BIOGRAPHICAL SKETCH

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NAME	POSITION TITLE
Niculescu, Mihai Dinu	Assistant Professor
eRA COMMONS USER NAME MIHAI_NICULESCU	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Carol Davila University of Medicine, Bucharest, Romania	M.D.	1995	Medicine
University of North Carolina at Chapel Hill	Ph.D.	2005	Nutrition

A. Personal Statement

The goal of this project is to identify epigenetic markers that have predictive value for risk of obesity under the influence of an obesogenic diet. This project will first establish candidate markers present that differentiate between mice which are becoming obese under the given diet and those which remain lean. As such the project is novel, aiming to establish, for the first time, a new concept that includes epigenetics as a tool for obesity prevention. I have a rich expertise in nutrition and epigenetics, my expertise being recognized nationally and internationally. Within the field of epigenetics, I have considerable expertise in DNA methylation methods and analysis methods of array data. Since 2001 I actively participated to the design of many nutritional studies using mouse models, either under the coordination of my mentors and, more recently, as an independent assistant professor. Within UNC, the recognition of my expertise was demonstrated by becoming the first faculty member to lead a course on Epigenetic in Nutrition (2009-2010 academic year). Internationally, my expertise is also demonstrated by my participation as reviewer for the Medical Research Council (UK) and for the KAUST University (Saudi Arabia). I have a very good track of scientific collaborations either within or outside my department, which allows me to fully understand and implement the collaborative environment required by an application with two principal investigators. My collaboration with Dr. Fodor, although relatively new, came from the realization that our fields of expertise complement reciprocally in a very well suited manner required for this project. In addition, the collaboration with Dr. Coleman – a well known expert in epigenetics – will ensure that any potential scientific issues arising during the study will be optimally resolved.

B. Positions and Honors

Positions and Employment

1996-2000 Assistant Professor, Human Physiology, School of Medicine, Transilvania University in Brasov, Romania
1997-1999 Co-founder and manager, The “MiroMedica” Family Practice and Medical Laboratory, Brasov, Romania
2005-2006 Research Associate, Department of Nutrition, University of North Carolina at Chapel Hill, NC
2006-2008 Research Assistant Professor, Department of Nutrition, University of North Carolina at Chapel Hill, NC
2008-present Assistant Professor, UNC Nutrition Research Institute, Department of Nutrition, University of North Carolina at Chapel Hill, NC

Other Experience and Professional Memberships

1997-1999 Co-founder and Manager, The MiroMedica Family Practice and Medical Laboratory, Brasov, Romania
2002-present Member, American Society for Nutrition
2008-present Member, Society for Neuroscience
2009 Stage 1 reviewer for applications to RFA-09-003 (NIH Challenge Grants)
2009 Primary reviewer for the Medical Research Council, United Kingdom (MRC)

2002-present Peer reviewer for Experimental and Molecular Pathology, Journal of Neurochemistry, The FASEB Journal, The Journal of Nutrition, Molecular Carcinogenesis, Nutrition Journal, Progress in Neuro-Psychopharmacology & Biological Psychiatry.
2010-present Invited grant reviewer for the KAUST University funding process.

Honors
2003 ASNS – Gerber Foundation Fellowship for Outstanding Research
2003 The Graduate School UNC: Dean's Award for Graduate Student Research Benefiting North Carolina
2003 ASNS – Procter & Gamble Abstract Competition

