CURRICULUM VITAE

**Mariana Nikolova Nikolova-Karakashian, Ph.D.**

**Address** University of Kentucky **PHONE**: (859) 323-8210

 Department of Physiology MS 513 **FAX**: (859) 323-1070 800 Rose Street **E-MAIL**: mnikolo@uky.edu Lexington, KY 40536-0298

**WEB** <http://physiology.med.uky.edu/users/mnikolo>

**Education**

*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.” Adviser: Dr. Diana H. Petkova

*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* Assistant Professor (Research-track): Emory University School of Medicine, Department of Biochemistry, Atlanta, GA.

*1998-2004* Assistant Professor (tenure-track): University of Kentucky College of Medicine, Department of Physiology, Lexington, KY.

*2004-2011* Associate Professor (with tenure): University of Kentucky College of Medicine, Department of Physiology, Lexington, KY.

*2011-present* Professor: University of Kentucky College of Medicine, Department of Physiology, Lexington, KY

*2019-current Director of research,* University of Kentucky College of Medicine, Department of Physiology, Lexington, KY

###### Memberships and Affiliations

*1991-1992* Bulgarian Academy of Sciences

*2001, 2020* American Heart Association

*2002* American Association for Advancement of Sciences

*2003-current* National Scientific Advisory Council of the American Federation for Aging Research

2003-*current*  Cardiovascular Research Center, University of Kentucky, Affiliated member

2004-*2008* Board of the South Eastern Regional Lipid Conference (SERLC), Member

*2001-2009*  International Advisory Group for Charleston Ceramide Conference, Member

2009-*current* American Society of Biochemistry and Molecular Biology (ASBMB)

2009-2011 ASBMB Lipid Highlights Editorial Board, Member

2011-2013 Annual SERLC Steering Committee

2015-*current* Markey Cancer Center, University of Kentucky, Affiliated member

**Honors and Awards**

*1997*  American Federation of Aging Research Award.

*2000*  Building Interdisciplinary Research Centers in Women Health (BIRCWH) Scholar Award

*2001* Invited Speaker: 92 Annual Meeting and Expo of The American Oil Chemists' Society, May 13-16, Minneapolis, Minnesota

*2003* Invited speaker: Second International Charleston Ceramide Conference, Como, Italy

*2004,2005* Wethington Research Award, University of Kentucky

2006,2007 Wethington Research Award, University of Kentucky

*2006* Invited Speaker: Glycolipid and Sphingolipid Gordon Research Conference, Ventura, CA, January 8 - January 13, 2006.

*2007* Invited Speaker: 10th International Conference on Bioactive Lipids in Cancer, Inflammation and Related Diseases, September 16-19, 2007, Montreal, Canada

*2008* Opening lecture for"Emerging roles for sphingolipids in neurodegenerative diseases" symposium at the American Society for Neurochemistry 39th Annual Meeting, March 1-5, 2008 San Antonio, TX.

2009-2015 Wethington Research Award, University of Kentucky

*2009* InvitedSpeaker: 5th International Charleston Ceramide Conference, Charleston, SC, March 11-14, 2009

*2010* Invited Speaker: FASEB Summer Research Conference, Steamboat Springs, CO, June 27-July 2, 2010

*2013* Invited Speaker: ACSM's 60th Annual Meeting and 4th World Congress on Exercise in Medicine: May 28- June 1, 2013 in Indianapolis, Indiana.

*2017-current* Editorial Council Member of “Science” (Nauka), Publication of the Union of Scientists in Bulgaria, *http://old.usb-bg.org/Bg/nauka\_ed\_board.htm*

**Honors and Awards for TRAINEES**

*Research*

*2003* Boris Boyanovsky: American Heart Association post-doctoral fellowship

*2004* Kristina Rutkute: UK merit fellowship

*2005*  Kristina Rutkute: American Heart Association pre-doctoral fellowship

2007 Krassimira Rozenova: American Heart Association pre-doctoral fellowship

2010 Perry (Patrick) Dotson: American Heart Association post-doctoral fellowship

2011 Gergana Deevska: American Heart Association post-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: 5th International Charleston Ceramide Conference graduate student travel award (non-competitive, awarded to all presenting graduate students)

*2012* Patrick Dotson: 47th Southeast Regional Lipid Conference Graduate post-doctoral travel award

*2013* Gergana Deevska: American Society of Biochemistry and Molecular Biology (ASBMB) travel award

*2013* Patrick Dotson:American Society of Biochemistry and Molecular Biology (ASBMB) travel award

2013 Gergana Deevska: 48th Southeast Regional Lipid Conference Poster Presenter travel award

2018 John Rodgers, 53th Southeast Regional Lipid Conference Poster Presenter travel award

2019 Raya Raykova, 54th Southeast Regional Lipid Conference, travel award

**ORGANIZED CONFERENCES, SyMPOSIA, AND conference SESSIONS**

*REgional/National*

*1997* Session Chair, 32nd SouthEast Lipid Conference, Cashiers, NC.

*1999* Session Chair, Session I of the 34th SouthEast Lipid Conference, Cashiers, NC.

*2004* Elected Chair and Organizer of the 39th SouthEast Lipid Conference, Cashiers, NC, Nov. 3-5.

*2007-2009* Annual Post-doctoral Research Session and Reception, UK College of Medicine, Lexington, KY

*2018* Research Retreat, Department of Physiology, UK College of Medicine

*InterNational*

1. 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” 10th 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

*2011* Session Chair *- “*Ceramide and Bioactive Sphingolipids in Cell Stress Responses” Sixth International Ceramide Conference, Villars, Switzerland, March 16-20, 2011

*2013* Session Chair – “Ceramide in stress response” Seventh International Ceramide Conference, Montawk, New York, October 16-20, 2013

*2018* Session Chair – “New Roles for Sphingolipid Metabolites: Autophagy and Mitophagy” Glycolipid and Sphingolipid Gordon Research Conference, Galveston, TX, February 11-16, 2018

**Research Grant Support**

*Current*

National Institute of Aging 3R01AG 019223 (Principal investigator)

 07/01/2018-30/06/2023

“Ceramide and acute phase proteins elevation during aging”,

$ 1,250,000 (direct cost) (35% effort)

National Institute of Aging 3R01AG 01922313S1(Principal investigator)

07/01/2019-30/06/2020

The interaction of Interleukin 1 and Glucocorticoid signaling pathway in Alzheimer’s Diseases

$250,000 (Direct cost) (20% effort)

National Institute of Neurological Disorders and Stroke 1F31NS105443-01A1 (Co-investigator)

07/01/18 - 06/30/21

Principal Investigator: Timothy Joseph Kopper, BA

“Contributions of Myelin Derived Arachidonic Acid to Macrophage Polarization and Secondary Damage after Spinal Cord Injury”.

