

CURRICULUM VITAE

David W. Tank

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Education

1976 B.S., Physics and Mathematics
Case Western Reserve University
1979 Neurobiology Course, MBL, Woods Hole, MA
1983 Ph.D., Physics, Cornell University

Professional Experience

2011- Director, Bezos Center for Neural Circuit Dynamics
2005- Co-Director, Princeton Neuroscience Institute
2001- Henry H. Hillman Professor of Molecular Biology,
Princeton University
1991-2001 Director, Biological Computation Research Dept.
Bell Laboratories, Lucent Technologies
1988-1991 Distinguished Member of the Technical Staff
AT&T Bell Laboratories
1983-1988 Member of the Technical Staff
AT&T Bell Laboratories
1983 Postdoctoral Member of the Technical Staff
AT&T Bell Laboratories
1992-1997 CoDirector, Methods in Computational Neuroscience,
Marine Biology Laboratory, Woods Hole, MA

Honors and Awards

1976 Morris Prize, Case Western Reserve University
1988 American Physical Society Fellow
1999 Bell Laboratories Fellow
2000 Fellow, American Academy of Arts and Sciences
2001 Member, National Academy of Sciences
2003 Henry L. Hillman Professorship in Molecular Biology (Princeton)
2006 Spencer Award, Columbia University
2011 Lawrence Katz Prize, Duke University
2012 Stephen Kuffler Lecture, Harvard University

Service Positions Held

Advisory Group, NIH BRAIN Initiative
Board of Advisors, MindScope Neural Coding Project, Allen Institute for Brain Science
Board of Advisors, Janelia Farms Research Campus, Howard Hughes Medical Institute
Board of Scientific Advisors, Howard Hughes Medical Institute
Board of Directors, McKnight Foundation for Neuroscience
Chair, Advisory Committee, Technological Innovation in Neuroscience Program,
McKnight Foundation
Advisory Board, Career Awards, Burroughs Wellcome Fund
Advisory Board, Patterson Trust Fellowships in Neural Circuitry

Professional Societies

Society for Neuroscience
American Physical Society
Biophysical Society

Research Publications

1. Tank, D.W., Wu, E.S., and Webb, W.W., Enhanced molecular diffusibility in muscle membrane blebs: release of lateral constraints, *J. Cell Biol.* 92, 207-212 (1982).
2. Webb, W.W., Barak, L.S., Tank, D.W. and Wu, E.S., Molecular mobility on the cell surface, *Biochem. Soc. Symp.* 46, 191-205 (1981).
3. Tank, D.W., Wu, E.S., Meers, P.R. and Webb, W.W., Lateral diffusion of gramicidin C in phospholipid multibilayers: effects of cholesterol and high gramicidin concentrations, *Biophysical Journal* 40, 129-135 (1982).
4. Wu, E.S., Tank, D.W. and Webb, W.W., Unconstrained lateral diffusion of concanavalin A receptors on bulbous lymphocytes, *Proc. Natl. Acad. Sci. U.S.A.* 79, 4962-4966 (1982).
5. Tank, D.W., Miller, C. and Webb, W.W., Isolated-patch recording from liposomes containing functionally reconstituted chloride channels from Torpedo electroplax. *Proc. Natl. Acad. Sci. U.S.A.* 79, 7749-7753 (1982).
6. Tank, D.W., Haganir, R.L., Greengard, P. and Webb, W.W., Patch-recorded single channel currents of purified and reconstituted Torpedo acetylcholine receptor, *Proc. Natl. Acad. Sci. U.S.A.* 80, 5129-5133 (1983).
7. Tank, D.W. and Miller, C., Patch-clamped liposomes: recording reconstituted ion channels. In: *Single Channel Recording*, eds. Sakmann, B. and Neher, E. (Plenum Press, New York, 1983).
8. Tank, D.W., Fredericks, W.J., Barak, L.S. and Webb, W.W., Electric field-induced redistribution and postfield relaxation of low density lipoprotein receptors on cultured human fibroblasts, *J. Cell Biol.* 101, 148-157 (1985).
9. Gelperin, A., Hopfield, J.J. and Tank, D.W., The logic of Limax learning. In: *Model Neural Networks and Behavior*, Ed. A. I. Selverston (Plenum Press, New York, 1985).
10. Hopfield, J.J. and Tank, D.W., "Neural" computation of decisions in optimization problems, *Biological Cybernetics* 52, 141-152 (1985).

