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Sommario/riassunto	Cyclic nucleotides control a number of neuronal properties including neuronal differentiation, pathfinding, regulation of excitability and synaptic transmission, and control of gene expression. Signaling events mediated by cAMP or cGMP are transient and take place within the complex 3-dimensional structure of the neuronal cell. Signaling events happen on the time scale of seconds to minutes and the biological significance of the temporal dimension remains poorly understood. Structural features of neurons (dendritic spines and branches, cell body, nucleus, axon…) as well as AKAPs and other scaffolding proteins that keep signaling enzymes together and form "signaling microdomains", are critical spatial determinants of signal integration. Finally, the types of enzymes involved in signal integration, which are expressed as a number of different types and splice variants, yield another dimension that determines signal integration properties. Biosensor imaging provides direct temporal and spatial measurement of intracellular signals. This novel approach, together with more conventional methods such as biochemistry, electrophysiology, and modeling, now provide a better understanding of the spatial and temporal features of cyclic nucleotide signal integration in living neurons. This topic aims at providing a better understanding of how neurons are "making sense" of cyclic nucleotide signaling in living

neurons.