

Scott A. Summers

Distinguished Professor and Chair, Department of Nutrition and Integrative Physiology
William J. Rutter, PhD, Presidential Endowed Chair of Biochemistry
Co-Director, Diabetes and Metabolism Research Center
University of Utah, Eccles Institute of Human Genetics
15 North 2030 East, Salt Lake City, Utah 84112
Lab 3490A | Office 3110B
Phone: 801-585-9359
Email: scott.a.summers@health.utah.edu

EDUCATION

Postdoctoral, Medicine, University of Pennsylvania, 1995-1999
Ph.D., Physiology, Southern Illinois University, 1995
BS, Biochemistry, Indiana University, 1989

PROFESSIONAL EXPERIENCE

University of Utah, Salt Lake City, UT (2004-2008 and 2016-present)
Distinguished Professor, 6/2022-present
William J. Rutter Presidential Endowed Chair, University of Utah, 5/2021-present
Co-Director, Diabetes and Metabolism Research Center, 9/1/2017-present
Professor and Chair, Department of Nutrition and Integrative Physiology, 8/1/16-present
Associate Investigator, Huntsman Cancer Institute, 2/1/2017-present
Adjunct Faculty Member, Department of Biochemistry, 1/1/05-8/31/08 and 8/1/16-present
Associate Professor, Department of Internal Medicine, 1/1/05-8/31/08

Baker IDI Heart and Diabetes Institute, Melbourne, Australia (2015-2016)
Head, Translational Metabolic Health Laboratory, 2/1/15-8/1/16
Head, Metabolism and Inflammation Program, 2/1/15-8/1/16
Adjunct Professor, Monash University Dept. of Medicine, 7/1/15-7/1/2016
Adjunct Professor, Monash University Dept. of Biochemistry and Molecular Biology, 7/1/15-7/1/2016

Duke University, Durham, NC and the Duke-NUS Graduate Medical School, Singapore (2008-2015)
Associate Professor, Program in Cardiovascular and Metabolic Diseases, Duke-NUS, 11/1/08-9/30/14
Associate Professor, Department of Medicine, Duke University, 11/1/08-6/30/15

Colorado State University, Fort Collins, CO (1999-2004)
Associate Professor, Department of Biochemistry and Molecular Biology, 7/1/04-7/30/04
Assistant Professor, Department of Biochemistry and Molecular Biology, 7/99-6/30/03

University of Pennsylvania, Philadelphia, PA (1995-1999)
Post-Doctoral Research Associate, Howard Hughes Medical Institute, 8/95-6/99

HONORS AND RECOGNITION

Faculty

Distinguished Professor, University of Utah, 2022
William J. Rutter Presidential Endowed Chair in Biochemistry, 2021
Outstanding Senior Researcher Award, University of Utah College of Health, 2019
Honoree for Research Excellence at “Celebrate U: A Showcase of Extraordinary Faculty Achievements,” 2018
Chair, FASEB Science Conference on Glucose Transporter Biology—Gateway to Systems Biology (2017 as co-chair; 2019 as chair).
Chair, Keystone Symposium on Lipid Biology and Lipotoxicity, 2011
Keynote Speaker, Research Day of Cardiovascular and Metabolic Disease, University of New Mexico Health Sciences Center, October 2022
Keynote Speaker, The Molecular Metabolism Conference: From Cell Biology to Systems Physiology, FASEB, Nova Scotia, Canada, August 2022

Keynote Speaker, Minerva Jubilee Symposium, Helsinki, Finland, 2010
 Keynote Speaker, Japanese Society for the Study of Ceramides, Sapporo, Japan, November, 2009
 Keynote Speaker, Metabolic Diseases Drug Discovery Summit, La Jolla, CA 2007
 Basil O'Connor Starter Scholar's Award, March of Dimes, 2001
 Awarded the cover and a preview article highlighting our article in the March issue of Cell Metabolism
 One of 4 scientists whose work was featured in a chapter highlighting the "Next Generation of Sphingolipid Stars," Archives of Biochemistry and Biophysics, 2003"
 Career Development Award, American Diabetes Association, 2000
 CSU Nominee, Pew Trust Fellowship, 2000, 2002
 CSU Nominee, Searle Scholars Award, 2000

Postdoctoral

Poster Competition, First Place, University of Pennsylvania Signaling Retreat, 1998
 Individual National Research Service Award, NIDDK, 1997

Graduate School

Pre-doctoral Student Stipend, American Heart Association, Illinois Affiliate, 1994
 Dissertation Research Award, Southern Illinois University Graduate School, 1994
 Grant-in-Aid of Research, Sigma Xi, The Scientific Research Society, 1994
 Poster Competition, First Place, Sigma Xi Combined Research Symposium, 1994
 Doctoral Fellowship, Southern Illinois University Graduate School, 1992
 Phi Kappa Phi Honorary Academic Society, Southern Illinois University, 1992
 Doctoral Fellowship, Southern Illinois University Graduate School, 1991

Undergraduate

Academic Scholarship, Rose-Hulman Institute of Technology, 1985
 Forest Scherer Scholarship, Rose-Hulman Institute of Technology, 1985
 National Eagle Scout Scholarship, National Eagle Scout Association, 1985

FUNDING (GRANTS AND CONTRACTS)

Current

NIH U01 CA272529. Ceramides as Novel Drivers of Metabolic Dysfunction and Colorectal Cancer. Total Costs: \$5,045,598. Term: 9/1/22-8/31/27. Role on Project: MPI (with Mary Playdon and Cornelia Ulrich)

NIH R01 DK130296-01A1. Role of Ceramides in the Pancreatic Beta Cell. Total Costs: \$3,231,510.00. Term: 4/1/22-3/31/27. Role on Project: MPI (with William Holland)

NIH R01 DK131609. Role of Ceramides in the Intestinal Stem Cell. Total Costs, \$2,567,400. Term: 9/1/21-8/31/26. Role on Project: MPI (with Bruce Edgar)

NIH-R01 DK116888. Targeting a Ceramide Double Bond to Treat Cardiometabolic Disease. Total Costs, \$2,865,721. Term: 1/1/2019-12/31/2023. Role on Project: PI

NIH-R01 DK115824-01. Role of Ceramides in Skeletal Muscle. Total Costs: \$3,583,770. Term 12/1/2018-12/31/2022. Role on Project: PI

NIH-R01AT011423- 01A1. Microbiota-immune interactions that promote intestinal homeostasis. Total Costs. \$3,124,205. Term. 6/21-5/26. Role on Project: CoI (Round is PI)

NIH-SBIR 2R44DK116450. Dihydroceramide Desaturase-1 Inhibitors for Treatment of Diabetes and metabolic Disorders. Total Costs: \$3,000,000. 9/1/2021-8/31/-2024. Role on Project: MPI (with Jeremy Blitzer and Centaurus Therapeutics).

NIH T32 DK091317. Interdisciplinary Training Program in Metabolism. Total Costs: \$1,865,440. Term: 7/1/21-6/31/26. Role on Project: PI

Ruth L. Kirschstein National Research Service Award DK5T32DK091317 to Annelise Poss. Role of Ceramides in Fatty Liver Disease. Total Costs: \$52,648. Term 7/1/21-6/30/22. Role on Project: Mentor

NIH R25 DK109894. Native American Research Internship (NARI) Summer Program in Diabetes, Obesity and

Metabolism. Total Costs: \$540,000. Term 9/1/21-8/31/26. Role on Project: MPI (with Maija Holsti)

Completed/Relinquished

American Diabetes Association. #1-18-ICTS-046. Genes, Environment and Diabetes: Convergence on Ceramides. Total Costs \$600,000. Term 1/1/2018-12/31/2020

Juvenile Diabetes Research Foundation. 3-SRA-2019-768-A-B. Depleting Ceramides to Promote Beta-Cell Regeneration. Total Costs \$525,000. Term 5/1/19-4/30/21

Huntsman Cancer Institute, Nuclear Control of Cell Growth and Differentiation Program, University of Utah. Role of Ceramides in the Intestinal Epithelium. Total Costs: \$67,500. Term 7/1/18-6/30/20. Role on Project: PI

Huntsman Cancer Institute. Gastrointestinal Cancers Center Grant. Sphingolipid Metabolism in Drosophila Stem Cell Function. Total Costs: \$20,000. Term 4/1/20-3/31-21. Role on Project: Co-PI

Margolis Foundation. Use of Genetics And Plasma Ceramide Biomarkers To Develop Personalized Dietary Interventions. Total Costs: \$75,000. Term 1/1/19 to 12/31/19. Role on Project: PI

Ruth L. Kirschstein National Research Service Award DK5T32DK091317 to Trevor Tippetts. Targeting Dihydroceramide Desaturase-1 to Remove a Double Bond from Ceramides and Treat Insulin Resistance and Steatohepatitis. Total Costs: \$52,648. Term 7/1/18-6/30/20. Role on Project: Mentor

NIH-R01DK112826. Lipid Sensing in the Pancreatic Alpha Cell. Total Costs: \$1,500,000. 9/1/17-8/31/22. Role on Project: Co-Investigator

American Heart Association, 17GRNT33670881. Role of Portal Ceramides in Metabolic Homeostasis. Total Costs: \$154,000. Term 7/1/2017-6/30/2019. Role on Project: PI

NIH-R13DK121501. FASEB SRC on Regulation of Glucose Metabolism: From Cell Biology to Systems Physiology. Total Costs: \$14,668. Term 6/1/19-5/31/20. Role on Project: PI

NIH-1R41DK116450. Dihydroceramide Desaturase-1 Inhibitors for Treatment of Diabetes and metabolic Disorders. Total Costs: \$235,000. 9/1/2017-8/31/-2018. Role on Project: MPI (with Jeremy Blitzer).

