

CURRICULUM VITAE

Ege Taner Kavalali

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PERSONAL INFORMATION

Date of birth: September 6, 1969; Istanbul, Turkey
Citizenship: U.S.A.

EDUCATION AND TRAINING

1995-1999 Postdoctoral Fellow, Department of Molecular and Cellular Physiology,
Stanford University, Stanford, California (Supervisor: Dr. Richard W. Tsien)
1998 Molecular Cloning of Neural Genes Course, Cold Spring Harbor Laboratory,
Cold Spring Harbor, New York
1995 Ph.D. Biomedical Engineering, Rutgers University,
New Brunswick, New Jersey (Supervisor: Dr. Mark R. Plummer)
1990 B.S. Electrical Engineering, Boğaziçi University, Bebek, Istanbul, Turkey
1989 Engineering Trainee at EMCO Maier & Co., Hallein, Austria
1988 Engineering Trainee at TELETAS Communications Inc., Istanbul, Turkey
1986 Terakki Vakfı Şişli Terakki Lisesi (Lycée), Nişantaşı, Istanbul, Turkey

ACADEMIC POSITIONS

2011 - present Rosewood Corporation Chair in Biomedical Science
2010- present Professor, the Department of Neuroscience and the Department of Physiology,
UT Southwestern Medical Center
2008-2016 Chair, Graduate Program in Neuroscience, Division of Basic Science, UT
Southwestern Medical Center
2005-2010 Associate Professor (with Tenure), the Department of Neuroscience and the
Department of Physiology, UT Southwestern Medical Center
1999-2005 Assistant Professor, Center for Basic Neuroscience and the Department of
Physiology, UT Southwestern Medical Center

AWARDS/HONORS

2016 Chair, Gordon Research Conference on Synaptic Transmission
2015 Special Lecture, Society for Neuroscience Meeting, Chicago
2014 Vice Chair, Gordon Research Conference on Synaptic Transmission
2013 NARSAD Distinguished Investigator Award (Brain & Behavior Research
Foundation)
2006 American Heart Association Established Investigator Award
1999 Effie Marie Cain Scholar in Medical Research,
UT Southwestern Medical Center at Dallas.
1996 American Heart Association California Affiliate Postdoctoral Fellowship,
Stanford University, Stanford, California
1994-1995 Charles and Johanna Busch Research Fellowship,
Rutgers University, New Brunswick, New Jersey
1990 Graduating with Honors, Department of Electrical Engineering,
Boğaziçi University, Istanbul, Turkey

1986 “Türkiye İş Bankası” Award (for ranking 20th in 1986 Turkish University Entrance Examinations)

PROFESSIONAL AFFILIATIONS

1994- Society for Neuroscience
1994- Biophysical Society

EDITORIAL BOARDS, PEER REVIEW

2017 Associate Editor, Journal of Neuroscience Research Special Issue on Spontaneous Neurotransmission
2017 External Reviewer, The School of Life Sciences & McGovern Institute for Brain Research at Peking University, Beijing, China
2016 External Reviewer, Neurosciences Graduate Program, Stanford University, Stanford, CA
2015 Subcommittee for the Neurobiology Division Review of the MRC Laboratory of Molecular Biology, Cambridge, UK
2014- Member of Editorial Board, Synapse
2014-2015 NIMH Review Panel for Silvio O. Conte Centers for Basic or Translational Mental Health Research
2014 Ad Hoc Member, Board of Scientific Councilors, NINDS
2013-present Member Advisory Board, SFB 1089 Synaptic Microcircuits, University of Bonn Medical Center, Bonn, Germany
2013-present Reviewing Editor, The Journal of Neuroscience
2011-present Member, Faculty of 1000
2016-2017 Chair, Neurotransporters, Receptors, and Calcium Signaling study section (NTRC), NIH Center for Scientific Review
2011-2016 Member, Neurotransporters, Receptors, and Calcium Signaling study section (NTRC), NIH Center for Scientific Review
2011- present Member, Promotions and Tenure Committee, UT Southwestern Medical Center
2008-2013 Associate Editor, The Journal of Neuroscience
2000-present

Frequent Reviewer for:

Journals: Cell, eLife, Nature Communications, Nature Neuroscience, Nature Reviews Neuroscience, Neuron, Proceedings of the National Academy of Sciences of the USA, Science.

Grants: Israel Science Foundation, Italian Telethon Foundation, Medical Research Council (U.K.), NIH Center for Scientific Review and Special Emphasis Panels, The Biotechnology and Biological Sciences Research Council (U.K.), The Wellcome Trust (U.K.), United States-Israel Binational Science Foundation, Deutsche Forschungsgemeinschaft.

TEACHING AND SERVICE

2018 Organizer, Society for Neuroscience Basic- Translational -Clinical Roundtable on Rapid Antidepressant Action (Synaptic Mechanisms and Clinical Aspects)
2017 Organizer, History of Neuroscience Journal Club, UT Southwestern Medical Center
2017- Member, Neurology Chair Search Committee, UT Southwestern Medical Center
2017 Promotion & Tenure Workshop, The Office of Faculty Diversity and Development and the Office of Women’s Careers, UT Southwestern Medical Center
2011- 2012 Member, Neurosurgery Chair Search Committee, UT Southwestern Medical Center
2010-2016 Director, The Cellular Biophysics of the Neuron Training Program, National Institute of Neurological Diseases and Stroke (T32 NS069562).
2009-2012 Member, Society for Neuroscience Program Committee

