

# Mihai Dinu Niculescu, MD, PhD

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## **Assistant Professor**

Nutrition Research Institute at Kannapolis  
 Department of Nutrition  
 University of North Carolina at Chapel Hill

<b>Education</b>	2001-2005	Ph.D., Nutrition Biochemistry, University of North Carolina at Chapel Hill
	1996-2000	Resident, Brasov County Hospital, Romania
	1989-1995	M.D., Carol Davila University of Medicine, Bucharest, Romania
<b>Employment</b>	2008-	Assistant Professor, Nutrition Research Institute at Kannapolis, Department of Nutrition, UNC at Chapel Hill
	2006-2008	Research Assistant Professor, Department of Nutrition, UNC at Chapel Hill
	2005-2006	Research Associate, Department of Nutrition, UNC at Chapel Hill
	2000-2005	Postdoctoral Fellow, Department of Nutrition, UNC at Chapel Hill
	1997-1999	Co-founder and Manager, The MiroMedica Family Practice and Medical Laboratory, Brasov, Romania
	1996-2000	Assistant Professor, Department of Human Physiology, School of Medicine, Transilvania University in Brasov, Romania
<b>Honors</b>	2003	The Graduate School UNC: Dean's Award for Graduate Student Research Benefiting North Carolina
	2003	ASNS – Gerber Foundation Fellowship for Outstanding Research
	2003	ASNS – Procter & Gamble Abstract Competition
<b>Professional Affiliations</b>	2003-	American Society of Nutrition (ASN)
	2009-	Society for Neuroscience (SFN)
<b>National Service</b>	2009	Grant application reviewer, NIH CSR (Challenge Grants in Health and Science Research, part of the American Recovery and Reinvestment Act of 2009).
	(2012)	Co-chair, ASPEN Workshop, Orlando, FL: Using Nutrigenomics in Clinical Nutrition Research.
<b>International Service</b>	2009	Grant application reviewer. MRC (UK Medical Research Council).
	2010	Grant application reviewer. KAUST (King Abdullah University of Science and Technology, Saudi Arabia).
	2011	Co-chair, Obesity section 6.2, BIT 2011, China.
<b>University Service</b>	2009-2011	NCRC Institutional Animal Care and Use Committee (IACUC)
<b>Department Service</b>	200-2011	Nutrition Department, Doctoral Committee
	2010	NRI – UNC Department of Genetics search committee (member): tenure-track faculty recruitment
	2010	NRI search committee (member): tenured faculty recruitment
	2010	NRI – UNC Department of Nutrition search committee (member): research-track faculty recruitment
	2011	UNC Nutrition Department, Marilyn Gentry Fellowship Search Committee (member)