NIH-SBIR 2R44DK116450. Dihydroceramide Desaturase-1 Inhibitors for Treatment of Diabetes and metabolic Disorders. Total Costs: \$1,500,000. 9/1/2018-8/31/-2020. Role on Project: MPI (with Jeremy Blitzer and Centaurus Therapeutics). Senior Research Fellowship. Ceramides and Metabolic Disorders, Australian NHMRC. Total Costs: AUD: \$688,000.

Program in Diabetes Complications, Baker IDI Heart and Diabetes Institute. Title: Ceramides and Atherosclerosis. Total Costs: AUD \$15,000

Program in Metabolism and Inflammation, Baker IDI Heart and Diabetes Institute. Ceramide Synthase 2 Polymorphisms and Metabolic Disorders. Total Costs: AUD \$25,000

Merck Research Labs. Title: Ceramide Synthesis Inhibitors in the Treatment of Metabolic Diseases. Total Costs: \$222,000/year (relinquished upon move to Australia)

A*STAR. Title: Integration of APPL1 and Acid Ceramidase in Adiponectin Signal Transduction. Total Costs to Singapore: \$300,000. Term 4/1/14 to 3/31/16 (relinquished upon move to Australia)

A*STAR. Title: Isaria Sinclairii and Cordyceps Extracts for the Treatment of Insulin Resistance and Impaired Glucose Tolerance. Term: 5/1/12-4/30/15. Total Costs: S\$783,400. (relinquished upon move to Australia)

National Medical Research Council, Singapore. Title: Role of Sphingolipids in the Pancreatic β -Cell. Term: 9/1/13-8/31/16. Total Costs: S\$1,191,378. Role on Project: P.I. (relinquished upon move to Australia)

Ministry of Education. Title: Role of Portal Ceramides in the Hepatic Steatosis. Term: 4/1/14-3/31/17. Direct Costs: 599,400. Role on Project: PI. (relinquished upon move to Australia)

Singapore Ministry of Education. Title: Role of Portal Ceramides in the Control of Nutrient Homeostasis. Term: 6/1/10-5/31/13; Total Costs: S\$947,000.

National Medical Research Council, Singapore. Title: Role of Sphingolipids in the Pancreatic β -Cell. Term: 7/1/10-6/31/13. Total Costs: S\$1,391,378. Role on Project: P.I.

NIH-R01 DK081456. Title: Lipid Mediators of Insulin Resistance. Term: 8/1/08-7/31/13. Total Costs: \$1,868,750. Role on Project: P.I.

Duke-NUS Graduate Medical School. Title: Creation of a Metabolomics Profiling Facility. Term: 9/1/10-8/31/11. Total Costs: \$750,000. Note: Supplemented by An Agilent Foundation Grant for \$225,000.

Astra-Zeneca. Title: Ceramide Synthases and Metabolic Disease. Term: 3/1/09-2/28/11; Total Costs: S\$246,000

Duke-NUS Collaborative Research Funds. Title: Biochemical Mechanisms of Improved Insulin Sensitivity in Response to Weight Loss. Term: 1/1/10-12/31/11. Total Costs: \$162,000. Role on Project: Co-Investigator.

SingHealth Foundation Research Grant. Title: Development of a clinical method for measuring internal body time: a novel approach to improve chronotherapy and for diagnosis of circadian sleep disorders. Term: 4/1/10 to 3/31/2012. Total Costs: \$199,951. Role on Project: Co-Investigator

American Diabetes Association: Ceramide Synthesis and Insulin Resistance. Term: 7/1/07-6/30/10. Total Costs: \$300,000. Role of Project: P.I. (relinquished upon move to Singapore)

NIH-R01. Title: Role of Ceramides in Hepatic Insulin Resistance. Term: 11/1/08-10/31/13. Total Costs: \$1,868,750. Role on Project: P.I. (relinquished upon move to Singapore)

NIH R56 DK078831. Title: Role of Ceramides in Hepatic Insulin Resistance. Term: 3/1/08-2/28/09. Total Costs: \$187,812. Role on Project: P.I.

NIH R21 DK071381. Title: Role of Sphingolipids in the Pancreatic β -Cell. Term 9/1/06-8/31/08. Total Costs: \$373,750. Role on Project: P.I.

Supplement to NIH R21 DK071381. Title: Supplements for Postdoctoral Fellows with Disabilities (for Will Holland). Term: 07/01/07 - 06/30/08. Total Costs: \$78,276. Role on Project: P.I.

University of Utah Research Foundation, Funding Incentive Seed Grant Program. Title: Use of *C. Elegans* to Elucidate the Mechanisms Underlying Ceramide-Induced Insulin Resistance. Term: 3/1/07-2/28/08. Total Costs: \$28,000. Role on Project: P.I.

American Diabetes Association, Research Award. Title: The Role of Ceramides in Insulin Resistance. Term: 7/1/04-6/30/07. Total Costs: \$300,000. Role on Project: P.I.

NIH R01 DK58784. Title: Role of Sphingolipids in Insulin Signal Transduction. Term: 8/1/01-7/31/06. Total Costs: \$893,221. Role on Project: P.I.

American Diabetes Association, Career Development Award. Title: The Role of Sphingolipids in Insulin Action. Term: 7/1/00-6/30/04. Total Costs: \$400,000. Role on Project: P.I.

NIH R21 DK60676. Title: Molecular Mechanisms of Insulin Resistance – A New Approach. Total Costs: \$287,575. Term: 7/1/02-6/30/04. Role on Project: Co-P.I.

American Heart Association, Predoctoral Fellowship to Kyle Hoehn. Title: The Role of Guanylate Binding Proteins in Insulin Action. Term: 7/1/03-6/30/05. Total Costs: \$40,000. Role on Project: Sponsor

American Heart Association, Postdoctoral Fellowship to Trina K. Knotts. Title: The Role of Ceramide in Insulin Resistance. Term: 1/1/03-12/31/05. Total Costs: \$117,024. Role on Project: Sponsor

March of Dimes, Basil O'Connor Starter Scholar's Award. Title: The Serine/Threonine Kinase Akt/PKB - Looking Downstream. Term: 2/1/02-1/31/03. Total Costs: \$150,000. Role on project: P.I.

American Heart Association, Beginning Grant-in-Aid. Title: Molecular Mechanisms of Insulin Resistance – A New Approach. Term: 7/1/00-6/30/02. Total Costs: \$60,000. Role on Project: P.I.

The University of Colorado Health Sciences Center - Center for Nutrition Research Pilot Program. Title: The Role of Sphingolipids in Insulin Signal Transduction. Term: 1/1/00-12/31/01. Total Costs: \$37,900. Role on Project: P.I.

The Graduate School, Colorado State University, Faculty Research Grant. Title: Role of Ceramide in Diabetes Mellitus. Term: 7/1/00-6/30/01. Total Costs: \$4,500. Role on Project: P.I.

SERVICE**Community**

JDRF Board of Chancellors, 2018 to present
Speaker, JDRF Research Update, 2018, 2022
Speaker, JDRF Gala, 2020
Organized a DMRC team for the JDRF Walk, September 2019
Chair, Singapore Diabetes Consortium, 2012 to 2014
Speaker, American Diabetes Association Father-of-the-Year Fundraiser, 2007
Speaker, American Diabetes Association Expo, 2006
Organized a booth highlighting diabetes research at Colorado State University, American Diabetes Association
“Walk for a Cure”, 2003
Speaker for the American Diabetes Association “Walk for a Cure”, 2002
Guest Speaker representing American Diabetes Association, KCOL-AM Morning Show, 2002
Judge, Colorado High School Science Fair, 2001

