

## CURRICULUM VITAE

### MARIANA NIKOLOVA NIKOLOVA-KARAKASHIAN, PH.D.

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### EDUCATION

*1975-1979* Sofia Mathematical High School, Sofia, Bulgaria.  
*1979-1984* M.Sci. in Physics" Sofia University "St. Clement Ochridski", Faculty of Physics, Department of Theoretical Physics, Sofia, Bulgaria. Major in "Theory of nucleus and elementary particles".  
M.Sci. Thesis: "Development of a computer program for approximation of the dependence of Ge(Li) detector efficiency from the energy of registered radiation."  
*1986-1992* Ph.D. in Biology: Bulgarian Academy of Sciences, Institute of Biophysics, Sofia, Bulgaria.  
Ph.D. thesis: "Regulation of Sphingomyelin Metabolism in Rat Liver."  
*1992-1997* Post-Doctoral training: Emory University School of Medicine, Atlanta, GA: "Sphingolipid-mediated signal transduction". Adviser: Dr. A.H. Merrill, Jr.

### PROFESSIONAL EXPERIENCE

*1984-1986* Scientist: Institute of Industrial Chemistry, Sofia, Bulgaria.  
*1986-1992* Pre-doctoral studies: Bulgarian Academy of Sciences, Institute of Biophysics, Division of lipid-protein interactions, Sofia, Bulgaria.  
*1992-1997* Research Associate: Emory University School of Medicine, Atlanta, GA.  
*1997-1998* Research Assistant Professor: Emory University School of Medicine, Department of Biochemistry, Atlanta, GA.  
*1998-2004* Assistant Professor: University of Kentucky College of Medicine, Department of Physiology, Lexington, KY.  
*2004-present* Associate Professor: University of Kentucky College of Medicine, Department of Physiology, Lexington, KY.

### MEMBERSHIPS AND AFFILIATIONS

*1991-1992* Bulgarian Academy of Sciences  
*2001* American Heart Association  
*2002* American Association for Advancement of Sciences

2003-current National Scientific Advisory Council of the American Federation for Aging Research  
 2004-2007 Board of the South Eastern Regional Lipid Conference, Member  
 2001-current International Advisory Group for Charleston Ceramide Conference, Member  
 2009-current American Society of Biochemistry and Molecular Biology (ASBMB)  
 2009-current ASBMB Lipid Highlights Editorial Board, Member

## HONORS AND AWARDS

1997 American Federation of Aging Research Award.  
 2000 BIRCWH Scholar Award  
 2001 Invited Speaker - 92 Annual Meeting and Expo of The American Oil Chemists' Society, May 13-16, Minneapolis, Minnesota  
 2003 Speaker, Second International Charleston Ceramide Conference, Como, Italy  
 2004 Wethington Research Award, University of Kentucky  
 2005 Wethington Research Award, University of Kentucky  
 2006 Invited Speaker for the Glycolipid and Sphingolipid Gordon Research Conference, Ventura, CA, January 8 - January 13, 2006.  
 2007 Invited Speaker for the 10<sup>th</sup> International Conference on Bioactive Lipids in Cancer, Inflammation and Related Diseases, September 16-19, 2007, Montreal, Canada  
 2008 Invited speaker: State of the union address on sphingolipids: Session: "Emerging roles for sphingolipids in neurodegenerative diseases" . American Society for Neurochemistry 39<sup>th</sup> Annual Meeting, March 1-5, 2008 San Antonio, TX.  
 2009 Key note speaker: 5<sup>th</sup> International Charleston Ceramide Conference, Charleston, SC, March 11-14, 2009  
 2010 Invited Speaker for the FASEB Summer Research Conference

## HONORS AND AWARDS FOR TRAINEES:

### RESEARCH

2003 Boris Boyanovsky: American Heart Association post-doctoral fellowship  
 2004 Kristina Rutkute: UK merit fellowship  
 2005-2007 Kristina Rutkute: American Heart Association pre-doctoral fellowship  
 2007-2009 Krassimira Rozenova: American Heart Association pre-doctoral fellowship

### TRAVEL

2004 Kristina Rutkute: AVANTI founder award for graduate student presentation (highly competitive, 5 awarded on a meeting with > 50 graduate students presenting)  
 2005 Kristina Rutkute: University of Kentucky graduate student award (non-competitive)  
 2005 Adrienne Ellis: AVANTI founder award for graduate student presentation (highly competitive, one awarded on the meeting)  
 2005 Adrienne Ellis: University of Kentucky Graduate student award (non-competitive)  
 2008 Krassimira Rozenova: 43rd Southeast Regional Lipid Conference Graduate student travel award

