

BIOGRAPHICAL SKETCH

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NAME Thomas H. McNeill		POSITION TITLE	
eRA COMMONS USER NAME tmcneill		Professor and Vice Chair	
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Colorado State University, Ft. Collins, CO	B.S.	1971	Biol. Sci.
Colorado State University, Ft. Collins, CO	M.S.	1974	Anatomy
Univ. of Rochester, Rochester, NY	Ph.D.	1980	Neurobiology
Univ. of Rochester, Rochester, NY	Post Doc	1981	Neurobiology

RESEARCH AND PROFESSIONAL EXPERIENCE

1979 - 1981 NIA Postdoctoral Fellow, Department of Neurology, University of Rochester
 1981 - 1987 Assistant Professor, Department of Neurology, University of Rochester
 1986 - 1987 Assistant Professor, Department Neurobiology and Anatomy, University of Rochester
 1987 - 1988 Associate Professor, Depts. of Neurology, Neurobiology and Anatomy, University of Rochester
 1988 - 1995 Associate Professor, Division of Neurogerontology, Andrus Gerontology Center, University of Southern California
 1/93 - 7/93 Acting Director/Associate Dean, Leonard Davis School of Gerontology, University of Southern California
 1993 - 1998 Director, Gerontology Research Institute, University of Southern California
 1995 - pres Professor, Division of Neurogerontology, Andrus Gerontology Center, University of Southern California
 1998 - pres Professor, Department of Cell and Neurobiology, Keck School of Medicine, University of Southern California
 2000 - pres Professor, Department of Neurology, Keck School of Medicine, University of Southern California
 2005- pres Vice Chair, Department of Cell and Neurobiology, Keck School of Medicine, University of Southern California

HONORS AND AWARDS

Research Career Development Award - National Institute on Aging 1985-1990
 Excellence in Teaching Award - School of Gerontology 1993-1994
 Excellence in Teaching Award - Keck School of Medicine 1998-1999
 Excellence in Teaching, Year I Medical Curriculum-Human Gross Anatomy 1999-2000
 Excellence in Teaching, Year I Medical Curriculum-Neuroscience Course 2000 -2002

SELECTED PUBLICATIONS (from a total of 102)

McNeill, T.H., Koek, L.L. Brown, S.A. and Rafols, J.A. (1990) Quantitative analysis of age-related morphological changes in medium spiny I (MSI) neurons of the striatum in C57B1/6N mice. *Neurobiology of Aging* 11:537-550.
 Johnson, S.A., McNeill, T.H., Cordell, B, and Finch, C.E. (1990) Neuronal APP751/APP695 mRNA ratio correlates with neuritic plaque density in Alzheimer's disease. *Science* 248:854-857.