University

HSC Cores Oversight Committee, 2022-present
Leadership Team, Driving out Diabetes Initiative, 2021-present
Co-Director, Diabetes and Metabolism Research Center, 2017-present
PI, Metabolism Training Program (T32), 2021 to present
Co-PI, Native American Research Internship Program, 2021 to present
Executive Committee, Molecular Medicine Program, 2018-present
Member, Utah Health Building Committee, 2018-present
Scientific Advisory Board, Immunity, Inflammation and Infection Program (3i), 2017-present
Research Committee, Driving Out Diabetes Initiative, 2017-present
DMRC Pilot Grant Review Committee, 2017-present
Metabolism Training Grant Review Panel, 2017-present
Mentor, HBCU Research Internship Program, 2021 to present
Mentor, SEARCH Program, 2021 to present
Chair, Physical Therapy and Athletic Training Search Committee, 2021
Chair, Metabolism Search Committee, 2020
Member, Endocrinology Chief Search Committee, 2018
Center for Clinical and Translational Research, KL2 Grant review Panel, 2018
Research Committee, College of Health, 2016-2018
Program Director, Metabolism and Inflammation Program, Baker Heart and Diabetes Institute, 2014-2016
Chair, Preclinical Curriculum Committee, Duke-NUS Graduate Medical School, 2013-present
Director, Duke-NUS Metabolomics Facility, 2011-2014
Director of Graduate Studies, Duke-NUS Graduate Medical School, 2008-2012
Member, Seminar Committee, Duke-NUS Graduate Medical School, 2009-2011
Chair, Curriculum Committee, Biological Chemistry Program, U. of Utah, 2005-2008
Member, Graduate Admissions Committee, Biological Chemistry Program, U. of Utah, 2005-present
Advisor, First Year Graduate Students, Biochemistry and Molecular Biology, CSU, 2002-2004
Graduate Affairs Committee, Biochemistry and Molecular Biology, CSU, 2001-2004
Seminar Committee, Biochemistry and Molecular Biology, CSU, 2000-2002
Research Committee, Cell and Molecular Biology, CSU, 2000-2002

Advisory Positions

Co-Founder and Consultant, Centaurus Therapeutics, 2015-present
Grant Reviewer, North Carolina Diabetes Center, 2020 – present
Grant Reviewer, Washington University Diabetes Center, 2021-present
Standing Member, National Institutes of Health Study Section (POMD), 2020-present
Editor, Article Series on Ceramides in Metabolic Disease, Frontiers in Endocrinology, 2020
Consultant, Merck Research Laboratories, 2014-2015
Editorial Board, Diabetes, 2008-2011; 2013-2015
Editorial Board, Journal of Clinical Investigation, 2012-2014

Ad-hoc or Temporary grant reviewer for the following agencies: National Institutes of Health (NIDDK); European Association for the Study of Obesity; US-Israel Binational Science Foundation, Israel Science Foundation; Agency for Science, Technology, and Research, Singapore; National Medical Research Council, Singapore; Danish Diabetes Academy.

Ad-hoc reviewer for the following journals: Science, Cell, Nature, Nature Medicine, Cell Metabolism, Nature Metabolism, Journal of Clinical Investigation, Proceedings of the National Academy of Sciences, Journal of Biological Chemistry, American Journal of Physiology, Physiological Genomics, Diabetologia, Diabetes, Journal of Lipid Research, etc.

Consultant – Hoffman LaRoche, 2009 – 2011

Standing Member, American Heart Association Study Section, 2008 to 2009

Member, American Diabetes Association Study Section, 2006 to 2009

Meeting Organizer/Chair/Session Coordinator

Meeting Chair—FASEB SRC on Regulation of Glucose Metabolism, 2019

Meeting Co-Chair—FASEB SRC on Glucose Transporter Biology, 2017

Chair of Session, American Diabetes Association Scientific Sessions, New Orleans, LA 2016

Meeting Chair – Keystone Symposium on Lipid Biology and Lipotoxicity, Killarney, Ireland, 2011

Chair of Session, Pasteur Institute – Korea, Targeting Mechanisms of Cancer and Diabetes, Seoul, 2010

Chair of Session, American Diabetes Association Scientific Sessions, San Francisco, CA, 2008

Chair of Session, American Diabetes Association Scientific Sessions, Chicago, IL, 2007

Chair of Session, Keystone Symposia on Cardiovascular and Metabolic Risk, Breckenridge, CO, 2008 Chair of Session, Charleston Ceramide Conference, Asilomar, California, 2007

Chair of Session, American Diabetes Association Scientific Sessions, San Diego, CA, 2006

Chair of Session, American Diabetes Association Scientific Sessions, Philadelphia, PA, 2004

Professional Memberships

American Diabetes Association

American Heart Association

American Association for the Advancement of Science

Sigma Xi, The Scientific Research Society

American Society of Biochemistry and Molecular Biology

TEACHING

Courses Directed

NUIP 7850, Graduate Seminar (University of Utah), 2016-present

Molecules to Medicines (Duke-NUS PhD Program), 2013

Cardiovascular Molecular Physiology, Duke-NUS PhD Program, 2014

BLCHM/MBIOL 6100 – Journal Club (Molecular Basis of Metabolic Disease)(University of Utah), 2006

BC493, Senior Seminar (Colorado State University), 2001, 2002

BC465/565, Molecular Regulation of Cell Function (Colorado State University), 2001-2004

BC406C, Cellular Biochemistry Lab (Colorado State University), 2003, 2004

Individual Teaching Sessions

BLCHM 6600, Metabolic Regulation (University of Utah), 2005-2008, 2017-present

Molecules to Medicines, Duke-NUS PhD Program, 2010-2011

Metabolic Basis of Disease (Duke-NUS PhD Program), 2013

Molecules and Cells (Duke-NUS MD Program), 2011-2013

BIO C 6600(1), Metabolic Regulation (University of Utah), 2008

MB6480 Cell Structure and Function, (University of Utah), 2008

MBIOL 6481, Cell Biology II – Signal Transduction (University of Utah), 2008

MB6480, Cell Structure and Function (University of Utah), 2007

BIO C 7500, PharmTox 7500, Signal Transduction (University of Utah), 2007

BIO C 6600(1), Metabolic Regulation (University of Utah), 2007

BLCHM/MBIOL 6100, Journal Club/Grant Writing Course - Lipids as Therapeutics, 2005

CM501, Advanced Cell Biology (Colorado State University), 2003
 BC192, Freshman Seminar (Colorado State University), 2003
 CM501, Advanced Cell Biology (Colorado State University), 2003
 BC192, Freshman Seminar (Colorado State University), 2002
 BC192, Freshman Seminar (Colorado State University), 2001
 BC465 Molecular Regulation of Cell Function (Colorado State University), 2000

Prior Trainees

Postdocs

Bhagirath Chaurasia, 2013-2017 (Assistant Professor, University of Iowa)
 Farada Safadi-Chamberlain 2001-2004 (Assistant Professor, Colorado State University)
 Trina Knotts, 2001-2004 (Research Fellow, UC San Diego)
 M. Mobin Siddique, 2009-2013 (Associate Professor, University of Nottingham, Malaysia)
 Benjamin Bikman, 2010-2012 (Associate Professor with Tenure, Brigham Young University)
 Surya Raichur, 2011-2013 (Senior Scientist, Sanofi)
 Vincent Kaddai, 2014-2016 (Safety Scientist/Writer, United BioSource)

PhD Students

Annelise Poss, PhD, 2018-2022 (postdoctoral fellow, Duke University)
 Trevor Tippetts, PhD, 2016-2021 (postdoctoral fellow, Univ. Texas Southwestern)
 Jose Antonio Chavez, PhD, 1999-2004 (Senior Scientist, Janssen Pharmaceuticals)
 Kyle Hoehn, PhD, 2000 – 2005 (Professor with Tenure, U. New South Wales)
 Will Holland, PhD, 2004 - 2007 (Associate Professor, Tenure Track, U. Utah)

MS Students

Susan Hudachek, MS, 2002 – 2004 (PhD, Colorado State University; patent agent)
 Brian Barth, MS, 2003 – 2005 (PhD, University of Alaska; tenure track faculty member, U. South Dakota)
 Julia Truong, MS, 2003 – 2005 (Insurance Broker, Colorado)
 Yanqi Liu, MS, 2005 – 2008 (MBBS, practicing as a physician in China)
 Krishna Narra, MS, 2005 – 2008 (MBBS, practicing as a physician in the USA)

ORAL PRESENTATIONS

Invited Seminars

University of Alabama at Birmingham, October, 2022
 Virginia Commonwealth University, September, 2022
 British Mass Spectrometry Society, July 2022
 University of California at Berkeley, Berkeley, CA, November 2021
 UTHealth McGovern Medical School, Institute of Molecular Medicine, October 2021
 University of Iowa (virtual), August 2021
 University of Utah, What Is Conference (Virtual), April 2021 ([link](#))
 New York University (virtual), April 2021
 University of Michigan (virtual), April 2021
 University of Pennsylvania (virtual) April 2021
 Beth Israel/Harvard (virtual) February, 2021
 Virginia Tech University, Blacksburg, VA, February 2020
 East Carolina University, Greenville, NC January 2020
 Harold Hamm Diabetes Center Research Symposium, Oklahoma City, OK, November 2019
 Janssen Pharmaceuticals, Spring House, PA, October 2019
 Medical College of Wisconsin, Milwaukee, WI, April 2019
 University of Texas Southwestern, Dallas, TX January 2019
 Pennsylvania State University, State College, PA October 2018
 University of Kentucky, Lexington, KY, September 2018
 JDRF Research Update, Salt Lake City, UT, March 2018
 Brigham Young University, Provo, UT, September 2017
 Pfizer Inc., Cambridge, MA, December 2015

