

# Biochemistry of Neurodegenerative Disorders



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B.S., University of Michigan, Flint, 1993

Ph.D., University of Minnesota, 1999

Director of the Neuroscience Minor Program

Areas of expertise: Biochemistry and Neuroscience

### Active Grants:

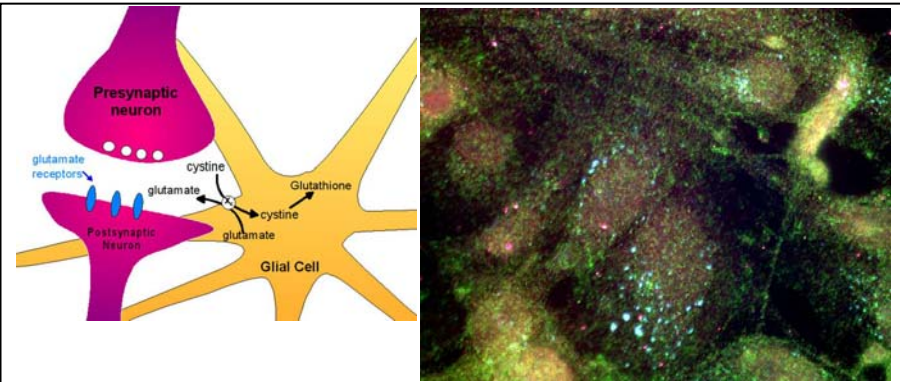
“Regulation of System  $x_c^-$  by Hydrogen Peroxide” Campbell Foundation

Acquisition of an Apotome/Fluorescence Microscope Imaging System for Enhanced Research in the Biological Sciences at Hope College” NSF-MRI program

### Recent publications:

Chase, L.A., Peterson, N.L. and Koerner, J.F. (2007) “The *Lathyrus* toxin, *b-N*-oxalyl-L-a,b-diaminopropionic acid (ODAP), and homocysteic acid sensitize CA1 pyramidal neurons to cystine and L-2-amino-6-phosphonohexanoic acid” *Toxicology and Applied Pharmacology* 219(1):1-9.

Chase, L.A., Stewart, J., Barney, C.C. (2006) “Cultivation of an Interdisciplinary, Research-Based Neuroscience Minor at Hope College. *Journal of Undergraduate Neuroscience* 5(1):A6-A13.



Our research is focused on understanding the molecular events that underlie oxidative cell death associated with neurodegenerative disorders. We are specifically interested in the regulation of a membrane transporter, System  $x_c^-$ , which transports cystine into the cell. Thus, the activity of this transporter plays a significant role in promoting the synthesis of the antioxidant, glutathione. We are using biochemical and electrophysiological approaches to understand the structure/function and regulation of this transporter.