2008-2014	Member, Department of Neuroscience Faculty Search Committee, UT Southwestern Medical Center
2008-2010	Member, Psychiatry Chair Search Committee, UT Southwestern Medical Center
2008-2016	Member, Division of Basic Science Steering Committee, UT Southwestern Medical Center
2007-2008	Member, Biophysical Society, Exocytosis/Endocytosis Subgroup Council
2006-2014	Member, Oversight Committees for the Live Cell Imaging, the Molecular and Cellular Imaging and the Mouse Metabolism Facilities, UT Southwestern Medical Center
2005-2007	Coordinator, Neuroscience Graduate Program Qualifying Examinations UT Southwestern Medical Center
2006-2008	Chair, International Graduate Admissions Committee, Division of Basic Science, UT Southwestern Medical Center
2005-2008	Member, Graduate Admissions Committee, Division of Basic Science, UT Southwestern Medical Center
2001-2010	Organizer and lecturer, Chemical Neurotransmission course, UT Southwestern Medical Center
2001-2010	Coordinator, Neuroscience Seminar Series, Department of Neuroscience, UT Southwestern Medical Center
1999-present	Member, Neuroscience and Molecular Biophysics Graduate Programs at UT Southwestern. In this capacity, lecturer in several Neuroscience courses, member of qualifying examination committees, Ph.D. thesis committees, and Ph.D. supervisor to 8 students (8 graduated).
1997	Guest Lecturer, Mechanisms of Signal Transduction (MCB 230), University of California at Berkeley.
1991-1994	Teaching Assistant, Department of Biological Sciences, Rutgers University, New Brunswick, New Jersey.
1988-1989	Teaching Assistant, Department of Physics, Boğaziçi University, Istanbul, Turkey.

Grant Support

Source: National Institute of Mental Health (R01 MH66198)

PI: Ege T. Kavalali

Title: Role of SNARE Interactions in Central Synapse Function

Annual direct costs and dates: \$250,000 (2014-2019)

Total costs for entire grant period: \$1,250,000

The major goal of this project is to determine the role of SNARE proteins and their molecular interaction partners in synaptic vesicle fusion and endocytosis.

Source: National Institute of Aging (R01 AG055577)

MPI: Ilya Bezprozvanny and Ege T. Kavalali

Title: Calcium signaling and synaptic maintenance in Alzheimer's disease

Annual direct costs and dates: \$365,992 (2017-2021)

Total costs for entire grant period: \$1,829,960

The broad, long-term objective of this multi-PI grant application is to understand the importance of calcium signaling for synaptic spine dysfunction and loss in Alzheimer's disease.

Source: National Institute of Mental Health (R01 MH081060)

PI: Lisa M. Monteggia (Collaborator: Ege T. Kavalali)

Title: MeCP2 Dependent Transcriptional Repression & Neurotransmission

Annual direct costs and dates: \$250,000 (2013-2018)

Total costs for entire grant period: \$1,250,000

The major objective of this project is to further delineate the role of MeCP2, the gene linked to Rett Syndrome, in excitatory neurotransmission through its function as a transcriptional repressor.

Source: National Institute of Mental Health (R01 MH70727)

PI: Lisa M. Monteggia (Collaborator: Ege T. Kavalali)
Title: Antidepressants and intracellular signaling linked to BDNF
Annual direct costs and dates: \$382,270 (2016-2021)
Total costs for entire grant period: \$1,911,350
The main purpose is to investigate the role of BDNF in signal transduction pathways in mediating antidepressant efficacy.

BIBLIOGRAPHY

Thesis and Dissertation

1. **Kavalali ET** (1990). A computer simulation of K⁺ and Na⁺ channels from Hodgkin-Huxley kinetics. Senior thesis. Bogaziçi University, Istanbul, Turkey.
Advisor: Prof. Yusuf P. Tan, Institute of Biomedical Engineering
2. **Kavalali ET** (1995). Functional characterization of calcium channel potentiation in rat hippocampal neurons. Ph.D. dissertation. Rutgers University, New Brunswick, N.J.
Advisor: Prof. Mark R. Plummer, Department of Biological Sciences

Research Articles

1. **Kavalali ET**, Plummer MR (1994). Selective potentiation of a novel calcium channel in rat hippocampal neurones. *The Journal of Physiology (Lond.)* 480: 475-484.
2. **Kavalali ET**, Plummer MR (1996). Multiple voltage-dependent mechanisms potentiate calcium channel activity in hippocampal neurons. *The Journal of Neuroscience* 16: 1072-1082.
3. **Kavalali ET**, Hwang KS, Plummer MR (1997). cAMP-dependent enhancement of dihydropyridine-sensitive calcium channel availability in hippocampal neurons. *The Journal of Neuroscience* 17: 5334-5348.
4. **Kavalali ET**, Zhuo M, Bito H, Tsien RW (1997). Dendritic Ca²⁺ channels characterized by recordings from isolated hippocampal dendritic segments. *Neuron* 18: 651-663.
5. Klingauf J*, **Kavalali ET***, Tsien RW (1998). Kinetics and regulation of fast endocytosis at hippocampal synapses. *Nature* 394: 581-585. (**Equal contribution*)
6. **Kavalali ET**, Klingauf J, Tsien RW (1999). Properties of fast endocytosis at hippocampal synapses. *Philosophical Transactions of Royal Society London B* 354: 337-346.
7. **Kavalali ET**, Klingauf J, Tsien RW (1999). Activity-dependent regulation of synaptic clustering in a hippocampal culture system. *Proceedings of the National Academy of Sciences of the USA* 96: 12893-12900.
8. Pyle JL, **Kavalali ET**, Choi S, Tsien RW (1999). Visualization of synaptic activity in hippocampal slices with FM1-43 enabled by fluorescence quenching. *Neuron* 24: 803-808.
9. Pyle JL, **Kavalali ET**, Piedras-Renteria ES, Tsien RW (2000). Rapid reuse of readily releasable pool vesicles at hippocampal synapses. *Neuron* 28: 221-231.
10. Schoch S, Deák F, Königstorfer A, Mozhayeva M, Sara Y, Südhof TC*, **Kavalali ET*** (2001). SNARE function analyzed in synaptobrevin/VAMP knockout mice. *Science* 294:1117-1122 (**Corresponding Authors*).
11. Mozhayeva MG, Sara Y, Liu X, **Kavalali ET** (2002). Development of vesicle pools during maturation of hippocampal synapses. *The Journal of Neuroscience* 22: 654-665.