Cornell University Medical School, New York, December 2015
University of Utah, Salt Lake City, UT, December 2015
University of South Australia, Adelaide, Australia, November 2015
Janssen Pharmaceuticals, Palo Alto, CA October 2015
Monash University, Melbourne, VIC, September 2015
Mississippi State University, Starkville, MS, February 2015
University of Utah, Salt Lake City, Utah, December 2014
Saint Louis University, St. Louis, MO, October 2014
Baker IDI Heart and Diabetes Center, October 2015
Charles Perkins Center, University of Sydney, October 2014
Washington University, St. Louis, MO, July 2014
Merck Research Labs, Rahway, New Jersey, June 2014
Institute of Genetics, University of Cologne, Germany, April 2013
Limes Institute, University of Bonn, Germany April 2013
Department of Medicine, Warwick University, Covington, UK, Dec 2012
Baker IDI Heart and Diabetes Institute, October 2011
Garvan Institute of Medical Research, October 2011
Department of Clinical Biochemistry, University of Toronto, May 2011
Touchstone Diabetes Center, University of Texas Southwestern, March 2011
Connexius, Bangalore, India, October 2009
Joslin Diabetes Center, Harvard University, Boston, MA, March 2009
Institute of Exercise and Sports Sciences, University of Copenhagen, Denmark, October 2008
Roche, Nutley, NJ, October, 2008
School of Molecular Metabolism, Odense, Denmark, September 2008
Medical University of South Carolina, Charleston, SC, April 2008
Duke-NUS Graduate Medical School, Singapore, April 2008
Diabetes Center, Albert Einstein College of Medicine, New York, NY, March 2008
Department of Anatomy and Cell Biology, SUNY Downstate, New York, NY, March 2008
Pennington Biomedical Research Center, Louisiana State Univ., Baton Rouge, Louisiana, January 2008
Obesity and Nutrition Research Center, Univ. of Pittsburgh. Pittsburgh, Pennsylvania, December 2007
School of Molecular Metabolism, Odense, Denmark, September 2007
Astra Zeneca, Gothenburg, Sweden, September 2007
Department of Human Nutrition and Exercise, Virginia Tech, Blacksburg, Virginia, September 2007
Division of Preventive Medicine & Nutrition, Columbia University, New York, NY, September 2007
Genzyme, Boston, MA, July 2007
Department of Cell and Molecular Biology, Penn State College of Medicine, Hershey, PA, February 2006
Center for Diabetes Research, Indiana University, Indianapolis, IN December 2006
Amgen-San Francisco, San Francisco, CA, October 2006
Department of Eli Lilly Pharmaceuticals, Indianapolis, IN May 2005.
Department of Chemistry, Colorado State University-Pueblo, March 2005
Eli Lilly Pharmaceuticals, Indianapolis, IN September 2004.
Department of Biochemistry, University of Utah, Salt Lake City, UT, April 2004.
Department of Medicine, University of Utah, Salt Lake City, UT September 2003.
Department of Animal Sciences, Colorado State University, February 2003.
Department of Pharmacology and Cancer Biology, Duke Univ. Medical School, October 2002
Keynote Speaker, REU Summer Research Program, Colorado State University, August 2002
Department of Biology, University of Colorado at Denver, March 2002.
Department of Pharmacology and Toxicology, University of Kansas, February 2002.
Center for Nutrition Research, University of Colorado Health Sciences Center, February 2002.
Department of Pathology, Colorado State University, April 2001.
Department of Endocrinology, Univ. of Colorado Health Sciences Center, December 2000.
Department of Cell and Molecular Biology, University of Wyoming, September 2000.
Center for Nutrition Research, Univ. of Colorado Health Sciences Center, September 1999.
The Picower Institute for Medical Research, June 1999.

Scientific Meetings

European Association for the Study of Diabetes, Stockholm Switzerland, October 2022
Keynote Speaker, Frederickson/NCDRC Conference, Saxapahaw, NC, September 2022
Danish Diabetes Academy, September 2022
Research Day of Cardiovascular/Metabolic Disease, Univ. of New Mexico Health Sciences Center, October 2022
Keynote Speaker, Danish Diabetes Academy, Denmark, September 2022
Keynote Speaker, FASEB Molecular Metabolism Conference. Nova Scotia, CA 2022
2nd Olympiad in Cardiovascular Medicine Int. Sympos. on Exper. & Clinical Cardiology, Greece, April, 2022
Cell Symposium on Metabolites in Signaling and Disease, Lisbon, Portugal, April 2022
10th international Singapore Lipid Symposium (iSLS10) (virtual), March 2022
International Network for Fatty Acid Oxidation Research and Management (INFORM) (virtual), October 2021
Keynote Speaker, Joint 1st ILS 7th Lipidomics Forum Meeting, Regensburg, Germany, October 2021
Experimental Biology (virtual), April 2021
International Ceramide Conference (virtual), April 2021
Keystone Symposia on Lipid Biology (virtual), March 2021
American Diabetes Association, Chicago, June 2020 (given virtually owing to Covid 19 pandemic)
Sciex, Virtual Webinar, May 2020
International Congress on Lipids and Atherosclerosis, Seoul, Korea, September 2019
Finish Atherosclerosis Society, Helsinki, Finland, March 2019
Molecular Medicine of Sphingolipids, Tel Aviv, Israel, October 2018
University of Utah, Diabetes and Metabolism Research Center Retreat, October 2018
EASD-Hagedorn Oxford Workshop on Big Data, Omics, and Bioinformatics in Diabetes, UK, August 2018
Danish Diabetes Academy, Denmark, September 2018
Gordon Research Conference on Glycolipid and Sphingolipid Biology, Galveston, TX, February 2018
Danish Diabetes Academy, Denmark, September 2017
FASEB Science Conference, Glucose Transport – Gateway to Metabolic Systems Biology, July 2017
Mechanisms of Metabolic Signaling, Cold Spring Harbor, New York, May 2017
Metabolic Signaling Symposium, Melbourne, Australia, December 2016
World Diabetes Federation – Western Pacific Region, Taiwan, November 2016
Molecular Medicine of Sphingolipids, French Lick, IN, September 2016
Danish Diabetes Academy, Denmark, September 2016
Danish Diabetes Academy, Malaga, Spain, March 2016
Gordon Research Conference on Glycolipid and Sphingolipid Biology, Il Ciocco, Italy, March, 2016
FASEB Science Research Conference on Glucose Transporter Biology, Big Sky, MO July 2015
American Diabetes Association, Boston, MA June 2015
International Ceramide Conference, Izmir, Turkey, May 2015
Keystone Symposium on Lipid Pathways in Biology and Disease, Dublin, Ireland, May 2014
Gordon Conference on Sphingolipid and Glycolipid Biology, Ventura, CA, January 2014
Asia Pacific Diabetes and Obesity Meeting, Tokyo, Japan, October 2013
FASEB Summer Conference on Glucose Transporter Biology, Snowmass, CO, August 2013
Cold Spring Harbor Asia Symposium on Metabolism, Obesity, and Metabolic Diseases, Suzhou, China May 2013
Asia Pacific Obesity and Diabetes, Hong Kong, April 2013
Herrenhausen Symposium on Metabolic Disease, Germany, April 2013
International Diabetes Foundation, World Diabetes Conference, March, 2013
International Ceramide Conference, Switzerland, March 2011
Several FASEB Summer Conference on Glucose Transporter Biology, Snowmass, CO, August 2011
Keystone Symposia on Lipid Biology and Lipotoxicity, Killarney, Ireland, May 2011
Korean Diabetes Foundation, November, 2010
Singapore Lipid Symposium, Singapore, March 2010
Keynote Speaker, Japanese Society for the Study of Ceramides, Sapporo, Japan, November 2009
FASEB Summer Conference on Glucose Transporter Biology, Lucca, Tuscany, Italy, September 2009
International Conference on the Bioscience of Lipids, Regensburg, Germany, September 2009.
American College of Sports Medicine Conference, Seattle, Washington, May 2009
Minerva Jubilee Symposium, Helsinki, Finland, April, 2009

Stock Obesity Conference, Cairns, Australia, April, 2009
Keystone Symposium, Metabolism and Cardiovascular Risk, Breckenridge, CO, September 2008
Mexican Society of Endocrinology, Aguascalientes City, Mexico, November 2007
FASEB Summer Conference on Glucose Transporter Biology, Snowmass, CO, July 2007.
Keynote Speaker, Metabolic Diseases Drug Discovery Summit, La Jolla, CA, July 2007
American Diabetes Association, Chicago, IL, June 2007
International Symposium on Insulin Receptors and Insulin, Stockholm, Sweden, May 2007
Stock Obesity Conference, Bangkok, Thailand, March, 2007
Nestle Nutrition Conference, Mexico City, MX November, 2006
Glycolipid and Sphingolipid Biology Gordon Conference, Ventura, CA, January 2006
Charleston Ceramide Conference, Charleston, SC March 2005
FASEB Summer Conference on Glucose Transporter Biology, Snowmass, CO, August 2003.
Charleston Ceramide Conference, Como, Italy, June, 2003.
Glycolipid and Sphingolipid Biology Gordon Conference, Ventura, CA, January 2002.
Charleston Ceramide Conference, Charleston, SC, November 2001.
Clinical Scholar's Meeting, Aspen, CO, September 2001.
FASEB Summer Conference on Glucose Transporter Biology, Snowmass, CO, July 1999.
Mid-Atlantic Diabetes Research Symposium, NIH, Bethesda, MD, September 1998.
Mid-Atlantic Diabetes Research Symposium, NIH, Bethesda, MD, September 1997.
Molecular and Cellular Biology Retreat, Carbondale, IL, October 1994.
Biological Transport Group Meeting, Jamestown, KY, June 1994.
Biological Transport Group Meeting, Jamestown, KY, June 1993.
Biological Transport Group Meeting, Jamestown, KY, June 1992.