National Institute of Neurological Disorder and Stroke, 1R56 AG057589-01A1 (Co-investigator)

11/30/2018-10/31/2019

Principle Investigator: Steve Estus, Ph.D.

The surprising impact of APOE alleles on gut microbiome: does altering the microbiome reduce AD risk?

Veteran Administration Merit Award (Co-investigator) IBX003643A

11/01/2019-10/31/2023

Principle Investigator Erhard Bieberich, Ph.D.

TBI-induced exosome release accelerates Alzheimer's disease pathology

PENDING

National Institute of Aging1 R01 AG069852-01

09/01/2020-08/30/2020

“The aging biolipidome”

$ 1,250,000 (direct cost) (20% effort)

National Cancer Institute (Co-investigator)

09/01/2020-08.30/2025

Principle Investigator: Yekaterina Zaytseva,

The role of fatty acid synthase in Regulation of Cancer Cells survival

American Heart Association, Scientist Development Grant (Co-mentor)

04/01/2020-03/31/2023

Principle Investigator: Dan Pang, Ph.D.

Regulation of circulating ceramide by dietary fiber

 National Institute of Diabetes & Digestive and Kidney Diseases (Co-Investigator)

12/02/2020-11/30/2025

Principle Investigator: Sabire Oscan, Ph.D.

The Role of Sphingolipids in Age-Related Metabolic Decline

*Completed* CDMRP Discovery Award PR152294 (Principal Investigator)

08/01/2016-31/01/2018

Bioactive sphingolipids and wound healing $200,000 (direct cost)(25% effort)

 National Institute of Aging 2R01AG 019223 (Principal investigator)

 08/01/2011-06/30/2017

“Ceramide and acute phase proteins elevation during aging”, $ 1,025,000 (direct cost) (35% effort)

University of Kentucky IGNITE initiative: 06/01/2015-10/30/2015 (Principal Investigator)

“Sphingolipids and delayed wound healing in diabetes”, $20,000

National Institute of Health 1R01, AG026711 (Principal Investigator)

02/15/2007-02/15/2013

“Role of Neutral Sphingomyelinase-2 in aging”, $1,025,000 (direct cost) (30% effort)

American Heart Association, 11POST7650060 (Mentor of post-doctoral fellowship for G. Deevska) 07/01/2011-06/30/2013

“Novel Mechanisms for Regulation of Hepatic TAG Accumulation “ $86,000 (direct cost)

American Heart Association, 10POST4300013 (Mentor of post-doctoral fellowship for Patrick Dotson)

07/01/2010-06/30/2012

“Glutathione-Dependent Regulation of Neutral Sphingomyelinase II Activity During Aging”, $86,000 (direct cost)

National Institute of Health 2R56AG019223 (Principal Investigator)

07/01/2009-06/30/2011

“Ceramide and acute phase proteins elevation during aging”, $266,478 (direct cost) (35% effort)

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

PilotStudy 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. (2008-2010)

 Aneta Dobierzewska, Ph.D. (2009-2012)

 Perry (Patrick) Dotson, P.D. (2009-2014)

 Daipayan Banerjee, Ph.D. (2013-2015)

 Gergana Deevska, Ph.D. (2009-2016)

 Raya Raykova, Ph.D. (2019-current)

 Dessislava Marinkova-Kaloyanov, Ph.D. (02/01/2019-08/15/2019)

*Graduate Students*

 Kelley King, B.S (2000-2001) (*M.Sci. student*)

 Natalia Giltiay, M.S. (2001-2004), *Bulgarian Academy of Sciences (Ph.D. thesis 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)*

 Brittany Sears (2019) (*M.Sci. student*)

*Graduate Students (Rotations)*

Kelley King, B.S (2000)

 Jennifer Rudolph M.S. (2002)

 Kristina Rutkute, M.S. (2002)

 Adrienne Ellis, B.S. (2004)

 Guangfan Zhang, M.S. (2004)

 Krassimira Rozenova, M.S. (2004)

 Radhika Vaishnav, M.S. (2004)

 Peter Kpere-Daibo, B.S. (2005)

 Zhu Wenjun, M.S. (2008)

 Allison Steele, B.S. (2013)

 Timothy Kopper, B.S. (2014)

 Amber Cloud, B.S. (2014)

 Mackenzie Rayn, B.S. (2018)

 Hadley Neal, B.S. (2020)

*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 Apprentice Program*

 Danna Sha Newsome (1999)

*Student Committees*

 Christopher Cunningam (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 (2008-2011) 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.

Christopher Simmons  (2009-2011) Member of the Advisory Committee, *Graduate School in Integrated Biological Sciences*.

Shawn Stasko (2010-2013) Member of the Advisory Committee, *Graduate School in Integrated Biological Sciences*.

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

Julie McClain (2013-2015), Member of the Advisory Committee, *Graduate School in Integrated Biological Sciences*.

Jeffrey Noland (2014-2015), Member of the Advisory Committee, *Graduate Program of Entomology, UK College of Agriculture*

*Timothy Kopper* (2016-current)Member of the Advisory Committee, *Graduate School in Integrated Biological Sciences*.

Falak Patel (2017) Co-chair of the Advisory Committee, , *M.Sci. in Medical Education program*

Elsherbini, Ahmed (2018-current)Member of the Advisory Committee, *Graduate School in Integrated Biological Sciences*.

