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Research Interests

Dr. Yokel's research focuses on neurotoxic metals, particularly aluminum, and blood-brain barrier transport. General areas of interest related to neurotoxic metals are their toxicokinetics, particularly entry and exit from the brain, and mechanisms of toxicity. General areas of interest related to blood-brain barrier transport include mechanisms protecting the brain from neurotoxicants and the influence of trauma on these protective mechanisms. Techniques used in the pursuit of this work include microdialysis, atomic absorption spectrometry, isotopic tracers and HPLC.

Selected Research Publications/Presentations

Fredenburg, A.M., Sethi, R.K., Allen, D.D. and Yokel, R.A. The pharmacokinetics and blood-brain barrier permeation of the chelators 1,2-dimethyl-, 1,2-diethyl-, and 1-[ethan-1'ol]-, 2-methyl 3-hydroxypyridin-4-one in the rat. *Toxicology*, 108:191-199, 1996.

Meyer, J.J., Allen, D.D. and Yokel, R.A. Hippocampal acetylcholine increases during eyeblink conditioning in the rabbit. *Physiol. Behav.*, 60:1199-1203, 1996.

Xie, C.X., Mattson, M.P., Lovell, M.A. and Yokel, R.A. Intraneuronal aluminum potentiates iron-induced oxidative stress in cultured rat hippocampal neurons. *Brain Research*, 743:271-277, 1996.

Yokel, R.A., Meurer, K.A., Hong, C.B., Dickey, K.M., Skinner, T.L. and Fredenburg, A.M. Short-term oral 3-hydroxypyridin-4-one dosing increases aluminum excretion and partially reverses aluminum-induced toxicity in the rabbit independent of chelator lipophilicity. *Drug Metab. Dispos.*, 25:182-190, 1997.

Ackley, D.C. and Yokel, R.A. Aluminum citrate is transported from brain into blood via the monocarboxylic acid transporter at the blood-brain barrier. *Toxicology*, 120:89-97, 1997.

Research Issues in Aluminum Toxicity, eds. R.A. Yokel and M.S. Golub, Taylor and Francis, 1997.