

**General Background (Read this if nothing else!):**

Zucker, R.S., Kullmann, D.M., and Schwarz, T.L. (2008). Release of Neurotransmitters. In *From Molecules to Networks: An Introduction to Cellular and Molecular Neuroscience*, 2<sup>nd</sup> Edn., J.J. Byrne and J.L. Roberts, Editors. Academic Press: San Diego. **(PDF file of author's proof on MCB course web-page)**

**Classics:**

Katz, B. (1966). *Nerve, Muscle, and Synapse*. New York: McGraw-Hill.

Katz, B. (1969). *The Release of Neural Transmitter Substances*. Springfield, IL: C C Thomas.

**Statistics of Release:**

- Hubbard, J.I., Llinás, R., and Quastel, D.M.J. (1969). *Electrophysiological Analysis of Synaptic Transmission*. Baltimore: Williams & Wilkins
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- Neher, E. and Sakaba, T. (2001). Combining deconvolution and noise analysis for the estimation of transmitter release rates at the calyx of held. *J Neurosci* **21**: 444-461.
- Hartzell, H.C., Kuffler, S.W., and Yoshikami, D. (1975). Post-synaptic potentiation: interaction between quanta of acetylcholine at the skeletal neuromuscular synapse. *J Physiol* **251**: 427-63.
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- McAllister, A.K. and Stevens, C.F. (2000). Nonsaturation of AMPA and NMDA receptors at hippocampal synapses. *Proc Natl Acad Sci U S A* **97**: 6173-6178.
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- Mainen, Z.F., Malinow, R., and Svoboda, K. (1999). Synaptic calcium transients in single spines indicate that NMDA receptors are not saturated. *Nature* **399**: 151-155.
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- Liu, G., Choi, S., and Tsien, R.W. (1999). Variability of neurotransmitter concentration and nonsaturation of postsynaptic AMPA receptors at synapses in hippocampal cultures and slices. *Neuron* **22**: 395-409.
- Liu, G. (2003). Presynaptic control of quantal size: kinetic mechanisms and implications for synaptic transmission and plasticity. *Curr Opin Neurobiol* **13**: 324-31.
- Wadiche, J.I. and Jahr, C.E. (2001). Multivesicular release at climbing fiber-Purkinje cell synapses. *Neuron* **32**: 301-313.
- Auger, C. and Marty, A. (2000). Quantal currents at single-site central synapses. *J Physiol* **526**: 3-11.

**The Vesicle Cycle; Endocytosis****Classics:**

- Ryan, T.A., Reuter, H., Wendland, B., Schweizer, F.E., Tsien, R.W., and Smith, S.J. (1993). The kinetics of synaptic vesicle recycling measured at single presynaptic boutons. *Neuron* **11**: 713-724.
- Ryan, T.A. and Smith, S.J. (1995). Vesicle pool mobilization during action potential firing at hippocampal synapses. *Neuron* **14**: 983-9.

Ryan, T.A., Reuter, H., and Smith, S.J. (1997). Optical detection of a quantal presynaptic membrane turnover. *Nature* **388**: 478-82.

Bruns, D. and Jahn, R. (1995). Real-time measurement of transmitter release from single synaptic vesicles. *Nature* **377**: 62-5.

***Good Reviews (reference most papers that I discuss):***

Granseth, B., Odermatt, B., Royle, S.J., and Lagnado, L. (2006). Clathrin-mediated endocytosis is the dominant mechanism of vesicle retrieval at hippocampal synapses. *Neuron* **51**: 773-86.

He, L. and Wu, L.G. (2007). The debate on the kiss-and-run fusion at synapses. *Trends Neurosci* **30**: 447-55.

Wu, L.G., Ryan, T.A., and Lagnado, L. (2007). Modes of vesicle retrieval at ribbon synapses, calyx-type synapses, and small central synapses. *J Neurosci* **27**: 11793-802.

