

Review references related to the synaptic plasticity lectures

- Abbott LF, Nelson SB (2000) Synaptic plasticity: taming the beast. *Nat Neurosci* 3 Suppl:1178-1183.
- Alger BE (2002) Retrograde signaling in the regulation of synaptic transmission: focus on endocannabinoids. *Prog Neurobiol* 68:247-286.
- Augustine GJ, Santamaria F, Tanaka K (2003) Local calcium signaling in neurons. *Neuron* 40:331-346.
- Bear MF (2003) Bidirectional synaptic plasticity: from theory to reality. *Philos Trans R Soc Lond B Biol Sci* 358:649-655.
- Berlucchi G, Buchtel HA (2009) Neuronal plasticity: historical roots and evolution of meaning. *Exp Brain Res* 192:307-319.
- Berridge MJ, Lipp P, Bootman MD (2000) The versatility and universality of calcium signalling. *Nat Rev Mol Cell Biol* 1:11-21.
- Best PJ, White AM, Minai A (2001) Spatial processing in the brain: the activity of hippocampal place cells. *Annu Rev Neurosci* 24:459-486.
- Bliss TV, Collingridge GL (1993) A synaptic model of memory: long-term potentiation in the hippocampus. *Nature* 361:31-39.
- Bliss TV, Collingridge GL (2013) Expression of NMDA receptor-dependent LTP in the hippocampus: bridging the divide. *Mol Brain*. 6:5.
- Bloodgood BL, Sabatini BL (2007) Ca²⁺ signaling in dendritic spines. *Curr Opin Neurobiol* 17:345-351.
- Bredt DS, Nicoll RA (2003) AMPA receptor trafficking at excitatory synapses. *Neuron* 40:361-379.
- Caporale N, Dan Y (2008) Spike timing-dependent plasticity: a Hebbian learning rule. *Annu Rev Neurosci* 31:25-46.
- Castillo PE. (2012) Presynaptic LTP and LTD of excitatory and inhibitory synapses. *Cold Spring Harb Perspect Biol*. 4. pii: a005728. doi: 10.1101/cshperspect.a005728.
- Catterall WA, Leal K, Nanou E. (2013) Calcium channels and short-term synaptic plasticity. *J Biol Chem*. 288(15): 10742-9.
- Chevalleyre V, Takahashi KA, Castillo PE (2006) Endocannabinoid-mediated synaptic plasticity in the CNS. *Annu Rev Neurosci* 29:37-76.
- Choquet D, Triller A (2013) The dynamic synapse. *Neuron*. 80(3): 691-703.
- Citri A, Malenka RC (2008) Synaptic plasticity: multiple forms, functions, and mechanisms. *Neuropsychopharmacology* 33:18-41.
- Conn PJ, Pin JP (1997) Pharmacology and functions of metabotropic glutamate receptors. *Annu Rev Pharmacol Toxicol* 37:205-237.
- Cooper LN, Bear MF. (2012) The BCM theory of synapse modification at 30: interaction of theory with experiment. *Nat Rev Neurosci*. 13(11):798-810.
- Dan Y, Poo MM (2004) Spike timing-dependent plasticity of neural circuits. *Neuron* 44:23-30.
- Dan Y, Poo MM (2006) Spike timing-dependent plasticity: from synapse to perception. *Physiol Rev* 86:1033-1048.
- Day JJ, Sweatt JD (2011) Epigenetic mechanisms in cognition. *Neuron* 70:813-829.