- McNeill, T.H., Masters, J.N. and Finch, C.E. (1991) Effect of chronic adrenalectomy on neuron loss and distribution of sulfated glycoprotein-2 in the dentate gyrus of prepubertal rats. *Exp. Neurol.* 111: 140-144.
- Pasinetti, G.M., Cheng, H-W., Morgan, D.G., Lampert-Etchells, M., McNeill, T.H. and Finch, C.E. (1993). Astrocytic mRNA responses to striatal deafferentation in male rat. *Neuroscience* 53:199-211.
- Pasinetti, G.M., Cheng, H-W., Morgan, D.G., Lampert-Etchells, M., McNeill, T.H. and Finch, C.E. (1993) Astrocytic mRNA responses to striatal deafferentation in male rat. *Neuroscience* 53:199-211.
- Beck, K.D., Lamballe, F., Klein, R., Barbacid, M., Schauwecker, P.E., McNeill, T.H., Finch, C.E., Hefti, F. and Day, J.R. (1993) Induction of non-catalytic trk B neurotrophin receptors during sprouting in the adult hippocampus. *J. Neuroscience* 13:4001-4014.
- Himi, T., Wang, H., McNeill, T.H. and Mori, N. (1994) Differential localization of SCG-10 and P19/stathmin mRNAs in the adult rat brain indicates distinct roles for these growth-associated proteins. *Neuroscience* 60:907-926.
- Cheng, H.W., Jiang, T., Brown, S.A., Pasinetti, G.M., Finch, C.E. and McNeill, T.H. (1994) Response of striatal astrocytes to neuronal deafferentation: An immunocytochemical and ultrastructural time course study. *Neuroscience* 62:425-439.
- Schauwecker, P.E. and McNeill, T.H. (1995) Enhanced but delayed axonal sprouting of the commissural/associational pathway following a combined entorhinal cortex/fimbria fornix lesion. *J. Comp. Neurol.* 351:453-464.
- Schauwecker, P.E., Cheng, H.W., Serquinia, R.M.P., Mori, N. and McNeill, T.H. (1995) Lesion-induced ¹ sprouting of commissural/associational axons and induction of GAP-43 mRNA in CA3 pyramidal and hilar neurons in the hippocampus is diminished in aged rats. *J. Neuroscience* 15:2462-2470.
- Schauwecker, P.E., and McNeill, T.H. (1996) Dendritic remodeling of dentate granule cells following a combined entorhinal cortex/fimbria fornix lesion. *Exp. Neurol.* 141:145-153.
- Snyder, S.E., Li, J., Schauwecker, E.P., McNeill, T.H. and Salton, S.R.J. (1996) Comparison of RPTP/B, phosphacan, and *trkB* mRNA expression in the developing and adult rat nervous system and induction of RPTP/B and phosphacan mRNA following brain injury. *Mol. Brain. Res.* 40: 79-96.
- Andersen, J.K., Mo, J.Q., Hom, D.G., Lee, F.Y., Harnish, P., Hamill, R.H. and McNeill, T.H. (1996) Effect of buthionine sulfoximine, a synthesis inhibitor of the antioxidant glutathione, on murine nigrostriatal neurons. *J. Neurochemistry* 67: 2164-2171.
- Cheng, H.-W., Rafols, J.A., Goshgarian, H.G., Anavi, Y., Jiang, T. and McNeill, T.H. (1997) Differential spine loss and regrowth of striatal neurons following multiple forms of deafferentation: a golgi study. *Exp. Neurol.* 146:287-298.
- Cheng, H.-W., Jiang, T., Mori, N. and McNeill, T.H. (1997) Upregulation of stathmin (p19) gene expression in adult rat brain during injury-induced synapse formation. *NeuroReport* 8:3691-3695.
- Schauwecker, E.P., Cheng, H.W., Collier, T.J. and McNeill, T.H. (1998) Differential regulation of astrocytic mRNAs following two forms of striatal deafferentation. *Ex. Neurol.* 149:87-96.
- Snyder, S.E., Cheng, H.W., Murray, K.D., Isackson, P.J., McNeill, T.H. and Salton, S.R.J. (1998) The mRNA encoding VGF, a neuronal peptide precursor, is rapidly regulated in the rat central nervous system by neuronal activity, seizure and lesion. *Neuroscience* 82:7-19.
- Cheng, H.-W., Jiang, T., and McNeill, T.H. (1998) Lesion-induced axon sprouting in the deafferented striatum of adult rat. *Neurosci. Let.* 241:1-4.
- McNeill, T.H., Mori, N. and Cheng, H-W. (1999) Differential regulation of the growth associated proteins GAP-43 and SCG-10 in response to unilateral cortex ablation in adult rats. *Neuroscience* 90:1349-1360.
- Meshul, C.K., Cogen, J.P., Cheng, H.W, Moore, C., Krentz, L. and McNeill, T.H. (2000) Alterations in striatal glutamate synapses following a lesion of the cortico- and/or nigrostriatal pathways. *Exp. Neurology* 165:191-206.
- McNeill, T.H. and Jakowec, M. (2001) Neurotransmitters. In: The Macmillan Encyclopedia of Aging. (ed) D.J. Ekerdt, Macmillan Reference, New York, New York, pp. 52-62.
- Liker, M.A., Petzinger, G., Nixon, K., McNeill, T.H., and Jakowec, M.W. (2003) Human neural stem cell
- Jakowec, M. W., Fisher, B, Nixon, K., Hogg, L., Meshul, C., Bremmer, S., McNeill, T.H. and Petzinger, G.M. Neuroplasticity in the MPTP-lesioned Mouse and Non-human Primate. (2003) *Ann NY Acad. Sci.*, 991:298-302.

- McNeill, T.H., Brown, S.A., Cheng, H.W. and Meshul, C. (2003) Synapse replacement in the striatum of the adult rat following unilateral cortex ablation. *J. Comp. Neurol.* 467:32-43.
- Jakowec, M.W., Nixon K, Hogg, E, McNeill, T.H. and Petzinger, G.M. (2004) Tyrosine hydroxylase and dopamine transporter expression following 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine-induced neurodegeneration of the mouse nigrostriatal pathway. *J Neurosci Res.*77:378-390.
- Hughes-Davis, E.J., Cogen, J.P, Jakowec, M.W., Cheng, H.W., Grenningloh, G., Meshul, C.K. and McNeill, T.H. (2005) Differential Regulation of the Growth-Associated Proteins GAP-43 and Superior Cervical Ganglion 10 in Response to Lesions of the Cortex and Substantia Nigra in the Adult Rat. *Neuroscience* 135:1231-1239
- Ferguson, M., Schauwecker, P.E., Tong, J. and McNeill, T.H. (2006) Up-regulation of the growth-associated proteins, SCG10 and stathmin, in the crossed perforant pathway after a unilateral entorhinal cortex lesion. *Neuroscience* (submitted).
- Ferguson, M., Jiang, T., Cheng, H.W., and McNeill, T.H. (2006) Attenuation of the age-related decline in reactive fiber outgrowth in the dentate gyrus following entorhinal cortex injury by caloric restriction. *Science* (submitted).
- Ferguson, M., Rebrin I., and McNeill, T.H. (2006) The effect of glutathione depletion on reactive synaptogenesis in the hippocampus. *J. Neurochem.* (submitted)