11. Tank, D.W. and Hopfield, J.J., Simple "neural" optimization networks: an A/D converter, signal decision circuit, and a linear programming circuit, *IEEE Transactions on Circuits and Systems CAS33*, 533-541 (1986).
12. Hopfield, J.J. and Tank, D.W., Collective computation with continuous variables, In: *Disordered Systems and Biological Organization*, E. Bienenstock, F. Fogelman Soulie, G. Weisbuch, Eds. (SpringerVerlag, New York, 1986).
13. Hopfield, J.J. and Tank, D.W., Computing with neural circuits: a model, *Science* 233, 625-633 (1986).
14. Ahmed, Z., Connor, J.A., Tank, D.W. and Fellows, R.E., Expression of membrane currents in rat diencephalic neurons in serum-free culture, *Developmental Brain Research* 28, 221-231 (1986) .
15. Tank, D.W. and Hopfield, J.J., Collective computation in neuron-like circuits, *Scientific American* Vol. 255 No. 12, 104-114 (1987). (Reprinted in *Trends in Computing* Vol. 1, Scientific American Press, 1988).
16. Tank, D.W. and Hopfield, J.J., Concentrating information in time: analog neural networks with applications to speech recognition problems. In: *Proc. Intl. Conf. on Neural Networks*, San Diego CA (1987).
17. Tank, D.W. and Hopfield, J.J., Neural computation by concentrating information in time. *Proc. Natl. Acad. Sci. U.S.A.* 84, 1896-1900 (1987).
18. Tank, D.W., Sugimori, M., Connor, J.A. and Llinas, R.R., Spatially resolved calcium dynamics of mammalian Purkinje cells in cerebellar slice, *Science* 242, 773-777 (1988).
19. Hopfield, J.F., Tank, D.W., Greengard, P. and Huganir, R.L., Functional modulation of the nicotinic acetylcholine receptor by tyrosine phosphorylation, *Nature* 336, 677-680 (1988).
20. Hopfield, J.J. and Tank, D.W., Neural architecture and biophysics for sequence recognition. In: *Neural Models of Plasticity--Theoretical and Empirical Approaches*, Eds., Byrne, J. and Berry, W.O. (Academic Press, New York, 1989).
21. Gelperin, A., Tank, D.W. and Tesauro, G., Olfactory processing and associative memory: cellular and modeling studies. In: *Neural Models of Plasticity--Theoretical and Empirical Approaches*, Eds. Byrne, J. and Berry, W.O. (Academic Press, New York, 1989).
22. Delaney, K.R., Zucker, R.S., and Tank, D.W., Calcium in motor nerve terminals associated with posttetanic potentiation. *J. Neuroscience* 9 (10), 3558-3567 (1989).
23. Tank, D. W., What details of neural circuits matter? *Sem. in Neurosci.* 1, 6779 (1989).
24. Regehr, W.G., Pine, J., Cohan, C.S., Mischke, M.D. and Tank, D.W., Sealing cultured invertebrate neurons to embedded dish electrodes facilitates long-term stimulation and recording, *J. Neuroscience Methods* 30, 91-106 (1989).
25. Regehr, W.G., Connor, J.A. and Tank, D.W., Optical imaging of calcium accumulation in hippocampal pyramidal cells during synaptic activation. *Nature* 341, 533-536 (1989).
26. Regehr, W.G. and Tank, D.W., Postsynaptic NMDA receptor-mediated calcium accumulation in hippocampal CA1 pyramidal cell dendrites. *Nature* 345, 807-810 (1990).
27. Gelperin, A. and Tank, D.W., Odour-modulated collective network oscillations of olfactory interneurons in a terrestrial mollusc. *Nature* 345, 437-440 (1990).
28. Tank, D.W., Computations performed by oscillatory dynamics in invertebrate and vertebrate olfactory systems. In "Computational Neuroscience" short course syllabus, Published by the Society for Neuroscience, (1990).