12. Sara Y, Mozhayeva MG, Liu X, **Kavalali ET** (2002). Fast vesicle recycling supports neurotransmission during sustained stimulation at hippocampal synapses. *The Journal of Neuroscience* 22: 1608-1617.
13. Biederer T, Sara Y, Mozhayeva M, Atasoy D, Liu X, **Kavalali ET**, Südhof TC (2002). SynCAM, a synaptic adhesion molecule that drives synapse assembly. *Science* 297:1525-1531.
14. Virmani T, Han W, Liu X, Südhof TC *, **Kavalali ET** * (2003). Synaptotagmin 7 splice variants differentially regulate synaptic vesicle recycling. *EMBO Journal* 22: 5347-5357.
15. Mozhayeva MG, Matos MF, Liu X, **Kavalali ET** (2004). Minimum essential factors required for vesicle mobilization at hippocampal synapses. *The Journal of Neuroscience* 24: 1680-1688.
16. Piedras-Rentería ES, Pyle JL, Diehn M, Glickfeld LL, Harata CN, Cao Y, **Kavalali ET**, Brown PO, Tsien RW (2004). Presynaptic homeostasis at CNS nerve terminals compensates for lack of a key Ca²⁺ entry pathway. *Proceedings of the National Academy of Sciences of the USA* 101: 3609-3614.
17. Deák F, Schoch S, Liu X, Südhof TC *, **Kavalali ET** * (2004). Synaptobrevin is essential for fast synaptic vesicle endocytosis. *Nature Cell Biology* 6: 1102-1108 (*Corresponding Authors).
18. Sara Y, Biederer T, Atasoy D, Chubykin A, Mozhayeva MG, Südhof TC, **Kavalali ET** (2005). Selective capability of SynCAM and Neuroligin for functional synapse assembly. *The Journal of Neuroscience* 25: 260-270
19. Sara Y, Virmani T, Deák F, Liu X., **Kavalali ET** (2005). An isolated pool of vesicles recycles at rest and drives spontaneous neurotransmission. *Neuron* 45: 563-573
20. Luikart BW, Nef S, Virmani T, Lush ME, Liu Y, **Kavalali ET**, Parada LF (2005). TrkB has a cell-autonomous role in the establishment of hippocampal schaffer collateral synapses. *The Journal of Neuroscience* 25: 3774-3786
21. Virmani T, Gupta P, Liu X, **Kavalali ET**, Hofmann SL (2005). Progressively reduced synaptic vesicle pool size in cultured neurons derived from neuronal ceroid lipofuscinosis-1 knockout mice. *Neurobiology of Disease* 20: 314-323
22. Chen Y, Beffert U, Ertunc M, Tang T-S, **Kavalali ET**, Bezprozvanny I, Herz J (2005). Reelin Modulates NMDA Receptor Activity in Cortical Neurons. *The Journal of Neuroscience* 25: 8209-8216
23. Virmani T, Ertunc M, Sara Y, Mozhayeva M, **Kavalali ET** (2005). Phorbol Esters Target the Activity-Dependent Recycling Pool and Spare Spontaneous Vesicle Recycling. *The Journal of Neuroscience* 25:10922-10929.
24. Mahgoub MA, Sara Y, **Kavalali ET**, Monteggia LM (2006). Reciprocal interaction of 5-HT and neuronal activity in regulation of CRE-dependent gene expression. *The Journal of Pharmacology and Experimental Therapeutics* 317: 88-96.
25. Virmani T, Atasoy D, **Kavalali ET** (2006). Synaptic vesicle recycling adapts to chronic changes in activity. *The Journal of Neuroscience* 26: 2197-2206.

26. Nelson ED, **Kavalali ET**, Monteggia LM (2006). MeCP2-dependent transcriptional repression regulates excitatory neurotransmission. *Current Biology* 16: 710-716.
27. Deák F, Shin OH, Tang J, Hanson P, Ubach J, Jahn R, Rizo J, **Kavalali ET**, Südhof TC (2006). Rabphilin regulates SNARE-dependent re-priming of synaptic vesicles for fusion. *EMBO Journal* 25: 2856–2866.
28. Deák F, Shin OH, **Kavalali ET***, Südhof TC* (2006). Structural determinants of synaptobrevin 2 function in synaptic vesicle fusion. *The Journal of Neuroscience* 26: 6668-6676 (*Corresponding Authors).
29. Ertunc M, Sara Y, Chung C, Atasoy D, Virmani T, **Kavalali ET** (2007). Fast synaptic vesicle reuse slows the rate of synaptic depression in the CA1 region of hippocampus. *The Journal of Neuroscience* 27: 341-354.
30. Wasser C, Ertunc M, Liu X, **Kavalali ET** (2007). Cholesterol-dependent balance between evoked and spontaneous synaptic vesicle recycling. *The Journal of Physiology (Lond.)* 579: 413-429.
31. Atasoy D, Schoch S, Ho A, Nadasy KA, Liu X, Zhang W, Mukherjee K, Nosyreva ED, Fernandez-Chacon R, Missler M, **Kavalali ET**, Südhof TC (2007). Deletion of CASK in mice is lethal and impairs synaptic function. *Proceedings of the National Academy of Sciences of the USA* 104: 2525-2530.
32. Chubykin AA, Atasoy D, Etherton MR, Brose N, **Kavalali ET**, Gibson JR, Südhof TC (2007). Activity-Dependent Validation of Excitatory versus Inhibitory Synapses by Neuroligin-1 versus Neuroligin-2. *Neuron* 54: 919-931.
33. Bronk P, Deák F, Wilson MC, Liu X, Südhof TC, **Kavalali ET** (2007). Differential effects of SNAP-25 deletion on Ca²⁺-dependent and Ca²⁺-independent neurotransmission. *Journal of Neurophysiology* 98: 794-806.
34. Nelson ED, **Kavalali ET***, Monteggia LM* (2008). Activity-dependent suppression of miniature neurotransmission through the regulation of DNA methylation. *The Journal of Neuroscience* 28: 395-406 (*Corresponding Authors).
35. Barbosa AC, Kim M, Ertunc M, Adachi M, Nelson ED, McAnally J, Richardson JA, **Kavalali ET**, Monteggia LM, Bassel-Duby R, Olson EN (2008). MEF2C, a transcription factor that facilitates learning and memory by negative regulation of synapse numbers and function. *Proceedings of the National Academy of Sciences of the USA* 105:9391-9396.
36. Chung C, Deak F, **Kavalali ET** (2008). Molecular substrates mediating lanthanide-evoked neurotransmitter release in central synapses. *Journal of Neurophysiology* 100: 2089-2100.
37. Atasoy D, Ertunc M, Moulder KL, Blackwell J, Chung C, Su J, **Kavalali ET** (2008). Spontaneous and evoked glutamate release activates two populations of NMDA receptors with limited overlap. *The Journal of Neuroscience* 28: 10151-10166.
38. Espinosa F, **Kavalali ET** (2009). NMDA receptor activation by spontaneous glutamatergic neurotransmission. *Journal of Neurophysiology* 101: 2290-2296.
39. Darios F, Wasser C, Shakirzyanova A, Giniatullin A, Goodman K, Munoz-Bravo JL, Raingo J, Jorgacevski J, Kreft M, Zorec R, Rosa JM, Gandia L, Gutiérrez LM, Binz T, Giniatullin R, **Kavalali ET**, Davletov B (2009). Sphingosine targets synaptobrevin and activates synaptic vesicle exocytosis. *Neuron* 62: 683-694.

