Julie Seibt, PhD

Faculty of Health and Medical Sciences
Surrey Sleep Research Centre
University of Surrey
GU2 7XH, United Kingdom

Tel: +44 1483 68 41 67
Email: j.seibt@surrey.ac.uk
ORCID : 0000-0002-1081-9680

RESEARCH INTERESTS AND EXPERTISE

My main research interest is to understand the influence of sleep on the physiology of synapses and dendrites with specific emphasis on plasticity mechanisms. To address this question, I use a combination if electrophysiology, molecular biology, *in vivo* optical imaging and behavioural manipulations in the rodent model.

Technical skills: rodents, in vivo, EEG/LFP recordings & analysis, functional Ca^{2+} imaging & analysis, viral injection, molecular biology (protein, RNA & DNA), behaviour.

EDUCATION

2005 **PhD in Neurobiology**, Claude Bernard University - Lyon (France)
"Role of the transcription factor Neurogenin2 in the development of thalamo-cortical axons"
2001 **MS in Neuroscience**, Claude Bernard University - Lyon (France)
2000 **BS in Cognitive Science**, Provence University - Marseille (France)

RESEARCH POSITIONS

2016- **Lecturer in Sleep & Plasticity**, University of Surrey
2010-2016 **Research Associate**, Charité-Universtätsmedizin Berlin
"Imaging dendritic activity across the sleep-wake cycle"
Laboratory of Prof Matthew E. LARKUM
2006-2010 **Post-doctoral fellow,** University of Pennsylvania
"Role of translation regulation during sleep-dependent cortical plasticity"
Laboratory of Dr Marcos G. FRANK
2005-2006 **Post-doctoral fellow**, University of Brussels
"*Role of imprinted genes during corticogenesis*"
Laboratory of Dr Pierre VANDERHAEGHEN

HONORS AND AWARDS

2017 Wellcome Trust Seed Award in Science
2014 Best Poster Award, Dendrite 2014 - 4th NAMASEN Training workshop
2014 Excellence Travel Award - Sleep Regulation & Function Gordon Conference
2012 SfN Postdoctoral Fellow Travel Award - Neuroscience (SfN) 2012
2011 WFSRSMS (World Sleep society) Travel Award
2009 Best Basic Research poster Award – 6th Sleep and Respiratory Neurobiology (CSRN) Research Retreat, University of Pennsylvania
2007 Best Translational/Clinical Research presentation Award – 4th Sleep and Respiratory neurobiology (CSRN) Research Retreat, University of Pennsylvania

2007 WFSRSMS (World Sleep society) Trainee Merit Award
2001-2004 Graduate Award from the French Ministry of Research and Technology

PUBLICATIONS

1. Peyrache A., Seibt J. (2020) *A mechanism for learning with sleep spindles*, **Phil. Trans. R. Soc.** B 375: 20190230. doi: 10.1098/rstb.2019.0230.

2. Seibt J., Frank M.G. (2019) *Primed to sleep: the dynamics of synaptic plasticity across brain states*, **Front. Syst. Neurosci.** DOI: 10.3389/fnsys.2019.00002

3. Sigl-Glöckner J., Seibt J. (2018) *Peeking into the sleeping brain: using* in vivo *imaging in rodents to understand the relationship between sleep and cognition*, **J Neurosci. Methods**. DOI: 10.1016/j.jneumeth.2018.09.011.

4. Frank M.G., Seibt J. (2018) *Sleep and plasticity: Waking from a fevered dream*, **Sleep Med Rev.** Jun; 39:1-2. DOI: 10.1016/j.smrv.2017.12.006.

5. Seibt J. , Richard C.J., Sigl-Glöckner J., Takahashi N., Kaplan D.I., Doron G., de Limoges D., Bocklisch C., Larkum M.E. (2017) *Cortical dendritic activity correlates with spindle-rich oscillations during sleep in rodents*, **Nat Commun.** Sep 25;8(1):684. DOI: 10.1038/s41467-017-00735-w
Featured in "*Editors' Highlights*" of *Nature Communications*

6. Seibt J., Timofeev I., Carrier J., Peyrache A. (2016) *Role of Spindle Oscillations across Lifespan in Health and Disease*, **Neural Plast.** 2016:8103439. DOI: 10.1155/2016/8103439

7. Dumoulin Bridi M.C. , Aton S.J. , Seibt J., Renouard L., Coleman T., Frank M.G. (2015) *Rapid eye movement sleep promotes cortical plasticity in the developing cat*, **Sci. Adv.** 1(e1500105). DOI: 10.1126/sciadv.1500105.

