

# GABRIELLE GIRARDEAU, PHD

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## RESEARCH AND EDUCATION

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- 2018- **Principal Investigator**, Inserm-Avenir Junior team "Sleep and Aversive Memories", Institut du Fer-a-Moulin UMR-S 839 Inserm/UPMC, Paris, France. **Mechanisms for aversive memory consolidation in normal and pathological conditions.**
- 2012-2017 **Post-doctoral researcher**, Buzsáki Lab, Neuroscience Institute, New York University Medical Center, New York, NY, USA. **Physiological interactions between the hippocampus and the amygdala during the acquisition and consolidation of emotional memories.**
- 2011-2012 Temporary Teaching and Research Assistant (ATER), *LPPA*, CNRS-Collège de France.
- 2011 FENS/IBRO/SfN summer school: Causal Neuroscience - Interacting with Neural Circuits Bertinoro, Italy. Organizers : G. Buzsáki & M. Häusser.
- 2007-2011 **Ph.D. in Neuroscience**, University Pierre and Marie Curie (UPMC), Paris VI. **Neural bases of memory consolidation in rats : a focus on hippocampal sharp-wave ripples.**  
Advisor : Dr. M. Zugaro, *LPPA*, CNRS-Collège de France. Highest honours. (09/27/2011)  
*Defense Examiners : Prof. J. O'Keefe (Nobel Prize 2014) and Dr. B. Poucet.*  
*Defense Committe : Dr. X. Leinekugel, Dr. S. Wiener, Dr. S. Charpier, Dr. M. Zugaro.*
- 2007 **M.S.**, Integrative biology and physiology, major in Neuroscience (with honours). Ecole Normale Supérieure (**ENS**) of Paris and UPMC.
- 2006-2007 **M.S. research** (1year) : *LPPA*, CNRS-Collège de France, Paris. **Neural bases of memory consolidation in rats.** Advisor : Dr. M.B. Zugaro.
- 2006 **M.S. internship** (5 months) : *Functional Neuroanatomy Laboratory*, Laval University, Québec, Canada. Anatomical-functional properties of hippocampal CA1 interneurons in rats. Advisor : Dr. A. Sik.
- 2005 **Summer research internships** : UMR1141, Neuroprotection of the developing brain, Hopital Robert Debré (Paris) - Laboratoire de Sciences Cognitives et Psycholinguistique, École Normale Supérieure (Paris).
- 2005 **B.S** (with honours), Life Sciences, UPMC.

## PUBLICATIONS

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- **G. Girardeau\***, K. Benchenane\*, S.I. Wiener, G. Buzsáki & M.B. Zugaro, Selective suppression of hippocampal ripples impairs spatial memory, *Nature Neuroscience* (2009) 12, 1222-3.  
*Highly Cited Paper (ISI Essential Science Indicators : Top 1% papers in the field of Neuroscience and Behavior).*
- S. Herwik, S. Kisban, A.A.A. Aarts, K. Seidl, **G. Girardeau**, K. Benchenane, M.B. Zugaro, S.I. Wiener, O. Paul, H.P. Neves & P. Ruther, Fabrication technology for silicon-based microprobe arrays used in acute and sub-chronic neural recording, *Journal of Micromechanics & Microengineering* (2009) 19.
- **G. Girardeau**, M.B. Zugaro, Hippocampal ripples and memory consolidation, *Current Opinion in Neurobiology* (2011) 21, 1-8. *Review*
- **G. Girardeau**, A. Cei, M.B. Zugaro. Homeostatic regulation of ripple dynamics after learning-induced network plasticity, *The Journal of Neuroscience* (2014) 34, 5176-83.
- A. Cei, **G. Girardeau**, C. Drieu, K. El Kanbi, M.B. Zugaro. Sequences of hippocampal cell assemblies reverse during backward movement, *Nature Neuroscience* (2014) 17, 719-24.
- N. Maingret, **G. Girardeau**, R. Todorova, M. Goutierre, M.B. Zugaro. Hippocampo-cortical coupling mediates memory consolidation during sleep, *Nature Neuroscience* (2016) 19, 959-964.
- **G. Girardeau**, I. Inema, G. Buzsaki. Reactivations of emotional memory in the hippocampus-amygdala system during sleep. *Nature Neuroscience* (2017) **20**, 1634–1642.