(highly competitive, 1 in 5 receives it)

2008 Krassimira Rozenova: University of Kentucky graduate student travel award (non-competitive)  
2009 Gergana Deevska: 5<sup>th</sup> International Charleston Ceramide Conference graduate student travel award (non-competitive, awarded to all presenting graduate students)

### **ORGANIZED CONFERENCES, SIMPOSIA, AND CONFERENCE SESSIONS: REGIONAL/NATIONAL**

1997 Session Chair, 32<sup>nd</sup> SouthEast Lipid Conference, Cashiers, NC.  
1999 Session Chair, Session I of the 34<sup>th</sup> SouthEast Lipid Conference, Cashiers, NC.  
2004 Elected Chair and Organizer of the 39<sup>th</sup> SouthEast Lipid Conference, Cashiers, NC, Nov. 3-5.  
2007-2009 Annual Post-doctoral Research Session and Reception, UK College of Medicine, Lexington, KY

### **ORGANIZED CONFERENCE SESSIONS: INTERNATIONAL**

2001 Session Chair, First International Charleston Ceramide Conference, Charleston, SC.  
2005 Session Chair - "Regulation of Ceramide Metabolism and Signaling", Third International Charleston Ceramide Conference, Isle of Palms, SC, March 2-6, 2005  
2007 Session Chair - "Regulation of ceramide signaling", Fourth International Ceramide Conference, Pacific Grove, CA, March 7-11, 2007  
2007 Session Chair - "Bioactive sphingolipids in cell regulation" 10<sup>th</sup> International Conference on Bioactive Lipids in Cancer, Inflammation and Related Diseases, September 16-19, 2007, Montreal, Canada  
2010 Session Chair: Glycolipid and Sphingolipid Gordon Research Conference, Ventura, CA, February 8 - February 13, 2010

### **RESEARCH GRANT SUPPORT**

*Current:* National Institute of Health R01, AG026711-01A2 (Principal Investigator)  
02/15/2007-02/15/2012  
"Role of Neutral Sphingomyelinase-2 in aging", \$1,025,000 (direct cost) (30% effort)

National Institute of Health 2R56AG019223-06 (Principal Investigator)  
07/01/2009-06/30/2010  
"Ceramide and acute phase proteins elevation during aging", \$266,478 (direct cost) (35% effort)

*Pending:* National Institute of Aging (Principal investigator) 2R01, AG 019223-07A1  
07/01/2009-06/30/2014  
"Ceramide and acute phase proteins elevation during aging", \$ 1,518,379 (direct cost) (35% effort)  
(score 147, 19.3 percentile, re-submitted Dec. 1, 2009).

*Completed:* American Heart Association (Mentor of pre-doctoral fellowship for Krassimira Rozenova)  
07/01/2007-06/30/2009  
"The role of acid sphingomyelinase as a regulator of TNFalpha levels in endotoxic chock model"

National Institute of Aging (Principal investigator) 1R01, AG 019223  
“Ceramide and acute phase proteins elevation during aging”, \$875,000 (direct cost) (35% effort)  
08/01/2002-07/01/2007 (no-cost extension till 07/01/2008).

American Heart Association (Mentor of pre-doctoral fellowship for Kristina Rutkute)  
0515236B  
07/01/2005-06/30/2007  
“Hepatocellular Mechanisms of Cytokine-mediated CRP Production Upregulation During Aging”

Markey Cancer Center Pilot grant  
“Radio-Inductive Therapy in Management of Advanced Cancer”, \$15,000, 12/2003-06/2004

National Institute of Aging (Principal investigator)  
R03, 1R03AG19435-01  
“Ceramide and capacity for growth in aging: a liver aspect”, \$50,000, (direct cost) (7% effort) 08/01/2001-  
07/31/2003

American Heart Association (Mentor of Post-doctoral fellowship to Dr. B. Boyanovsky):  
Post-doctoral fellowship 0325285B  
“High fat diet-mediated increases of ceramide levels in lipoproteins promote endothelial cell dysfunction”  
(2003).

National Institutes of Health (Co-PI of project 4, PI Thomas Curry, PhD)  
P20, RR15592,  
“Center of Biomedical Research Excellence in Women’s Health” (10% effort) 09/15/2000- 08/31/2002.

American Heart Association (National), (Principal investigator)  
Scientist Development Grant 0130238N  
“Sphingolipid signal transduction pathway in aging and inflammation and the regulation of acute phase  
proteins”, \$260,000 direct cost (8% effort), 01/01/2001-12/31/2004.

