

**Harvard Medical School/Harvard School of Dental Medicine
Format for the Curriculum Vitae**

Date Prepared: August 5, 2025
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Place of Birth: Chicago, IL

Education

1960-1963	Pre-Medical Student	Zoology	University of Illinois, Urbana, IL
1967	M.D.	Medicine	University of Illinois School of Medicine, Chicago, IL
1986	A.M. (<i>Hon.</i>)		Harvard University, Cambridge, MA

Postdoctoral Training

1963-1967	USPHS Student Research Fellow	Physiology	University of Illinois School of Medicine
1967-1968	Intern	Medicine	New York Hospital-Cornell University Medical Center, New York, NY
1968-1969	Assistant Resident	Medicine	New York Hospital-Cornell University Medical Center
1972-1973	Senior Resident Physician	Medicine	Peter Bent Brigham Hospital, Boston, MA
1972-1973	Clinical Fellow	Medicine	Peter Bent Brigham Hospital
1973-1974	Fellow	Infectious Disease	Harvard Medical Unit, Boston City Hospital, Boston, MA
1980-1981	Sabbatical	Carbohydrate Chemistry	Karolinska Institute, Stockholm, Sweden

Faculty Academic Appointments

1973-1974	Instructor	Medicine	Harvard Medical School, Boston, MA
1974-1978	Assistant Professor	Medicine	Harvard Medical School
1975-1985	Harriet Ryan Albee Fellow	Medicine	Harvard Medical School
1979-1985	Associate Professor	Medicine	Harvard Medical School

1985-	Professor	Medicine	Harvard Medical School
1987-1989	Edward Harold Kass Professor	Medicine	Harvard Medical School
1989-	William Ellery Channing Professor	Medicine	Harvard Medical School
1997-2018	Professor	Microbiology & Immunobiology	Harvard Medical School
2018-	Professor	Immunology	Harvard Medical School

Appointments at Hospitals/Affiliated Institutions

Past

1973-1977	Assistant Physician	Medicine	Boston City Hospital
1974-1977	Attending Physician	Infectious Diseases	Boston City Hospital
1975-1980	Assistant Physician	Medicine	Beth Israel Hospital, Boston, MA
1975	Consultant	Infectious Diseases	Chelsea Soldier's Home, Chelsea, MA
1977-1980	Attending Physician	Infectious Diseases	Brigham and Women's Hospital
1978	Consultant	Infectious Diseases	Waltham Hospital, Waltham, MA
1979	Consultant	Infectious Diseases	Parker Hill Hospital, Boston, MA
1981-1985	Senior Pathologist	Pathology	Beth Israel Hospital
1981-1995	Attending Physician	Internal Medicine and Infectious Diseases	Beth Israel Hospital
1982-1992	Physician	Medicine	Brigham and Women's Hospital
1981-2015	Senior Physician	Medicine	Beth Israel Deaconess Medical Center, Boston, MA

Current

1992-	Senior Physician	Medicine	Brigham and Women's Hospital
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Other Professional Positions

1969-1972	Major, Medical Corps, U.S. Army and Senior Investigator, Department of Bacterial Diseases		Walter Reed Army Institute of Research, Washington, D.C.
1980-1981	Visiting Scientist (Sabbatical), Department of Microbiology and Arrhenius Laboratory, U of Stockholm (Carbohydrate Chemistry)		Karolinska Institute and the National Bacteriologic Laboratory, Stockholm, Sweden
1980-1985	Consultant		Merck Vaccines, West Point, Pennsylvania
1987-1989	Consultant		Baxter Therapeutics, North Chicago, Illinois
1998-2001	Member, Scientific Advisory Board		Microbia, Cambridge, MA
2001-2003	Consultant		Genome Therapeutics, Waltham, MA
2002-2016	Consultant		Novartis Vaccines, Cambridge, Massachusetts and Siena, Italy
2005-2008	Member, Scientific Advisory Board		Therasim, Inc., Research Triangle Park, North Carolina