8. Aton S.J., Broussard C., Dumoulin M.C., Seibt J., Watson A., Coleman T., Frank M.G. (2013) *Visual experience and subsequent sleep induce sequential plastic changes in putative inhibitory and excitatory cortical neurons*, **PNAS** 110(8):3101-6. DOI: 10.1073/pnas.1208093110

9. Seibt J., Armant O., Le Digarcher A., Castro D., Ramesh V., Journot L., Guillemot F., Vanderhaeghen P., Bouschet T. (2012) *Expression at the imprinted Dlk1-Gtl2 locus is regulated by proneural genes in the developing telencephalon*, **PLoS ONE** 7(11). DOI: 10.1371/journal.pone.0048675.

10. Seibt J. and Frank M.G. (2012) *Translation regulation in sleep: making experience last.* **Communicative & Integrative Biology**. 5(5): 1-5. DOI: 10.4161/cib.21010

11. Seibt J., Dumoulin M.C., Aton S.J., Coleman T., Watson A., Frank M.G.(2012) *Protein synthesis consolidates sleep-dependent cortical plasticity* in vivo, **Curr Biol.** 22(8): 676 - 682. DOI: 10.1016/j.cub.2012.02.016

12. Aton S.J.*, Seibt J.*, Dumoulin M.C., Coleman T., Shiraishi M., Frank M.G. (2009) *The sedating antidepressant trazodone impairs sleep-dependent cortical plasticity*, **PLoS ONE** 4(7). DOI: 10.1371/journal.pone.0006078
* These two authors contributed equally to this work

13. Uebele V.N., Nuss C.E., Santarelli V.P., Garson S.L., Kraus R.L., Stauffer S.R., Barrow J.C., Koblan K.S., Renger J.J., Aton S., Seibt J., Dumoulin M., Jha SK., Coleman T., Frank M.G.(2009) *T-type*

calcium channels regulate cortical plasticity in vivo. **NeuroReport** 20(3): 257- 62. DOI: 10.1097/WNR.0b013e32832f573b

14. Aton S.J., Seibt J., Frank M.G. (2009) *Sleep and Memory*. In: **Encyclopedia of Life Sciences** (Levitan I, ed), Chichester: John Wiley & Sons. doi :10.1002/9780470015902.a0021395

15. Aton S.J, Seibt J., Dumoulin M.C., Jha S.K., Steinmetz N., Coleman T., Naidoo N., Frank M.G. (2009) *Mechanisms of sleep-dependent consolidation of cortical plasticity*. **Neuron** 61(3): 454-66. DOI: 10.1016/j.neuron.2009.01.007

16. Seibt J., Aton S.J., Jha S.K., Coleman T., Dumoulin M.C., Frank M.G.(2008) *The non-benzodiazepine Zolpidem impairs sleep-dependent cortical plasticity*. **SLEEP** 31(10): 1381-1392.

17. Schuurmans C., Armant O., Nieto M., Stenman J.M., Britz O., Klenin N., Brown C., Langevin L.M., Seibt J., Tang H., Cunningham J.M., Dyck R., Walsh C., Campbell K., Polleux F., Guillemot F. (2004) *Sequential phases of cortical specification involve Neurogenin-dependent and -independent pathways.* **EMBO J.** 23(14):2892-902. DOI: 10.1038/sj.emboj.7600278

18. Dufour A., Seibt J., Passante L., Depaepe V., Ciossek T., Frisén J., Kullander K., Flanagan J.G., Polleux F., Vanderhaeghen P. (2003) *Area specificity and topography of thalamocortical projections are controlled by ephrin/Eph genes*. **Neuron**. 39(3):453-65. DOI: 10.1016/s0896-6273(03)00440-9

19. Seibt J., Schuurmans C., Gradwhol G., Dehay C., Vanderhaeghen P., Guillemot F., Polleux F. (2003) *Neurogenin2 specifies the connectivity of thalamic neurons by controlling axon responsiveness to intermediate target cues*. **Neuron** 39(3):439-52. DOI: 10.1016/s0896-6273(03)00435-5

FUNDINGS

ONGOING:

2021-2024 Leverhulme Trust Research Grant (RPG-2020-340, £221,792, PI)
2020-2022 Royal Society Research Grant (RGS\R1\201200, £19,426; PI)
2016-2021 Research funds from the University of Surrey & the Braithwaite Family Foundation (£105,000; PI)

COMPLETED:

2017-2020 Wellcome Trust Seed Award in Science (209099/Z/17/Z, £95,582; PI)
Project: The role of sleep in brain plasticity: focus on the synaptic translatome

2018 Wellcome Trust Biomedical Vacation Scholarships to Lucy Collins (211652/Z/18/Z, £1,500; PI)
Project: Influence of experience and circadian rhythms on Infra slow oscillations (ISOs) in the rodent brain.