29. Ogawa, S., Lee, T.M., Kay, A. and Tank, D.W., Brain magnetic resonance imaging with contrast dependent on blood oxygenation. *Proc. Natl. Acad. Sci. U.S.A.* 87, 9868-9872 (1990).
30. Unnikrishnan, K.R., Hopfield, J.J. and Tank, D.W., Connected-digit speaker-dependent speech recognition using a neural network with time-delayed connections. *IEEE Trans. on Signal Processing* 39, 698-713 (1991).
31. Regehr, W.G. & Tank, D.W., Selective fura-2 loading of presynaptic terminals and nerve cell processes in mammalian brain slice. *Journal of Neuroscience Methods* 37, 111-119 (1991).
32. Delaney, K.R., Tank, D.W. and Zucker, R.S., Presynaptic calcium and serotonin-mediated enhancement of transmitter release at crayfish neuromuscular junction. *J Neuroscience* 11, 2631-2643 (1991).
33. Zucker, R.S., Delaney, K.R., Mulkey, R. and Tank, D.W., Presynaptic calcium in transmitter release and post-tetanic potentiation. *Annals. N.Y. Acad. Sci.* 635, 191-207 (1991).
34. Unnikrishnan, K.P., Hopfield, J.J. and Tank, D.W., Speaker-independent digit recognition using a neural network with time-delayed connections. *Neural Computation* 4, 108-119 (1991).
35. Regehr, W.G. and Tank, D.W., The maintenance of LTP at hippocampal mossy fiber synapses is independent of sustained presynaptic calcium. *Neuron* 7, 451-459 (1991).
36. Delaney, K.R. & Tank, D.W., Calcium-dependent and calcium-independent enhancement of transmitter release at the crayfish neuromuscular junction studied with fura-2 imaging. *Annals. N.Y. Acad. Sci.* 635, 452-454 (1991).
37. Ogawa, S., Tank, D. W., Menon, R., Ellermann, J. M., Kim, S.G., Merkle, H. and Ugurbil, K., Intrinsic signal changes accompanying sensory stimulation: functional brain mapping using MRI. *Proc. Natl. Acad. Sci.* 89, 5951-5955 (1992).
38. Tank, D. W., Regehr, W. G. and Delaney, K. R., Optical Imaging of Ion Concentration Dynamics in Synaptic Terminals and Dendrites in Brain Slices, In "Slice of Life: New Technologies in Brain Slices" short course syllabus, Published by the Society for Neuroscience, 1992.
39. Regehr, W.G. and Tank, D.W., Calcium concentration dynamics produced by synaptic activation of CA1 hippocampal pyramidal cells. *J. Neuroscience* 12 (11), 4202-4223 (1992).
40. Tank, D. W. Ogawa, S. and Ugurbil, K., Mapping the brain with MRI. *Current Biology* 2, 525-528 (1992).
41. Gelperin, A., Rhines, L.D., Flores, J. and Tank, D.W., Coherent network oscillations by olfactory interneurons: modulation by endogenous amines, *J. Neurophysiol* 69 (6), 1930-1939 (1993).
42. Rhines, L., Sokolove, P.G., Flores, J., Tank, D.W. and Gelperin, A., Cultured olfactory interneurons from *Limax maximus*: optical and electrophysiological studies of transmitter-evoked responses. *J. Neurophysiol*, 69 (6), 1940-1947 (1993).
43. Ogawa, S., Menon, R., Tank, D. W., Kim, S.G., Merkle, H., Ellerman, J. M. and Ugurbil, K. Functional brain mapping by BOLD contrast MRI: A comparison of signal characteristics with a biophysical model. *Biophysical Journal* 64, 803-812 (1993).
44. Sobel, E. and Tank, D. W., Timing of odor stimulation does not alter patterning of olfactory bulb unit activity in freely breathing rats. *J. Neurophysiol.* 69, 1331-1337 (1993).