## BOOK CHAPTERS

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- **G. Girardeau**, M.B. Zugaro. Chapter 7 : Causal relationship between sharp wave-ripples and spatial learning. In : *Analysis and modeling of coordinated multi-neuronal activity*, Springer Series in Computational Neuroscience, Vol. 12 (2015). Editor : M. Tatsuno.

## DATASET

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- **G. Girardeau**, I. Inema, G. Buzsaki. (2017); Simultaneous large-scale recordings in dorsal hippocampus, basolateral amygdala and neighbouring deep nuclei and structures in rats performing a spatial aversive task and sleeping. [www.CRCNS.org](http://www.CRCNS.org) <http://dx.doi.org/10.6080/KOMS3QXD>

## PRESENTATIONS

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- 2017 Group for Neural Theory Seminars, ENS, Paris.
- 2017 Annual Revson Fellows Meeting and Dinner (NY, USA).
- 2017 NeuroFrance (Bordeaux, France). *Selected speaker.*
- 2017 NYU Neuroscience Institute Annual Retreat (Mohonk, USA). *Selected speaker.*
- 2016 Royal Society meeting, "The offline brain: understanding memory consolidation and reconsolidation" (Chicheley Hall, UK). *Invited speaker.*
- 2016 NYU Neuroscience Institute Group Meeting (NY, USA).
- 2012 Nencki Institute of Experimental Biology (Warsaw, Poland). *Invited speaker.*
- 2012 CNRS-MPG Neuroscience Meeting (Paris). *Nominee Talk.*
- 2011 Symposium on multi-electrode recordings (Lyon, France).
- 2011 Causal Neuroscience summer school (Bertinoro, Italy). *Awardee Talk.*
- 2011 Keck Center for Integrative Neuroscience, UCSF (San Francisco, USA). *Invited speaker.*

- 2011 Seminars of the Center for Interdisciplinary Research in Biology (Paris).
- 2010 French Academy of Science : “Major Advances in Biology” (Paris). *Awardee Talk*.

## GRANTS & AWARDS

- 2018 ATIP-Avenir
- 2015-2017 Charles H. Revson Senior Fellowship in Biomedical Science.
- 2013-2014 Support grants from the Philippe Foundation.
- 2013-2015 Post-doc Fellowship from the Fyssen Foundation (FR).
- 2012-2013 Post-doc Fellowship from the Medical Research Foundation (FR).
- 2012 Finalist for the SfN Donald B. Lindlsey Prize in Behavioral Neuroscience.
- 2012 Best Thesis award, French Society for Neuroscience.
- 2012 Neuroscience Prize of the CNRS/Max-Planck-Gesellschaft Network.
- 2011 Best poster award at Bertinoro Causal Neuroscience Summer School.
- 2010-2011 Fellowship Grant from the Medical Research Foundation (FR).
- 2010 “Major Advances in Biology” Award, French Academy of Sciences.
- 2010 Special Award, outreach short-film festival 'Les chercheurs font leur cinema'.
- 2007-2011 Ph.D. Fellowship Grant (French Ministry of Research and Higher Education).
- 2006 M.S. Academic grant from Paris VI University (UPMC).

## SCIENTIFIC COLLABORATIONS & COMMITTEES

- 2015 Member of the NYU SPiNES Committee (Seminars by post-docs In Neuroscience: Extramural Series).
- 2007-2010 Integrated Project Neuroprobes of the 6<sup>th</sup> Framework Program (FP6) of the European Commission.  
*The Neuroprobes project gathered nine research laboratories and five companies to develop new silicium electrode matrices for the recording of large ensembles of neurons and LFPs (>100 sites).*

## TEACHING

- 2014-2015 Supervisor for a NYU M.S. Student, Research Internship.
- 2008-2012 Supervisor for research internships (Master and B.S. students).
- 2008-2010 Paris-Nord University, Teaching Assistant in the Psychophysiology Department.  
*Perception Neuropsychology*  
*Bioethics*  
*Brain & Psychology*  
*Experimental Methodology*

## OUTREACH

- Bases neurales de la mémoire émotionnelle : interactions hippocampe amygdale pendant le sommeil à ondes lentes, Annales de la Fondation Fyssen #30, 2017.
- “Rêves de victoire”, very short movie of scientific popularization (Special Award 2010).
- Memory improves with sleep, CNRS international magazine n°16, jan. 2010.
- Comment la mémoire se consolide pendant le sommeil, La lettre du Collège de France n°27, dec. 2009.
- Dormir pour mieux se souvenir, Le journal du CNRS n°239, dec. 2009.