2007-2008	Consultant	Cangene Corporation, Winnipeg, Manitoba
2008-2018	Member, Scientific Advisory Board	Selecta Biosciences, Watertown, MA
2008-2011	Member, Research Initiatives Committee, National Scientific Advisory Committee (NSAC)	Crohn's and Colitis Foundation of America, New York, NY
2015-2016	Scientific Advisor	Crohn's and Colitis Foundation of America, New York, NY
2012-2019	Scientific Founder	Symbiotix Biotherapies, LLC, Boston, MA
2018-2021	Member, Scientific Council	Evelo Biosciences, Cambridge, MA

Major Administrative Leadership Positions

Local

1981-1984	Medical Director, Microbiology Laboratory	Beth Israel Hospital
1981-1995	Director, Division of Infectious Diseases, Department of Medicine	Beth Israel Hospital
1982-1988	Associate Director, Channing Laboratory, Department of Medicine	Brigham and Women's Hospital
1986-1994	Co-Director, Medicine 513 M.J./Infectious Diseases Course	Harvard Medical School
1988-1995	Co-Director, Channing Laboratory, Department of Medicine	Brigham and Women's Hospital
1994-1996	Vice Chairman, Department of Medicine	Brigham and Women's Hospital
1994-1996	Treasurer, Brigham Medical Group Foundation, Inc.	Brigham and Women's Hospital
1995	Acting Chairman, Department of Medicine	Brigham and Women's Hospital
1995	Acting Physician-in-Chief, Department of Medicine	Brigham and Women's Hospital
1995-1997	Co-Director, Division of Infectious Diseases, Department of Medicine	Brigham and Women's Hospital
1995-2012	Director, Channing Laboratory, Department of Medicine	Brigham and Women's Hospital
1996-1997	Executive Vice Chairman, Department of Medicine	Brigham and Women's Hospital
1996-2004	Associate Director of Research	Brigham and Women's Hospital
1997-2003	Executive Dean for Academic Programs	Harvard Medical School
2013-2019	Director, NIAID Center of Excellence in Translational Research	Harvard University

Regional

2003-2014	Director, New England Regional Center of Excellence for Biodefense and Emerging Infectious Diseases (NERCE/BEID)	Harvard Medical School
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National

1989-1993	Board of Scientific Counselors	National Institute of Allergy and Infectious Diseases, National Institutes of Health
1991-1993	Chairman, Board of Scientific Counselors	National Institute of Allergy and Infectious Diseases, National Institutes of Health, Washington, D.C.
1997-2002	Board of Directors	National Space Biomedical Research Institute, Washington, D.C.
2005-2010	Chairman, National Science Advisory Board for Biosecurity	National Institutes of Health and Department of Health and Human Services, Washington, DC

International

1995	Congress Organizer, Puerto Rico Congress	International Society for Anaerobic Bacteria
2004	Congress Organizer, 11 th International Congress on Infectious Diseases, Cancun, Mexico	International Society for Infectious Diseases
2006-2009	Board Member	Helmholtz Gemeinschaft Review Panel, Berlin, Germany
2007-2009	Chairman, Review Panel for the Program in Infection and Immunity	Helmholtz State Commission for the Research Field “Health”, Berlin, Germany
2011	Member, International Scientific Advisory Committee	15 th International Congress of Mucosal Immunology (ICMI), Université Paris Descartes, Paris, France

