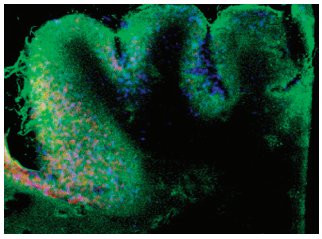
Mercury Poisoning and the Human Brain

Methylmercury compounds ingested by the consumption of fish and through poisonings are a global concern to human health. Korbas et al. (DOI: 10.1021/cn1000765) now describe a synchrotron X-ray study of the chemical forms of mercury in human brain tissues from individuals poisoned through acute exposure to methylmercury compounds and from those with chronic lifelong exposure from consumption of marine fish.

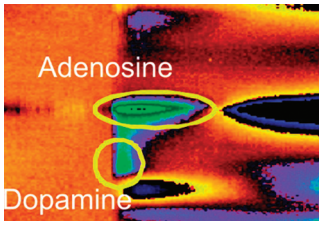
This work describes the chemical speciation for mercury and selenium in human brain tissue. The authors reveal key steps in detoxification in the central nervous system. Taken together, the results presented in this study shed light on the biochemistry of mercury poisoning.



Adenosine Neuromodulator Release in the Brain

Adenosine is a neuromodulator. The amount of dopamine neurotransmitter and adenosine neuromodulator release depends on stimulation frequency. Megan L. Pajski and B. Jill Venton (DOI: 10.1021/cn100037d) now demonstrate that short, physiological stimulations of dopamine neurons in striatal rat brain slices also elicit transient changes in adenosine levels.

The authors also determine that adenosine release is predominantly calcium-dependent, indicating association with exocytosis. The authors examine various scenarios by which adenosine release might occur and hypothesize that the majority of adenosine is released directly by exocytosis.



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