45. Menon, R. S., Ogawa, S., Tank, D. W., and Ugurbil, K., 4 Tesla gradient recalled echo characteristics of photic stimulation induced signal changes in the human primary visual cortex, *Magnetic Resonance in Medicine* 30, 380-386 (1993).
46. Regehr, W. G., Delaney, K. R. and Tank, D. W., The role of presynaptic calcium in short-term enhancement at the hippocampal mossy fiber synapse. *J. Neuroscience* 14, 523-537 (1994).
47. Delaney, K. R., Gelperin, A., Fee, M. S., Flores, J., Gervais, R., Tank, D. W., and Kleinfeld, D., Waves and stimulus-modulated dynamics in an oscillating olfactory network, *Proc. Natl. Acad. Sci.* 91, 669-673 (1994).
48. Delaney, K. R. and Tank, D. W., A quantitative measurement of the dependence of short-term synaptic enhancement on presynaptic residual calcium. *J. Neuroscience* 14, 5885-5902 (1994).
49. Sobel, E. and Tank, D. W., In Vivo Ca²⁺ Dynamics in a cricket auditory neuron: an example of chemical computation, *Science* 263, 823-826 (1994).
50. Kleinfeld, D., Fee, M. S., Flores, J. A., Tank, D. W. and Gelperin, A., Dynamics of propagating waves in the olfactory network of a terrestrial mollusk: an electrical and optical study. *Journal of Neurophysiology* 72, 1402-1419 (1994).
51. Yuste, R., Gutnick, M. J., Saar, D., Delaney, K. R., and Tank, D. W., Ca²⁺ Accumulations in Dendrites of Neocortical Pyramidal Neurons: An Apical Band and Evidence for Two Functional Compartments. *Neuron* 13, 23-43 (1994).
52. Regehr, W. G., and Tank, D. W., Dendritic calcium dynamics. *Current Opinion in Neurobiology* 4, 373-382 (1994).
53. Tank, D. W., Gelperin, A., and Kleinfeld, D., Odors, oscillations, and waves: does it all compute? *Science* 265, 1819-1820 (1994).
54. Denk, W., Delaney, K.R., Gelperin, A., Kleinfeld, D., Strowbridge, B.W., Tank, D.W. and Yuste, R., Anatomical and functional imaging of neurons using 2-photon laser scanning microscopy. *J. of Neuroscience Methods* 54, 131-274 (1994).
55. Tank, D. W., Regehr, W.G., and Delaney, K.R. , A quantitative analysis of presynaptic calcium dynamics that contribute to short-term enhancement. *J. Neuroscience* 15, 7940-7952 (1995).
56. Svoboda, K., Tank, D.W., and Denk, W., Direct measurement of coupling between dendritic spines and shafts. *Science* 272, 716-719 (1995).
57. Yuste, R. and Tank, D.W., Dendritic integration in mammalian neurons, a century after Cajal. *Neuron* 16, 701-716 (1996).
58. Denk, W., Yuste, R., Svoboda, K., and Tank, D.W., Imaging calcium dynamics in dendritic spines. *Current Opinion in Neurobiology* 6, 372-378 (1996).
59. Feller, M.B., Delaney, K.R., and Tank, D.W., Presynaptic calcium dynamics at the frog retino-tectal synapse. *J. Neurophysiology* 76, 381-400 (1996).
60. Lee, D.D., Reis, B.Y., Seung, H.S., and Tank, D.W., Nonlinear network models of the oculomotor integrator. In: *Computational Neuroscience: Trends in Research 1997* (Plenum, New York, 1997).
61. Svoboda, K., Denk, W., Kleinfeld, D., and Tank, D.W., *In Vivo* dendritic calcium dynamics in neocortical pyramidal neurons. *Nature* 385, 161-165 (1997).