Committee Service

Local

1985-2012	Committee of Professors	Harvard Medical School
1989-1992	Subcommittee of Professors	Harvard Medical School
1994-1996	User’s Committee (Chairman)	Brigham Medical Group, Brigham and Women’s Hospital
1994-1997	Group Practice Committee	Brigham Medical Group, Brigham and Women’s Hospital
1994-1997	Compensation Committee	Brigham Medical Group, Brigham and Women’s Hospital
1995-1996	Care Improvement Council	Brigham and Women’s Hospital
1995-1996	Managed Care Committee	Brigham and Women’s Hospital
1995-1996	Research Committee	Brigham and Women’s Hospital
1996-1997	Clinical Executive Committee	Brigham and Women’s Hospital
1996-2001	Development Committee	Brigham and Women’s Hospital
1996-2003	Research Council Committee	Brigham and Women’s Hospital
1996-2003	Standing Committee on Conflicts of Interest and Commitment	Harvard Medical School
1996-2004	Research Directors Committee	Brigham and Women’s Hospital
1997-1998	Medical Executive Committee	Department of Medicine, Brigham and Women’s Hospital
1997-1998	<i>ad hoc</i> Committee on a Proposed Joint Clinical Research Center of the Mass. Eye and Ear Institute and the Schepens Eye	Harvard Medical School

	Research Institute	
1997-2004	Standing Committee on Higher Degrees in Medical Sciences (<i>ex officio</i>)	Harvard Medical School
1997-2003	Academic Council for Inter-Faculty Ph.D. Programs	Harvard Medical School
1997-2003	Dean's Executive Council	Harvard Medical School
1997-2003	Council of Academic Deans	Harvard Medical School
1997-2000	Faculty Council (<i>ex officio</i>)	Harvard Medical School
1997-2003	Subcommittee of Professors	Harvard Medical School
1997-	Division of Medical Sciences, Faculty of Arts and Sciences	Harvard University
1998-2001	Committee to Review Conflict of Interest Policy	Harvard Medical School
2002-2005	Executive Committee of Board of Stewards	Harvard Medical School
2002	Committee to Review Division of Medical Sciences (<i>ex officio</i>)	Harvard Medical School
2004-2021	The Warren Alpert Foundation Scientific Advisory Selection Committee	Harvard Medical School
2005-2007	Research Planning Group	Brigham and Women's Hospital
2009-2010	HMS Deans Advisory Committee on Quad Reorganization (Microbiology, Pathology and Immunology)	Harvard Medical School
2013-2015	Immunology Division Junior Faculty Search Committee (Department of Microbiology and Immunobiology)	Harvard Medical School
2015-	HMS Deans Executive Committee, HMS Center for Glycoscience (HCG)	Harvard Medical school
Regional		
2012	Novartis Advisory Committee Meeting	Cambridge, MA
National		
1988-1993	Board of Scientific Counselors	National Institute of Allergy and Infectious Diseases, National Institutes of Health, Washington, D.C.
1993	Blue Ribbon Panel on Vaccine Research	National Institute of Allergy and Infectious Disease, National Institutes of Health
1994	Chairman, Sexually Transmitted Diseases Vaccine Advisory Committee	National Institute of Allergy and Infectious Diseases, National Institutes of Health
1995	Review Committee, Consensus Conference on Prevention of Perinatal Group B Streptococcal Disease	California Department of Health Services and the Centers for Disease Control and Prevention (National Center for Infectious Disease)
1995	Review Committee, Division of Microbiology and Infectious Diseases International and Tropical Diseases Research	National Institute of Allergy and Infectious Diseases, National Institutes of Health
1996	Tuberculosis Research Program Review	National Institute of Allergy and Infectious Diseases, National Institutes of Health