American Heart Association (Ohio Valley Affiliate) (Principal investigator)  
Grant-in-aid 0060312B  
“Ceramide-enriched LDL in regulation of smooth muscle cells proliferation”, \$70,000 (direct cost) (20% effort),  
07/01/2000-06/30/2002.

BIRCWH Scholar Award (Principal investigator)  
“Estrogen: A protective factor in cardiovascular disease and atherosclerosis”  
75% salary support 02/01/01-07/31/02

University of Kentucky Medical Center Research Fund  
Pilot Study Grant (Principal investigator)

“Sphingolipid-regulated transcription factors in liver acute phase response”, \$15,000.  
07/15/99 - 7/14/00

American Federation for Aging Research  
Research Award (Principal investigator)

“Sphingolipid Metabolism and Signaling in Aged Male Rats: Relation to Inflammatory Response and Regulation of Cell Growth”, \$40,000.  
07/1997-07/1999

## TRAINEES:

### *Post-Doctoral Scholars:*

Alexander Alimov, Ph.D. (1999-2000)  
Boris Boyanovsky, Ph.D. (2000-2003)  
Aneta Dobierzewska, Ph.D. (2004-2006)  
Sathishkumar Sabapathi, Ph.D. (2006-2008)  
Lihua Shi, Ph.D. (2008-present)  
Aneta Dobierzewska, Ph.D. (2009-present)  
Gergana Deevska, Ph.D. (2009-present)  
Perry (Patrick) Dotson, P.D. (2009-present)

### *Graduate Students:*

Kelley King, B.S (2000-2001) (*M.Sci. student*)  
Natalia Giltiay, M.S. (2001-2004), *Bulgarian Academy of Sciences (Ph.D. thesis co- adviser)*  
Kristina Rutkute, M.S. (2003-2007) *Integrated Biological Science Program of University of Kentucky (Ph.D. thesis adviser)*  
Gergana Deevska, M.S. (2004- 2009) *Bulgarian Academy of Sciences (Ph.D. thesis adviser)*  
Adrienne Ellis, B.S. (2004-2006) *Integrated Biological Science Program of University of Kentucky (M.Sci thesis adviser)*  
Krassimira Rozenova M.S. (2005- 2009) *Integrated Biological Science Program of University of Kentucky (Ph.D. thesis Adviser)*

Kelley King, B.S (rotation) (2000)  
Jennifer Rudolph M.S. (rotation) (2002)  
Kristina Rutkute, M.S. (rotation) (2002)  
Adrienne Ellis, B.S. (rotation) (2004)  
Guangfan Zhang, M.S. (rotation) (2004)  
Krassimira Rozenova, M.S. (rotation) (2004)  
Radhika Vaishnav, M.S. (rotation) (2004)  
Peter Kpere-Daibo, B.S. (rotation) (2005)  
Zhu Wenjun, M.S. (rotation) (2008)

*Undergraduate Students:*

Nathan Whitaker (1999, ABT research project)  
Melany Lefta (2004)  
Marquisha Paul (2005)  
Andrew G. Lavey (2008, ABT research project)

*Preceptor for the Summer Employment Research Apprentices Program:*

Danna Sha Newsome (1999)

*Student Committees:*

Christopher Cunningham (1999-2001). Member of the Advisory committee, *Graduate School of Toxicology*.

Kristina Rutkute, M.S. (2003-2007) Chair of the Advisory Committee, *Graduate School in Integrated Biological Sciences*.

Elzbieta Stolarczyk (2003-2009) Member of the Advisory Committee, *Graduate School in Pharmaceutical Sciences*.

Wei Li (2004-2006) Member of the Advisory Committee, *Graduate School in Integrated Biological Sciences*.

Adrienne Ellis, B.Sci (2004-2006) Chair of the Advisory Committee, *Graduate School in Integrated Biological Sciences*.

Chiranthani Sumanasekera (2004-2007) Member of the Advisory Committee, *Graduate School in Integrated Biological Sciences*.

Emily Lyn Helfrich (2004-2008) Member of the Advisory Committee, *Graduate School in Integrated Biological Sciences*.

Brian Zanghi, Ph.D (2005), Outside Examiner, *Graduate School of Animal Science*

Radhika Vaishnav, M.S., (2005-2007) Member of the Advisory Committee, *Graduate School in Integrated Biomedical Sciences*

Krassimira Rozenova (2005-2009) Chair of the Advisory Committee, *Graduate School in Integrated Biological Sciences*

Allison Miller (2007) Member of the Advisory Committee, *Graduate School in Integrated Biological Sciences*.

Lei Wang, (2007), Outside Examiner, *Graduate School of Nutrition*.