C. Selected Peer-reviewed Publications

Publications within last three years
1. **NICULESCU, M. D**., DA COSTA, K. A., FISCHER, L. M. & ZEISEL, S. H. (2007) Lymphocyte gene expression in subjects fed a low-choline diet differs between those who develop organ dysfunction and those who do not. Am J Clin Nutr, 86, 230-9.
2. **NICULESCU, M. D**., POP, E. A., FISCHER, L. M. & ZEISEL, S. H. (2007) Dietary isoflavones differentially induce gene expression changes in lymphocytes from postmenopausal women who form equol as compared with those who do not. J Nutr Biochem, 18, 380-90. NICULESCU, M. D., WU, R., GUO, Z., DA COSTA, K. A. & ZEISEL, S. H. (2007) Diethanolamine alters proliferation and choline metabolism in mouse neural precursor cells. Toxicol Sci, 96, 321-6.
3. RESSEGUIE, M., SONG, J., **NICULESCU, M. D.,** DA COSTA, K. A., RANDALL, T. A. & ZEISEL, S. H. (2007) Phosphatidylethanolamine N-methyltransferase (PEMT) gene expression is induced by estrogen in human and mouse primary hepatocytes. FASEB J, 21, 2622-32.
4. STRAUSS, K. A., MORTON, D. H., PUFFENBERGER, E. G., HENDRICKSON, C., ROBINSON, D. L., WAGNER, C., STABLER, S. P., ALLEN, R. H., CHWATKO, G., JAKUBOWSKI, H., **NICULESCU, M. D**. & MUDD, S. H. (2007) Prevention of brain disease from severe 5,10-methylenetetrahydrofolate reductase deficiency. Mol Genet Metab, 91, 165-75.
5. CRACIUNESCU, C. N., **NICULESCU, M. D**., GUO, Z., JOHNSON, A. R., FISCHER, L. & ZEISEL, S. H. (2009) Dose response effects of dermally applied diethanolamine on neurogenesis in fetal mouse hippocampus and potential exposure of humans. Toxicol Sci, 107, 220-6.
6. TINT, D., COCUZ, M. E., ORTAN, O. F., **NICULESCU, M. D**. & RADOI, M. (2009) Cardiac involvement in trichinellosis: a case of left ventricular thrombosis. Am J Trop Med Hyg, 81, 313-6.
7. **NICULESCU, M. D.** & LUPU, D. S. (2009) High fat diet-induced maternal obesity alters fetal hippocampal development. Int J Dev Neurosci, 27, 627-33.
8. MEHEDINT, M. G**., NICULESCU, M. D**., CRACIUNESCU, C. N. & ZEISEL, S. H. (2010) Choline deficiency alters global histone methylation and epigenetic marking at the Re1 site of the calbindin 1 gene. FASEB J, 24, 184-95.
9. ZHANG, S., BARROS, S. P., **NICULESCU, M. D**., MORETTI, A. J., PREISSER, J. S. & OFFENBACHER, S. (2010) Alteration of PTGS2 promoter methylation in chronic periodontitis. J Dent Res, 89, 133-7.

Earlier publications pertinent to this application
1. **NICULESCU, M. D**., YAMAMURO, Y. & ZEISEL, S. H. (2004) Choline availability modulates human neuroblastoma cell proliferation and alters the methylation of the promoter region of the cyclin-dependent kinase inhibitor 3 gene. J Neurochem, 89, 1252-9.
2. **NICULESCU, M. D.,** CRACIUNESCU, C. N. & ZEISEL, S. H. (2005) Gene expression profiling of choline-deprived neural precursor cells isolated from mouse brain. Brain Res Mol Brain Res, 134, 309-22.
3. **NICULESCU, M. D**., CRACIUNESCU, C. N. & ZEISEL, S. H. (2006) Dietary choline deficiency alters global and gene-specific DNA methylation in the developing hippocampus of mouse fetal brains. FASEB J, 20, 43-9.
4. DA COSTA, K. A., **NICULESCU, M. D**., CRACIUNESCU, C. N., FISCHER, L. M. & ZEISEL, S. H. (2006) Choline deficiency increases lymphocyte apoptosis and DNA damage in humans. Am J Clin Nutr, 84, 88-94.

D. Research Support

Ongoing Research Support

1. CECN-Mead Johnson 07/01/08-06/30/09
   Maternal availability of alpha-linolenic acid during lactation alters postnatal brain development.
   A one-two year pilot grant project to establish a new proof of concept regarding the relationship between maternal alpha-linolenic acid availability during lactation, and postnatal neural-development in the offspring.
   Role: PI

2. DK56350 04/01/08-03/31/10
   UNC Chapel Hill – CNRC
   Maternal high-fat diet alters the fetal brain development by epigenetic mechanisms.
   The proposed project will determine epigenetic changes induced by a maternal high-fat diet, upon the fetal brain.
   Role: PI

Completed Research Support

P01 AG09525 Blusztajn (PI) 4/01/92-3/31/05
NIH
Parent Program – Brain Aging: Effects of Perinatal Nutrition (J. Blusztajn, Program Director)
Daughter project – Biochemistry of Supplemental Choline in Neonatal Rats (S. Zeisel PI)
The aim of this project is to study the role of dietary intake of choline in brain development.
Role: postdoctoral fellow

2005-3520015247 Zeisel (PI) 7/1/04-6/30/06
USDA
Dietary Choline and Folic Acid and Optimal Brain Development
The goal of this project was to assess the role of choline deficiency in fetal brain development.
Role: scientific coordinator

R21 ES012997 Zeisel (PI) 04/01/04-03/31/07
NIEHS
Diethanolamine Alters Brain Development
The aim of this project is to assess the interference of diethanolamine (DEA) in choline metabolism and brain development.
Role: scientific coordinator

N/A Niculescu (PI) 12/01/07-11/30/09
UNC Chapel Hill, University Research Council
Genistein alters the DNA methylation and the phenotype of mouse neural progenitors
A two year pilot grant testing whether genistein epigenetically alters gene expression in neural progenitors and, consequently, the neural phenotype.
Role: PI