ACTIVE RESEARCH AND TRAINING GRANTS

US Army NETRP – P.I. Giselle Petzinger, MD

2/1/04 – 1/31/08

Role in Project: Collaborator

USAMRC 5% effort

Title: Pharmacological and behavioral enhancement of neuroplasticity in the MPTP-lesioned mouse and non-human primate.

This project investigates the molecular mechanisms of neuroplasticity in the basal ganglia. In particular the role glutamate neurotransmission plays in facilitation of behavioral recovery in the MPTP-lesioned non-human primate and mouse. No overlap

RO1- MH059776 – P.I. Amelia Russo-Neustadt, MD, PhD

7/1/04 – 6/30/08

Role in Project: Co-Investigator

NIMH 10% effort

Title: Exercise, Antidepressants and BDNF Induction

These studies will investigate how exercise and antidepressants can protect against neuronal degeneration brought about by stress and other insults. Specifically, we will test the hypotheses that: 1) exercise and antidepressant treatment will activate and converge upon signaling pathways activated by noradrenergic mechanisms, in particular CREB and BDNF, and 2) the combination of these interventions will have an additive effect in preventing stress-induced impairments in hippocampal function (represented by spatial learning) and dendritic atrophy of CA3 pyramidal neurons.

P20 – RR- 020700 – P.I. – Thomas H. McNeill, Ph.D.

9/1/04 – 8/30/07

NIH 18% effort

Title: New Directions in Stroke Neurorehabilitation

The studies proposed use an interdisciplinary approach to examine the synergy between neural plasticity and treatment strategies that promote the recovery of upper limb motor function after stroke-induced brain injury. The long-term goals of our study are: 1) to broaden our understanding of the key factors that modulate neuroplasticity and the recovery of function after brain injury, and 2) build a foundation of interdisciplinary scientific knowledge that can be used in the development of innovative and more effective therapeutic interventions to enhance the health and independence of persons with post-stroke disabilities.

R21 - NS047471 - P.I. Thomas H. McNeil, PhD 2/1/05-1/31/07
NINDS 10% effort

Title: Exercise and Antidepressant Treatment in Brain Injury

This collaboration between the laboratories of Drs. McNeill and Russo-Neustadt will determine whether exercise and/or antidepressant drug treatment will enhance neurite outgrowth and synaptogenesis after brain injury using an entorhinal cortex lesion model in rats. No overlap.

RO1 - NS046538 – P.I. Thomas H. McNeill, PhD 2/1/05-1/31/09
NINDS 25% effort

Title: Dopaminergic Modulation of Corticostriatal Plasticity

This study tests the hypothesis that dopamine, acting through specific subtypes of dopamine receptors, leads to the phosphorylation of the transcription factor CREB, and up-regulation of the neurotrophin BDNF and the growth associated protein SCG-10 in contralateral corticostriate neurons to promote axonal sprouting and synapse replacement in the partially deafferented striatum. No overlap.

5-T32-AG00037—P.I. Eileen Crimmins, PhD 5/1/03 - 4/30/08
NIA 5% Contributed

Multidisciplinary Research Training in Gerontology

Pre and postdoctoral research training in gerontology.

Role: Preceptor

RESEARCH PROJECTS COMPLETED WITHIN THE LAST THREE YEARS

PO1 AG09793, P.I. Thomas H. McNeill, PhD 12/1/96 - 05/31/03
NIA

Title: Dopaminergic and Basal Ganglia Plasticity and Aging

This project seeks to identify the cellular mechanisms that regulate neurite outgrowth and synapse replacement in the striatum in response to a corticostriatal lesion and the effect of aging on these processes.

RO1 NS30426, P.I. - Thomas H. McNeill, PhD 9/1/96-8/31/01
NINDS

Title: Modulation of Neuronal Plasticity in the Hippocampus,

These studies focused on the cellular mechanisms that guide reactive synaptogenesis in the hippocampus.