Zachary Fulkerson (2008-present) Co-chair of the Advisory Committee, *Graduate School of Integrated Biomedical Sciences*

Padhma Ranganathan (2008) Outside examiner, *Graduate School of Toxicology*

Jun Wenjun (2008), Member of the M. Sci. degree committee.

Abdelghaffar K. Salous (2009-present) Co-chair of the Advisory Committee, *Graduate School of Integrated Biomedical Sciences*

Christopher Simmons (2009-present) Member of the Advisory Committee, *Graduate School in Integrated Biological Sciences*.

Miranda Lange (2010), Outside examiner *Graduate School in Integrated Biological Sciences*.

## TEACHING EXPERIENCE:

1999, Fall

- Principles of Systems, Cellular and Molecular Physiology (PGY502). GI Secretions, 3 lectures.

2000, Spring

- Cellular and Molecular Physiology (PGY590). Lipid Signaling, 3 lectures.
- Readings in Cellular Physiology and Molecular Physiology (PGY690). Lipid Signaling, 1 lecture.
- Biology of Aging (PGY 612). Signal Transduction, 2 lectures.

2000, Fall

- Biomolecules and Metabolism (IBS 601). Lipid Metabolism, 4 lectures.
- Principles of Systems, Cellular and Molecular Physiology (PGY502). GI Secretions, 3 lectures.
- Course Director: PGY 774, 13 discussion classes.

2001, Spring

- Cell Signaling (IBS 604). Lipid Signaling, 4 lectures.
- Course Director: (PGY 774), 16 discussion classes.

2001, Fall

- Biomolecules and Metabolism (IBS 601). Lipid Metabolism, 4 lectures.
- Molecular Neurobiology (PGY 618), Ceramide signaling, 1 lecture.

2002, Spring

- Cell Signaling (IBS 604). Lipid Signaling, 4 lectures.

2003, Spring

- Principles of Human Physiology (PGY 412). Gastro-Intestinal System, 4 lectures.
- Cell Signaling (IBS 604). Lipid Signaling, 4 lectures.

2003, Fall

- Principles of Human Physiology (PGY 412). Gastro-Intestinal System, 4 lectures.

2004, Spring

- Principles of Human Physiology (PGY 412). Gastro-Intestinal System, 4 lectures.
- Cell Signaling (IBS 604). Lipid Signaling, 4 lectures.

2004, Fall

- Principles of Human Physiology (PGY 412). Gastro-Intestinal System, 4 lectures.
- Systems, Cellular and Molecular Physiology, PGY502, Gastro-Intestinal system, 6 lectures.
- Readings in Systems, Cellular and Molecular Physiology (PGY602), 2 lectures.

2005, Spring

- Principles of Human Physiology (PGY 412). Gastro-Intestinal System, 4 lectures.
- Cell Signaling (IBS 604). Lipid Signaling, 4 lectures.

2006, Spring

- Principles of Human Physiology (PGY 206). Gastro-Intestinal System, 4 lectures.
- Cell Signaling (IBS 604). Lipid Signaling, 5 lectures.

2006, Fall

- Principles of Human Physiology (PGY 206). Gastro-Intestinal System, 4 lectures.

2007, Spring

- Principles of Human Physiology (PGY 206). Gastro-Intestinal System, 4 lectures.
- Cell Signaling (IBS 604). Lipid Signaling, 5 lectures
- Biomolecules and Molecular Biology (IBS 602/BCH608). Regulation of transcription, 5 lectures.

2008, Spring

- Cell Signaling (IBS 604). Lipid Signaling, 5 lectures

2009, Spring

- Cell Signaling (IBS 604). Lipid Signaling, 5 lectures

2009, Fall

- Systems, Cellular and Molecular Physiology (PGY502) Gastro-Intestinal system, 6 lectures.
- Readings in Systems, Cellular and Molecular Physiology (PGY602), 2 lectures

2010, Spring

- Cell Signaling (IBS 604). Lipid Signaling, 5 lectures
- Cellular and Molecular Mechanisms of Aging (PGY 630-003), course director, 6 lecture

2010, Fall

- Systems, Cellular and Molecular Physiology (PGY502) Gastro-Intestinal system, 6 lectures.

