

Division of Behavioral Medicine

Richard Sloan, PhD, Division Chief
Department of Psychiatry, Columbia University
College of Physicians and Surgeons
New York State Psychiatric Institute
April 1, 2012 - March 31, 2013

Overview

Research in the Division of Behavioral Medicine aims to understand the contribution of psychological, psychosocial, and behavioral factors to the onset, progression, and management of physical and mental disease, to identify the relevant pathophysiological mechanisms linking psychological states to disease, and to develop treatment interventions targeting these mechanisms. Projects range from the purely behavioral to the cellular, with new studies extending to gene expression.

Our research has been supported by the National Institutes of Health, the American Heart Association, the American Cancer Society, NARSAD, the March of Dimes, the MacArthur Foundation, and the Nathaniel Wharton Fund. Over many years, Division Chief Dr. Richard Sloan and Dr. Peter Shapiro from Consultation/Liaison Psychiatry have investigated the role the autonomic nervous system as a candidate mechanism linking psychological characteristics of depression and hostility to the pathophysiology of coronary artery disease.

Dr. Catherine Monk's laboratory investigates the possible effects of pregnant women's stress, anxiety, and depression on fetal and infant development, specifically with respect to the future child's biobehavioral reactivity, affect regulation, and risk for psychopathology. Work by Drs. Felice Tager and Paula McKinley examines the impact of adjuvant chemotherapy on cognitive function in women with breast cancer. Dr. Ethan Gorenstein, along with Dr. Laszlo Papp of the Division of Clinical Therapeutics, investigates the novel treatment approaches to anxiety disorders in older adults. Along with colleagues in the Herbert Irving Cancer Center, Dr. Arlene King examines ethnic disparities in cancer.

Division members Drs. Karina Davidson, Joseph Schwartz, Lynn Clemow, and Matthew Burg, who have their home appointments in the Department of Medicine, collaborate in studies of psychosocial factors in hypertension. Post-doctoral fellow Archana Basu is overseeing and developing a feasibility study of a clinical trial of Child Parent Psychotherapy (Lieberman & Van Horn, 2005, 2008), using maternal depression as a risk factor for preschoolers' behavioral and health-related outcomes as part of a NIH Career Development Award. Post-doctoral fellow Julie Spicer is concerned with assessing the association of maternal stress with pregnancy outcomes and maternal neurobehavior in the early postpartum period.

The Division of Behavioral Medicine maintains an active clinical service that provides state-of-the-art, evidence-based, cognitive-behavior therapies for Medical Center patients suffering from a variety of psychological and medical conditions. Our clinical and research activities are closely related and mutually informative. Clinical services include:

Cognitive-behavior therapy for treatment of specific psychological disorders such as: panic disorder, obsessive-compulsive disorder, generalized anxiety, phobias (including social anxiety), posttraumatic stress disorder, depression, eating disorders, behavioral disorders in children.

Cognitive-behavior therapy for psychological factors in medical conditions including heart disease, irritable bowel syndrome, cancer treatment, epilepsy, obesity, and smoking.

Summary Statistics for April 1, 2012 – March 31, 2013

Number of funded studies with Behavioral Medicine faculty as PI or Co-PI:	13
Direct costs from these studies:	\$4,789,868
Indirect costs from these studies:	\$2,873,921

Number of funded studies with Behavioral Medicine faculty as Co-Investigator:	5
Direct costs from these studies:	\$231,873

Clinical Billing:	\$449,748
Clinical Revenue:	\$318,178

Papers published:	8
Papers and books in press:	6

Senior Faculty:	12/14
Junior Faculty:	2/14

*including Department of Medicine appointees

Richard P. Sloan, Ph.D., Division Chief

Behavioral Medicine Psychophysiology Laboratory

Matthew Burg, Ph.D., Associate Clinical Professor of Medicine & Behavioral Medicine

Karina Davidson, Ph.D., Professor of Medicine & Behavioral Medicine

Arlene King, Ph.D., Assistant Professor of Clinical Psychology

Paula S. McKinley, Ph.D., Research Scientist IV, Assistant Professor of Clinical Behavioral Medicine

Catherine E. Monk, Ph.D., Research Scientist IV, Associate Professor of Clinical Psychology and

Obstetrics & Gynecology

Joseph Schwartz, Ph.D., Professor of Clinical Behavioral Medicine

Julie Spicer, Ph.D., Post-Doctoral Fellow

Elizabeth Werner, Ph.D., Assistant Professor of Clinical Behavioral Medicine

Archana Basu Ph.D., Post-Doctoral Fellow

Cognitive Behavior Therapy Program

Ethan E. Gorenstein, Ph.D., Associate Clinical Professor of Psychology, Director

Lynn Clemow, Ph.D., Assistant Clinical Professor of Behavioral Medicine

Kenneth Gorfinkle, Ph.D., Assistant Professor of Clinical Psychology

Daniel Seidman, Ph.D., Assistant Professor of Clinical Psychology

Felice A. Tager, Ph.D., Assistant Professor of Clinical Psychology

Current Research

Behavioral Medicine Faculty as Principal or Co-Principal Investigator

Richard P. Sloan Ph.D.