40. Akhtar MW, Raingo J, Nelson ED, Montgomery RL, Olson EN, **Kavalali ET***, Monteggia LM* (2009). Histone deacetylases 1 and 2 form a developmental switch that controls excitatory synapse maturation and function. *The Journal of Neuroscience* 29: 8288-8297 (*Corresponding Authors).
41. Deák F, Liu X, Khvotchev M, Li G, **Kavalali ET**, Sugita S, Südhof TC (2009). α -Latrotoxin stimulates a novel pathway of Ca^{2+} -dependent synaptic exocytosis independent of the classical synaptic fusion machinery. *The Journal of Neuroscience* 29: 8639-8648.
42. Durakoglugil M, Chen Y, White CL, **Kavalali ET**, Herz J (2009). Reelin Signaling Antagonizes β -Amyloid at the Synapse. *Proceedings of the National Academy of Sciences of the USA* 106: 15938-15943.
43. Chung C, Barlyko B, Leitz J, Liu X, **Kavalali ET** (2010). Acute dynamin inhibition dissects synaptic vesicle recycling pathways that drive spontaneous and evoked neurotransmission. *The Journal of Neuroscience* 30:1363-1376.
44. Nosyreva E, **Kavalali ET** (2010). Activity-Dependent Augmentation of Spontaneous Neurotransmission during Endoplasmic Reticulum Stress. *The Journal of Neuroscience* 30:7358-7368.
45. Sara Y, Bal M, Adachi M, Monteggia LM, **Kavalali ET** (2011). Use-dependent AMPA receptor block reveals segregation of spontaneous and evoked glutamatergic neurotransmission. *The Journal of Neuroscience* 31:5378-5382.
46. Zhao M, Raingo J, Chen ZJ, **Kavalali ET** (2011). Cc2d1a, a C2 domain containing protein linked to non-syndromic mental retardation, controls functional maturation of central synapses. *The Journal of Neurophysiology* 105:1506-1515.
47. Nelson ED, Bal M, **Kavalali ET**, Monteggia LM (2011). Selective impact of MeCP2 and associated Histone Deacetylases on the dynamics of evoked excitatory neurotransmission. *The Journal of Neurophysiology* 106:193-201.
48. Autry AE, Adachi M, Nosyreva E, Na ES, Los MF, Cheng PF, **Kavalali ET***, Monteggia LM* (2011). NMDA receptor blockade at rest triggers rapid behavioural antidepressant responses. *Nature* 475:91-95 (*Corresponding Authors).
49. Leitz J, **Kavalali ET** (2011). Ca^{2+} -influx slows single synaptic vesicle endocytosis. *The Journal of Neuroscience* 31:16318-16326.
50. Ramirez DMO, Khvotchev M, Trauterman B, **Kavalali ET** (2012). Vti1a identifies a vesicle pool that preferentially recycles at rest and maintains spontaneous neurotransmission. *Neuron* 73:121-134.
51. Na ES, Nelson ED, Adachi M, Autry AE, Mahgoub MA, **Kavalali ET**, Monteggia LM (2012). A mouse model for MeCP2 duplication syndrome: MeCP2 overexpression impairs learning and memory and synaptic transmission. *The Journal of Neuroscience* 32:3109-3117.
52. Raingo J, Khvotchev M, Liu P, Darios F, Li YC, Ramirez DMO, Adachi M, Lemieux P, Toth K, Davletov B, **Kavalali ET** (2012). VAMP4 directs synaptic vesicles to a pool that selectively maintains asynchronous neurotransmission. *Nature Neuroscience* 15:738-745.