1997	National Advisory Allergy and Infectious Diseases Council (<i>ad hoc</i> Council Member)	Microbiology and Infectious Diseases Subcommittee, National Institutes of Health
1999	Chairman, Strategic Plan Task Force for Vaccines	National Institute of Allergy and Infectious Diseases, National Institutes of Health
2000-2002	Bylaws Committee	National Space Biomedical Research Institute
2000	Invited Participant, Vaccines for HIV/AIDS, Malaria, and Tuberculosis: Addressing the Presidential Challenge	National Institute of Allergy and Infectious Diseases, National Institutes of Health
2000-2002	Institute of Medicine Committee to Review the CDC Anthrax Vaccine Safety and Efficacy Research Program	The National Academies, Washington, D.C.
2000-2002	Institute of Medicine Committee to Review the Safety and Efficacy of the Anthrax Vaccine for the U.S. Military	The National Academies
2001	Chairman, Search Committee for STDB Chief, Sexually Transmitted Diseases Branch	National Institute of Allergy and Infectious Diseases, National Institutes of Health
2002	Co-Chair, Blue Ribbon Panel on Bioterrorism Research	National Institute of Allergy and Infectious Diseases, National Institutes of Health
2002-2004	Institute of Medicine Committee on Accelerating the Research, Development, and Acquisition of Medical Countermeasures Against Biological Warfare Agents	The National Academies
2008-2011	NIH Blue Ribbon Panel (NEIDL)	National Institutes of Health
2008-2013	National Scientific Advisory Committee's Research Initiatives Committee	Crohn's and Colitis Foundation of America, New York, New York
2009-2012	Board of Governors Nominating Committee	American Academy of Microbiology, Washington, D.C.
2012	JDRF T1D Intestinal Microbiota Workshop	Juvenile Diabetes Research Foundation, Brooklyn, New York
2013	Member, National Institutes of Health Director's Institutional Evaluation Committee	National Institutes of Health
2015-	Scientific Advisor, HHMI	Howard Hughes Medical Institute

International

1990-2005	Executive Committee	International Society for Infectious Diseases
1994-1999	Acute Respiratory Infections Panel	U.S.-Japan Cooperative Medical Science Program, Bethesda, Maryland
1996-2000	Secretary General	International Society for Infectious Diseases
2000-2002	President-Elect	International Society for Infectious Diseases
2002-2004	President	International Society for Infectious Diseases
2004-2006	Past President	International Society for Infectious Diseases
2009	Rapporteur, Dahlem Conference and Workshop on Infection, Inflammation and	Freie Universität, Berlin, Germany

Chronic Inflammatory Disorders: Common and divergent solutions to problems in the host-environment interface.

Professional Societies

1970- American Society for Microbiology
1975- American Association of Immunologists
1975- Infectious Diseases Society of America (Fellow)
1975-2009 American Federation for Clinical Research
1978- American Society for Clinical Investigation
1979-1996 American Association for the Advancement of Science
1984- Association of American Physicians
1985- American Academy of Microbiology
1988-2005 Interurban Clinical Club
1990-1993 Counselor
1989-2011 International Society for Anaerobic Bacteria
1995-1997 President
1997-2000 Treasurer
1990- International Society for Infectious Diseases
1990-1992 Executive Committee
1995-1998 Chairman, Publications Committee
1996-2000 Secretary General
2000-2002 President Elect
2004-2004 President
2004-2006 Past President
1992-2009 European Society of Clinical Microbiology and Infectious Diseases
1993-2009 Massachusetts Infectious Disease Society
1994-2009 Pediatric Infectious Diseases Society (Fellow)
1995-2009 Anaerobe Society of the Americas
1996-2011 Society for Glycobiology
1996- American Association for the Advancement of Science (Fellow)

Grant Review Activities

1982-1986	Bacteriology and Mycology Study Section (Permanent)	National Institutes of Health
1994	Chairman, Review Committee for RFP- NICHD-DESPR-94-06 (ad hoc)	National Institute of Child Health and Development, National Institutes of Health

Editorial Activities

Ad hoc Reviewer

Biochemistry
Cell
Cell: Host & Microbe
Cell Reports
European Journal of Immunology

Glycobiology
 Immunity
 Infection and Immunity
 Journal of Bacteriology
 Journal of Biological Chemistry
 Journal of Carbohydrate Chemistry
 Journal of Clinical Investigation
 Journal of Experimental Medicine
 Journal of Immunology
 Journal of Infectious Diseases
 Nature
 Nature Chemical Biology
 Nature Communications
 Nature Immunology
 Nature Medicine
 Nature Microbiology
 Nature Reviews Immunology
 Nature Reviews Microbiology
 New England Journal of Medicine
 Proceedings of the National Academy of Science USA
 Science
 Science Immunology
 Science Translational Medicine
 Vaccine