<b>Editorial and Scientific Board</b>	2010-	Romanian Journal of Rare Diseases ( <a href="http://www.rjrd.ro/node/3">http://www.rjrd.ro/node/3</a> )
	2011-	Nutrients and Phytochemicals in Biology and Medicine ( <a href="http://www.sfu.ca/archiv/npbm/index_files/slide0001.htm">http://www.sfu.ca/archiv/npbm/index_files/slide0001.htm</a> )
<b>Journal Reviewer</b>	1 review	Experimental and Molecular Pathology
	1 review	Journal of Neurochemistry
	8 reviews	The FASEB Journal
	6 reviews	The Journal of Nutrition
	1 review	Molecular Carcinogenesis
	2 reviews	Nutrition Journal
	1 review	Progress in Neuro-Psychopharmacology & Biological Psychiatry
	1 review	British Journal of Nutrition
	2 reviews	Brain Research
	1 review	Molecular Nutrition and Food Research
	1 review	Journal of Cellular Biochemistry
<b>Invited Speaker</b>	2003	EB Meeting, San Diego: <i>Choline deficiency inhibits cell proliferation and is associated with hypomethylation of CDKN3 promoter in IMR-32 cells.</i>
	2008	Charlotte Biotechnology Conference: <i>Add this to the equation: Epigenetic Markers.</i>
	2010	NIH National Cancer Institute, Washington DC: <i>Maternal obesity alters cancer-related pathways in the offspring and induces epigenetic changes.</i>
	2011	BIT 2011 Conference, China: <i>Gestational obesity alters the development and the epigenetic status of fetal brain.</i>
	2011	Appetite For Life Academy Seminar Series, NRI, Kannapolis, NC: <i>Eating for Two – The Healthy Way.</i>
	2011	Obesity Conference 2011, Charlotte, NC: <i>Defining Best Practices for Obesity and Comorbidity Management. When should obesity prevention start? An insight into the epigenetic roles of maternal nutrition.</i>
	2011	Oxford Round Table, Oxford, UK: <i>Children's Health and Rights. Rethinking Early Prevention of Obesity: The Role of Transgenerational Epigenetic Inheritance and the Need for Establishing Coherent Prevention Policies Spanning Multiple Generations.</i>
<b>Radio Talks</b>	2011	WFAE, Charlotte, NC: Charlotte Talks with Mike Collins, 02/25/2011: <i>Food In The Body.</i>
<b>Funding</b>	2005-2010	Co-Investigator (S. Zeisel, PI), Biochemistry of Supplemental Choline in Neonatal Rats, NIA.
	2008-2010	<b>Principal Investigator</b> , Genistein alters the DNA methylation and the phenotype of mouse neural progenitors, UNC URC.
	2008-2010	<b>Principal Investigator</b> , Maternal high-fat diet alters the fetal brain development by epigenetic mechanisms, UNC CNRC.
	2008-2010	<b>Principal Investigator</b> , Maternal availability of $\alpha$ -linolenic acid during lactation alters postnatal brain development, CECN-Mead Johnson.
	2010-	<b>Lead Principal Investigator</b> of NRI subcontract: Individualized Nutrition: Interactions between Plant Food Consumption and Human Health Outcomes, USDA funded program to NCSU.
<b>Publications:</b>		
<b>Edited Books</b>	1. <i>Nutrition in Epigenetics</i> (MD Niculescu, P Haggarty, Eds), Wiley-Blackwell, Hoboken. In print.	
<b>Book Chapters</b>	1. Zeisel, S.H., <b>Niculescu, M.D.</b> (2005) Choline and Phosphatidylcholine. In <i>Modern Nutrition in Health and Disease</i> (M.E. Shils, M. Shike, A.C. Ross, B. Caballero, R.J. Cousins, eds) Lippincott Williams & Wilkins, Philadelphia, pp. 525-536.	
	2. <b>Niculescu, M.D.</b> , Zeisel, S.H. (2008) Choline and Neural Development. In <i>Nutrition in the Prevention and Treatment of Disease</i> , 2nd Edition (Coulston, A. and Boushey, C.,	

- Book Reviews**
1. **Niculescu, M.D.** (2010) Nutrients and Epigenetics (Choi & Friso eds). In *American Journal of Human Biology*, 22(6), 856-857.
- Articles**  
(Peer Reviewed)
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.
  5. **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.
  6. **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.
  7. **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.
  8. 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.
  9. 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.
  10. 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.
  11. 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.
  12. **NICULESCU, M. D.** & LUPU, D. S. (2009) High fat diet-induced maternal obesity alters fetal hippocampal development. *Int J Dev Neurosci*, 27, 627-33.
  13. 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.
  14. 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.
  15. **NICULESCU, M.D.** & Lupu, D.S. (2011) Nutritional influence on epigenetics and effects on longevity. *Curr Opin Clin Nutr Metab Care*, epub ahead of print.
- Articles**  
(Non Reviewed)
1. **NICULESCU, M. D.** & ZEISEL, S. H. (2002) Diet, methyl donors and DNA methylation: interactions between dietary folate, methionine and choline. *J Nutr*, 132, 2333S-2335S.
  2. ZEISEL, S. H. & **NICULESCU, M. D.** (2006) Perinatal choline influences brain structure and function. *Nutr Rev*, 64, 197-203.