53. Akhtar MW, Kim M, Adachi M, Morris MJ, Qi X, Richardson JA, Bassel-Duby R, Olson EN **Kavalali ET**, Monteggia LM (2012). In vivo Analysis of MEF2 Transcription Factors in Synapse Regulation and Neuronal Survival. *PLoS ONE* 7:e34863.
54. Kim M, Akhtar MW, Adachi M, Mahgoub M, Bassel-Duby R, **Kavalali ET**, Olson EN, Monteggia LM (2012). An Essential Role for Histone Deacetylase 4 in Synaptic Plasticity and Memory Formation. *The Journal of Neuroscience* 32:10879-10886.
55. Nosyreva E, Szabla K, Autry AE, Ryazanov AG, Monteggia LM *, **Kavalali ET*** (2013). Acute suppression of spontaneous neurotransmission drives synaptic potentiation. *The Journal of Neuroscience* 33:6990-7002 (*Corresponding Authors).
56. Bal M, Leitz J, Reese AL, Ramirez DMO, Durakoglugil M, Herz J, Monteggia LM, **Kavalali ET** (2013). Reelin mobilizes a VAMP7-dependent synaptic vesicle pool and selectively augments spontaneous neurotransmission. *Neuron*, 80:934-946.
57. Gideons E, **Kavalali ET**, Monteggia LM (2014). Mechanisms underlying differential effectiveness of memantine and ketamine in rapid antidepressant responses. *Proceedings of the National Academy of Sciences of the USA* 111: 8649–8654.
58. Nosyreva E, Autry AE, **Kavalali ET**, Monteggia LM (2014). Age dependence of the rapid antidepressant and synaptic effects of acute NMDA receptor blockade. *Frontiers in Molecular Neuroscience* 7:94.
59. Leitz J, **Kavalali ET** (2014). Fast retrieval and autonomous regulation of single spontaneously recycling synaptic vesicles. *eLife* 10.7554/eLife.03658.
60. Liu Y, Li H, Sugiura Y, Han W, Gallardo G, Khvotchev M, Zhang Y, **Kavalali ET**, Südhof TC, Lin W (2015). Ubiquitin-synaptobrevin fusion protein causes degeneration of presynaptic motor terminals in mice. *The Journal of Neuroscience* 35: 11514-11531.
61. Reese AL, **Kavalali ET** (2015). Spontaneous neurotransmission signals through store-driven Ca²⁺ transients to maintain synaptic homeostasis. *eLife* 10.7554/eLife.09262.
62. Nelson BR, Makarewich CA, Anderson DM, Winders BR, Troupes CD, Wu F, Reese AL, McAnally JR, Che X, **Kavalali ET**, Cannon SC, Houser SR, Bassel-Duby R, Olson EN (2016). A peptide encoded by a transcript annotated as long noncoding RNA enhances SERCA activity in muscle. *Science* 351: 271-275.
63. Afuwape OAT, **Kavalali ET** (2016). Imaging synaptic vesicle Exocytosis-Endocytosis with pH sensitive fluorescent proteins. *Methods in Molecular Biology* 1474:187-200.
64. Mahgoub M, Adachi M, Suzuki K, Liu X, **Kavalali ET**, Chahrour MH, Monteggia LM (2016). MeCP2 and Histone Deacetylases 1 and 2 in Dorsal Striatum collectively suppress repetitive behaviors. *Nature Neuroscience* 19:1506-1512.
65. Reese AL, **Kavalali ET** (2016) Single synapse evaluation of the postsynaptic NMDA receptors targeted by evoked and spontaneous neurotransmission. *eLife*. 10.7554/eLife.21170.
66. Afuwape OAT, Wasser C, Schikorski T, **Kavalali ET** (2017) Synaptic vesicle pool specific modification of neurotransmitter release by intravesicular free radical generation. *The Journal of Physiology (Lond.)* 595:1223-1238.

67. Li YC, Chanaday NL, Xu W, **Kavalali ET** (2017) Synaptotagmin-1 and synaptotagmin-7-dependent fusion mechanisms target synaptic vesicles to kinetically distinct endocytic pathways. *Neuron* 93:616-631.
68. Horvath PM, **Kavalali ET**, Monteggia LM (2017) CRISPR/Cas9 system-mediated impairment of synaptobrevin/VAMP function in postmitotic hippocampal neurons. *Journal of Neuroscience Methods* 278:57-64.
69. Crawford DC, Denise M.O. Ramirez DMO, Trauterman B, Monteggia LM, **Kavalali ET** (2017) Selective molecular impairment of spontaneous neurotransmission modulates synaptic efficacy. *Nature Communications* 8:14436.
70. Schaukowitch K, Reese AL, Kim SK, Kilaru G, Joo JY, **Kavalali ET**, Kim TK (2017) An intrinsic transcriptional program underlying synaptic scaling during activity suppression. *Cell Reports* 18:1512-1526.
71. Suzuki K, Nosyreva E, Hunt KW, **Kavalali ET**, Monteggia LM (2017) Effects of a ketamine metabolite on synaptic NMDAR function. *Nature*, 546: E1-E3.
72. Ramirez DMO, Crawford DC, Chanaday NL, Trauterman B, Monteggia LM, **Kavalali ET** (2017) Loss of Doc2-dependent spontaneous neurotransmission augments glutamatergic synaptic strength. *The Journal of Neuroscience* 37:6224-6230.
73. Darios F, Jorgacevski J, Flašker A, Zorec R, García-Martinez V, Villanueva J, Gutiérrez L, Leese C, Bal M, Nosyreva E, **Kavalali ET**, Davletov B (2017). Sphingomimetic multiple sclerosis drug FTY720 activates vesicular synaptobrevin and augments neuroendocrine secretion. *Scientific Reports* 20:5958.
74. Gideons ES, Lin PY, Mahgoub M, **Kavalali ET**, Monteggia LM (2017). Chronic lithium treatment elicits its antimanic effects via BDNF-TrkB dependent synaptic downscaling. *eLife* 6: e25480.
75. Stallings NR, O'Neal MA, Hu J, **Kavalali ET**, Bezprozvanny I, Malter JS (2018). Pin1 regulates A β 42-mediated dendritic spine loss. *Science Signaling*, 11: eaap8734.
76. Chanaday NL, **Kavalali ET** (2018). Optical detection of three modes of endocytosis at hippocampal synapses. *eLife*, *in press*.
77. Hoerder-Suabedissen A, Korrell KV, Hayashi S, Jeans A, Ramirez DMO, Grant E, Christian HC, **Kavalali ET**, Wilson MC, Molnár Z (2018). Cell-specific loss of SNAP25 from cortical projection neurons allows normal development but causes subsequent neurodegeneration. *Cerebral Cortex*, *in press*.

Reviews and Commentary

1. Harata N, Pyle JL, Aravanis AM, Mozhayeva M, **Kavalali ET**, Tsien RW (2001). Limited number of recycling vesicles in small CNS nerve terminals: implications for neural signaling and cell biology of vesicular cycling. *Trends in Neurosciences* 24: 637-643.
2. **Kavalali ET** (2002). SNARE interactions in membrane trafficking: a perspective from mammalian central synapses. *BioEssays* 24: 926-936.
3. **Kavalali ET** (2006). Synaptic vesicle reuse and its implications. *The Neuroscientist* 12: 57-66.