62. Yuste, R., Tank, D.W., and Kleinfeld, D., Functional study of the rat cortical microcircuitry with voltage-sensitive dye imaging of neocortical slices. *Cerebral Cortex* 7, 546-558 (1997).
63. Chen W, Kato T, Zhu X.H., Ogawa S, Tank D.W., Ugurbil K., Human primary visual cortex and lateral geniculate nucleus activation during visual imagery. *Neuroreport* 9, 3669-3674 (1998).
64. Svoboda, K., Helmchen, F., Denk, W., and Tank, D.W., Spread of dendritic excitation in layer 2/3 pyramidal neurons in rat barrel cortex *in vivo*. *Nature Neuroscience* 2, 65-73 (1999).
65. Helmchen, F., Svoboda, K., Denk, W., and Tank, D.W., *In vivo* dendritic calcium dynamics in deep-layer cortical pyramidal neurons. *Nature Neurosci.* 11, 989-996 (1999).
66. Svoboda, K., Tank, D.W., Stepanoski, R., and Denk, W., *In vivo* imaging of dendritic calcium dynamics, In: *Imaging Neurons: A Laboratory Manual*. R. Yuste, F. Lanni, A. Konnerth, Eds., (Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY, 2000).
67. Helmchen, F., and Tank, D.W., A single-compartment model of calcium dynamics in nerve terminals and dendrites. In: *Imaging Neurons: A Laboratory Manual*. R. Yuste, F. Lanni, A. Konnerth, Eds., (Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY, 2000).
68. Seung, H.-S., Lee, D.D., Reis, B.Y., and Tank, D.W., Stability of the memory of eye position in a recurrent network of conductance-based model neurons. *Neuron* 26, 259-271 (2000).
69. Seung, H.-S., Lee, D.D., Reis, B.Y., and Tank, D.W., The autapse: a simple illustration of short-term analog memory storage by tuned synaptic feedback. *J. Comput. Neurosci.* 9, 171-185 (2000).
70. Aksay, E., Baker, R., Seung, H.S., and Tank, D.W., Anatomy and discharge properties of pre-motor neurons in the goldfish medulla that have eye-position signals during fixations. *J. Neurophysiol.* 84, 1035-1049 (2000).
71. Cox, C.L., Denk, W., Tank, D.W., and Svoboda, K., Action potentials reliably invade axonal arbors of rat neocortical neurons. *Proc Natl Acad Sci U S A.* 97, 9724-9728 (2000).
72. Aksay, E., Gamkrelidze, G., Seung, H.S., Baker, R., and Tank, D.W., *In vivo* intracellular recording and perturbation of persistent activity in a neural integrator. *Nature Neuroscience* 4, 184-193 (2001).
73. Helmchen, F., Fee, M., Tank, D.W., and Denk, W., A miniature head-mounted two-photon microscope: high resolution brain imaging in freely moving animals. *Neuron* 27, 11-20 (2001).
74. Goldman, M.S., Kaneko, C.R., Major, G., Aksay E., Tank, D.W., Seung, H.S., Linear regression of eye velocity on eye position and head velocity suggests a common oculomotor neural integrator. *J. Neurophysiol.* 88, 659-665 (2002).
75. Helmchen, F., Tank, D.W., Denk, W., Enhanced two-photon excitation through optical fiber by single-mode propagation in a large core. *Appl Opt* 41, 2930-2934 (2002).
76. Aksay, E., Major, G., Goldman, M.S., Baker, R., Seung, H.S., and Tank, D.W., History dependence of rate covariation between neurons during persistent activity in an oculomotor integrator. *Cerebral Cortex* 13(11), 1173-1184 (2003).
77. Goldman, M.S., Levine, J.H., Major, G., Tank, D.W. and Seung, H.S., Robust persistent neural activity in a model integrator with multiple hysteretic dendrites per neuron. *Cerebral Cortex* 13(11), 1185-1195 (2003).