Taylor Valentino (2019-current) Member of the Advisory Committee, *Graduate School in Integrated Biological Sciences*.

**Teaching Experience**

*1999, Fall*

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

*2000, Spring*

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

*2000, Fall*

* Biomolecules and Metabolism (**IBS 601**). Lipid Metabolism, 4 lectures.
1. Principles of Systems, Cellular and Molecular Physiology **(PGY502**). GI Secretions, 3 lectures.
2. 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 ad Molecular Mechanisms of Aging **(PGY 630-003),** course director, 6 lecture

*2010, Fall*

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

*2010, Summer*

* Experimental Design**.** Statistics, 3 lectures

*2011, SPRING*

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

*2011, Summer*

* Experimental Design**.** Statistics, 3 lectures

*2011, Fall*

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

*2012, SPRING*

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

*2012, Summer*

* Experimental Design**.** Statistics, 3 lectures

*2012, Fall*

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

*2013, SPRING*

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

*2013, Fall*

* Systems, Cellular and Molecular Physiology **(PGY502)** Gastro-Intestinal system, 7 lectures.
* Readings in Systems, Cellular and Molecular Physiology **(PGY602),** 2 lectures

*2014, SPRING*

* Cell Biology & Signaling **(IBS 603).** Lipid and ECM Signaling, 4 lectures

*2014, FALL*

* Systems, Cellular and Molecular Physiology **(PGY502)** Gastro-Intestinal system, 7 lectures.
* Readings in Systems, Cellular and Molecular Physiology **(PGY602),** 2 lectures

*2015, SPRING*

* Cell Biology & Signaling **(IBS 603).** Lipid and ECM Signaling, 5 lectures

*2015, FALL*

* Systems, Cellular and Molecular Physiology **(PGY502)** Gastro-Intestinal system, 7 lectures.
* Readings in Systems, Cellular and Molecular Physiology **(PGY602),** 2 lectures

*2016, SPRING*

* Cell Biology & Signaling **(IBS 603).** Lipid and ECM Signaling, 5 lectures

*2016, FALL*

* Systems, Cellular and Molecular Physiology **(PGY502)** Gastro-Intestinal system, 7 lectures.
* Readings in Systems, Cellular and Molecular Physiology **(PGY602),** 2 lectures

*2017 , SPRING*

* Cell Biology & Signaling **(IBS 603).** Lipid and ECM Signaling, 5 lectures

*2017, FALL*

* Systems, Cellular and Molecular Physiology **(PGY502)** Gastro-Intestinal system, 7 lectures.
* Readings in Systems, Cellular and Molecular Physiology **(PGY602),** 2 lectures

*2018, SPRING*

* Cell Biology & Signaling **(IBS 603).** Lipid and ECM Signaling, 5 lectures

*2018, FALL*

* *Systems, Cellular and Molecular Physiology* ***(PGY502)*** *Gastro-Intestinal system, 7 lectures.*
* *Readings in Systems, Cellular and Molecular Physiology* ***(PGY602),*** *2 lectures*

*2019, SPRING*

* Cell Biology & Signaling **(IBS 603).** Lipid and ECM Signaling, 5 lectures

*2019, FALL*

* *Systems, Cellular and Molecular Physiology* ***(PGY502)*** *Gastro-Intestinal system, 7 lectures.*
* *Readings in Systems, Cellular and Molecular Physiology* ***(PGY602),*** *2 lectures*

*2020, SPRING*

* Cell Biology & Signaling **(IBS 603).** Lipid and ECM Signaling, 4 lectures

**Selected Administrative Responsibilities**

*Department*

*1999-2000* Departmental Hazardous Waste Coordinator

*Fall 2000* Coordinator of the Departmental Seminar Series

*Spring 2001* Coordinator of the Departmental Seminar Series

1. Faculty Search Committee

*2003* Faculty Search Committee

1. Fall IBS Open House-lab presentations
2. Fall IBS Open House-lab presentations
3. Fall IBS Open House-lab presentations

2008-2012 Space and Shared Equipment Advisory Committee

*2010* Research Retreat Committee

*2016* Faculty Search Committee

2016 Fall IBS Open House-lab presentations

*2018-current* Physiology Research Committee

*2019-current* Physiology Research Committee Director

*University*

* 1. Interviewer for the Medical School Admission Committee
1. 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?”

*2003-2010* Member of thePostdoctoral 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

*2010-2015* Member of the College of Medicine Financial Aid Committee

*2013-2015* Interviewer for the Medical School Admission Committee

*2015-present* Subcommittee on Research Safety, Lexington VA Medical Center, Alternate member

*2016* Poster reviewer for the Markey Cancer Research Day

*2018-present* Coordinator of “Sphingolipid Journal Club*”*

*National and International*

*2001-current* International Advisory Group for Charleston Ceramide Conference - member

*2004*  Elected Chair and Organizer of the 39th South Eastern Regional Lipid Conference, Nov 3-5,

Cashiers, N.C.

*2004-present* Board of the South Eastern Regional Lipid Conference – member

2009-2011 ASBMB Lipid Highlights Editorial Board, 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-present* American Federation for Aging Research

*2003-2004* National Science Foundation

*2004* Cell Development and Function (CDF-3) study section, NIH (CSR), *Ad hoc member*

1. Special Interest Panel SSS-U(02), NIH (CSR), *Member*

*2005* (*Oct)*  Membrane Biology and Protein Processing (MBPP) study section, NIH (CSR), *Ad hoc member*

*2006* (Feb) Membrane Biology and Protein Processing (MBPP) study section, NIH (CSR), *Ad hoc member*

*2006-2010* Membrane Biology and Protein Processing (MBPP) study section, NIH (CSR), *Appointed Member*

*2006 (June)* Membrane Lipids, Transport, and Signaling, ZRG1 CB-G 03 Special Emphasis Panel, *Chair*

*2007 (Feb)* Cellular Mechanisms of Aging and Development (CMAD) study section, NIH (CSR), *Ad hoc member*