PATENTS

Scott A. Summers. Methods and Compositions Related to Inhibition of Ceramide Synthesis. US Patent Application 2010048714. February 25, 2010.

MEDIA APPEARANCES

[Centaurus: inhibiting ceramide synthesis for cardiometabolic disease](#), Biocentury, December 2019
[People with high ceramide levels up to four times more likely to have heart attacks, stroke](#), UofUHealth, December 2019
[A small chemical change reverses prediabetes in obese mice](#), News Live, July 2019
[Subtle chemical shift reverses prediabetes in Merck-partnered mouse trial](#), FieceBiotech, July 2019.
Reposted on [Daily Herald](#)s.
[Gene editing can reverse prediabetes in mice](#), Nutrition Insight, July 2019
[U researchers make tiny change in metabolism of mice, reverse prediabetes](#), KSL, July 2019
[Potential Diabetes Target Makes Subtle Changes with Big Impact on Metabolic Health](#), Genetic Engineering and Biotechnology News, July 2019
[Tiny Change Has Big Effects, Reverses Prediabetes in Mice](#), Press Release, U Health, July 2019
Re-posted on [U News](#), [Science Codex](#), [Machikoni](#), [Science Blog](#), [Health Medicine Network](#), [Science Daily](#)
[Researchers reverse prediabetes in mice through enzyme deactivation - Drug Target Review](#), Drug Target Review, July 2019. Reposted on [Centre Daily Times](#)
[Scientists reverse prediabetes in mice by deactivating and enzyme](#), MyHealthyClick, July 2019
[Imagining a World Without Diabetes](#), June, 2019
[World Diabetes Day](#), November, 2019
[Keynote, Finnish Atherosclerosis Society](#), Finland, March, 2019
[Introducing Scott Summers](#), Danish Diabetes Academy. September, 2018
[A teenager's promise could lead to new drugs for diabetics](#). KSL. November, 2017
[Finding A Cure for Diabetes](#), Top of Mind radio show with Julie Rose, April, 2017

- [A Ceramide Twist to the Diabetes Tale](#), Diabetes Weekly, March, 2017
[The Scientist Harnessing 'Toxic Fat.'](#) Atlantic Magazine, March, 2017
[Algorithms for Innovation – Cures.](#) September, 2016.
[Buildup of “Toxic Fat” Metabolite Could Explain Why Some Thin People Are Prone to Diabetes](#), Utah Health Sciences Radio, November, 2016
[Utah Researchers Developing Preventative Type 2 Diabetes Drug](#), KSL television, March 2007

PUBLICATIONS (17,000+ CITATIONS)

1. Wandel S, Schurmann A, Becker W, Summers SA, Shanahan MF and Joost HG (1994) Substitution of conserved tyrosine residues in helix 4 (Y143) and 7 (Y293) affects the activity, but not IAPS-forskolin binding, of the glucose transporter GLUT4. *FEBS Letters* 348(2), 114-8
2. Wandel S, Schurmann A, Becker W, Summers SA, Shanahan MF and Joost HG (1995) Mutation of two conserved arginine residues in the glucose transporter GLUT4 suppresses transport activity, but not glucose-inhibitable binding of inhibitory ligands. *Naunyn Schmiedeberg's Archives in Pharmacology* 353(1), 36-41
3. Wandel S, Buchs A, Schurmann A, Summers SA, Powers AC, Shanahan MF and Joost HG (1996) Glucose transport activity and ligand binding (cytochalasin B, IAPS-forskolin) of chimeric constructs of GLUT2 and GLUT4 expressed in COS-7-cells. *Biochimica Biophysica Acta* 1284(1), 56-62
4. Summers SA, Guebert BA and Shanahan MF (1996) Polyphosphoinositide inclusion in artificial lipid bilayer vesicles promotes divalent cation-dependent membrane fusion. *Biophysical Journal* 71(6), 3199-206
5. Kohn AD, Summers SA, Birnbaum MJ and Roth RA (1996) Expression of a constitutively active Akt Ser/Thr kinase in 3T3-L1 adipocytes stimulates glucose uptake and glucose transporter 4 translocation. *Journal of Biological Chemistry* 271(49), 31372-8
6. Summers SA and Birnbaum MJ (1997) A role for the serine/threonine kinase, Akt, in insulin-stimulated glucose uptake. *Biochemical Society Transactions* 25(3), 981-8
7. Kohn AD, Barthel A, Kovacina KS, Boge A, Wallach B, Summers SA, Birnbaum MJ, Scott PH, Lawrence JC Jr. and Roth RA (1998) Construction and characterization of a conditionally active version of the serine/threonine kinase Akt. *Journal of Biological Chemistry* 273(19), 11937-43
8. Summers SA, Lipfert L and Birnbaum MJ (1998) Polyoma middle T antigen activates the Ser/Thr kinase Akt in a PI3-kinase-dependent manner. *Biochemical Biophysical Research Communications* 246(1), 76-81
9. Zhou H, Summers SA, Birnbaum MJ and Pittman RN (1998) Inhibition of Akt kinase by cell-permeable ceramide and its implications for ceramide-induced apoptosis. *Journal of Biological Chemistry* 273(26), 16568-75
10. Summers SA, Garza LA, Zhou H and Birnbaum MJ (1998) Regulation of insulin-stimulated glucose transporter GLUT4 translocation and Akt kinase activity by ceramide. *Molecular and Cellular Biology* 18(9), 5457-64
11. Kallen CB, Billheimer JT, Summers SA, Stayrook SE, Lewis M and Strauss JF 3rd (1998) Steroidogenic acute regulatory protein (StAR) is a sterol transfer protein. *Journal of Biological Chemistry* 273(41), 26285-8
12. Summers SA, Kao AW, Kohn AD, Backus GS, Roth RA, Pessin JE and Birnbaum MJ (1999) The role of glycogen synthase kinase 3 β in insulin-stimulated glucose metabolism. *Journal of Biological Chemistry* 274(25), 17934-40
13. Summers SA, Yin VP, Whiteman EL, Garza LA, Cho H, Tuttle RL and Birnbaum MJ (1999) Signaling pathways mediating insulin-stimulated glucose transport. *Annals of the New York Academy of Science* 892, 169-86
14. Summers SA, Whiteman EL, Cho H, Lipfert L and Birnbaum MJ (1999) Differentiation-dependent suppression of platelet-derived growth factor signaling in cultured adipocytes. *Journal of Biological Chemistry* 274(34), 23858-67
15. Hausdorff SF, Fingar DC, Morioka K, Garza LA, Whiteman EL, Summers SA and Birnbaum MJ (1999)