78. Aksay, E., Baker, R., Seung, H.S., and Tank, D.W. Correlated Discharge among cell pairs within the oculomotor horizontal velocity-to-position integrator. *J. Neuroscience* 23(34), 10852-10858 (2003).
79. Mensh, B.D., Aksay, E., Lee, D.D., Seung, H.S. and Tank, D.W. Spontaneous eye movements in goldfish: oculomotor integrator performance, plasticity, and dependence on visual feedback. *Vision Research* 44(7), 711-726 (2004).
80. Major, G., Baker, R., Aksay, E., Seung, H.S. and Tank, D.W., Plasticity and tuning of the time course of analog persistent firing in a neural integrator. *Proc. Natl. Acad. Sci. U.S.A.* 101(20), 7745-7750 (2004).
81. Major, G., Baker, R., Aksay, E., Mensh, B., Seung, H.S. and Tank, D.W., Plasticity and tuning by visual feedback of the stability of a neural integrator. *Proc. Natl. Acad. Sci. U.S.A.* 101 (20), 7739-7744 (2004).
82. Beck, J.C., Gilland, E., Tank, D.W. and Baker, R., Quantifying the ontogeny of optokinetic and vestibuloocular behaviors in zebrafish, medaka, and goldfish. *J Neurophysiol.* 92(6), 2536-3561 (2004).
83. Beck J.C., Gilland E., Baker R., Tank D.W., Instrumentation for measuring oculomotor performance and plasticity in larval organisms. In: *The Zebrafish: Cellular and Developmental Biology* (2nd ed.), edited by Detrich HW, 3rd, Westerfield M and Zon LI. New York: Elsevier, 383-411, 2004.
84. Major, G. and Tank, D.W., Persistent neural activity: prevalence and mechanisms. *Current Opinion in Neurobiology* 14(6), 675-684 (2004).
85. Gregor, T., Bialek, W., de Ruyter, R., Tank, D.W., and Wieschaus, E.F., Diffusion and scaling during early embryonic pattern formation. *Proc. Natl. Acad. Sci. U.S.A.* 102(51), 18403-18407 (2005).
86. Lim, F.L., Riehn, R., Ryu, W.S., Khanarian, N., Tung, C-k., Tank, D., and Austin, R.H., In Vivo and Scanning Electron Microscopy Imaging of Upconverting Nanophosphors in *Caenorhabditis elegans*. *Nano Lett.* 6 (2), 169 -174 (2006).
87. Aksay, E., Olasagasti, I., Mensh, B.D., Baker, R., Goldman, M.S., and Tank, D.W., Functional dissection of circuitry in a neural integrator. *Nature Neuroscience* 10(4), 494-504 (2007).
88. Gregor, T., Wieschaus, E.F., McGregor, A.P., Bialek, W., and Tank, D.W., Stability and nuclear dynamics of the bicoid morphogen gradient. *Cell* 130(1), 141-152 (2007).
89. Gregor, T., Tank, D.W., Wieschaus, E.F., and Bialek, W., Probing the limits to positional information. *Cell* 130(1), 153-164 (2007).
90. Dombeck, D.A., Khabbaz, A.N., Collman, F., Adelman, T.L., and Tank, D.W., Imaging large scale neural activity with cellular resolution in awake mobile mice. *Neuron* 56(1), 43-57 (2007).
91. Markowitz, D.A., Collman, F., Brody, C.D., Hopfield, J.J., and Tank, D.W., Rate-specific synchrony: using noisy oscillations to detect equally active neurons. *Proc. Natl. Acad. Sci. USA* 105(24), 8422-8427 (2008).
92. Major, G., Polsky, A., Denk, W., Schiller, J., and Tank, D.W., Spatiotemporally graded NMDA spike/plateau potentials in basal dendrites of neocortical pyramidal cells. *J. Neurophysiology* 99(5), 2584-2601 (2008).
93. Rickgauer, J.P. and Tank, D.W. Two-photon excitation of channelrhodopsin-2 at saturation. *Proc. Natl. Acad. Sci. USA* 106(35), 15025-15030 (2009).

