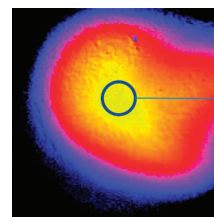


Zinc Sequestration and Signaling

Synaptic vesicles containing glutamate also contain a high concentration of ionic zinc; however, the function has remained elusive. It is hypothesized that ionic zinc is released during synaptic transmission, after which it acts as a neuromodulator. Using chemical probes which fluoresce upon binding to zinc, Nydegger et al. (DOI: 10.1021/cn100065s) now determine

from fluorescent responses that very little zinc is actually released during synaptic transmission. Instead, the authors hypothesize that zinc is coordinated to sites within the synaptic vesicle, opening up the possibility of a hitherto unknown mechanism of synaptic transmission in zinc-rich neurons.



Exploring Peptide Backbones

Alanine scanning is a technique in protein engineering in which all of the residues of a peptide chain are replaced by alanine. This process is used to determine which amino acids are required to retain biological activity.

Amide bonds can stabilize active conformations of peptides via intramolecular hydrogen bonding or by binding to the corresponding receptors. Proteau-Gagné et al.

(DOI: 10.1021/cn1000759) hypothesized that an analogous “scanning” process with backbone amides might be possible by replacing with the topologically equivalent *trans* olefins, and they tested this approach using enkephalins as a proof of concept. Their study shows that replacement of amide bonds is a feasible approach in exploring peptide backbones.