## SELECTED ADMINISTRATIVE RESPONSIBILITIES

### **Departmental:**

1999-2000 Departmental Hazardous Waste Coordinator  
 Fall 2000 Coordinator of the Departmental Seminar Series  
 Spring 2001 Coordinator of the Departmental Seminar Series  
 2000 Faculty Search Committee

2003 Faculty Search Committee  
 2004 Fall IBS Open House-lab presentations  
 2005 Fall IBS Open House-lab presentations  
 2006 Fall IBS Open House-lab presentations  
 2008-present Space and Equipment Advisory Committee  
 2010 Research Retreat Committee

### **University**

1999-2000 Interviewer for the Medical School Admission Committee  
 1999 Departmental representative for the "Biomolecules and Metabolism" curriculum in the IBS Program  
 2001-present Interviewer for the IBS program Admission Committee.  
 2003 Reviewer for Kentucky Tobacco Research and Development Center  
 2003 Representing University of Kentucky: Represented the BIRCWH program of UK at the NIH.  
 2003 Member of a focus group "How do we enroll the "Best" students in keeping with the College of Medicine mission?"  
 2003-present Member of the Postdoctoral Resources Advisory Committee  
 Dec, 2006 Organized "Topics for International Postdocs" as part of Post-doctoral Development Seminar series  
 Nov, 2007 Organized "Milestones 3: Abstracts, Posters, & Presentations" as part of Post-doctoral Development Seminar series

### **National and International**

2001-current International Advisory Group for Charleston Ceramide Conference - member  
 2004 Elected Chair and Organizer of the 39<sup>th</sup> South Eastern Regional Lipid Conference, Nov 3-5, Cashiers, N.C.  
 2005-current Board of the South Eastern Regional Lipid Conference – member

### **GRANT REVIEWER:**

2000 Special Emphasis Panel ZDK1 GRB-7 (J1), NIH, Member  
 2001 Special Emphasis Panel ZAG1 PCR-2 (01), NIH, Member  
 2003 Kentucky Tobacco Research and Development Center  
 2003-2004 National Science Foundation  
 2004 Cell Development and Function (CDF-3) study section, NIH, Ad hoc member  
 2004 Special Interest Panel SSS-U(02), NIH, Member  
 October, 2005 Membrane Biology and Protein Processing (MBPP) study section, NIH, Ad hoc member  
 February, 2006 Membrane Biology and Protein Processing (MBPP) study section, NIH, Ad hoc member  
 June, 2006 Membrane Lipids, Transport, and Signaling, ZRG1 CB-G 03 special emphasis panel, Chair  
 February, 2007 Cellular Mechanisms of Aging and Development (CMAD) study section, NIH, Ad hoc member  
 June, 2007 Cellular Mechanisms of Aging and Development (CMAD) study section, NIH, Ad hoc member  
 October, 2007 Cellular Mechanisms of Aging and Development (CMAD) study section, NIH, Ad hoc member

February, 2008 Cellular Mechanisms of Aging and Development (CMAD) study section, NIH, Ad hoc member  
 July, 2009 2009/10 ZRG1 BDA-A (58) R RFA OD09-003 Challenge Grant Panel #10  
 2003-present American Federation for Aging Research  
 2006-2010 Membrane Biology and Protein Processing (MBPP) study section, NIH, Member  
 March, 2010 Special Emphasis Panel ZRG1BDAA02 "Topics in Aging, Cellular and Developmental Biology", NIH, Member

### **MANUSCRIPT REVIEWER (AD HOC)**

- American Journal of Physiology - Cell Physiology
- Antioxidants & Redox Signaling
- Biochemical Journal
- Biochimica Biophysica Acta
- Cancer Research
- Cell Biochemistry and Biophysics
- Cell Biochemistry & Function
- Cell Biology International
- Cellular and Molecular Biology
- Chemico-Biological Interactions
- Circulation
- Cell Death and Differentiation
- Current Molecular Medicine
- The FASEB Journal
- FEBS letters
- Journal of Biological Chemistry
- Journal of Cell Biology
- Journal of Cell Physiology
- Journal of Leukocyte Biology
- Journal of Lipid Research
- Journal of Neurochemistry
- Journal of Nutrition
- Nutritional Biochemistry
- Life Sciences

### **LECTURE PRESENTATIONS:**

October, 1994 29th Regional Southeast Lipid Conference, Cashier, N.C "A sphingomyelin signaling pathway in IL-1b-induced suppression of hepatic P450C11 gene expression"  
 November, 1996 31st Regional Southeast Lipid Conference, Cashier, N.C "Activation of sphingomyelin hydrolysis by IL-1 $\beta$  in rat hepatocytes: evidence for bimodal regulation of sphingolipid signaling by differential activation of sphingomyelinase and ceramidase"  
 November, 1998 Tufts University, Jean Mayer Center of Nutrition and Aging, Boston, MA. "Sphingolipid