5R01HL108821-02 (Sloan)

NHLBI (UCSF) \$65,432

We propose an ancillary study to the funded grant "*Exercise and Inflammation: Autonomic, Affective & Cellular Mechanisms*" by adding measures of telomerase activity.

1 R01 HL1011611 (Sloan)

NIH/NIA (MICH) \$129,404

Stress, Gene-Environment Interaction and Cardiovascular Disease

1 R01 AG033546-01 (Stern/Sloan)

NIH/NIA \$631,692

Exercise, Aging, and Cognition: Effect and Mechanisms

The goal of the proposed study is to extend the investigation of the beneficial effects of aerobic exercise to younger individuals, aged 25-40 and 50-65.

1R01AG035015-01A1 (Small/Sloan)

NIH/NIA \$372,484

Exercise, Age-Related Memory Decline, and Hippocampal Function

The goal of this proposal is to conduct a randomized controlled trial of the effects of aerobic training on cognitive decline and to investigate the role of the hippocampus in mediating this effect.

1 R01 HL094423-01A1 (Sloan)

NHLBI \$481,291

Exercise and Inflammation: Autonomic, Affective, and Cellular Mechanisms

This project examines the impact of aerobic exercise on inflammatory markers and assesses the possible mediating roles of the parasympathetic nervous system and exercise-related changes in affect.

R01 AG034178 (Stern/Sloan)

NIA \$0

Combined Exercise and Cognitive Training Intervention in Normal Aging

This is a pilot study to test a candidate intervention for age related cognitive decline in healthy older individuals.

5P01AG020166-08 (Sloan – Subcontract PI)

NIH (WISC) \$59,936

Integrative Pathways to Health & Illness: Testing Older Cohort Hypothesis (MIDUS)

The overall objective of MIDUS is to investigate the role of behavioral, psychological, and social factors in accounting for age-related variations in health and illness.

1 R21 AG044260-01A1 (Sloan)

NIH \$137,861

Psychosocial Factors & Aging Effects: Resting & Reflexive Cardiovascular Control

Catherine Monk, Ph.D.

R21: MH092665-01 (Monk) (extended)

NIMH \$0

Behavioral Change in the Mother–Infant Dyad: Preventing Postpartum Depression

The goal of this project is to prevent postpartum depression in vulnerable women using a newly developed coaching intervention.

R01MH092580-01 (Champagne, Monk, Tycko,)

Prenatal Stress: the Epigenetic Basis of Maternal and Perinatal Effects

NIMH \$494,883

The goal of this project is to characterize epigenetic processes contributing to biobehavioral effects of antenatal stress on pregnant women and the developing child.

1 R01MH093677-01A1 (Monk, C.)

The Effects of Prenatal Stress & Poor Nutrition on Brain & Cognition

NIMH \$465,727

The goal of this project is to identify brain and behavior effects of prenatal maternal distress and poor nutrition while also considering the influence of the social–environmental context postnatally.

3R01 MH093677-02S1

The Effects of Prenatal Stress & Poor Nutrition on Brain and Cognition

NIMH \$125,051

Supplement

The goal of this project is to increase understanding of infant brain development using simultaneous EEG and MRI technology.

1P50MH090966-01(Gingrich, J., Peterson, Monk)

NIMH \$1,610,675

Serotonergic Modulation of Brain Development: Genetic & Pharmacologic Influences on Structure, Function and Behavior

The goal of our project on this R01 is to identify variation in newborn neurobiological development associated with maternal prenatal SSRI use and/or untreated depression and also to consider the contribution of different serotonin genotypes to the outcomes.

1R21ES023582-01 NIEHS

\$150,000

Effects of a Major Climatic Event -Superstorm Sandy- on Pregnancy Outcomes and Telomere Length (Monk, Co–PI)

B. Behavioral Medicine Faculty as Co-Investigators

1 R01 HL1011611 (Shea)

NIH/NIA (MICH) \$129,404

Stress, Gene-Environment Interaction and Cardiovascular Disease

Role: Sloan Co-I

MARS CU09-1744 (Small)

MARS \$797,545

Understanding the Potential Role of CF With Regard To Brain Function and Cognition

To study the role of cocoa flavanol [CF] consumption in the context of brain function, cognition, and age- related memory decline.