*2007 (June)* Cellular Mechanisms of Aging and Development (CMAD) study section, NIH (CSR), *Ad hoc member*

*2007 (Oct)* Cellular Mechanisms of Aging and Development (CMAD) study section, NIH (CSR), *Ad hoc member*

*2008 (Feb)* Cellular Mechanisms of Aging and Development (CMAD) study section, NIH (CSR), *Ad hoc member*

*2009 (July)* 2009/10 ZRG1 BDA-A (58) R RFA OD09-003 Challenge Grant Panel #10, *Appointed member*

2010 (Mar) Topics in Aging, Cellular and Developmental Biology, Special Emphasis Panel ZRG1BDAA02, NIH, *Member*

*2011 (Feb)* German-Israeli Foundation for Scientific Research and Development

*2011 (Mar)* Israel Science Foundation

*2011 (July)* German Research Foundation

*2011(Nov)* Oxidative Stress, Aging, and Transmitters Special Emphasis Panel 2012/01 ZRG1 BDCN-C (02) M, NIH, *Member*

*2012 (Feb)* Cellular Mechanisms of Aging and Development (CMAD) study section, NIH (CSR), *Ad hoc member*

*2012 (July)* Small Business: Radiation Therapy and Biology ZRG1 OTC-R 11 B, NIH, mail reviewer

*2012(Oct)* Asthma and Allergic Diseases Cooperative Research Centers, Special Emphasis Panel ZAI1 -PA -I - (J1), NIH, Ad hock member

*2013 (Mar)* Cancer Biology-2, 2013/05 ZCA1 SRLB-C (M1), NCI, Ad hock member

*2013(June)* Liver and Gastrointestinal Physiology and Pathophysiology, *ZRG1 DKUS-N (03)* Special Emphasis Panel Member Conflicts

*2013(July)* Cancer Biology-2, 2013/05 ZCA1 SRLB-C (M1), NCI, Ad hock member

*2014 (March)* PAR-13-233: Aging and Inflammation, ZRG1 CB-G (55), NIA, Member

*2014* *(Sept)*  Bulgarian National Science Foundation

*2015 (Feb)* Cellular and Molecular Biology of Glia (CMBG), NIH (CSR), *Ad-hoc member*

*2015 (Oct)* Cellular and Molecular Biology of Glia (CMBG), NIH (CSR), *Ad-hoc member*

*2016 (Feb)* Cellular and Molecular Biology of Glia (CMBG), NIH (CSR), *Ad-hoc member*

*2016-2022* Cellular and Molecular Biology of Glia (CMBG), NIH (CSR), *Appointed member*

*2017* Translational grants: Blueprint Neurotherapeutics Network (BPN) 2018/01 ZNS1 SRB-T (27), NIA

2018 French National Research Agency: “CE11 – “Characterization of structures and structure function relations of biological macromolecules” panel, *Ad-hoc member*

2019 Glenn Foundation for Medical Research Breakthroughs in Gerontology Awards Committee, Ad hock Member

2019 FWF Austrian Science Fund, Ad hoc Reviewer

**Manuscript Reviewer**

Advances in Biological Regulation, American Journal of Physiology; Antioxidants & Redox Signaling; Atherosclerosis, Thrombosis and Vascular Biology; Biochemical Journal; Biochimica Biophysica Acta; Cancer Research; Cardiovascular Research; Cell Metabolism; Cell Biochemistry and Biophysics; Cell Biochemistry & Function; Cell Biology International; Cellular and Molecular Biology; Chemico-Biological Interactions; Circulation; Cell Death and Differentiation; Critical Care and Medicine; Current Molecular Medicine; Disease Models & Mechanisms; Diabetes; The FASEB Journal; FEBS letters ; Journal of Alzheimer's Disease; Journal of Biological Chemistry ; Journal of Cell Biology; Journal of Cell Physiology; Journal of Leukocyte Biology; Journal of Lipid Research; Journal of Molecular and Cellular Cardiology; Journal of Neurochemistry; Journal of Nutrition; International Journal of Cancer; Neurobiology of Aging; Nutritional Biochemistry; Neural Plasticity; Life Sciences; Medicinal Chemistry Communications; Molecular Biology of the Cell; Molecular Cell, Scientific Reports, Oncogen, PlosOne, etc.

**Lecture presentations**

*October, 1994* 29th Regional Southeast Lipid Conference, Cashier, N.C “A sphingomyelin signaling pathway in IL-1b-induced suppression of hepatic P4502C11 gene expression”

*November,1996* 31st Regional Southeast Lipid Conference, Cashier, N.C “Activation of sphingomyelin hydrolysis by IL-1β 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-1β induced activation of JNK”.

*July, 2003* National Institute of Health, Office of Research on Women Health. 3rt 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* 10th International Conference on Bioactive Lipids in Cancer, Inflammation and Related Diseases, September 16-19, 2007, Montreal, Canada “Role of Hepatic Neutral Sphingomyelianse in Aging and Inflammation”

*March, 2008* American Society for Neurochemistry 39th 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 Parasithology, Sofia, Bulgaria, Departmental seminar:: Novel Mechanisms of regulation of lipid metabolism in the liver: Role ininsulin resistance during obesity” Gergana Deevska (\*\*), Krasimira Rozenova, Natalia Giltiay, Jia Wei, Eric Smart, Alfred H. Merrill, Jr., and Mariana Nikolova-Karakashian.

*March, 2009 Opening address:* 5th International Charleston Ceramide Conference “Therapeutic Potentials of Sphingolipid Research”.

*May, 2009* 38th 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-1β: cellular mechanisms and physiological consequences”

*July 2009* 6th 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”

*Nov, 2010* University of Kentucky “Lipid encounters in aging and inflammation”.

*May, 2013* ACSM's 60th Annual Meeting and 4th World Congress on Exercise in Medicine: May 28- June 1, 2013 in Indianapolis, Indiana *“*Overview of Sphingolipid Biology and Recent Advances in Tissue Lipid Profiling”.

