# Calcium channel

A calcium channel is an ion channel which shows selective permeability to calcium ions. It is sometimes synonymous as voltage-gated calcium channel, although there are also ligand-gated calcium channels.

Sun et al., show that oligodendrocyte progenitor cells perform linear integration of glutamatergic synaptic inputs and respond with increasing dendritic calcium elevations. Synaptic activity induces rapid Ca2+ signals mediated by low-voltage activated Calcium channels under strict inhibitory control of voltage-gated A-type K+ channels. Ca2+ signals can be global and originate throughout the cell. However, voltage-gated channels are also found in thin dendrites which act as compartmentalized processing units and generate local calcium transients. Taken together, the activity-dependent control of Ca2+ signals by A-type channels and the global versus local signaling domains make intracellular Ca2+ in NG2 cells a prime signaling molecule to transform neurotransmitter release into activity-dependent myelination [1)].

1)

Sun W, Matthews EA, Nicolas V, Schoch S, Dietrich D. NG2 glial cells integrate synaptic input in global and dendritic calcium signals. Elife. 2016 Sep 19;5. pii: e16262. doi: 10.7554/eLife.16262. [Epub ahead of print] PubMed PMID: 27644104.