Role: Sloan Co-Investigator

P01 HL047540 (Schwartz)
NHLBI \$9,127,763
Psychosocial Factors and Cardiovascular Disease
Project 2: Sloan Co-investigator

P01 HL047540 (Schwartz)
NHLBI \$9,127,763
Psychosocial Factors and Cardiovascular Disease
Core C: Sloan Leader

2 R01 ES013543-05A1 (Whyatt, R)
NIEHS \$374,790
Early-life Phthalate Exposure, Thyroid Function and Child Cognitive Development
The goals of this study are to examine prenatal exposure to these toxicants and maternal thyroid function in relation to child development.
Role: Monk Co-Investigator

Education and Training

Dr. Sloan supervised medical students from the University of Gothenburg in Biomedical Research.

Dr. Gorenstein provides regular face-to-face supervision of Psychiatry Residents (PGY-III and PGY-IV), Psychology Interns, and Psychology Externs in cognitive-behavior therapy. In addition, he lectures regularly in seminars for Psychiatry Residents (Dr. Michael Devlin, course administrator) and Psychology interns (Dr. Susan Sussman, Dr. Lauryn Schmerl, course administrators).

Archana Basu, Working Model of the Child Interview (WMCI) Research Coding Workshop, Tulane Institute of Infant and Early Childhood Mental Health, September 19-23, 2012, in New Orleans, LA.

Honors and Awards

Julie Spicer, Ph.D.

2013-2014 American Psychosomatic Society Young Investigator Colloquium
2013 Citation Poster at the Annual Meeting of the American Psychosomatic Society
2012 Fellowship, Penn Center for Neuroscience and Society, University of Pennsylvania

Publications (Selected)

Holsen LM, Lee J-H, Spaeth SB, Ogden LA, Klibanski A, Whitfield-Gabrieli S, **Sloan** RP, Goldstein JM. Brain hypoactivation, autonomic nervous system dysregulation, and gonadal hormones in depression: A preliminary study. *Neurosci Lett.* 2012 Apr 11;514(1):57-61. doi: 10.1016/j.neulet.2012.02.056. Epub 2012 Feb 25.

Kimhy D, Crowley OV, McKinley PS, Burg MM, Lachman ME, Tun PA, Ryff CD, Seeman TE, **Sloan** RP. The Association of Cardiac Vagal Control and Executive Functioning - Findings from the MIDUS Study. *J Psychiatr Res.* 2013 May;47(5):628-35. doi: 10.1016/j.jpsychires.2013.01.018. Epub 2013 Feb 20.

Monk C, Spicer, J, Champagne, FA (2012). Linking prenatal maternal adversity to developmental outcomes in infants: The role of epigenetic pathways. *Dev Psychopathol.* 2012 Nov;24(4):1361-76. doi: 10.1017/S0954579412000764.

Osborne, L.M., Monk, C., Perinatal depression—The fourth inflammatory morbidity of pregnancy?. *Psychoneuroendocrinology*. 2013 Apr 19. pii: S0306-4530(13)00114-5. doi: 10.1016/j.psyneuen.2013.03.019. [Epub ahead of print]

Monk, C., Newport, D. J., Korotkin, J.H., Long, Q., Knight, K. & Stowe, Z.N. (2012). Uterine blood flow in a psychiatric population: Impact of maternal depression, anxiety, and psychotropic medication. *Biol Psychiatry*. 2012 Sep 15;72(6):483-90. doi: 10.1016/j.biopsych.2012.05.006. Epub 2012 Jun 12.

Divisional Highlights

Richard Sloan, Ph.D.

1 R21 AG044260-01A1 NIH AWARDED 4/5/13 (4/15/13-3/31/15)

\$137,861

Psychosocial Factors & Aging Effects: Resting & Reflexive Cardiovascular Control

Catherine Monk, Ph.D.

1R21ES023582-01 NIEHS AWARDED 5/15/13 (05/15/13-04/30/15)

\$150,000

Effects of a Major Climatic Event -Superstorm Sandy- on Pregnancy Outcomes and Telomere Length (Monk, Co-PI)

3R01 MH093677-02S1 NIMH

AWARDED 07/03/13 (07/03/2012 – 06/30/2013)

\$125,051

Supplement: The Effects of Prenatal Stress & Poor Nutrition on Brain and Cognition (Monk, PI)

Julie Spicer, Ph.D.

Poster Presentations:

Spicer, J, Werner, E, Zhao, Y, Choi, CW, Lopez-Pintado, S, Feng, T, Altemus, M, Gyamfi, C, Monk, C. (2013). *Effects of maternal prenatal psychobiological stress on neurobehaviorally-relevant birth outcomes*. Annual Meeting of the Society of Biological Psychiatry, San Francisco, CA.

Spicer, J, Wager, TD, Johnston, N, Harlapur, M, Purdie-Vaughns, V, Cook, J, Fu, J, Burg, MM, Shimbo, D. (2013). *A self-affirmation intervention attenuates endothelial injury in response to social threat*. Annual Meeting of the American Psychosomatic Society, Miami, FL.