*June, 2013 The 10th* Sphingolipid Club Annual Meeting, June 27-30, Assisi, Italy ”Neutral sphingomyelinase-2 regulation of FoxO transcription factor”.

*Sept., 2014* Medical University of South Carolina, Department of Biochemistry “The sphingolipid component of Interleukin 1**β** signaling pathway: role in aging and inflammation”, Charleston, SC

*Oct., 2014* Second International Workshop on Molecular Medicine of Sphingolipids, “Characterization of the major sphingomyelin synthases in hepatocytes and their impact on triacylglycerol metabolism and accumulation”. Kloster Banz, Germany

*Nov., 2014* University of Cincinnati, Department of Surgery: “Role of neutral sphingomyelinase-2 in the IL-1signaling pathway”, Cincinnati, OH.

*Mar, 2016* Glycolipid and Sphingolipid Gordon Research Conference. “Chronic Elevation of Sphingomyelin Synthase 2 in Hepatic Cells Leads to Cell Senescence Associated with Mitochondrial Dysfunction and Neutral Fat Accumulation", Lucca (Barga), Italy

*July, 2016* The American Society of Animal Science (ASAS), the American Dairy Science Association (ADSA), the Western Section of the American Society of Animal Science (WSASAS), and the Canadian Society of Animal Science (CSAS) Joined Annual Meeting***.****“*Structural and signaling functions of sphingomyelinases during inflammation” Salt Lake City, UT.

*Sept, 2016* University of Cincinnati Symposium on Biomedicine of Sphingolipids: “Regulation and Functions of neutral sphingomyelinase-2”, Sept. 18, 2016, Cincinnati, OH

*Oct, 2016* Virginia Commonwealth University. “The diverse roles of sphingomyelinases and sphingomyelin syntheses in hepatocytes: from regulating cytokine signaling to maintaining lipid homeostasis”, October 3, 2016, Richmond , VA.

*May, 2017* 9th International Ceramide Conference: “Differential changes in hepatic ceramide content in different models of NASH: correlation to the onset of inflammation and fibrosis”, May 3rd, 2017, Port Jefferson, NY.

*Sept, 2017 12th Sphingolipid Club Meeting and SCL Advanced Course*: “Secretory Sphingomyelinase and Macrophage Functions during Obesity”, Sep. 6-10, Trabia, Sicily, Italy.

*Nov*. 2017 52 Annual Southeastern regional Conference: “Secretory Sphingomyelianse and Macrophage Functions during Obesity, Cashiers, NC

*Oct*., 2018 4th international conference “Molecular Medicine of Sphingolipids”, “Ceramide-dependent Regulation of Hepatic Glucocorticoid Sensitivity”, Rehovot, Israel

**Publications**

*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 heamileaflet 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.# (equal contribution), 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.

13. Morgan, E.T., Nikolova-Karakashian, M.N., Chen, J. & Merrill, A.H. Jr. (1996) Sphingolipid-dependent signaling in regulation of cytochrome P450 expression. ***Methods in Enzymology*** 272: 381-388.

14. 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.

15. Nikolova-Karakashian, M.N., Wales, T.R., Wang, E., Menaldino, D.S., Goh, J., Liotta, D.C. & Merrill, A.H. Jr. (1997) Ceramide synthase and ceramidases in the regulation of sphingoid base metabolism. In: Sphingolipid-mediated Signal Transduction, *Molecular Biology Intelligence Units* series (Hannun YA, ed) R.G. Landes Co, Georgetown, TX, pp. 159-172.

16. Schmelz, E.-M., Nikolova-Karakashian, M.N., Wang, E. & Merrill, A.H. Jr. (1997) Sphingomyelin and other sphingolipid metabolites in cell signaling and disease. In: *Proceedings of the 7th International Congress on Phospholipids*, Sept. 6-8, 1996, Brussels, Belgium.

17. Nikolova-Karakashian, M.N., Morgan, E.T., Alexander, C., Liotta, D.C., & Merrill, A.H. Jr. (1997) Bimodal regulation of ceramidase by interleukin-1ß: Implication for the regulation of cytochrome P450 2C11 (CYP2C11*)* ***J. Biol. Chem.*** 272: 18718-18724.

18. 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.

19. Merrill, A. H. Jr., Nikolova-Karakashian, M.N., Shmelz, E.S., Morgan, E.T. & Stuart, J. (1998) Regulation of cytochrome P450 expression by sphingolipids. In: Sphingomyelin: Chemistry, biophysics, metabolism, genetics and signaling. A special edition of *Chemistry and Physics of Lipids*, Edited by S. Gatt and Y. Barenholz.

20. Augé, N., Nikolova-Karakashian, M.N., Parthasarathy, S., Nègre-Salvayre, A., Salvayr, R., Merrill, A.H. Jr., & Levade, T., (1999) Role of Sphingosine-1-Phosphate in the Mitogenesis Induced by Oxidized LDL in Smooth Muscle Cells via Activation of Sphingomyelinase, Ceramidase and Sphingosine Kinase ***J. Biol. Chem*,** 274 (31):21533-21538.

21. Wesper, H., Schmelz, E.-M., Nikolova-Karakashian, M. N., Dillehey, D.L., Lynch, D., & Merrill, A.H., Jr. (1999) Sphingolipids in food and the emerging importance of sphingolipids in nutrition *J. Nutrition* 129(7):1239-50.

22. Merrill, A. H,. Jr., Morgan, E.T., Nikolova-Karakashian, M.N., & Stewart, J. (1999) Sphingolipid Hydrolysis and regulation of cytochrome P450 gene expression. In: *Biochemical Society Transactions*, Symposium on Lipid Modulation of Cytochrome P450 Activities, Biochemical Society meeting, Glasgow, April, 1999.