- signaling in liver during inflammation: effects of aging.”
- April, 1999* “Sphingolipids in health and disease” : Workshop sponsored by Avanti Polar Lipids, Environ Inc, and Emory University Atlanta, GA “Sphingolipids in aging and age-related diseases.”
- March, 2000* University of Kentucky, Graduate Center of Toxicology Seminar Series: “Sphingolipid signal transduction pathway during inflammatory response of liver.”
- June, 2000* University of Kentucky, Gill Heart Research Institute “Ceramide as a new atherogenic factor and its effects on cardiovascular cells.”
- October, 2000* University of Kentucky, Graduate School of Nutrition “Sphingolipid signal transduction pathways in liver inflammation”
- May, 2001* 92 Annual Meeting and Expo of the The American Oil Chemists' Society, May 13-16, Minneapolis, Minnesota: “Generation of pro-inflammatory bioactive sphingolipids in liver: effects of aging and diet”
- November, 2001* Charleston Ceramide Conference, Wild Dune Conference Center, Isle of Palms, SC. “Ceramide-enriched LDL: metabolism and role in the development of atherosclerosis”.
- January, 2002* Glycosphingolipid and Sphingolipid Biology Gordon Conference, Holiday Inn Conference Center, Ventura, CA. “Ceramide-enriched LDL: metabolism and role in the development of atherosclerosis.”
- November, 2002* Medical University of South Carolina, Charleston, SC. “Ceramide as an intracellular and extracellular mediator of liver acute phase response to inflammation”
- May, 2003* Bulgarian Academy of Sciences, Institute of Biophysics. “Ceramide as an intracellular and extracellular mediator of liver acute phase response to inflammation”
- June, 2003* Second International Charleston Ceramide Conference, Grand Hotel di Como, Como, Italy. “Expression of Neutral Sphingomyelinase-2 (NSMase-2) in primary rat hepatocytes: modulates IL-1 $\beta$  induced activation of JNK”.
- July, 2003* National Institute of Health, Office of Research on Women Health. 3<sup>rd</sup> Annual Program Directors Meeting “Building Interdisciplinary Research in Women’s Health. “Ceramide in circulating lipoproteins and vascular endothelium: gender-specific differences and role of estrogen”
- September, 2003* University of Kentucky Forum on Reproductive Sciences. “Ceramide as a mediator of cellular and systemic stress responses”.
- November, 2003* University of Kentucky, Department of Physiology “Cellular and Systemic Responses to Inflammation in the Ceramide - Centered Universe.”
- January, 2006* Glycosphingolipid and Sphingolipid Biology Gordon Conference, Holiday Inn Conference Center, Ventura, CA. “Role of Sphingomyelin in Fatty Acid Transport and Metabolism: Implications for High fat (Western) Diet - induced obesity”.
- September, 2006* University of Kentucky, Department of Physiology “ Resistance to diet-induced obesity in Acid Sphingomyelinase Deficient Mice: Evidence for coordinated regulation of hepatic fatty acid and sphingolipid metabolism”.
- January, 2007* University of Kentucky, College of Medicine: “Research enterprise in the US: topics for international post-docs”
- September, 2007* 10<sup>th</sup> International Conference on Bioactive Lipids in Cancer, Inflammation and Related Diseases, September 16-19, 2007, Montreal, Canada “Role of Hepatic Neutral Sphingomyelinase in Aging and Inflammation”
- March, 2008* American Society for Neurochemistry 39<sup>th</sup> Annual Meeting, March 1-5, 2008 San Antonio, TX. “Functions, metabolism, and genetics of sphingolipids”(Opening address for special plenary session: “Emerging roles of sphingolipids in neurodegenerative diseases).
- May, 2008* Bulgarian Academy of Sciences, Institute of Experimental Pathology and Parasitology, Sofia, Bulgaria, Departmental seminar: Novel Mechanisms of regulation of lipid metabolism in the liver: Role in insulin

- resistance during obesity” Gergana Deevska (\*\*), Krasimira Rozenova, Natalia Giltiy, Jia Wei, Eric Smart, Alfred H. Merrill, Jr., and Mariana Nikolova-Karakashian.
- March, 2009 Opening address: 5<sup>th</sup> International Charleston Ceramide Conference “Therapeutic Potentials of Sphingolipid Research”.
- May, 2009 38<sup>th</sup> Annual Meeting of the American Aging Association, “ Integrative Biology: Hormones, signaling and Aging” May 29-June 1, 2009, Scottsdale, Arizona “Aging-associated hepatic hyperresponsiveness to IL-1 $\beta$ : cellular mechanisms and physiological consequences”
- July 2009 6<sup>th</sup> GERLI Lipidomics meeting “Bioactive lipids, nutrition and health”, July 1-3, 2009, Agroucampus Ouest, Rennes, France: “Regulated Partitioning of Dietary Palmitic acid into Triacylglyceride and Sphingolipid Metabolic Pools: Role in Glucose Regulation and Insulin Sensitivity”.
- June 2010 FASEB Summer Research Conferences “Phospholipid Metabolism: Disease, Signal Transduction, and Membrane Dynamics”, June 27-July 2, 2010, Steamboat Springs, Colorado. “Neutral sphingomyelinase-2: a focal point for interaction of oxidative stress with cytokine response”