Other Editorial Roles

1978-1989	Associate Editor	Reviews of Infectious Diseases
1982-1990	Member, Editorial Board	Infection and Immunity
1985-1990	Member, Editorial Committee	Journal of Clinical Investigation
1985-1991	Member, Editorial Board	Microbial Pathogenesis
1991-	Editor	Harrison's Principles of Internal Medicine
1997-2004	Member, Editorial Board	American Journal of Medicine
2001-2003	Editor-in-Chief, 16 th edition	Harrison's Principles of Internal Medicine
2007-	Member, Editorial Board	Cell: Host & Microbe
2012-2015	Editor-in-Chief, 19 th edition	Harrison's Principles of Internal Medicine

Honors and Prizes

1961	Omega Beta Pi (Premed Honorary)	University of Illinois
1966	Alpha Omega Alpha	University of Illinois
1972	Certificate of Outstanding Achievement	Walter Reed Army Institute of Research
1976-1981	Research Career Development Award	National Institutes of Health
1985	Squibb Award	Infectious Diseases Society of America
1985	Elected to Fellow	American Academy of Microbiology
1992-2004	Merit Award, "Immunochemistry of Group B Streptococcal Polysaccharides"	NIAID, National Institutes of Health

1996	Elected to Fellow	American Association for the Advancement of Science
2001	Elected to Member	National Academy of Medicine (formerly Institute of Medicine)
2005	Arnold G. Wedum Memorial Lecture Award	American Biological Safety Association
2006	Professor John McArthur Award	Biomedical Research Institute, Brigham and Women's Hospital
2018	Elected to Member	National Academy of Sciences
2023	Albany Prize	Albany Medical Center Foundation
2024	Paul Ehrlich and Ludwig Darmstaedter Prize	Paul Ehrlich Foundation

Report of Funded and Unfunded Projects

Funding Information

Past

1973-1978	Role of Bactericidal Antibody in Immunity to <i>Neisseria gonorrhoeae</i> NIH/NIAID (Kasper, PI)
1973-1983	Development of Vaccines to Prevent Wound Infections due to Anaerobic Bacteria NIH/NIAID (Kasper, PI)
1975-1980	Research Career Development Award NIH/NIAID (Kasper, PI)
1977-1986	Studies on the Antigens of Group B <i>Streptococcus</i> NIH/NIAID (Kasper, PI)
1979-1983	Support of Group B <i>Streptococcus</i> Research Merck & Co. (Kasper, PI)
1979-1984	Human Immunity to Group B <i>Streptococcus</i> NIH/NIAID (Kasper, PI)
1982-1990	<i>Bacteroides fragilis</i> : Pathogenic Mechanisms and Immunity NIH/NIAID (Kasper, PI)

1984-1992 Immunity of Group B Streptococcal Polysaccharides
NIH/NIAID
(Kasper, PI)

1987 Shared Instrumentation Grant
Department of the Navy/USA
(Kasper, PI)

1990-1991 Immunoprophylaxis to Group B *Streptococcus*
Sponsored Research Agreement, Univax Biologics, Inc.
(Kasper, PI)

1991-1995 Development of a Vaccine Against Group B Streptococcal Disease
North American Vaccines, Inc.
(Kasper, PI)

1990-1997 Preclinical Characterizations of Betafectin and Adjuvax
Alpha-Beta Technology
(Kasper, PI)

1990-1998 Pathogenesis of Toxic Shock Syndrome
Tambrands, Inc.
(Kasper, PI)

1991-1997 Prevention of Perinatal Group B Streptococcal Infections
NIH/NIAID
(Kasper, PI)

1992-1997 Prevention of Group B Streptococcal Infections and Neonatal and Infant Populations
NIH/NIAID
(Kasper, PI)

1992-2004 Merit Award: Immunochemistry of Group B Streptococcal Polysaccharides
NIH/NIAID (R37 AI23339)
(Kasper, PI)