23. Deaciuc, I.V., Nikolova-Karakashian M.N., Fortunato, F., Lee, Y., Hill, D.B, & McClain C.J. (2000) Apoptosis and dysregulated ceramide metabolism in a murine model of alcohol-enhanced lipopolysaccharide hepatotoxicity. ***Alcohol Clin Exp Res.***24(10):1557-65*.*

24. Lightle, S., Oakley, J., Nikolova-Karakashian, M.N. (2000) Up-regulation of sphingolipid signal transduction pathway and chronic generation of ceramide and sphingosine in livers from aging rats. ***Mech. Ageing Dev*.** 120(1-3):111-125

25. Nikolova-Karakashian, MN., & Merrill, A. H., Jr. (2000) Ceramidase(s). In *Methods in Enzymology*: Sphingolipid metabolism and cell signaling Vol 311, 194-201.

26. Nikolova-Karakashian, M.N. (2000) Synthesis of Sphingomyelin and Ceramide-phosphoethanolamine. In *Methods in Enzymology*: Sphingolipid metabolism and cell signaling , Vol 311, 31-42.

27. Yu, Z., M. Nikolova-Karakashian, D. Zhou, G. Cheng, E. H. Schuchman and M. P. Mattson (2000) Pivotal role for acidic sphingomyelinase in cerebral ischemia-induced ceramide and cytokine production, and neuronal death. ***J. Med. Neurosci.***15: 85-97

28. Liu J.H. Jorgensen M.S., Adams J.M., Titlow W.B., Nikolova-Karakashian M. Jackson B.A. (2001). Modulation of nicotinic receptor-dependent Ca2+ signaling by ceramide in rat adrenal chromaffin cells. ***J Neurosci Res*;**66(4):559-64.

29. Nikolova-Karakashian M.N. (2002) Ceramide in serum lipoproteins: Function and regulation of metabolism. (Chapter 15) In: Ceramide Signaling, *Molecular Biology Intelligence Units* series (Futerman A., ed) R.G. Landes Co, Georgetown, TX

30.Culmsee C, Gerling N, Lehmann M, Nikolova-Karakashian M, Prehn JH, Mattson MP, Krieglstein J. (2002) Nerve growth factor survival signaling in cultured hippocampal neurons is mediated through TrkA and requires the common neurotrophin receptor P75. ***Neuroscience*;** 115(4), 1089-108.

31. Li XA, Titlow WB, Jackson BA, Giltiay N, Nikolova-Karakashian M, Uittenbogaard A, Smart EJ. (2002) High-density lipoprotein binding to scavenger receptor class B, type I activates endothelial nitric oxide synthase in a ceramide-dependent manner. ***J Biol Chem*.** 277(13):11058-63.

32. Deaciuc IV D’Souza N.B., Nikolova-Karakashian, M.N. de Villiers J.S., Sarphie, T.G., McClain CJ (2002) The regulation of FAS (CD95/Apo-1)-mediated liver apoptosis in Kupffer cell-depleted mice. ***Hepatology Res.*** *24, 192-204*

33. Claycombe KJ, Dayong W, Nikolova-Karakashian M, Palmer H, Beharka A, Paulson KE, Meydani SN. (2002) Ceramide mediates age-associated increase in macrophage cyclooxygenase-2 (COX-2) expression. ***J. Biol. Chem*.** 277(34), 30784-30791.

34. Lightle,. S., Tosheva, R., Lee, A., Queen-Baker, J., Boyanovsky, B., Shedlofsky, S. and Nikolova-Karakashian, M.,(2003) Elevation of ceramide in serum during acute phase response in humans and mice: Role of Serine-Palmitoyl Transferase ***Arch. Biochem. Biophys****.* 419, 120-128. (Featured in the Highlight Section of this issue and cited in the Editorial comment by Kester M. and Obeid L. (2003) The next generation of sphingolipid stars ***Arch. Biochem. Biophys.*** 419, 99-100.)

35. Boyanovsky, B., Karakashian, A., King, K. Giltyay, N., and Nikolova-Karakashian, M. (2003) Ceramide-enriched low-density lipoproteins induce apoptosis in human microvascular endothelial cells. ***J. Biol. Chem*.** 278(29):26992-26999

36. Karakashian, A.A., Giltiay, N.V., Smith G.M., and Nikolova-Karakashian, M.N. (2004) Expression of Neutral Sphingomyelinase-2 (NSMase-2) in primary rat hepatocytes: possible role in regulation of IL-1β induced activation of JNK. ***FASEB J*,** 18: 968-970.

37. Sathishkumar, S., Boyanovsky, B., Karakashian, A.A., Rozenova, K., Giltiay, N.V., Kudrimoti, M., Mohiuddin, M., Ahmed, M.M., Nikolova-Karakashian, M. (2005) Elevated sphingomyelinase activity and ceramide concentration in serum of patients undergoing high dose spatially fractionated radiation treatment: implications for endothelial apoptosis. ***Cancer Biol Ther.*** 4 (9): 979-986.

38. Giltiay NV, Karakashian AA, Alimov AP, Ligthle S, and Nikolova-Karakashian MN. (2005) Ceramide- and ERK-dependent pathway for the activation of CCAAT**/**enhancer binding protein by interleukin-1beta in hepatocytes. ***J Lipid Res*.** 46 (11): 2497-2505.

39. Li Xiang-An, Guo, L., Asmis, R., Nikolova-Karakashian, M., and Smart, E.J. (2006) Scavenger Receptor BI prevents Nitric Oxide-Induced Cytotoxicity and Endotoxin-Induced Septic Death. ***Circ Res*.** 98(7): 60-65.

40.**Rutkute, K., Karakashian, A., Giltiay, N., Dobierzewska, A. and Nikolova-Karakashian, M.N. (2007)** Aging in rats causes hepatic hyperresponsiveness to Interleukin-1β which is mediated by neutral sphingomyelinase-2. ***Hepatology*** 46(4) 1166-1176.

41. Rutkute, K., and Nikolova-Karakashian, M.N. (2007) Regulation of insulin-like growth factor binding protein-1 expression during aging ***Biochem Biophys Res Commun***. 361(2): 263-269.

42. Rutkute, K., Asmis, R., and Nikolova-Karakashian, M.N. (2007) Regulation of neutral sphingomyelinase-2 by GSH: a new insight to the role of oxidative stress in aging-associated inflammation ***J. Lipid Res.*** *48(11)* 2443-2452.