4. Atasoy D, **Kavalali ET** (2006). Presynaptic unsilencing: searching for a mechanism. *Neuron* 50: 345-346.
5. Chung C, **Kavalali ET** (2006). Seeking a function for spontaneous neurotransmission. *Nature Neuroscience* 9: 989-990.
6. **Kavalali ET** (2007). Multiple vesicle recycling pathways in central synapses and their impact on neurotransmission. *The Journal of Physiology (Lond.)* 585: 669-679.
7. Krämer H, **Kavalali ET** (2008). Dynamin-independent synaptic vesicle retrieval? *Nature Neuroscience* 11: 6-8.
8. Wasser C, **Kavalali ET** (2009). Leaky synapses: Regulation of spontaneous neurotransmission in central synapses. *Neuroscience* 158:177-188.
9. Monteggia LM, **Kavalali ET** (2009). Rett Syndrome and the impact of MeCP2 associated transcriptional mechanisms on neurotransmission. *Biological Psychiatry* 65: 204-210.
10. Chung C, **Kavalali ET** (2009). Synaptic Vesicle Endocytosis: Get Two for the Price of One? *Neuron* 61: 333-334.
11. Ramirez DM, **Kavalali ET** (2011). Differential regulation of spontaneous and evoked neurotransmitter release at central synapses. *Curr Opin Neurobiol.* 21:275-282.
12. **Kavalali ET**, Chung C, Khvotchev M, Leitz J, Nosyreva E, Raingo J, Ramirez DM (2011). Spontaneous Neurotransmission: An Independent Pathway for Neuronal Signaling? *Physiology (Bethesda)* 26:45-53.
13. **Kavalali ET**, Nelson ED, Monteggia LM (2011). Role of MeCP2, DNA methylation, and HDACs in regulating synapse function. *J. Neurodevelop. Disord.* 3:250-256.
14. Ramirez DM, **Kavalali ET** (2012). The role of non-canonical SNAREs in synaptic vesicle recycling. *Cellular Logistics* 2:20-27.
15. **Kavalali ET**, Monteggia LM (2012) Synaptic mechanisms underlying rapid antidepressant action of ketamine. *The American Journal of Psychiatry* 169:1150-1156
16. Monteggia LM, **Kavalali ET** (2012). Depression brought to light (News and Views). *Nature*, 491:537-538.
17. Na ES, Nelson ED, **Kavalali ET**, Monteggia LM (2013) The impact of MeCP2 loss or gain of function on synaptic plasticity. *Neuropsychopharmacology Reviews* 38:212-219.
18. Monteggia LM, Gideons E, **Kavalali ET** (2013). The role of eEF2 kinase in rapid antidepressant action of ketamine. *Biological Psychiatry* 73:1199-1203.
19. Monteggia LM, **Kavalali ET** (2013). Scopolamine and ketamine: evidence of convergence? *Biological Psychiatry* 74: 712-713.
20. **Kavalali ET**, Jorgensen EM (2014). Visualizing presynaptic function. *Nature Neuroscience* 17: 10-16.
21. **Kavalali ET**, Monteggia LM (2015). How does ketamine elicit a rapid antidepressant response? *Current Opinion in Pharmacology*, 20C:35-39.

22. **Kavalali ET** (2015). The mechanisms and functions of spontaneous neurotransmitter release. *Nature Reviews Neuroscience* 16:5-16.
23. Crawford DC, **Kavalali ET** (2015). Molecular underpinnings of synaptic vesicle pool heterogeneity. *Traffic*, 16:338-364.
24. Leitz J, **Kavalali ET** (2016). Ca²⁺-dependence of synaptic vesicle endocytosis. *The Neuroscientist* 22:464-476 [Epub ahead of print in 2015].
25. Li YC, **Kavalali ET** (2015). How do RIM-BPs link voltage-gated Ca²⁺ channels to evoked neurotransmitter release? *Neuron*, 87:1119-1121.
26. Li YC, **Kavalali ET** (2017). Synaptic Vesicle Recycling Machinery Components as Potential Therapeutic Targets. *Pharmacological Reviews*, 69:141-160.
27. **Kavalali ET**, Monteggia LM (2017). The ketamine metabolite 2R,6R-hydroxynorketamine blocks NMDA receptors and impacts downstream signaling linked to antidepressant effects. *Neuropsychopharmacology Reviews*, 43:221-222.
28. Chanaday NL, **Kavalali ET** (2017). How do you recognize and reconstitute a synaptic vesicle after fusion? *F1000 Research*, 6:1734.
29. **Kavalali ET** (2017). Spontaneous neurotransmission: a form of neural communication comes of age. *Journal of Neuroscience Research*, 96:331-334.
30. Chanaday NL, **Kavalali ET** (2018). Presynaptic origins of distinct modes of neurotransmitter release. *Current Opinion in Neurobiology*, in press.

Book Chapters

1. Bito H, **Kavalali ET**, Zhuo M, Deisseroth K, Tsien RW (2000). Synaptic modulation of dendritic Ca²⁺ influx and gene expression. In *Slow Synaptic Responses and Modulation*, K. Kuba, H. Higashida, D.A. Brown and T. Yoshioka, eds. (Springer Verlag Tokyo), pp. 182-187.
2. Virmani T, **Kavalali ET** (2005). Synaptic vesicle recycling as a substrate for neural plasticity, In: *Synaptic Plasticity and Transsynaptic Signaling*, Stanton PK, Bramham C, and Scharfman HE (Eds.), Springer Science + Business Media, pp. 255-272.
3. Khvotchev M, **Kavalali ET** (2008). Measuring exocytosis, In: *Pharmacology of Neurotransmitter Release, Handbook of Experimental Pharmacology*, Vol. 184, Südhof TC, and Starke K (Eds.), Springer Verlag, pp. 23-43.
4. Atasoy D, **Kavalali ET** (2008). Neurotransmitter Release Machinery: Components of the Neuronal SNARE Complex and Their Function, In: *Structural and Functional Organization of the Synapse*, Ehlers MD, and Hell J (Eds.), Springer Verlag, pp. 91-110.
5. Atasoy D, **Kavalali ET** (2009). Synaptic Structure: Presynaptic Organization: Development of presynaptic functional and morphological organization. In: *Encyclopedia of Neuroscience*, Albright T, Bloom FE, Gage F, Spitzer N and Squire L (Eds.), Elsevier, pp. 967-974.
6. **Kavalali ET** (2009). Key processes and structures: Presynaptic Organization: Optical monitoring of exo- and endocytosis. In: *Encyclopedia of Neuroscience*, Albright T, Bloom FE, Gage F, Spitzer N and Squire L (Eds.), Elsevier, pp. 279-283.

