*, *Current Biology*; *Pharmacology, Biochemistry and Behavior*; *Journal of Experimental Neurology*; *Aquaculture International*; (grants) BBSRC.