43. Nikolova-Karakashian, M.N. (2008) Functions, Metabolism, and Genetics of Bioactive Sphingolipids. **J. Neurochemistry,** 104 (S1) 61.

44. Nikolova-Karakashian, M.N., Karakashian, A., and Rutkute, K. (2008) Role of Hepatic Neutral Sphingomyelinase in aging and inflammation. In: Lipids in Health and Disease, *Subcellular Biochemistry* Series, vol. 48, pp.469-486. (Quinn, P.J and Wang X., Eds) Springer, London, United Kingdom

**45. Deevska, G., Bankov, I., Nikolova-Karakashian, M. (2009) Acid Sphingomyelinase Activity Regulates de novo Sphingolipid Synthesis in Liver through a Negative Feed-back Mechanism. *Compt. rend. Acad. bulg. Sci*.62 (1): 49-56.**

**46. Deevska, G.M., Rozenova, K.A., Giltiay, N.V., Chambers, M.A., White, J., Boyanovsky, B.B., Wei, J., Daugherty, A., Smart, E.J., Reid, M.B., Merrill, A.H. Jr, Nikolova-Karakashian, M.N. (2009) Acid sphingomyelinase deficiency prevents diet-induced hepatic triacylglycerol accumulation and hyperglycemia in mice. *J Biol Chem*. Mar 27; 284(13):8359-68.**

**47. Rozenova KA, Deevska GM, Karakashian AA, Nikolova-Karakashian MN. (2010) Studies on the role of acid sphingomyelinase and ceramide in the regulation of TACE activity and TNF{alpha} secretion in macrophages. *J Biol Chem.* 285(27): 21103-21113. PMID: 20236926**

**48. Ferreira LF, Moylan JS, Gilliam LA, Smith JD, Nikolova-Karakashian M. N., Reid MB. (2010) Sphingomyelinase stimulates oxidant signaling to weaken skeletal muscle and promote fatigue. *Am J Physiol Cell Physiol*. 299(3): C552-560. PMID: 20519448**

49. Nikolova-Karakashian, M.N., and Rozenova, K.A., (2010) Ceramide in stress response. In: Sphingolipids as Signaling and Regulatory Molecules*, Adv Exp Med Biol.* Series, vol. 688, pp. 86-108. (Chalfant, C. and Del Poeta, M., Eds) Landes Bioscience, Austin, TX, USA

50. Deevska G.M., Nikolova-Karakashian M.N. (2011) The twists and turns of sphingolipid pathway in glucose regulation. *Biochimie.* 2011 Jan; 93(1): 32-8.

**51. Nikolova-Karakashian, M.N. and Reid, M.B. (2011)** **Sphingolipid Metabolism, Oxidant Signaling, and Contractile Function of Skeletal Muscle *Antioxidants & Redox Signaling***.15(9): 2501-2517. PMID:21708940.

**52. Dobierzewska, A., Giltiay, N.V., Karakashian, A.A., Nikolova-Karakashian, M.N. (2011) Protein phosphatase 2A and neutral sphingomyelinase 2 regulate IRAK-1 protein ubiquitination and degradation in response to IL-1β. *J Biol Chem.***  286(37): 32064-73. PMID: 21708940

**53. Deevska, G.M., Sunkara, M., Morris, A. J., Nikolova-Karakashian, M.N. (2012) Characterization of Secretory sphingomyelinase activity and its role in LDL aggregation in a mouse model of atherosclerosis *Biosci Rep,***32(5):479-490***.* PMID: 2271289242.**

**54.** Dobierzewska, A#, Shi, L.,# (equal first authors) Karakashian, A.A, and Nikolova-Karakashian M.N. (2012) **Interleukin 1β Regulation of FoxO1 Protein Content and Localization: Evidence for a Novel Ceramide-dependent Mechanism *J Biol Chem.*** ;287(53): 44749-44760. **PMID 23105097.**

**55.** Momchilova A, Petkova D, Staneva G, Markovska T, Pankov R, Skrobanska R, Nikolova-Karakashian M, Koumanov K (2014) Resveratrol alters the lipid composition, metabolism and peroxide level in senescent rat hepatocytes, ***Chem Biol Interact.*** 207: 74-80. PMID: 24183824

56. Empinado HM, Deevska GM, Nikolova-Karakashian M, Yoo JK, Christou DD, Ferreira LF. (2014) Diaphragm dysfunction in heart failure is accompanied by increases in neutral sphingomyelinase activity and ceramide content. ***Eur J Heart Fail***. 16(5): 519-25. PMID: 24596158.

57. Deevska, G., Sunkara, M., Karakashian, C., Peppers, B., Morris, A. and Nikolova-Karakashian, M. N. (2014) Effect of Pro-cysteine on Aging-associated Changes in Hepatic GSH and Sphingomyelinase: Evidence for Transcriptional Regulation of Smpd3. ***J Lipid Res****. 55(10): 2041-2052. PMID: 25047167*

58. Jennifer S. Moylan, Jeffrey D. Smith, Erin M. Wolf Horrell, Julie B. McLean, Gergana M. Deevska, Mark R. Bonnell, Mariana N. Nikolova-Karakashian, and Michael B. Reid (2014) Neutral sphingomyelinase-3 mediates TNF-stimulated oxidant activity in skeletal muscle. ***Redox Biology*** 2: 910-20. PMID 25180167

**59. Dotson, P.P. II, Karakashian, AA, and Nikolova-Karakashian, M.N. (2015)** Neutral Sphingomyelinase-2 is a Redox Sensitive Enzyme: Role of Catalytic Cysteine Residues in Regulation of Enzymatic Activity through Changes in Oligomeric State. ***Biochem J.* 465(3): 371-82. PMID: 25287744**

**60.** Zhang L, Kline RH 4th, Deevska G, Ma F, Nikolova-Karakashian M, Westlund KN (2015) [Alcohol and High Fat Induced Chronic Pancreatitis: TRPV4 Antagonist Reduces Hypersensitivity.](http://www.ncbi.nlm.nih.gov/pubmed/26480812) ***Neuroscience***. 311:166-79. PMID: 26480812