## RESEARCH ARTICLES IN PEER-REVIEWED JOURNALS

1. Petkova, D.H., Nikolova, M.N., Hinkovska-Galcheva, V.T. & Koumanov, K.S. (1989) Endogenous activity of neutral membrane-bound sphingomyelinase from rat liver plasma membranes. *Compt. rend. Acad. bulg. Sci.* 42: 121-124.
2. Hinkovska-Galcheva, V.T., Petkova, D.H., & Nikolova, M.N. (1989) Sphingomyelin and ceramide- phosphoethanolamine synthesis in ram spermatozoa plasma membranes. *Int. J. Biochem.* 21: 1153-1156.
3. Petkova, D.H., Nikolova, M.N., Momchilova-Pankova, A.B., & Koumanov, K.S.(1990) Insulin effect on the phospholipid organization and some enzyme activities of rat liver membrane fractions. *Comp. Biochem. Physiol.* 95B: 685-689.
4. Petkova, D.H., Nikolova, M.N., Kochlukova, S.E., & Koumanov, K.S. (1991) Effect of age-dependent or liposome-induced alterations in the phospholipid composition on sphingomyelin biosynthesis in rat liver microsomal and plasma membranes. *Int. J. Biochem.* 23: 689-693.
5. Nikolova, M.N. & Petkova, D.H. (1991) Age-related changes in the phospholipid asymmetry in rat liver microsomes. *Compt. rend. Acad. bulg. Sci.* 44: 105-108.
6. Nikolova, M.N., Gavrilova, M., Petkova, D.H., & Setchenska, M. (1991) Guanylate cyclase activity of cholesterol- loaded rat liver plasma membranes. *Compt. rend. Acad. bulg. Sci* 44: 57-60.
7. Nikolova, M.N., Petkova, D.H., & Koumanov, K.S. (1991) Influence of phospholipid environment on the phosphatidylethanolamine: ceramide-phosphoethanolamine transferase in rat liver plasma membranes. *Int. J. Biochem.* 24: 447-453.
8. Nikolova-Karakashian, M.N., Petkova, D.H., & Koumanov, K.S. (1992) Influence of cholesterol on sphingomyelin metabolism and hemileaflet fluidity characteristics of rat liver plasma membranes. *Biochimie* 74: 153-159.
9. Nikolova-Karakashian, M.N., Gavrilova, M., Petkova, D.H., & Setchenska, M.S. (1992) Sphingomyelin-metabolizing enzymes and protein kinase C activity of cholesterol-loaded rat liver plasma membranes. *Biochem. Cell Biol.* 70: 613-616.

10. Gavrilova N.J., Setchenska, M.S., Nikolova-Karakashian, M.N., & Petkova, D.H. (1992) Effect of sunflower oil-supplemented diet on protein kinase activities of rat liver plasma membranes. *Int. J. Biochem.* 24: 1953-1958.
11. Merrill, A.H. Jr., Lingrell, S., Wang, E., Nikolova-Karakashian, M.N., & Vance, D. (1995) Sphingolipid biosynthesis de novo by rat hepatocytes in culture. Ceramide and sphingomyelin are associated with, but not required for, very-low density lipoprotein secretion. *J. Biol. Chem.* 270: 13834-13841.
12. Chen, J., Nikolova-Karakashian, M.N., Merrill, A.H. Jr., & Morgan, E.T. (1995) Regulation of cytochrome P450 2C11 (CYP2C11) gene expression by interleukin-1, sphingomyelin hydrolysis and ceramides. *J. Biol. Chem.* 270: 25233-25238. (equal contribution of the first two authors).
13. Nikolova-Karakashian, M.N., Russell, R.W., Booth, R.A., Jenden, D.J., & Merrill, A.H., Jr. (1997) Sphingomyelin metabolism in rat liver after chronic dietary replacement of choline by N-aminodeanol. *J. Lipid Res.* 38: 1764-1770.
14. Nikolova-Karakashian, M.N., Morgan, E.T., Alexander, C., Liotta, D.C., & Merrill, A.H. Jr. (1997) Bimodal regulation of ceramidase by interleukin-1 $\beta$ : Implication for the regulation of cytochrome P450 2C11 (CYP2C11) *J. Biol. Chem.* 272: 18718-18724.
15. Kok, J.W., Nikolova-Karakashian, M.N., Klappe K, Alexander C & Merrill AH Jr (1997) Dihydroceramide biology: structure specific transport and metabolism. *J. Biol. Chem.* 272: 21128-2113.
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## EDITORIALS