1995-1997 Evaluation of *Bacteroides Fragilis* PS A for Prevention of Abscesses
Alpha-Beta Technology
(Kasper, PI)

1997-2005 The Streptococcal Initiative
NIAID/NIH (NO1 AI75326)
(Kasper, PI)

1997-2007 Pathogenic Mechanisms of Anaerobes in Sepsis
NIH/NIAID (RO1 AI39576)
(Kasper, PI)

2000-2001 Role of Zwitterionic Materials in the Prevention of Abscesses and Adhesions
Eli Lilly & Company
(Kasper, Co-PI)

2000-2004 Mechanisms of Group B *Streptococcus* Capsule Expression
NIH/NIAID (R21 AI42940)
(Kasper, Co-PI)

2002-2007 Group B Streptococci and Toll-Like Receptors
NIH/NIAID (1 RO1 AI52455)
(Kasper, Co-PI (subcontract))

2002-2008 Prevention of Group B Streptococcal (GBS) Disease
NIH/NIAID (NIH-NIAID-DMID-02-13)
(Kasper, PI)

2003-2008 Inner-City Asthma Consortium: Immunologic Approaches to Reduce Asthma
NIH/NIAID (NO1 AI25496)
(Kasper, Co-PI)

2004-2007 Efficacy of a Cangene HABP in Inhibiting T-Cell Activity and Use of HABP to Treat
Various Diseases
Cangene
(Kasper, PI)

08/01/76 – Infectious Diseases and Basic Microbiological Mechanisms
07/31/12 NIH/NIAID T32 AI07061
(Kasper, PI)

07/01/10- Novel Therapeutics Derived from the Commensal Microflora for
09/30/13 Treatment/Prevention of IBD
Crohn's and Colitis Foundation of America
(Kasper, PI)

12/01/10- Microbiota Derived Novel Therapeutic to Prevent Type I Diabetes
11/30/12 Juvenile Diabetes Research Foundation
(Kasper, PI)

12/01/10- Commensal Bacteroides Signal Through Spingolipid Rafts During Intestinal Stress
11/30/13 NIH/NIAID R21 AI090102
(Kasper, PI)

02/01/12 – Identifying Immunomodulatory Bacteria as Potential Therapeutic Agents
01/31/14 Sanofi-Aventis Innovation Awards Program
(Kasper, PI)

U54AI057159 (Kasper) NIH/NIAID NERP001: Development of a Conjugate Vaccine for the Prevention of Tularemia (Role: PI) NECO001: Administrative Core (Role: PI)	09/03/03–02/28/15 (No cost extension)
No Number (Kasper) F. Hoffmann-La Roche Ltd Bacterial Glycosphingolipids and their Role as Therapeutic Immunomodulators in Colitis (Role: PI).	12/16/13-12/15/15
No Number (Kasper) F. Hoffmann-La Roche Ltd Probing the Microbiome to Identify Potential Novel Targets and Drugs to Treat and Prevent Infectious Diseases (Role: PI)	12/16/13-12/15/15
No Number (Kasper) Novartis Vaccines & Diagnostics, Inc. New Generation of Glycoconjugate Vaccines to Prevent Infectious Diseases. Role: PI	04/01/12 – 05/01/15
No Number (Hauser: PI) UCSF International Multiple Sclerosis Microbiome Study (iMSMS) The aims of this project are to determine whether the gender bias in multiple sclerosis is due to differences in microbiota. This is being studied in experimental autoimmune encephalitis (EAE) using male and female mice. (Role: Co-Investigator)	10/01/2015 - 09/30/2018
U19AI109764 (Kasper) NIH/NIAID Center for Excellence in Translational Research – Innovative Platforms for Antimicrobial Therapy and Vaccine Development, Core A Responsible for administrative oversight of a Center project involving 5 projects.	03/01/2014 - 02/28/2019
U19AI109764 (Kasper) NIH/NIAID Rationally Designed Platform for Enhanced Glycoconjugate Vaccines This project is to develop a platform for glycoconjugate vaccines that will be applied to vaccines against Francisella, Burkholderia, and Brucella.	03/01/2014 - 02/28/2019
No Number (Benoist, Kasper, Mathis) UCB Celltech Mining the Microbiome for New Therapeutics This study proposes to screen individual commensal microbes for immunologic activity and to derive therapeutic molecules from these microbes. (Role: Co-PI)	09/01/2012 - 08/31/2018