2012-2016 EU Marie Curie International Reintegration Grants - PERISLEEP-268273 (€100,000; PI)
Project: Imaging dendrites across wake and sleep: fiberoptic measurements of calcium activity in freely behaving animals

2008-2010 National Sleep Foundation (NFS)/Pickwick Postdoctoral Fellowship ($58,238; PI)
Project: Role of translation and transcription in sleep-dependent cortical plasticity

2005-2006 EMBO Short-Term Fellowship (€6,223.3)
Project: "Role of non-coding RNAs in brain development"

2004-2005 French Medical Research Foundation (FRM)/End of PhD Grant (€15,000)
Project: *Screening of downstream effectors of Neurogenin2 controlling thalamocortical development*

2002-2003 Marie Curie Training Site Fellowship (EURON) (€6,000)
2001-2004 Merit grant/French Ministry of Research and Technology (€40,612.32)
Project: *Role of the transcrption factor Neurogenin2 in the early development of thalamocortical projections*

ORAL PRESENTATIONS (**invited*)

1. * 14th Göttingen Meeting of the German Neuroscience Society (Virtual) – March 2021
2. * University of Leicester (UK/virtual) – October 2020
3. * 25th European Sleep and Research Society (ESRS) – Seville (Spain) – Sept. 2020
4. * Institute of Psychiatry and Neuroscience of Paris – Paris (France) – Sept. 2019
5. * Swiss Society for Sleep Research, Sleep Medicine and Chronobiology (SSSSC) – Fribourg (Switzerland) – June 2019
6. *Royal Society Meeting "*Memory reactivation: replaying events past, present and future"* – Chicheley (UK) - May 2019
7. *COSYNE 2019 Workshop on Memory – Cascais (Portugal) – March 2019
8. * Associated Professional Sleep Societies (APSS), SLEEP 2018 – Baltimore (USA) – June 2018
9. *11 Minutes of Sleep in Pisa/Pisa Sleep Award ceremony – Pisa (Italy) – June 2016
10. *Focus Program Translational Neurosciences (FTN) - Universitätsmedizin der Johannes Gutenberg-Universität Mainz (Germany) – Feb. 2016
11. *7th Congress of the World Sleep Federation (WFSRSMS) - Istanbul (Turkey) - Nov. 2015
12. *Actual Topics in Sleep and Chronobiology Research - UZH/ETH (Switzerland) - Nov. 2012
13. 6th Congress of the World Sleep Federation (WFSRSMS) - Kyoto (Japan) - Oct. 2011
14. 19th European Sleep and Research Society (ESRS) - Glasgow (Scotland) - Sept. 2008
15. Associated Professional Sleep Societies (APSS), SLEEP 2008 Baltimore (USA) - June 2008
16. 5th Congress of the World Sleep Federation (WFSRSMS) - Cairns (Australia) - Sept. 2007
17. 7th EURON Ph.D. Students Days – Free University of Brussels - Brussels (Belgium) – Jan. 2004

PROFESSIONAL ACTIVITIES

Workshop organisation:
2018 Co-organiser '*Neuroplasticity: from bench to machine learning*" – IAS workshop, University of Surrey

Editorial service:
2016 Lead Editor - Neural Plasticity Special Issue on the "*Role of Spindle Oscillations across Lifespan in Health and Disease*"
2018- Review Editor for Frontiers in Sleep and Circadian Rhythms, member of the editorial board for Cellular Signaling

Reviewer:
Journal: Frontiers in Neural Circuits, Frontiers in Sleep and Circadian Rhythms, Journal Sleep Research, SLEEP, Current Biology, Cell Report.
Grant: BBSRC, MRC

TEACHING

2019 Graduate Certificate in Learning and Teaching (University of Surrey)
2016 – present (University of Surrey)
Neuroscience, from Neurons to Behaviour (BMS2048 - Module convenor since 2017)
Neuroscience, from Molecules to Mind (BMS3064)

SUPERVISION

PhD students
03/2015-12/2019 Johanna Sigl-Glöckner – Bernstein Center for Computational Neuroscience Berlin
10/2016-present José Luca Santos – University of Surrey

Undergraduate students
Summer 2018/2019 Lucy Collins (Wellcome Trust Vacation Student), Berta Piqué (Erasmus student)
Since 2016 ~5 students/year (final year project dissertation)

RESEARCH COLLABORATIONS

Prof André Gerber – University of Surrey, UK
Prof Matthew Larkum - Humboldt Universität zu Berlin, Germany
Dr Jini Naidoo - University of Pennsylvania, US
Prof Marcos Frank – WSU, US