Lisman, J.E., Raghavachari, S., and Tsien, R.W. (2007). The sequence of events that underlie quantal transmission at central glutamatergic synapses. *Nat Rev Neurosci* **8**: 597-609.

***Recent paper missed by reviews:***

Lin, M.Y., Teng, H., and Wilkinson, R.S. (2005). Vesicles in snake motor terminals comprise one functional pool and utilize a single recycling strategy at all stimulus frequencies. *J Physiol* **568**: 413-21.

**Cotransmission & Autoreceptors:**

Lundberg, J.M., Änggård, A., Emson, P., Fahrenkrug, J., and Hökfelt, T. (1981). Vasoactive intestinal polypeptide and cholinergic mechanisms in cat nasal mucosa: studies on choline acetyltransferase and release of vasoactive intestinal polypeptide. *Proc Natl Acad Sci U S A* **78**: 5255-9.

Adams, M.E. and O'Shea, M. (1983). Peptide cotransmitter at a neuromuscular junction. *Science* **221**: 286-9.

Kuffler, S.W. (1980). Slow synaptic responses in autonomic ganglia and the pursuit of a peptidergic transmitter. *J Exp Biol* **89**: 257-286.

Jan, Y.N., Bowers, C.W., Branton, D., Evans, L., and Jan, L.Y. (1983). Peptides in neuronal function: studies using frog autonomic ganglia. *Cold Spring Harb Symp Quant Biol* **48 Pt 1**: 363-374.

Davies, C.H., Davies, S.N., and Collingridge, G.L. (1990). Paired-pulse depression of monosynaptic GABA-mediated inhibitory postsynaptic responses in rat hippocampus. *J Physiol* **424**: 513-31.

Redman, R.S. and Silinsky, E.M. (1994). ATP released together with acetylcholine as the mediator of neuromuscular depression at frog motor nerve endings. *J Physiol* **477**: 117-27.

**Microdomains & Ca-dependence:**

Neher, E. (1998). Vesicle pools and Ca<sup>2+</sup> microdomains: new tools for understanding their roles in neurotransmitter release. *Neuron* **20**: 389-99.

Becherer, U., Moser, T., Stuhmer, W., and Oheim, M. (2003). Calcium regulates exocytosis at the level of single vesicles. *Nat Neurosci* **6**: 846-53.

Heidelberger, R., Heinemann, C., Neher, E., and Matthews, G. (1994). Calcium dependence of the rate of exocytosis in a synaptic terminal. *Nature* **371**: 513-5.

Schneggenburger, R. and Neher, E. (2000). Intracellular calcium dependence of transmitter release rates at a fast central synapse. *Nature* **406**: 889-93.

Bollmann, J.H., Sakmann, B., and Borst, J.G. (2000). Calcium sensitivity of glutamate release in a calyx-type terminal. *Science* **289**: 953-7.

Thoreson, W.B., Rabl, K., Townes-Anderson, E., and Heidelberger, R. (2004). A highly Ca<sup>2+</sup>-sensitive pool of vesicles contributes to linearity at the rod photoreceptor ribbon synapse. *Neuron* **42**: 595-605.

**Short-Term Synaptic Plasticity & Vesicle Pools:**

Zucker, R.S. and Regehr, W.G. (2002). Short-term synaptic plasticity. *Annu Rev Physiol* **64**: 355-405.

- Schneggenburger, R., Sakaba, T., and Neher, E. (2002). Vesicle pools and short-term synaptic depression: lessons from a large synapse. *Trends Neurosci* **25**: 206-12.
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### Molecular Mediators:

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- Südhof, T.C. (2004). The synaptic vesicle cycle. *Annu Rev Neurosci* **27**: 509-47.
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- Pobbati, A.V., Stein, A., and Fasshauer, D. (2006). N- to C-terminal SNARE complex assembly promotes rapid membrane fusion. *Science* **313**: 673-6.
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