David Omer

Personal Details

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Higher Education

1997-2001 B.Sc. in Medicine, Tel-Aviv University.

2001-2007 Direct Ph.D. in Neurobiology, Weizmann Institute of Science, Dept. of Neurobiology, Rehovot, Israel. Supervisor: Prof. Amiram Grinvald.

2009-2014 Post-doctoral fellow at Max-Planck Institute for Biological Cybernetics, Tübingen, Germany. Host: Prof. Nikos Logothetis.

2015-2019 Post-doctoral fellow at Weizmann Institute of Science, Dept. of Neurobiology Rehovot, Israel. Host: Prof. Nachum Ulanovsky.

Positions

Aug 2019 Assistant Professor, Edmond and Lily Safra Center for Brain Sciences.

Peer-reviewed Articles

1. Oren G, Shapira A, Lifshitz R, Vinepinsky E, Cohen R., Fried T, Hadad GP**, Omer DB** (2024). Vocal labeling of others by non-human primates. Under review in *Science*.
2. **Omer DB**, Liora Las, Nachum Ulanovsky (2022). Contextual and pure time coding for self and other in the hippocampus. ***Nature Neuroscience.***
3. Wagner I, Graichen LP, Todorova B, Luttig A, **Omer DB**, Stangl M, Lamm C (2022). "Entorhinal grid-like codes and time-locked network dynamics track others navigating through space", Under review in ***Nature Communications***.
4. **Omer DB**, Zilkha N, and Kimchi T (2019). Social Minds Sync Alike. ***Cell*** *178*, 272–274.
5. **Omer DB**, Maimon SR, Las L, Ulanovsky N. Social place cells in the bat hippocampus. ***Science***. 359:218–224 (2018).
6. **Omer DB**, Fekete T, Ulchin Y, Hildesheim R, Grinvald A. Dynamic patterns of spontaneous ongoing activity in the primary visual cortices of anesthetized and awake monkeys are different. ***Cerebral Cortex*** (2018 Apr 27).
7. Fekete T, **Omer DB**, O'Hashi K, Grinvald A, van Leeuwen C, Shriki O, Critical dynamics, anesthesia and information integration: lessons from multi-scale criticality analysis of voltage imaging data. ***NeuroImage*** (Accepted, August 2018).

8. **Omer DB**, Hildesheim R, Grinvald A, Temporally-structured acquisition of multidimensional optical imaging data facilitates visualization of elusive cortical representations in the behaving monkey. ***NeuroImage*** 82, 237–251 (2013).
9. Muir DR, Costa NMAD, Girardin CC, Naaman S, **Omer DB**, Ruesch E, Grinvald A, Douglas RJ, Embedding of cortical representations by the superficial patch system. ***Cerebral Cortex*** 28, 2244–2260 (2011).
10. Fekete T, Pitowsky I, Grinvald A, **Omer DB**, Arousal increases the representational capacity of cortical tissue. ***J. Comp. Neurosci***. 27, 211–227 (2009).
11. Fekete T, **Omer DB**, Naaman S, Grinvald A, Removal of spatial biological artifacts in functional maps by local similarity minimization. ***J. Neurosci. Meth.*** 178, 31–39 (2009).
12. Reidl J, Starke J, **Omer DB**, Grinvald A, Spors H, Independent component analysis of high-resolution imaging data identifies distinct functional domains. ***NeuroImage*** 34, 94–108 (2007).
13. Vanzetta I, Slovin H, **Omer DB**, Grinvald A, Columnar resolution of blood volume and oximetry functional maps in the behaving monkey. ***Neuron*** 42, 843–854 (2004).

Book Chapters

Grinvald A, Sharon D, **Omer DB**, Vanzetta I, Imaging the neocortex functional architecture using multiple intrinsic signals: implications for hemodynamic-based functional imaging. Cold Spring Harbor Protocols (2016).

Grinvald A, **Omer DB**, Sharon D, Vanzetta I, Hildesheim R, Voltage-sensitive dye imaging of neocortical activity. Cold Spring Harbor Protocols (2016).