94. McCarthy, K.M., Tank, D.W. and Enquist, L.W. Pseudorabies virus infection alters neuronal activity and connectivity in vitro. *PLoS Pathog.* 5(10), e1000640 (2009)
95. Harvey, C.D., Collman, F., Dombeck, D.A. and Tank, D.W. Intracellular dynamics of place cells during virtual navigation. *Nature* 461(7266), 941-946 (2009).
96. Dombeck, D.A., Graziano, M.S. and Tank, D.W. Functional clustering of neurons in motor cortex determined by cellular resolution imaging in awake behaving mice. *J. Neuroscience* 29(44), 13751-13760 (2009).
97. Dombeck, D.A., Harvey, C.D., Tian, L., Looger, L. and Tank, D.W. Functional imaging of hippocampal place cells at cellular resolution during virtual navigation. *Nature Neurosci.* 13(11):1433-40 (2010).
98. Miri A, Daie K, Burdine RD, Aksay E, Tank DW. Regression-based identification of behavior-encoding neurons during large scale optical imaging of neural activity at cellular resolution. *J Neurophysiol.* 105(2), 964-80 (2011).
99. Miri A., Daie K., Arrenberg A.B., Baier H., Aksay E. and Tank DW. Spatial gradients and multidimensional dynamics in a neural integrator circuit. *Nature Neurosci.* 14(9), 1150-9 (2011).
100. Drocco J.A., Grimm O. and Tank D.W. Wieschaus E. Measurement and perturbation of morphogen lifetime: effects on gradient shape. *Biophys J.* 101(8), 1807-15 (2011).
101. Drocco J.A., Wieschaus E.F., Tank D.W. The synthesis-diffusion-degradation model explains Bicoid gradient formation in unfertilized eggs. *Phys Biol.* 9(5), 055004 (2012).
102. Ozden I., Dombeck D.A., Hoogland T.M., Tank D.W., Wang SS. Widespread state-dependent shifts in cerebellar activity in locomoting mice. *PLoS One.* 7(8), e42650 (2012).
103. Harvey C.D., Coen P. and Tank D.W. Choice-specific sequences in parietal cortex during a virtual-navigation decision task. *Nature* 484: 62-68 (2012).
104. Domnisoru, C., Kinkhabwala, A.A., Tank, D.W. Membrane potential dynamics of grid cells. *Nature* 495(7440), 199-204 (2013).
105. Fisher, D., Olasagasti, I., Tank, D.W., Aksay, E.R., Goldman, M.S. A modeling framework for deriving the structural and functional architecture of a short-term memory microcircuit. *Neuron* 79(5), 987-1000 (2013).
106. Scott, B.B., Brody, C.D., Tank, D.W. Cellular Resolution Functional Imaging in Behaving Rats Using Voluntary Head Restraint. *Neuron pii: S0896-6273(13)00712-5* (2013).

Patents

1. Patent No. 4,719,591: Optimization network for the decomposition of signals. (January, 1988; with J.J. Hopfield).
2. Patent No. 4,937,872: Neural computation by time concentration. (June, 1990; with J.J. Hopfield).
3. Patent No. 5,961,766: Method for forming micron-sized and smaller liquid droplets. (October 1999; with V. A. Aksyuk, D. J. Bishop, W. Denk)