- Identification of wortmannin-sensitive targets in 3T3-L1 adipocytes Dissociation of insulin-stimulated glucose uptake and Glut4 translocation. *Journal of Biological Chemistry* 274(35), 24677-84
16. Cass LA, Summers SA, Prendergast GV, Backer JM, Birnbaum MJ and Meinkoth JL (1999) Protein kinase A-dependent and -independent signaling pathways contribute to cyclic AMP-stimulated proliferation. *Molecular and Cellular Biology* 19(9), 5882-91
 17. Summers SA, Whiteman EL and Birnbaum MJ (2000) Insulin signaling in the adipocyte. *International Journal of Obesity and Related Metabolic Disorders* 24, S67-70
 18. Stratford S, DeWald DB and Summers SA (2001) Ceramide dissociates 3'-phosphoinositide production from pleckstrin homology domain translocation. *Biochemical Journal* 354, 359-68
 19. Ho RC, Davy KP, Hickey MS, Summers SA and Melby CL (2002) Behavioral, metabolic, and molecular correlates of lower insulin sensitivity in Mexican-Americans. *American Journal of Physiology – Endocrinology and Metabolism* 283(4), E799-808
 20. Hoehn KL and Summers SA (2003) Assaying AKT/protein kinase B activity. *Methods in Molecular Medicine* 83, 137-44
 21. Wang LP and Summers SA (2003) Measuring insulin-stimulated phosphatidylinositol 3-kinase activity. *Methods in Molecular Medicine* 83, 127-36
 22. Chavez JA, Knotts TA, Wang LP, Li G, Dobrowsky RT, Florant GL and Summers SA (2003) A role for ceramide, but not diacylglycerol, in the antagonism of insulin signal transduction by saturated fatty acids. *Journal of Biological Chemistry* 278(12), 10297-303
 23. Chavez JA and Summers SA (2003) Characterizing the effects of saturated fatty acids on insulin signaling and ceramide and diacylglycerol accumulation in 3T3-L1 adipocytes and C2C12 myotubes. *Archives in Biochemistry and Biophysics* 419(2), 101-9
 24. Hoehn KL, Hudachek SF, Summers SA and Florant GL (2004) Seasonal, tissue-specific regulation of Akt/protein kinase B and glycogen synthase in hibernators. *American Journal of Physiology – Regulatory, Integrated, and Comparative Physiology* 286(3), R498-504
 25. Stratford S, Hoehn KL, Liu F and Summers SA (2004) Regulation of insulin action by ceramide: dual mechanisms linking ceramide accumulation to the inhibition of Akt/protein kinase B. *Journal of Biological Chemistry* 279(35), 36608-15
 26. Florant GL, Porst H, Peiffer A, Hudachek SF, Pittman C, Summers SA, Rajala MW and Scherer PE (2004) Fat-cell mass, serum leptin and adiponectin changes during weight gain and loss in yellow-bellied marmots (*Marmota flaviventris*). *Journal of Comparative Physiology* 174(8), 633-9
 27. Safadi-Chamberlain F, Wang LP, Payne SG, Lim CU, Stratford S, Chavez JA, Fox MH, Spiegel S and Summers SA (2005) Effect of a membrane-targeted sphingosine kinase 1 on cell proliferation and survival. *Biochemical Journal* 388, 827-34
 28. Summers SA, Nelson DH (2005) A role for sphingolipids in producing the common features of type 2 diabetes, metabolic syndrome X, and Cushing's syndrome. *Diabetes* 54(3), 591-602
 29. Chavez JA, Holland WL, Bar J, Sandhoff K, Summers SA (2005) Acid ceramidase overexpression prevents the inhibitory effects of saturated fatty acids on insulin signaling. *Journal of Biological Chemistry* 280(20), 20148-53
 30. Summers SA (2006) Ceramides in insulin resistance and lipotoxicity. *Progress in Lipid Research* 45(1), 42-72
 31. Hoehn, KL, Holland, WL, Knotts, TA and Summers SA (2006) The etiology of obesity-induced insulin resistance. In George T Ulrig (Ed), *Progress in Metabolic Syndrome Research* (pp 37-73) Hauppauge, NY: Nova Science Publishers, Inc
 32. Arbiser JL, Kau T, Konar M, Narra K, Ramchandran R, Summers SA, Vlahos CJ, Ye K, Perry BN, Matter W, Fischl A, Cook J, Silver PA, Bain J, Cohen P, Whitmire D, Furness S, Govindarajan B and Bowen JP (2007) Solenopsin, the alkaloidal component of the fire ant (*Solenopsis invicta*), is a naturally occurring inhibitor of

- phosphatidylinositol-3-kinase signaling and angiogenesis. *Blood* 109(2), 560-5
33. Holland WL, Knotts TA, Chavez JA, Wang LP, Hoehn KL and Summers SA (2007) Lipid mediators of insulin resistance. *Nutrition Reviews* 65, S39-46
 34. Holland WL, Brozinick JT, Wang LP, Hawkins ED, Sargent KM, Liu Y, Narra K, Hoehn KL, Knotts TA, Siesky A, Nelson DH, Karathanasis SK, Fontenot GK, Birnbaum MJ and Summers SA (2007) Inhibition of ceramide synthesis ameliorates glucocorticoid-, saturated-fat-, and obesity-induced insulin resistance. *Cell Metabolism* 5(3), 167-79
 35. Holland WL and Summers SA (2008) Sphingolipids, insulin resistance and metabolic disease: new insights from in vivo manipulation of sphingolipid synthesis. *Endocrine Reviews* 29(4), 381–402
 36. Fujii N, Ho RC, Manabe Y, Jessen N, Toyoda T, Holland WL, Summers SA, Hirshman MF and Goodyear LJ (2008) Ablation of AMP-activated protein kinase α 2 activity exacerbates insulin resistance induced by high-fat feeding of mice diabetes. 57(11), 2958-66
 37. Summers SA (2009) Conference Scene: 50th International Conference on the Bioscience of Lipids. *Clinical Lipidology* 4(6) 713-719
 38. Chavez JA and Summers SA (2010) Lipid oversupply, selective insulin resistance, and lipotoxicity: molecular mechanisms. *Biochimica Biophysica Acta* 1801(3), 252-265
 39. Bikman B and Summers SA (2010) Sphingolipids and hepatic steatosis. In Ashley Cowert (Ed), *Sphingolipids and Metabolic Disease*. *Advances in Experimental Medical Biology* 721, 87-97
 40. Summers SA (2010) Sphingolipids and insulin Resistance: the five Ws. *Current Opinion in Lipidology* 21(2), 128-35
 41. Holland WL, Miller R, Wang ZV, Barth, B, Bui, HH, Halberg, N, Davis, KE, Wade, M, Kuo, M-S, Brozinick, JT, Zhang, BB, Birnbaum, MJ, Summers, SA and Scherer PE (2011) A unifying mechanism for adiponectin Action: the pleiotropic actions of adiponectin are mediated via receptor-mediated activation of neutral ceramidase activity. *Nature Medicine* 17(1), 55-63
 42. Holland WL, Bikman BT, Wang L-P, Sargent KM, Knotts TA, Shui G, Wenk MR, Pagliassotti MJ and Summers SA (2011) Lipid-induced insulin resistance mediated by the proinflammatory receptor TLR4 requires saturated fatty acid-induced ceramide biosynthesis in mice. *Journal of Clinical Investigation* 121(5), 1858-70
 43. Bikman BT and Summers SA (2011) Ceramides as modulators of cellular and whole-body metabolism. *Journal of Clinical Investigation* 11, 4222-4230
 44. Bikman BT, Guan Y, Shui G, Siddique MM, Holland WL, Kim JY, Fabrias G, Wenk MR and Summers SA (2012) Fenretinide prevents lipid-induced insulin resistance by blocking ceramide biosynthesis. *Journal of Biological Chemistry* 287(21), 17426-37
 45. Sinha RA, You SH, Zhou J, Siddique MM, Bay BH, Zhu X, Privalsky ML, Cheng SY, Stevens RD, Summers SA, Newgard CB, Lazar MA and Yen PM (2012) Thyroid hormone stimulates hepatic lipid catabolism via activation of autophagy. *Journal of Clinical Investigation* 122 (7), 2428-38
 46. Zhang QJ, Holland WL, Wilson L, Tanner JM, Kearns D, Cahoon JM, Pettey D, Losee J, Duncan B, Gale D, Kowalski CA, Deeter N, Nichols A, Deesing M, Arrant C, Ruan T, DR, Rou J, Boehme C, McCamey Ambal K, Narra KK, Summers SA, Abel ED and Symons JD (2012) Ceramide mediates vascular dysfunction in diet-induced obesity by PP2A-mediated dephosphorylation of the eNOS-Akt complex. *Diabetes* 61(7), 1848-59
 47. Chavez JA and Summers SA (2012) A ceramide-centric view of insulin resistance and lipotoxicity. *Cell Metabolism* 15(5), 585-94
 48. Siddique MM, Bikman BT, Wang L-P, Shui G, Wenk MR and Summers SA (2012) Ablation of dihydroceramide desaturase confers resistance to etoposide-induced apoptosis. *PLOS ONE* 7(9), e44042
 49. Kolak M, Gertow J, Westerbacka J, Summers SA, Liska J, Franco-Cereceda A, Orešic M, Yki-Järvinen H, Eriksson P and Fisher RM (2012) Expression of ceramide-metabolising enzymes in subcutaneous and intra-