## Abstracts and Posters

1. **Niculescu, M.D.**, Zeisel, S.H., Meeker, R.B. (2002) Extracellular choline availability alters DNA-methylation and apoptosis in embryonic brain neurons from the rat. *The FASEB Journal*, 16(4):A643.
2. **Niculescu, M.D.**, Yamamuro, Y., Zeisel, S.H. (2003) Choline Deficiency Inhibits Cell Proliferation and is Associated with Hypomethylation of CDKN3 Promoter in IMR-32 Cells. *The UNC Graduate School Centennial*, Chapel Hill, NC, *The FASEB Journal*, 17(5):A1092.
3. da Costa, K., **Niculescu, M.D.**, Zeisel, S.H. (2003) Micro array analysis of changes in gene expression in choline deficient humans. *The FASEB Journal*, 17(5):A1157.
4. da Costa, K., **Niculescu, M.D.**, Badea, M., Craciunescu, C.N., Zeisel, S.H. (2003) Choline deficiency induces apoptosis and DNA damage in human lymphocytes *in vivo*. *The FASEB Journal*, 17(5):A1157.
5. **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. *Environmental Epigenomics Conference*, Durham, NC. *The FASEB Journal*, 20(4):A609.
6. Pop, E.A., **Niculescu, M.D.**, Fischer, L.M., Zeisel, S.H. (2006) Isoflavone-induced gene expression changes in lymphocytes from postmenopausal women. *The FASEB Journal*, 20(4):A612.
7. **Niculescu, M.D.**, Craciunescu, C.N., Wu, R., Mehedint, M.G., Zeisel, S.H. (2006) Diethanolamine treatment and choline deficiency induce similar alterations of neurogenesis in fetal mouse hippocampus. *The Neuroscience 2006 Conference*, Atlanta, GA.
8. Mehedint, M.G., **Niculescu, M.D.**, Craciunescu, C.N., Zeisel, S.H. (2008) Choline deficiency influences the interaction between REST, chromatin methylation and altered fetal neurogenesis. *The FASEB Journal*, 22:689.5.
9. Mehedint, M.G., Craciunescu, C.N., **Niculescu, M.D.**, Sin, K.M., Zeisel, S.H. (2008) Choline deficiency alters angiogenesis in the fetal brain. *The FASEB Journal*, 22:1122.19.
10. Drobná, Z., **Niculescu, M.**, Fry, R., Pogribny, I., Bennie, L., Walton, F., Paul, P., Styblo, M. (2009) Epigenetic alterations in fetal mouse livers after in utero exposure to arsenic. Poster presentation, NIH Roadmap Epigenomics Program for Medical Research, Epigenetics and Epigenomics of Human Diseases, March 16-17, 2009, NIH, Bethesda, Maryland.
11. **Niculescu M.D.**, Lupu D.S. (2009) Maternal obesity alters fetal brain development and induces epigenetic modifications. Neuroscience 2009 Conference, Chicago.
12. Tint D., Anghel M., Fischer L.M., **Niculescu M.D.** (2010) Beneficial effect of flaxseed oil supplementation in subjects with metabolic syndrome. *Atherosclerosis Supplements*, 11(2):109–222.
13. Tsang V., Styblo M., Fry R.C., **Niculescu M.D.**, Drobná Z (2010). The Effect of Prenatal Folate Supplementation on DNA Methylation and Gene Expression in Male CD1 Mouse Fetuses Exposed In Utero to Arsenic. UNC Center for Environmental Health and Susceptibility, Symposium on Interdisciplinary Environmental Health Research, November 18, 2010, UNC-Chapel Hill, NC.

## Courses Taught

- |           |   |
|-----------|---|
| 1996-2000 | <b>Human Physiology:</b> years I & II, School of Medicine, Transilvania University in Brasov, Romania.  |
| 2004      | NUTR 40 <b>Introduction in Human Nutrition</b> – UNC Chapel Hill, Niculescu guest lecture on antioxidants.  |
| 2007-2008 | NUTR 885 <b>Doctoral Seminar</b> – UNC Chapel Hill.   |
| 2007      | NUTR 620 Micronutrients – UNC Chapel Hill, Niculescu guest lecture on <b>B<sub>12</sub>, Folate, Choline, S-adenosylmethionine &amp; DNA methylation.</b> |
| 2008      | NUTR 868 Nutrients and Disease: <b>Brain Function and Development</b> – UNC Chapel Hill, Niculescu faculty leader on Choline and Brain.                   |
| 2008      | NUTR 845 Nutritional Metabolism – UNC Chapel Hill. Invited expert on <b>Trans-generational epigenetics.</b>   |
| 2009-     | NUTR 862 <b>Epigenetics in Nutrition</b> , Nutrition Graduate Program, UNC.   |
| 2010      | NUTR 885 <b>Doctoral Seminar</b> – UNC Chapel Hill.   |

## Graduate

Shaoping Zhang, Oral Biology, UNC

PhD Committee Member

**Advisees**

Ya-Wen Teng, Nutrition, UNC  
Amy Johnson, Nutrition, UNC  
Verne Tsang, Nutrition, UNC  
John Calaway, Genetics, UNC  
Kelly Will, Psychology, UNC

PhD Committee Member  
PhD Committee Member  
MS Committee Member  
PhD Committee Member  
PhD Committee Member