

3.2 Neurotransmitter release

Cellular Mechanisms of Brain Function

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Neurotransmitter release



Neurotransmitter release









Molecular mechanisms







Mechanisms of neurotransmitter release





Regulation of neurotransmitter release



Calcium influxi) Action potential waveformii) Calcium channels

Regulation of neurotransmitter release



Vesicle filling

i) Vesicle pH and electric potential

ii) Vesicular neurotransmitter transporters

Regulation of neurotransmitter release



Vesicle release i) Docking and priming ii) Ca²⁺-sensitivity

Neurotransmitter release



- The action potential activates voltage-gated calcium channels in the presynaptic bouton.
- Increased calcium concentration in the presynaptic bouton drives exocytosis of docked vesicles.
- Synaptotagmin, syntaxin, synaptobrevin and SNAP-25 form core elements of the vesicle fusion machinery.