- Derkach VA, Oh MC, Guire ES, Soderling TR (2007) Regulatory mechanisms of AMPA receptors in synaptic plasticity. *Nat Rev Neurosci* 8:101-113.
- Dudai Y, Morris RG (2013) Memorable trends. *Neuron*. 80(3):742-50.
- Duguid IC (2013) Presynaptic NMDA receptors: are they dendritic receptors in disguise? *Brain Res Bull*. 93: 4-9.
- Feldman DE (2009) Synaptic mechanisms for plasticity in neocortex. *Annu Rev Neurosci* 32:33-55.
- Feldman DE. (2012) The spike-timing dependence of plasticity. *Neuron* 75:556-571.
- Ganguly K, Poo MM (2013) Activity-dependent neural plasticity from bench to bedside. *Neuron*. 80(3): 729-41.
- Gaiarsa JL, Caillard O, Ben-Ari Y (2002) Long-term plasticity at GABAergic and glycinergic synapses: mechanisms and functional significance. *Trends Neurosci* 25:564-570.
- Gerstner JR, Yin JC (2010) Circadian rhythms and memory formation. *Nat Rev Neurosci* 11:577-588.
- Graff J, Kim D, Dobbin MM, Tsai LH (2011) Epigenetic regulation of gene expression in physiological and pathological brain processes. *Physiol Rev* 91:603-649.
- Hanus C, Schuman EM (2013) Proteostasis in complex dendrites. *Nat Rev Neurosci*. 14(9):638-48.
- Hardingham N, Dachtler J, Fox K (2013) The role of nitric oxide in pre-synaptic plasticity and homeostasis. *Front Cell Neurosci*. 7:190.
- Heifets BD, Castillo PE (2009) Endocannabinoid signaling and long-term synaptic plasticity. *Annu Rev Physiol* 71:283-306.
- Holt CE, Schuman EM (2013) The central dogma decentralized: new perspectives on RNA function and local translation in neurons. *Neuron*. 80(3): 648-57.
- Huganir RL, Nicoll RA (2013) AMPARs and Synaptic Plasticity: The Last 25 Years. *Neuron*. 80(3): 704-17.
- Johansen JP, Cain CK, Ostroff LE, LeDoux JE. (2011) Molecular mechanisms of fear learning and memory. *Cell*. 147:509-24.
- Johnston D, Williams S, Jaffe D, Gray R (1992) NMDA-receptor-independent long-term potentiation. *Annu Rev Physiol* 54:489-505.
- Jorntell H, Hansel C (2006) Synaptic memories upside down: bidirectional plasticity at cerebellar parallel fiber-Purkinje cell synapses. *Neuron* 52:227-238.
- Kampa BM, Letzkus JJ, Stuart GJ (2007) Dendritic mechanisms controlling spike-timing-dependent synaptic plasticity. *Trends Neurosci* 30:456-463.
- Kandel ER, Dudai Y, Mayford MR. The molecular and systems biology of memory. *Cell*. 2014 Mar 27;157(1):163-86.
- Kennedy MB, Beale HC, Carlisle HJ, Washburn LR (2005) Integration of biochemical signalling in spines. *Nat Rev Neurosci* 6:423-434.
- Kerchner GA, Nicoll RA (2008) Silent synapses and the emergence of a postsynaptic mechanism for LTP. *Nat Rev Neurosci* 9:813-825.
- Kessels HW, Malinow R (2009) Synaptic AMPA receptor plasticity and behavior. *Neuron* 61:340-350.
- Kneussel M, Wagner W (2013) Myosin motors at neuronal synapses: drivers of

- membrane transport and actin dynamics. *Nat Rev Neurosci*. 14(4):233-47.
- Kotaleski JH, Blackwell KT (2010) Modelling the molecular mechanisms of synaptic plasticity using systems biology approaches. *Nat Rev Neurosci* 11:239-251.
- Kullmann DM, Lamsa KP (2007) Long-term synaptic plasticity in hippocampal interneurons. *Nat Rev Neurosci* 8:687-699.
- Kullmann DM, Lamsa KP (2011) LTP and LTD in cortical GABAergic interneurons: emerging rules and roles. *Neuropharmacology* 60:712-719.
- Lau CG, Zukin RS (2007) NMDA receptor trafficking in synaptic plasticity and neuropsychiatric disorders. *Nat Rev Neurosci* 8:413-426.
- Lisman J, Spruston N (2005) Postsynaptic depolarization requirements for LTP and LTD: a critique of spike timing-dependent plasticity. *Nat Neurosci* 8:839-841.
- Lisman J, Schulman H, Cline H (2002) The molecular basis of CaMKII function in synaptic and behavioural memory. *Nat Rev Neurosci* 3:175-190.
- Lisman J, Lichtman JW, Sanes JR (2003) LTP: perils and progress. *Nat Rev Neurosci* 4:926-929.
- Lisman JE (2009) The pre/post LTP debate. *Neuron* 63:281-284.
- Lisman JE, Raghavachari S, Tsien RW (2007) The sequence of events that underlie quantal transmission at central glutamatergic synapses. *Nat Rev Neurosci* 8:597-609.
- Luscher B, Fuchs T, Kilpatrick CL (2011) GABAA receptor trafficking-mediated plasticity of inhibitory synapses. *Neuron* 70:385-409.
- Malenka RC (2003) The long-term potential of LTP. *Nat Rev Neurosci* 4:923-926.
- Malenka RC, Nicoll RA (1999) Long-term potentiation--a decade of progress? *Science* 285:1870-1874.
- Malenka RC, Bear MF (2004) LTP and LTD: an embarrassment of riches. *Neuron* 44:5-21.
- Malinow R, Malenka RC (2002) AMPA receptor trafficking and synaptic plasticity. *Annu Rev Neurosci* 25:103-126.
- Martin KC, Kosik KS (2002) Synaptic tagging -- who's it? *Nat Rev Neurosci* 3:813-820.
- Martin SJ, Grimwood PD, Morris RG (2000) Synaptic plasticity and memory: an evaluation of the hypothesis. *Annu Rev Neurosci* 23:649-711.
- Martinez JL, Jr., Derrick BE (1996) Long-term potentiation and learning. *Annu Rev Psychol* 47:173-203.
- Massey PV, Bashir ZI (2007) Long-term depression: multiple forms and implications for brain function. *Trends Neurosci* 30:176-184.
- Mayford M, Siegelbaum SA, Kandel ER. (2012) Synapses and memory storage. *Cold Spring Harb Perspect Biol*. pii: a005751.
- Moser EI, Kropff E, Moser MB (2008) Place cells, grid cells, and the brain's spatial representation system. *Annu Rev Neurosci* 31:69-89.
- Neves G, Cooke SF, Bliss TV (2008) Synaptic plasticity, memory and the hippocampus: a neural network approach to causality. *Nat Rev Neurosci* 9:65-75.
- Nicoll RA, Schmitz D (2005) Synaptic plasticity at hippocampal mossy fibre synapses. *Nat Rev Neurosci* 6:863-876.