1. Mariana Nikolova-Karakashian, (2009) "A novel sphingolipid is identified and unexpected questions come to light" in "Lipid Highlight <http://www.asbmb.org/lipidcorner/>
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## BOOK CHAPTERS AND INVITED REVIEWS

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#### **PRESENTATIONS AT PROFESSIONAL MEETINGS:**

(\* OR \*\*) INDICATES THE PRESENTING AUTHOR (\*, POSTER), (\*\*, PODIUM)

1. Petkova, D.H., Nikolova, M.N. (\*), Momchilova-Pankova, A.B., & Koumanov, K.S. "Insulin effect on the phospholipid organization and some enzyme activities of rat liver membrane fractions", 3rd International conference "Lipid-protein interactions", September 22-26, 1987, Varna, Bulgaria.
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25. Kristina Rutkute (\*\*), Natalia Giltiy, Alexander Karakashian and Mariana Nikolova-Karakashian Neutral Sphingomyelinase-2 is implicated in the age-related acute phase hyperresponsiveness 39<sup>th</sup> Annual Southeastern Regional Lipid Conference, November 3-5 2004, High Hampton Inn, Cashiers, NC (**AVANTI FOUNDER AWARD for GRADUATE STUDENT PRESENTATION**)
26. Natalia Giltiy, Aneta Doberjievskaja (\*) and Mariana Nikolova-Karakashian The rate of ubiquitination and de-phosphorylation of Interleukin 1 $\beta$ (IL-1 $\beta$ ) receptor associated kinase (IRAK) modulates IL-1 $\beta$  signaling in hepatocytes: role of Neutral Sphingomyelinase-2, 39<sup>th</sup> Annual Southeastern Regional Lipid Conference, November 3-5 2004, High Hampton Inn, Cashiers, NC
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35. Krasimira Rozenova (\*), Gergana Deevska and Mariana Nikolova-Karakashian. The Role of Acid Sphingomyelinase in the Regulation of TNF- $\alpha$  Levels, Department of Physiology Retreat, KY, August 17-18, 2006
36. Kristina Rutkute (\*), and Mariana Nikolova-Karakashian. GSH depletion during aging upregulates nSMase2 activity and hepatic response to IL-1 $\beta$ , Linda and Jack Gill Heart Institute Cardiovascular Research Day, University of Kentucky, October 2006, Lexington, KY.
37. Krasimira Rozenova (\*), Gergana Deevska, Natalia Giltiy, Alan Daugherty and Mariana Nikolova-Karakashian. Resistance to Dietary Induced Obesity in Acid Sphingomyelinase Deficient Mice, Linda and Jack Gill Heart Institute Cardiovascular Research Day, October 13, 2006 Lexington, KY
38. Gergana Deevska (\*), Krasimira Rozenova, Natalia Giltiy, Jia Wei, Eric Smart, Alfred H. Merrill, Jr., and Mariana Nikolova-Karakashian. The rate of sphingolipid biosynthesis in liver affects utilization of palmitic acid for TAG synthesis. Linda and Jack Gill Heart Institute Cardiovascular Research Day, October 13, 2006, Lexington, KY
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40. Gergana Deevska (\*\*), Krasimira Rozenova, Natalia Giltiy, Jia Wei, Eric Smart, Alfred H. Merrill, Jr., and Mariana Nikolova-Karakashian. The rate of sphingolipid biosynthesis in liver affects utilization of palmitic acid for TAG synthesis. 41<sup>st</sup> Southeastern Regional Lipid Conference, Nov. 1-3, 2006, Cashiers, NC (**GRADUATE STUDENT TRAVEL AWARD**).
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45. Gergana Deevska (\*), James White, Eric Smart and Mariana Nikolova-Karakashian. Inverse correlation between de novo sphingolipid synthesis and TAG synthesis in hepatocytes: role of acid sphingomyelinase as a regulator of palmitate utilization. Linda and Jack Gill Heart Institute 10th Cardiovascular Research Day, October 19, 2007, Lexington, KY
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50. Lihua shi (\*), Sabapathi Sathishkumar, Kristina Rutkute, Alexander Karakashian and Mariana Nikolova-Karakashian "Regulation of IGFBP1 expression during aging: a crossroad of two pathways?" Linda and Jack Gill Heart Institute Cardiovascular Research Day, October 24, 2008, Lexington, KY
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Updated June, 2010