7. **Kavalali ET** (2009). Key processes and structures: Presynaptic Organization: Kiss and Run Endocytosis. In: Encyclopedia of Neuroscience, Albright T, Bloom FE, Gage F, Spitzer N and Squire L (Eds.), Elsevier, pp. 1007-1013.
8. **Kavalali ET**, Monteggia LM (2012). Analysis of MeCP2 Function in the CNS. In: Epigenetics, brain and behavior, Paolo Sassone-Corsi and Yves Christen (Eds.), Springer, pp 133-143.

INVITED SEMINARS (since September 1999)

- 2000 Department of Physiology, Istanbul University Cerrahpaşa Faculty of Medicine, Istanbul, Turkey
- 2001 Max Planck Institute for Biophysical Chemistry, Göttingen, Germany
- 2002 Department of Cell Biology, UT Southwestern Medical Center, Dallas, TX
- 2002 Department of Anesthesiology, Washington University School of Medicine, St. Louis, MO
- 2002 Department of Molecular Biology and Genetics, Bilkent University, Ankara, Turkey
- 2003 Department of Molecular and Cellular Physiology, Stanford University, Stanford, CA
- 2003 Titisee Conference on Synaptic Transmission: from Molecules to Circuits, Titisee, Germany
- 2003 Department of Neuropathology, University of Bonn Medical School, Bonn, Germany
- 2003 Department of Anatomy and Neurobiology, UT Health Sciences Center, Houston, TX
- 2003 Department of Molecular Medicine, Oregon Health and Science University, Portland, OR
- 2004 Turkish National Neuroscience Congress (Ulusal Sinir Bilimleri Kongresi), Denizli, Turkey
- 2004 Department of Cell Biology and Anatomy, LSU Health Sciences Center, New Orleans, LA
- 2004 Department of Neurosciences, University of New Mexico, Albuquerque, NM
- 2005 Department of Neuroscience, Karolinska Institute, Stockholm, Sweden
- 2005 MRC Laboratory of Molecular Biology, Cambridge, U.K.
- 2005 Gordon Research Conference on Calcium Signaling, The Queen's College, Oxford, U.K.
- 2005 Department of Neurosciences, Case Western Reserve University, Cleveland, OH
- 2005 Division of Neurobiology and Neurotoxicology, Meharry Medical College, Nashville, TN
- 2005 Dept. of Anatomy & Neurobiology, University of Tennessee Health Sciences Center, Memphis, TN
- 2006 Department of Neurobiology, University of Alabama at Birmingham, Birmingham, AL
- 2006 Department of Biology, University of Utah, Salt Lake City, UT
- 2006 Exocytosis/Endocytosis Subgroup Symposium, Biophysical Society Meeting, Salt Lake City, UT
- 2006 Cold Spring Harbor Conference on “Channels, Receptors, Synapses”, Cold Spring Harbor, NY
- 2006 Department of Neurobiology, Harvard Medical School, Boston, MA
- 2006 National Institutes of Health, Bethesda, MD
- 2006 Gordon Research Conference on Synaptic Transmission, Colby-Sawyer College, New London, NH
- 2006 UT Metroplex Days, University of Texas at Arlington, Arlington, TX
- 2006 Department of Physiology, University of Toronto, Toronto, Canada
- 2007 Neuroscience Seminar Series, UCSF, San Francisco, CA
- 2007 Program in Cellular Neuroscience, Neurodegeneration and Repair, Yale University, New Haven, CT.
- 2007 Life Sciences (first joint meeting of the Biochemical Society, the British Pharmacological Society and The Physiological Society), Glasgow, Scotland
- 2007 Department of Cellular and Molecular Physiology, Yale University, New Haven, CT.

- 2007 Neuroscience Program, University of Utah, Salt Lake City, UT
- 2008 Department of Pharmacology, Istanbul University Cerrahpaşa Faculty of Medicine, Istanbul, Turkey
- 2008 Society of General Physiologists Symposium, Calcium Signaling and Disease, Woods Hole, MA
- 2008 Department of Physiology, U. T. Health Science Center at San Antonio, San Antonio, TX
- 2008 The American College of Neuropsychopharmacology (ACNP) Annual Meeting, Scottsdale, AZ
- 2009 Biology Department, Reed College, Portland, OR
- 2009 Department of Cell Biology and Neuroscience, Rutgers University, New Brunswick, NJ
- 2009 Department of Physiology and Membrane Biology, UC Davis, Davis, CA
- 2009 The Federation of European Physiological Societies Meeting, Ljubljana, Slovenia
- 2010 Zilkha Neurogenetic Institute, University of Southern California, Los Angeles, CA
- 2010 Université Laval, Quebec City, Québec, Canada
- 2010 Department of Neurochemistry, University of Tokyo, Japan
- 2010 Annual Meeting of the Physiological Society of Japan, Morioka City, Japan
- 2010 Turkish National Biology Congress (Ulusal Biyoloji Kongresi), Denizli, Turkey
- 2010 Gordon Research Conference on Synaptic Transmission, University of New England, Biddeford, ME
- 2010 Department of Neurobiology and Physiology, Northwestern University, Evanston, IL
- 2010 Graduate Student Organization and Sigma Xi Keynote Lecture, UT Southwestern Medical Center, Dallas, TX
- 2011 Lundbeck Research USA, Paramus, NJ
- 2011 EU-FP7 Neuro-workshop, Boğaziçi University, Bebek, Istanbul, Turkey
- 2011 SFN North Texas Chapter Inaugural Meeting, UT Arlington, Arlington, TX
- 2012 Department of Physiology & Pharmacology, Oregon Health and Science University, Portland, OR
- 2012 Department of Neuroscience, University of Wisconsin School of Medicine and Public Health, Madison, WI
- 2012 Department of Neurobiology, Harvard Medical School, Boston, MA
- 2012 Department of Physiology, UT Southwestern Medical Center, Dallas, TX
- 2012 Department of Neurosciences, Case Western Reserve University, Cleveland, OH
- 2012 Department of Neurobiology, University of Alabama at Birmingham, Birmingham, AL
- 2013 Department of Physiology, University of California Los Angeles, Los Angeles, CA
- 2013 Exocytosis/Endocytosis Subgroup Symposium, Biophysical Society Meeting, Philadelphia, PA
- 2013 Department of Cell Biology & Physiology, Washington University School of Medicine, St. Louis, MO
- 2013 Department of Neuroscience, Universidad Central del Caribe, Puerto Rico
- 2013 Nebraska Research and Innovation Conference, Omaha, NE
- 2013 Georgia Regents University, Augusta, GA