- O'Rourke NA, Weiler NC, Micheva KD, Smith SJ. (2012) Deep molecular diversity of mammalian synapses: why it matters and how to measure it. *Nat Rev Neurosci*. 13:365-79.
- Redondo RL, Morris RG (2011) Making memories last: the synaptic tagging and capture hypothesis. *Nat Rev Neurosci* 12:17-30.
- Regehr WG, Carey MR, Best AR (2009) Activity-dependent regulation of synapses by retrograde messengers. *Neuron* 63:154-170.
- Sabatini BL, Maravall M, Svoboda K (2001) Ca(2+) signaling in dendritic spines. *Curr Opin Neurobiol* 11:349-356.
- Sacktor TC (2011) How does PKMzeta maintain long-term memory? *Nat Rev Neurosci* 12:9-15.
- Scannevin RH, Huganir RL (2000) Postsynaptic organization and regulation of excitatory synapses. *Nat Rev Neurosci* 1:133-141.
- Scoville WB, Milner B (1957) Loss of recent memory after bilateral hippocampal lesions. *J Neurol Neurosurg Psychiatry* 20:11-21.
- Shepherd JD, Huganir RL (2007) The cell biology of synaptic plasticity: AMPA receptor trafficking. *Annu Rev Cell Dev Biol* 23:613-643.
- Sjostrom PJ, Rancz EA, Roth A, Hausser M (2008) Dendritic excitability and synaptic plasticity. *Physiol Rev* 88:769-840.
- Spitzer NC. (2012) Activity-dependent neurotransmitter respecification. *Nat Rev Neurosci*.13:94-106.
- Sutton MA, Schuman EM (2006) Dendritic protein synthesis, synaptic plasticity, and memory. *Cell* 127:49-58.
- Südhof TC. (2012) The presynaptic active zone. *Neuron*. 75:11-25.
- Südhof TC (2013) Neurotransmitter release: the last millisecond in the life of a synaptic vesicle. 80(3): 675-90.
- Sweatt JD (2004) Mitogen-activated protein kinases in synaptic plasticity and memory. *Curr Opin Neurobiol* 14:311-317.
- Ueda Y, Kwok S, Hayashi Y (2013) Application of FRET probes in the analysis of neuronal plasticity. *Front Neural Circuits*. 7:163.
- von Gersdorff H, Borst JG (2002) Short-term plasticity at the calyx of held. *Nat Rev Neurosci* 3:53-64.
- Wilson RI, Nicoll RA (2002) Endocannabinoid signaling in the brain. *Science* 296:678-682.
- Yasuda R, Nimchinsky EA, Scheuss V, Pologruto TA, Oertner TG, Sabatini BL, Svoboda K (2004) Imaging calcium concentration dynamics in small neuronal compartments. *Sci STKE* 2004:pl5.
- Yuste R (2011) Dendritic spines and distributed circuits. *Neuron* 71:772-781.
- Zucker RS (1989) Short-term synaptic plasticity. *Annu Rev Neurosci* 12:13-31.
- Zucker RS, Regehr WG (2002) Short-term synaptic plasticity. *Annu Rev Physiol* 64:355-405.

Also see: http://cshperspectives.cshlp.org/site/misc/the_synapse.xhtml for a collection of review articles related to the synapse.