

Summary

A workshop titled 'The contribution of hippocampal neural circuits to memory and spatial cognition: recent insights, emerging technologies and future directions' was held at UCL on the 13th and 14th of June 2016.

7 academics from UCL and 5 from France participated in the meeting, as well as two further speakers with special expertise, one from Durham University (UK) and one speaker from the US (Boston University). The final program is attached for further details of speakers and their talks.

The meeting was hugely successful, as it drew a total of around 70 attendees from different UCL faculties (we had a full house in the HO Schild lecture theatre which holds a 73 seat capacity; attendees belonged mostly to the Faculty of Life Sciences and Brain Sciences).

Collaborative activities since the workshop:

- One of the organisers, Dr Francesca Cacucci has been invited (as a result of the UCL based workshop) as a speaker to the 7th GDR neural net meeting in Marseille. This has provided further opportunity to discuss potential collaborations which will likely result in joint grant applications.
- Dr Wills and Dr Cacucci plan to invite Dr Pepe Lenck-Santini (from the INSERM in Marseille, who unfortunately missed the UCL-France Workshop) to give a seminar as part of the NPP Spring seminar series. During Dr Cacucci's visit to Marseille in late October, it was agreed that the three researchers would embark into a scientific collaboration involving the study in the physiology of the hippocampus during early postnatal development.
- Dr Caswell Barry and Dr Karim Benchenane have agreed to work on a collaborative project exploring the timing of hippocampal firing and its relationship to memory formation.
- Dr Francesca Cacucci has agreed to be involved in editing a Frontiers in Neuroscience Topic, together with Dr Jerome Epztein and Dr Vincent Hok (both based in Marseille, France) on 'Place cells and the Neurophysiology of the Hippocampus'. The intention of this initiative is to collate recent research insights into the neurophysiology of the hippocampus (around 30 articles will be commissioned from hippocampal scholars). The topic in the Frontiers in Neuroscience.
- Given the success of the workshop, Dan Bendor (one of the speakers) has suggested we should aim to make this a regular event, and is looking into funding opportunities.

Budget expenditure:

Budget was spent on the accommodation of the French guests (1 night) and their travel arrangements to and from the venue. Further funds were spent on the post-workshop dinner at 'La Cigala' in Lamb's conduit, and on the refreshments offered throughout the workshop.

Acknowledgements:

We thank all the participants, with a special thanks to the speakers for insightful and inspiring talks (and for sharing unpublished results).

A particular thanks goes to the funders and to Ms Tina Bashford, who provided essential administrative and logistic support throughout the organisational and executive phases of the project.

2016 UCL-French Embassy Collaborative Science & Technology Workshop

**The contribution of hippocampal neural circuits to memory and spatial cognition:
recent insights, emerging technologies and future directions**

13th-14th June

[H.O. Schild Lecture Theatre, Medical Sciences Building, UCL](#) (click link for map)

Monday 13th June

Session 1

14:00 Neil Burgess (UCL)

Neural mechanisms of spatial cognition and imagination.

14:30 Francesca Cacucci/Tom Wills (UCL)

The development of the hippocampal map of space: directions, boundaries and memory.

15:00 Laure Rondi-Reig (Institut de Biologie Paris Seine)

Probing Hippocampo-cerebellar interaction during behaviour.

15:30 Bruno Poucet (Aix-Marseille Université – CNRS)

Properties of hippocampal place cells during goal-directed spatial navigation.

Session 2

16:30 Karim Benchenane (ESPCI-ParisTech)

From necessity to sufficiency in memory research: When sleep helps to understand wake experiences.

17:00 Daniel Bendor (UCL)

Biasing hippocampal replay during sleep

17:30 Michael Zugaro (Center for Interdisciplinary Research in Biology, Collège de France, Paris)

Hippocampo-cortical coupling mediates memory consolidation during sleep

Tuesday 14th June

Session 3

09:30 Francesca Sargolini (Aix-Marseille Université – CNRS)

Entorhinal cortex and path integration processes

10:00 Michael Hasselmo (Boston University)

Neural coding of space and time in entorhinal cortex

10:30 Caswell Barry (UCL)

Coherent replay between CA1 and entorhinal cortex

Session 4

11:30 Pierre-Yves Jacob (Kate Jeffery Lab, UCL)

Uncoupling of dysgranular retrosplenial head direction cells from the global head direction attractor network

12.00 Colin Lever (Durham)

How do environmental boundaries define space?

12:30 Hugo Spiers (UCL)

Neural systems for spatial navigation

For any further details please contact Tom Wills (t.wills@ucl.ac.uk) or Francesca Cacucci (f.cacucci@ucl.ac.uk).