Grinvald A, **Omer DB**, Naaman S, Sharon D, Imaging the dynamics of mammalian neocortical population activity in-vivo. In: Membrane Potential Imaging in the Nervous System and Heart, pp 243–271, Springer (2015).

Research Grants

2020 Israel Science Foundation (ISF) personal equipment grant, "Research laboratory for the study of neural mechanisms of primate behavior". ₪ 600,000.

2020—2023 Israel Science Foundation (ISF) F.I.R.S.T – BIKURA – individual grant, "Measuring eye-gaze in primates during free behavior". ₪ 750,000.

2021—2022 2020 The Brain and Behavior (NARSAD) Young Investigator Grant," Through the eyes of the primate hippocampus: neural circuits underlying social cognition". $70,000.

2022—2027 Israel Science Foundation (ISF) – Individual grant, "The primate social hippocampus". ₪1,350,000.

2023—2029 ERC-Synergy grant, "Oxytocin-driven territorial mapping of the mammalian hippocampal formation. € 2,500,000/10,000,000 [*David Omer's share is € 2,500,000 of the total allocation of € 10,000,000 which is divided between 4 labs, including my lab*].

Memberships & Honors

Society for Neuroscience; Society for Social Neuroscience; International Society for Neuroethology; Israel Society for Neuroscience.

Ad-hoc reviewer*: Frontiers in Neuroscience, Proceedings of the National academy of Science, Nature Scientific Report, Cerebral Cortex*

2020 Golda Meir fellow 2020

2019 Selected talk, Ascona 2019 meeting on the assembly and function of neuronal circuits, Ascona, Switzerland.

2017 Opening lecture at the Spring Hippocampal Research Conference, Taormina, Italy (2017).

2016 Invited talk - International Society for Neuroethology biannual congress, Montevideo, Uruguay (2016).

2015 Best Poster Award – ISFN meeting 2015.

2015 Shapira fellowship – returning scientist.

Invited Lectures and Seminars

"The Naming of Non-Human Primates", Sagol Department of Neuroscience, University of Hifa, Israel (June 2024).

"Space, Time and Others in the hippocampus & the naming of non-human primates", Invited talk at the School of Psychology and Neuroscience at the University of Glasgow, UK.

"The Naming of Non-Huma Primates", 2024 International meeting of the Society for Social Neuroscience, Tsukuba, Japan (March 2024).

"Space, Time and Others in the Hippocampus", Hadassah faculty of medicine, Hebrew university, Jerusalem (May 2020).

"Episodic cells for self and other in the bat hippocampus", Ascona meeting on neural circuits, Ascona, Switzerland (November 2019).

"Space, Time and Others in the bat hippocampus", Ernst Strüngmann Institute (ESI) for Neuroscience (August 2019).

"Episodic cells for self and other in the bat hippocampus", Spring Hippocampal Research Conference (June 2019).

"Social place-cells in the bat hippocampus", The George S. Wise Faculty of Life Sciences (May 2019).

"Social place-cells in the bat hippocampus", Sackelr school of medicine, Israel (June 2019).

"Episodic cells for self and other in the bat hippocampus", Israel Society for Neuroscience (ISFN) annual meeting, Eilat (2019).

"Social place-cells in the bat hippocampus", Edmond and lily Safra center for brain sciences, The Hebrew university of Jerusalem Israel (2019).

"Social place-cells in the bat hippocampus", The Ruth and Bruce Rappaport faculty of medicine, Technion, Israel (2018).

"Social place-cells in the bat hippocampus", Department of life sciences, Ben-Gurion University, Israel (2018).

"Social place-cells in the bat hippocampus", Weizmann Institute, Israel (2018).

"Social place-cells in the bat hippocampus", Johns Hopkins University (2017).

"Representation of conspecifics by bat hippocampal place cells", Spring Hippocampal Research Conference, Taormina, Italy (2017).

"Where are you? Representation of conspecifics by place-cells in the bat hippocampus", UC Berkeley (2016).

"Spatial representation of self and other by bat hippocampal place cells", Israel Society for Neuroscience (ISFN) annual meeting, Eilat (2016).