61. Banerjee, D., Karakashian, A., and Nikolova-Karakashian, M. (2016) Aging and inflammation. In: Frontiers in Inflammation Basic Biology and Clinical Aspects of Inflammation, pp. 106-137. Bentham eBooks. Eds: Diegelmann, R. and Chalfant, C. <http://ebooks.benthamscience.com/book/9781681082271/>

**62.Shi, L.#, Banerjee, D.# (equal contribution), Dobierzewska, A., Sathishkumar, S., Karakashian, A.A., Giltiay, N.V. and Nikolova-Karakashian, M.N. (2016)** Direct regulation of IGF-binding protein 1 promoter by interleukin-1β via an insulin- and FoxO-1-independent mechanism**. *American Journal of Physiology*-Endocrinology and Metabolism**: 310(8): E612-E623. PMID: 26884383

63. **Deevska, G., Dotson, PP 2nd, Karakashian A.A. Isaac, G., Wrona, M., Kelly, S.B., Merrill, A.H. Jr., and Nikolova-Karakashian, M.N. (2017) Novel interconnections in lipid metabolism revealed by overexpression of sphingomyelin synthase-1 *J. Biol. Chem.*; 292(12): 5110-5122. PMID:28087695**

**64.** Nolan, M.W., Gieger, T.L., Karakashian, A.A., Nikolova-Karakashian, M.N., Posner, L.P., Roback, D.M., Rivera, J.N., Chang, S. (2017) Outcomes of spatially-fractionated radiotherapy (GRID) for bulky soft tissue sarcomas in a large animal model. ***Technol Cancer Res Treat.*** 16(3):357-365. PMID: 28168937.

65. Deevska, G.M. and Nikolova-Karakashian, M.N. (2017) The expanding role of sphingolipids in lipid droplet biogenesis. ***BBA: Molecular and Cell Biology of Lipids*** 1862 (10 Pt B): 1155-1165. PMID: 28743537

66. Hanaoka BY, Ormseth MJ, Michael Stein C, Banerjee D, Nikolova-Karakashian M, Crofford LJ (2018) Secretory sphingomyelinase (S-SMase) activity is elevated in patients with rheumatoid arthritis. ***Clin Rheumatol*** 37(5):1395-1399. doi: 10.1007/s10067-017-3824-1. Epub 2017 Sep 15.PMID: 28914380

67. Wang, G., Zhong, L., Kong, J., Dinkins, M., Leanhart, S., Zhu, Z, Nikolova-Karakashian, N., and Bieberich, E. (2017) Increased liver tumor formation in neutral sphingomyelinase-2-deficient mice. ***J. Lipid Research*** J Lipid Res. 2018 May;59(5):795-804. doi: 10.1194/jlr.M080879. Epub 2018 Mar 22. PMID: 29567647

68. Nikolova-Karakashian MN. (2018) “Sphingolipid rendezvous at the crossroad of NAFLD and senescence” Adv. Cancer Res. 2018;140:155-190. doi: 10.1016/bs.acr.2018.05.002. Epub 2018 Jun 1. PMID: 30060808

69. Nikolova-Karakashian, M.N. (2018) Alcoholic and non-alcoholic fatty liver disease: focus on ceramide” B. Elsevier Adv. Biol. Regul:40-50. doi: 10.1016/j.jbior.2018.11.004. PMID: 30455063

70. Guo,W., Wu,D., Dao, M.C., Li, L., Lewis, E., Eom, H. Thomas, M., Nikolova-Karakashian, M.N., Meydani,

M., Meydani, S.N. (2019) A unique mixture of fruits & vegetables prevents diet-induced hepatic steatosis in

mice (submitted to J. Nutrition).

 71. Nikolova-Karakashian, M. (2019) Methods to characterize synthesis and degradation of sphingomyelin at the

plasma membrane and its impact on lipid raft dynamics. In “Lipid rafts –Methods of isolation, visualization, and functional analysis : Methods in Molecular Biology, Ed: Erhard Bieberich (Invited chapter, in preparation for submission by November 1., 2019)

 72. Deevska\*, G.M., Karakashian\*, A.A., Banerjee, D., Lihua, Shi, Sabapathy, S.S., Rutkute, K., Bieberich, E.,

and Nikolova-Karakashian, M.N. Neutral Sphingomyelianse-2 in sepsis and aging (In preparation)

 73. Gergana Deevska, Patrick Dotson, Mihail Mitov and Mariana Nikolova-Karakashian (in

 preparation) Deregulated Diacylglycerol/Ceramide homeostasis at the Plasma Membrane Induces

 Cellular Senescence and Steatosis in Hepatocytes

*EDITORIALS*

1. Mariana Nikolova-Karakashian, (2009, August 11) “A novel sphingolipid is identified and unexpected questions come to light”, in “Research Highlight” of the Lipid Division of the American association of Biochemistry and Molecular Biology (ASBMB) <http://www.asbmb.org/lipidcorner/>
2. Mariana Nikolova-Karakashian, (2009, December 28) “Location, location, location: Ceramide-1-phosphate keeps cytosolic phospholipase A2 at the Golgi” in “Lipid Highlights” <http://www.asbmb.org/lipidcorner/>
3. Mariana Nikolova-Karakashian, (2010, June 7) “As if ceramide signaling were not complex enough: An in-depth look at the sphingolipid fatty acid make-up” in “Lipid Highlight <http://www.asbmb.org/lipidcorner/>
4. Mariana Nikolova-Karakashian, (2010, June 28) Mitochondria take central stage in “the ceramide-centric universe of lipid-mediated cell regulation” in “Lipid Highlight <http://www.asbmb.org/lipidcorner/>
5. Mariana Nikolova-Karakashian and Michael B. Reid (2013, February) “The sphingolipid connection in muscle weakness” in ASBMB Today. Lipid News.

Updated November, 2019