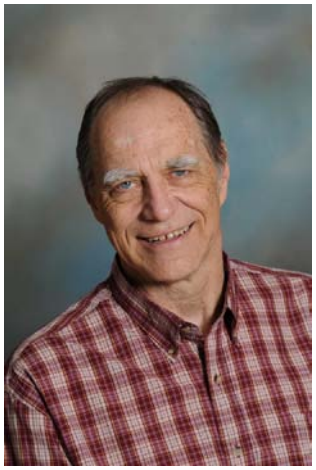

James Cleary, PhD.

- **Associate Director for Research**, GRECC, Minneapolis VA Health Care System, Minneapolis, MN
- **Faculty Member,** N. Bud Grossman Center for Memory Research, University of Minnesota, Minneapolis, MN
- **ETS Walton Visiting Scholar,** Trinity College Dublin, Ireland (2007-8)
- **Associate Professor,** Department of Neurology, University of Minnesota, Minneapolis, MN
- **Adjunct Associate Professor,** Department of Psychology, University of Minnesota, Minneapolis, MN

Research Interests:

Our research is focused on Alzheimer's disease (AD), its molecular causes, symptoms, and treatment. Major areas of interest are the neurotoxic and behavioral effects of the amyloid beta peptide (Aβ). Aβ is the major component of the plaques found in brains of patients suffering from Alzheimer's disease, and is implicated in the cascade of neurological events leading to neural and behavioral pathogenesis. We have recently focused on small soluble conformations of the Aβ peptide that produce memory loss in animals. We developed sensitive bioassays for AD-like cognitive changes and which allow us to inject oligomers of Aβ directly into the brains of rats while they perform memory assessment tasks. We use these assays to help understand the mechanisms of memory loss and to test potentially therapeutic drugs for Alzheimer's disease.

We also use transgenic mouse models to assess contributions of mutant proteins in neurodegenerative disease and to test potential therapeutic interventions. We use single, double and triple mutant models of neurodegenerative disease as well as models which allow regulation of the mutant protein expression. We characterize the behavior of these mouse models under several behavioral protocols, including those for motivation, attention, perception and memory. We track the cognitive changes over time and compare the neurodegeneration using biochemistry and immunohistochemistry.

Recent Publications:

Cleary, J.P., Walsh, D.M., Hofmeister, J.J., Shankar, G.M., Kuskowski, M.A., Selkoe, D.J., & Ashe, K.H. (2005) Natural oligomers of the amyloid-β protein specifically disrupt cognitive function. Nature Neuroscience, 8: 79-84.

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Kotilinek AL, Westerman MA, Wang Q, Panizzon K, Lim GP, Simonyi A, Lesne S, Falinska A, Younkin LH, Younkin SG, Rowan MJ, **Cleary JP,** Wallis RA, Sun GY, Cole G, Frautschy S, Anwyl R, and Ashe KH. (2008) Cyclooxygenase-2 inhibition improves amyloid-β-mediated suppression of memory and synaptic plasticity. Brain 131(3): 651-664.

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Reed MM, Hofmeister JJ, Jungbauer L, Welzel AT, Yu C, Sherman M, Lesné S, LaDu MJ, Walsh DM, Ashe KH, **Cleary JP.** (2009) Cognitive effects of cell-derived and synthetically-derived Aß oligomers. Neurobiology of Aging, (PMID: 200312784: Epub ahead of print).

Collaborations:
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Conway Institute, University College Dublin, Dublin Ireland
Department of Pharmacology and Therapeutics, Trinity College Dublin, Dublin, Ireland
Trinity College Institute for Neuroscience, Trinity College Dublin, Dublin, Ireland
Department of Psychology, Western Michigan University, Kalamazoo, MI

Education:

- **BA Psychology –** University of Wisconsin, Eau Claire, WI, 1977
- **MA Psychology –** Western Michigan University, Kalamazoo, MI, 1980
- **PhD Psychology –** Western Michigan University, Kalamazoo, MI, 1982
- **Postdoctoral Fellow –** University of Minnesota, Minneapolis, MN 1983

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