"Mirror place cells in the bat hippocampus", International Society for Neuroethology biannual congress, Montevideo, Uruguay (2016).

"Mirror place cells in the bat hippocampus", Swift talk presentation, Israel Society for Neuroscience (ISFN) annual meeting, Eilat (2015)

Scientific Meetings and Abstracts

Ascona meeting on neural circuits (2019), Ascona, Switzerland., "Episodic cells for self and other in the bat hippocampus".

Spring Hippocampal Research Conference (2019), Taormina, Italy. "Episodic cells for self and other in the bat hippocampus".

Society for Social Neuroscience (S4SN) Annual Meeting, San Diego, USA (2018). "Episodic cells for self and other in the bat hippocampus". Poster presentation.

Society for Neuroscience (SfN) Annual Meeting, San Diego, USA (2018). "Episodic cells for self and other in the bat hippocampus". Poster presentation.

iNAV 2nd Interdisciplinary Navigation Symposium 2018. Quartier-Tremblant, CANADA (2018). **"**Mirror place cells in the bat hippocampus?". Poster presentation.

UC Irvine International Conference on Learning and Memory 2018. Huntington Beach, USA (2018). **"**Mirror place cells in the bat hippocampus? Poster presentation".

Conference on 'Studying complex behavior', Weizmann Institute of Science (2017). **"**Social place cells in the bat hippocampus". Poster presentation.

Israel Society for Neuroscience (ISFN) Annual Meeting, Eilat, Israel (2017). **"**Social place cells in the bat hippocampus". Lecture.

Society for Neuroscience (SfN) Annual Meeting, Washington DC, USA (2017). **"**Social place cells in the bat hippocampus". Poster presentation.

Society for Social Neuroscience (S4SN) Annual Meeting, Washington DC, USA (2017). **"**Social place cells in the bat hippocampus". Poster presentation.

Conference on - Neural Basis of active sensation and navigation, Howard Hughes Medical Institute - Janelia Research Campus, USA (2017). **"**Representation of conspecifics by bat hippocampal place cells". Poster presentation.

Israel Society for Neuroscience (ISFN) Annual Meeting, Eilat, Israel (2016). "Spatial representation of self and other by bat hippocampal place cells". Lecture.

Society for Neuroscience (SfN) Annual Meeting, San Diego, USA (2016). **"**Representation of conspecifics by bat hippocampal place cells". Poster presentation.

German-Israel Inter-Academy Meeting on - Brains: From Synapses, Circuits and Systems to the Clinic, Jerusalem (2016). **"**Representation of conspecifics by bat hippocampal place cells". Poster presentation.

Federation of European Neuroscience Societies (FENS) forum, Copenhagen, Denmark (2016). **"**Representation of conspecifics by bat hippocampal place cells". Poster presentation.

International Society for Neuroethology biannual congress, Montevideo, Uruguay (2016). **"**Representation of conspecifics by bat hippocampal place cells". Lecture.

Israel Society for Neuroscience (ISFN) Annual Meeting (2015). **"**Mirror place cells in bat hippocampus?". Lecture + poster presentation (winner of the best poster award).

Society for Neuroscience (SfN) Annual Meeting, New Orleans, USA (2012). "Spiral waves dynamics in primary visual cortex of the anesthetized primate". Lecture - organized mini-symposium.

Teaching

2024—present "The neurophysiology of higher cognitive functions in the hippocampus", undergraduate course. The Hebrew University.

2021—present "Neuroscience of Behavior", ELSC neuroscience graduate program. The Hebrew University.

2022—present "Introduction to neuroscience", ELSC undergraduate program, The Hebrew University.

2020—2022 "Selective topics in computational neuroscience", The Hebrew University.

Scientific organizer

2019-2021 Organizer of the Colloquium in Brain Science, Edmond and Lily Safra Center for Brain Sciences.

2021-present Organizer of the Faculty Colloquium at the Edmond and Lily Safra Center for Brain Science.

May 2024 Organizer of the ELSC 2024 retreat conference

Social outreach

2023 Organizer of the open lectures series "Democracy and Academia"; Link to the series webpage.