- abdominal human adipose tissue. *Lipids in Health and Disease* 11, 115
50. Siddique MM and Summers SA (2012) Lipids and disease. In Kim Ekroos (ed.), *Lipidomics, Technologies and Applications* (pp 175 – 195) Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim, Germany.
 51. Siddique MM, Ying L, Wang L-P, Ching J, Mal M, Ilkayeva O, Ya JW, Boon HB and Summers SA (2013) Ablation of dihydroceramide desaturase 1, a therapeutic target for the treatment of metabolic diseases, simultaneously stimulates anabolic and catabolic signaling. *Molecular and Cellular Biology* 33, 2353-2369
 52. Chua EC, Shui G, Lee IT, Lau P, Tan LC, Yeo SC, Lam BD, Bulchand S, Summers SA, Puvanendran K, Rozen SG, Wenk MR and Gooley JJ (2013) Extensive diversity in circadian regulation of plasma lipids and evidence for different circadian metabolic phenotypes in humans. *Proceedings of the National Academy of Sciences USA* 110(35), 14468-73
 53. Sinha RA, Farah BL, Singh BK, Siddique MM, Li Y, Wu Y, Ilkayeva OR, Gooding J, Ching J, Zhou J, Martinez L, Xie S, Bay BH, Summers SA, Newgard CB and Yen PM (2013) Caffeine stimulates hepatic lipid metabolism via autophagy-lysosomal pathway. *Hepatology* 59(4),1366-80.
 54. Chavez JA, Siddique MM, Wang ST, Ching J, Shayman JA, and Summers SA (2014) Ceramides and Glucosylceramides are Independent Antagonists of Insulin Signaling. *Journal of Biological Chemistry* 289(2),723-34
 55. Raichur S, Wang ST, Chan PW, Li Y, Ching J, Chaurasia B, Dogra S, Öhman M, Takeda K, Sugii S, Pewzner-Jung Y, Futerman AH, Summers SA (2014) Increases in C16:0 Ceramides Resulting From CerS2 Haploinsufficiency Inhibits β -Oxidation and Confers Susceptibility to Diet-Induced Steatohepatitis and Insulin Resistance. *Cell Metabolism* 20(4), 687-95
 56. Sukarieh R, Joseph R, Leow SC, Li Y, Löffle M, Aris IM, Tan JH, Teh AT, Chen L, Holbrook JD, Ng KL, See YS, Chong YS, Summers SA, Gluckman PD, and Stünkel W. (2014) Molecular pathways reflecting poor intrauterine growth are found in Wharton's jelly derived Mesenchymal Stem Cells. *Human Reproduction* 29(1), 2287-2301
 57. Barbarroja N, Rodriguez-Cuenca A, Nygren H, Camargo, Pirraco A, Relat J, Cuadrado I, Pellegrinelli V, Medina-Gomez G, Lopez-Pedrerera C, Tinahones FJ, Symons JD, Summers SA, Oresic M, and Vidal-Puig A (2015) Increased dihydroceramide/ceramide ratio mediated by defective expression of *degs1* impairs adipocyte differentiation and function *Diabetes* 64(4),1180-92
 58. Teh JT, Zhu WL, Ilkayeva OR, Li Y, Gooding J, Casey PJ, Summers SA, Newgard CB, Wang M. (2015) Isoprenylcysteine carboxylmethyltransferase regulates mitochondrial respiration and cancer cell metabolism. *Oncogene* 34(25), 3296-304
 59. Goodspeed D, Seferovic MD, Holland, WL, Mcknight R, Summers SA, Branch DW, Lane RH, Aagaard KM. (2014) Essential Nutrient Supplementation Prevents Heritable Metabolic Disease in Multi-generational Intrauterine Growth Restricted Rats. *FASEB* 29(3), 80-819
 60. Siddique M, Li Y, Chaurasia B, Kaddai V and Summers SA (2015) Dihydroceramides – From bit players to lead actors. *Journal of Biological Chemistry* 290(25), 15371-9
 61. Summers SA (2015) The ART of lowering ceramides. *Cell Metabolism* 22(2), 195-6
 62. Bharath L, Ruan T, Li Y, Ravindran A, Wan X, Nhan J, Walker M, Deeter L, Goodrich R, Johnson E, Munday D, Mueller R, Kunz D, Jones D, Reese V, Summers S, Babu PV, Holland W, Zhang Q-J, Abel E, Symons JD (2015) Ceramide initiated protein phosphatase 2A activation contributes to arterial dysfunction in vivo. *Diabetes* 64(11):3914-26
 63. Chaurasia B and Summers SA (2015) Ceramides—Lipotoxic inducers of metabolic disorders. *Trends in Endocrinology and Metabolism* 26(10):538-50
 64. Lee MH, Goralczyk AG, Kriszt R, Ang XM, Badowski, Li Y, Summers SA, Toh S-A, Yassin MS, Shabbir A, Sheppard A, Raghunath M (2016) ECM microenvironment unlocks brown adipogenic potential of adult human bone marrow-derived MSCs. *Scientific Reports* 6, 21173

65. Summers SA and Goodpaster B (2016) CrossTalk Proposal: Intramyocellular ceramides do cause insulin resistance. *Journal of Physiology* 594(12), 316703170
66. Summers SA and Goodpaster B (2016) Rebuttal to CrossTalk Proposal: Intramyocellular ceramides do not cause insulin resistance. *Journal of Physiology* 594(12), 3167-3170
67. Park M, Kaddai V, Ching J, Fridianto KT, Sieli RJ, Sugii S, Summers SA (2016) Role for Ceramides, but NOT Sphingomyelins, as antagonists of insulin signaling and mitochondrial metabolism in C2C12 myotubes. *Journal of Biological Chemistry* 291 (46), 23978-23988
68. Chaurasia B, Kaddai VA, Lancaster GL, Henstridge DC, Srirah S, Galam DAL, Gopalan, V, BPrakash KNB, Velan SS, Bulchand S, Tson TJ, Wang M, Siddique MM, Yuguang G, Sigmundsson K, Mellet NA, Weir JM, Meikle PJ, Shabeeer BMMY, Shabbir A, Shayman JA, Hirabahashi Y, Shio SATE, Sugii S, and Summers SS (2016) Adipocyte ceramides regulate subcutaneous adipose browning, inflammation and metabolism. *Cell Metabolism* 24(6), 820-843
69. Meikle PJ and Summers SA (2017) Sphingolipids and phospholipids in insulin resistance and related metabolic disorders. *Nature Reviews in Endocrinology and Metabolism* 13(2), 79-91
70. Liu JJ, Ghosh S, Kovalik JP, Ching J, Choi HW, Tavintharan S, Ong CN, Sum CF, Summers SA, Tai ES, Lim SC (2017) Profiling of plasma metabolites suggests altered mitochondrial fuel usage and remodeling of sphingolipid metabolism in individuals with type 2 diabetes and kidney disease. *Kidney International Reports* 2(3), 470-480.
71. Summers SA (2018) Could ceramides become the new cholesterol? *Cell Metabolism* 27(2):276-280
72. An J, Wang LP, Patnode ML, Ridaura VK, Haldeman JM, Stevens RD, Ilkayeva O, Bain JR, Muehlbauer MJ, Glynn E, Thomas S, Muoio D, Summers SA, Vath JE, Hughes TE, Gordon JI, and Newgard CB (2018) Physiological mechanisms of sustained fumagillin-induced weight loss. *JCI Insight* 3(5).
73. Chaurasia B, Holland WL, Summers SA (2018) Does this Schlank make me look fat. *Trends in Endocrinology and Metabolism* 29(9), 597-599
74. Holland WL and Summers SA (2018) Strong Heart, Low Ceramides. *Diabetes* 67(8), 1457-1460
75. Tippetts TS, Holland WL, and Summers SA (2018) The Ceramide Ratio: A Predictor of Cardiometabolic Risk. *Journal of Lipid Research* 59(9), 1549-1550
76. de Carvalho LP, Tan SH, Ow GS, Tang Z, Ching J, Kovalik JP, Poh SC, Chin CT, Richards AM, Martinez EC, Troughton RW, Fong AY, Yan BP, Seneviratna A, Sorokin V, Summers SA, Kuznetsov VA, Chan MY. (2018) Plasma Ceramides as Prognostic Biomarkers and Their Arterial and Myocardial Tissue Correlates in Acute Myocardial Infarction. *JACC Basic and Translational Science* 3(2), 163-175
77. Cai J, Pires KM, Ferhat M, Chaurasia B, Buffolo MA, Smalling R, Sargsyan A, Atkinson DA, Summers SA, Graham TE, and Boudina S (2018) Ablation of autophagy machinery in mature adipocytes induces insulin resistance and reveals new roles for lipid peroxides and Nrf2 signaling in adipose-liver crosstalk. *Cell Reports* 25(7), 1708-1717
78. Wilkerson JL, Summers SA, and Holland WL (2019) Listen to your heart when ceramide's calling for higher glucose. *EBioMedicine* (in press)
79. Kiser PD, Kolesnikov AV, Kiser JZ, Dong Z, Chaurasia B, Wang L, Summers SA, Hoang T, Blackshaw S, Peachey NS, Kefalov VJ, Palczewski K. (2019) Conditional deletion of Des1 in the mouse retina does not impair the visual cycle in cones. *FASEB J.* 33(4), 5782-5792
80. Chaurasia B, Tippetts T, Monibas R, Liu J, Li Y, Wang L, Wilkerson J, Sweeney C.R, Pereira R, Sumida D, Maschek J. A., Cox J, Kaddai V, Lancaster G, Siddique M, Poss A, Pearson M, Satapati S, Zhou H, McLaren D, Previs S, Chen Y, Qian Y, Petrov A, Wu M, Shen X, Yao J, Nunes C, Howard A, Wang L, Erion M, Rutter J, Holland W, Kelley D, and Summers S. A. (2019) Targeting a Ceramide Double Bond Improves Insulin Resistance and Hepatic Steatosis. *Science* 365, 386-392