- 2013 Moleküler Biyoloji Derneği 2. Uluslararası Kongresi, Istanbul, Turkey
- 2014 Max Planck Florida Institute, Jupiter, FL
- 2014 SFB 1089 Synaptic Microcircuits Meeting, University of Bonn Medical Center, Bonn, Germany
- 2014 The Program in Neuroscience, University of Maryland School of Medicine, Baltimore, MD
- 2014 Department of Pharmacology, UT Southwestern Medical Center, Dallas, TX
- 2014 Department of Physiology, University of Toronto, Toronto, Canada
- 2015 MIT Colloquium on Brain and Cognition, Picower Institute for Learning and Memory, MIT, Cambridge, MA.
- 2015 Department of Physiology, UT Southwestern Medical Center, Dallas, TX
- 2015 Department of Neuroscience, Tufts University School of Medicine, Boston, MA.
- 2015 SFB 1089 Synaptic Microcircuits Meeting, University of Bonn Medical Center, Bonn, Germany
- 2015 Department of Neuroscience, Karolinska Institute, Stockholm, Sweden
- 2015 Chinese Society for Neuroscience Meeting, Wuzhen, China
- 2015 Shizhang Bei Lecture, Institute of Biophysics, Chinese Academy of Sciences, Beijing, China
- 2015 Special Lecture, Society for Neuroscience Meeting, Chicago
- 2015 Department of Molecular Physiology and Biophysics, University of Iowa Carver College of Medicine, Iowa City, IA
- 2015 30th anniversary of the Südhof Laboratory Meeting, Santa Cruz, CA
- 2016 Department of Physiology, Yeditepe University, Istanbul, Turkey
- 2016 Department of Molecular Biology and Genetics, Boğaziçi University, Bebek, Istanbul, Turkey
- 2016 Stanford Neuroscience Institute Seminar Series, Stanford University, Stanford, CA
- 2016 Department of Physiology, Northwestern University Feinberg School of Medicine, Chicago, IL
- 2016 Department of Physiology, Emory University School of Medicine, Atlanta, GA
- 2016 SFB 894 Symposium on Cutting edge concepts in Calcium signaling, Homburg, Germany.
- 2016 JSPS/OIST Symposium, Okinawa, Japan
- 2016 Department of Pharmacology, UT Health Science Center at San Antonio, San Antonio, TX
- 2016 Department of Developmental Neurobiology, St. Jude Children's Research Hospital, Memphis, TN
- 2016 The American College of Neuropsychopharmacology (ACNP) Annual Meeting, Hollywood, FL
- 2017 Department of Biology, Texas A&M University, College Station, TX
- 2017 "Beynin Çalışma Sırları", Public Seminar, Hilton Bosphorus Hotel, Istanbul, Turkey
- 2017 SFB 1089 Synaptic Microcircuits Meeting, University of Bonn Medical Center, Bonn, Germany
- 2017 Pioneers in Neuroscience Lecture Series, Jacobs School of Medicine and Biomedical Sciences, University at Buffalo SUNY, Buffalo, NY
- 2017 Department of Neurobiology, University of Alabama at Birmingham, Birmingham, AL
- 2017 Seminar Series, University of Minnesota Medical School Duluth Campus, MN
- 2017 Department of Neuroscience, Brown University, Providence, RI

- 2017 The School of Life Sciences & McGovern Institute for Brain Research at Peking University, Beijing, China
- 2017 Annual Retreat, the Center for Neuroscience at the University of Pittsburgh, Pittsburgh, PA
- 2017 Swammerdam Lecture, Graduate School Neurosciences Amsterdam, Vrije Universiteit, University of Amsterdam and the Netherlands Institute for Neuroscience, Amsterdam, The Netherlands
- 2017 Institute for Cardiovascular & Metabolic Diseases, University of North Texas Health Science Center, Fort Worth, TX
- 2017 5th Molecular Psychiatry Meeting, San Francisco, CA
- 2017 Giant Synapse Symposium, Georgetown University, Washington DC
- 2017 Department of Molecular Physiology and Biophysics, Vanderbilt University School of Medicine, Nashville, TN
- 2018 EMBO Workshop, Exocytosis and Endocytosis, Santa Cruz de Tenerife, Canary Islands, Spain
- 2018 Instituto de Biomedicina de Sevilla, Seville, Spain
- 2018 Plasticity and Stability of Neuronal Circuits Symposium, Sagol School of Neuroscience, Tel Aviv University, Tel Aviv, Israel
- 2018 SFB 1089 Synaptic Microcircuits Meeting, University of Bonn Medical Center, Bonn, Germany
- 2018 Berlin Neuroscience Colloquium, Berlin, Germany
- 2018 FASEB Calcium and Cell Function Conference, Granlibakken Tahoe, Tahoe City, CA
- 2018 Gordon Research Conference on Synaptic Transmission, Waterville Valley Resort, NH
- 2018 Institute Advanced Studies (IAS) at Hong Kong University of Science and Technology, Kowloon, Hong Kong
- 2019 Gordon Research Conference on Excitatory Synapses and Brain Function, University of New England, Biddeford, ME