81. Karanth S, Chaurasia B, Bowman F, Tippetts T, Holland WL, Summers SA, and Schlegel A (2019) FOXN3 controls liver glucose metabolism by regulating gluconeogenic substrate selection. *Physiological Reports* 7 (18), e14238
82. Verkerke ARP, Ferrara PJ, Lin C-T, Johnson JM, Ryan TE, Maschek JA, Eshima H, Paran CW, Laing BT, Siripoksup P, Tippetts TS, Wentzler EJ, Huang H, Spangenburg EE, Brault JJ, Villanueva CJ, Summers SA, Holland WL, Cox JE, Vance DE, Neuffer PD. and Funai K (2019) Phospholipid methylation regulates muscle metabolic rate through Ca²⁺ transport efficiency. *Nature Metabolism* 9, 876-885
83. Poss AM, Holland WL, Summers SA (2019) Risky Lipids. Refining the Ceramide Score that Measures Cardiovascular Health. *European Heart Journal* (in press)
84. Summers SA, Chaurasia B, and Holland WL (2019) Metabolic Messengers: Ceramides. *Nature Metabolism* 1, 1051–1058
85. Poss AM, Maschek JA, Cox JE, Hauner BJ, Hopkins PN, Hunt SC, Holland WL, Summers SA*, and Playdon MC* (2019) Machine Learning Reveals Serum Sphingolipids as Cholesterol-Independent Biomarkers of Coronary Artery Disease. *Journal of Clinical Investigation* (in press) **The last two authors contributed equally*
86. Summers SA (2020) Ceramides: Nutrient Signals that Drive Hepatosteatosis. *Journal of Lipid and Atherosclerosis* 9(1), 50-65.
87. McKenzie AI, Reidy PT, Nelson DS, Mulvey JL, Yonemura NM, Petrocelli JJ, Mahmassani ZS, Tippetts TS, Summers SA, Funai K, Drummond MJ. (2020) Pharmacological inhibition of TLR4 ameliorates muscle and liver ceramide content after disuse in previously physically active mice. *Am J Physiol Regul Integr Comp Physiol.* 318(3):R503-R511
88. Reidy PT, Mahmassani ZS, McKenzie AI, Petrocelli JJ, Summers SA, and Drummond MJ (2020) Influence of Exercise Training on Skeletal Muscle Insulin Resistance in Aging: Spotlight on Muscle Ceramides. *Int J Mol Sci.* 21(4)
89. Petrocelli JJ, McKenzie AI, Mahmassani ZS, Reidy PT, Stoddard GJ, Poss AM, Holland WL, Summers SA, Drummond MJ (2020) Ceramide biomarkers predictive of cardiovascular disease risk increase in healthy older adults after bed rest. *Journal of Gerontology* 75 (9), 1663-1670
90. Funai K, Summers SA, Rutter JA (2020) Reign in the Membrane: How common lipids govern mitochondrial function. *Current Opinion in Cell Biology.* *Current Opinion in Cell Biology* 63:162-173
91. Woodruff K, Clark L, Joy E, Summers SA, Metos JM, Clark N, Jordan KC. (2020) An Interpretive Description of Women's Experience in Coordinated, Multidisciplinary Treatment for an Eating Disorder. *Glob Qual Nurs Res.* 7,e2333393620913271
92. Charron M, Williams L, Seki Y, Du X, Chaurasia B, Saghatelian A, Summers SA, Katz E, Vuguin P, Reznik S (2020) Antioxidant effects of N-acetylcysteine prevent programmed metabolic disease in mice. *Diabetes* 39 (5), 733-737.
93. Blitzer J, Wang L, and Summers SA (2020) DES1: A key driver of lipotoxicity in metabolic disease *DNA and Cell Biology* 5, 733-737.
94. Poss A and Summers SA (2020) Too Much of a Good Thing? An Evolutionary Theory to Explain the Role of Ceramides in NAFLD. *Frontiers in Endocrinology.* 11, e505.
95. Chaurasia B, Talbot C, and Summers SA (2020) Adipocyte Ceramides -The Nexus of Inflammation and Metabolic Disease. *Frontiers in Immunology* 11:e576347.
96. Panic V, Pearson S, Banks J, Tippetts TS, Velasco-Silva JN, Lee S, Simcox J, Geoghegan G, Bensard CL, Ry TV, Holland WL, Summers SA, Cox J, Ducker GS, Rutter J, Villanueva CJ (2020) Mitochondrial pyruvate carrier is required for optimal brown fat thermogenesis. *eLife* (e52558)
97. Chaurasia B and Summers SA. (2020) Ceramides in Metabolism: Key Lipotoxic Players. *Annual Reviews of Physiology* 83:303-330.

98. Chaurasia B, Li Y, Talbot CL, Maschek JA, Cox J, Schuchman EH, Hirabayashi Y, Holland WL, Summers SA (2021) Ceramides are necessary and sufficient for diet-induced impairment of brown adipose tissue. *Molecular Metabolism* 45, 101145.
99. Nicholson RJ, Pezzolesi MG, Summers SA (2021) Rotten to the Cortex: Ceramide-mediated lipotoxicity in diabetic kidney disease. *Frontiers in Endocrinology* 11, 622692
100. Choi RH, Tatum SM, Symons JD, Summers SA, and Holland WL. (2021) Ceramides and other sphingolipids as drivers of cardiovascular disease. *Nature Reviews Cardiology* 10, 701-711
101. Nicholson RJ, Poss AM, Maschek JA, Cox JE, Hunt SC, Holland WL, and Summers SA (2021) Characterizing a common CERS2 polymorphism in a mouse model of metabolic disease and in subjects from the Utah CAD Study. *Journal of Clinical Endocrinology and Metabolism* 106(8), e3098-e3109.
102. Summers, SA (2021) Editorial: The Role of Ceramides in Diabetes and Cardiovascular Disease. *Frontiers in Endocrinology* 12, 667885
103. Nicholson RJ, Ramkumar N, Summers SA (2021) Gain of 'FAOnction', Loss of Fibrosis. 32(6), 333-334
104. Li Y, Summers SA, Holland WL (2021) Gutting out Myc to Lower Ceramides. *Nature Metabolism*. 3(7), 890-891
105. Tippetts TS, Holland WL, Summers SA (2021) Cholesterol, the Devil you Know; Ceramide, the Devil you Don't. *Trends in Pharmacological Sciences* 42 (12), 1082-1095
106. Li Y, Nicholson R, Summers SA (2022) Ceramide Signaling in the Gut. *Molecular and Cellular Endocrinology*
107. Varre JV, Holland WL, Summers SA (2022) You aren't IMMUNE to the ceramides that accumulate in cardiometabolic disease. *Biochim Biophys Acta Mol Cell Biol Lipids*
108. Castell AL, Vivoli A, Tippetts TS, Frayne IR, Angeles ZE, Moullé VS, Campbell SA, Ruiz M, Ghislain J, Rosiers CD, Holland WL, Summers SA, Poitout V. (2022) Very Long-Chain Unsaturated Sphingolipids Mediate Oleate-Induced Rat β -Cell Proliferation. *Diabetes*. Mar 14;db210640. doi: 10.2337/db21-0640.
109. McKenzie AI, Mahmassania ZS, Petrocellia JJ, de Hart NM, Fix DK, Ferrara PJ, LaStayo PC, Marcus RL, Rondina MT, Summers SA, Johnson JM, Trinity JD, Funai K, Drummond MJ (2022) Short-term exposure to a clinical dose of metformin increases skeletal muscle mitochondrial H₂O₂ emission and production in healthy, older adults: A randomized controlled trial. *Experimental Gerontology* 163, 111804
110. Li Y, Talbot CL, Chandravanshi B, Chowdhury KH, Maschek JA, Cox J, Babu AKS, Paz HA, Babu PVA, Meyerholz DK, Wankhade UD, Holland WL, Summers SA, Chaurasia B. (2022) Cordyceps inhibits ceramide biosynthesis and improves insulin resistance and hepatic steatosis. *Scientific Reports*
111. Poss AM, Krick B., Maschek JA, Haaland B., Cox JE, Karra P, Ibele AR, Hunt SC, Adams TD, Playdon MC, Holland WL, and Summers SA (2022) Following Roux-en-Y gastric bypass surgery, high serum ceramides demarcate patients that will fail to achieve sustained normoglycemia and diabetes remission. *Med (NY)* 3(7), 452-467
112. Winn M, Karra P, Haaland B, Doherty JA, Summers SA, Litchman ML, Gunter MJ, Playdon MC, and Hardikar S (2022) Metabolic dysfunction and obesity-related cancer: Results from the cross-sectional National Health and Nutrition Examination Survey. *Cancer Med* (in press)
113. Karra P, Winn M, Paulek S, Bulsiewicz-Jacobsen A, Peterson L, Coletta A, Doherty J, Ulrich CM, Summers SA, Gunter M, Hardikar S, and Playdon MC (2022) Obesity (*Silver Spring*) 7, 1323-1334
114. Nicholson RJ, Norris MK, Poss AM, Holland WL, Summers SA. (2022) The Lard Works in Mysterious Ways: Ceramides in Nutrition-Linked Chronic Disease. *Annu Rev Nutr.* (in press)
115. Simeone CA, Wilkerson JL, Poss AM, Banks JA, Varre JV, Guevara JL, Hernandez EJ, Gorski B, Atkinson DL, Turapov T, Frodsham SG, Morales JCF, O'Neil K, Moore B, Yandell M, Summers SA, Krolewski AS,

- Holland WL, Pezzolesi MG. (2022) A dominant negative ADIPOQ mutation in a diabetic family with renal disease, hypoadiponectinemia, and hyperceramidemia. *NPJ Genom Med.* 7(1), 43
116. Sharma A, Krick B, Li Y, Summers SA, Playdon MC, and Welt, C (2022) The use of ceramides to predict metabolic response to metformin in women with PCOS. *Journal of the Endocrine Society* (in press)
117. Li Y, Chaurasia B, Kaddai V, Wilkerson JL, Mashek JA, Cox J, Wei P, Bensard C, Meikle PJ, Clevers H, Shayman JA, Hirabayashi Y, Holland WL, Rutter J, Summers SA (2020) Serine Palmitoyltransferase Controls Stemness of Intestinal Progenitors (submitted)