W81XWH-15-1-0368 (Kasper, von Andrian) 09/30/2015
- 09/29/2018 Department of Defense
Understanding Microbial Sensing in Inflammatory Bowel Disease Using Click Chemistry
The broad goals of this project are (1) to develop a bioorthogonal “click” chemistry approach with which to label and track products from live gut bacteria in the host and (2) use this tool to gain an understanding of the molecular details of intestinal detection of bacteria and its role in IBD progression.

W911NF-16-C-0050 (Ingbar: PI) 05/25/2016 - 05/24/2019
DARPA
Reverse Engineering Host Resilience
The specific aims of this project are to develop an in vitro model of bacterial pathogenesis by implementing the gut immune system on a chip (Role: Co-Investigator)

R42DK103361 (Mazamian: PI) 01/01/2017 - 08/31/2018
NIH/NIDDK
Therapeutics for Inflammatory Bowel Disease from the Microbiome
This project was to produce and purify polysaccharide A from *Bacteroides fragilis* for use by investigators at Cal Tech to test in mouse and in vitro models of inflammatory bowel disease.

A35198 06/28/2018 – 06/27/2021
Evelo Biosciences, Inc. (Kasper, Benoist, Mathis)
Local and Systemic Effects of Gut Bacteria on the Immune System
This is a collaborative project with Professors Benoist and Mathis in which the specific aims are directed towards defining mechanisms of immune interactions of bacteria that Evelo has chosen to use as therapeutics.

The Dean’s Initiative Award Program for Innovative Grants in the Basic and Social Sciences
(Silver, lead PI; Kasper, PI) 09/01/2018 – 08/31/2019
Seeing in Dark Places: Probing Bacterial Effector Regulation in the Mammalian Gut Using Engineered Living Biosensors
This project is to develop a system to determine genetic regulation of bacteria in the mammalian gut.

A31696 03/31/2017 - 03/30/2023
Quark Venture, Inc. (Sharpe, Kasper)
IOM-Mining Interactions between the Microbiome and Co-inhibitory Pathways to Guide New Therapeutic Strategies for Cancer
This project is to define microbes and microbial molecules that synergize with checkpoint blocking antibodies to enhance clearance of tumors and killing of cancer cells.

R01AT010268 02/01/2019 - 01/31/2023
NIH/NCCIH (Oh, Kasper)
Contribution of phytochemicals to gut symbiont colonization and synthesis of immunomodulatory sphingolipids
This R01 award supports PI’s 4-year project, addressing interaction of dietary phytochemicals and probiotic bacterial species and their immunomodulatory impact to the host by production of symbiotic sphingolipids.

W81XWH1910625

09/30/2019 - 09/29/2022

Department of Defense (Kasper, Oh)

Gut Symbiotic Lipid A Family: Structures and Immunomodulation in IBD

We will identify specific molecular mechanisms of commensal glycolipid regulation of host inflammatory responses.

R01AI148273

01/10/2020 - 12/31/2024

NIH/NIAID (Kasper)

Elucidating the Structural Requirements for Next-Gen Glycoconjugate Vaccines

We will define the characteristics that make glycopeptide-induced antibodies so potent compared to typical glycoconjugate vaccines.

Current

****Title: Gut symbiotic microbiota-derived CD1d ligands and their immunomodulatory mechanisms***

*Major Goals: The goals of this project are to characterize the unique NKT cell response induced by BfaGS; investigate molecular-level interactions of CD1d-BfaGC complex; characterize novel CD1d ligand candidates produced by gut symbionts; and to assess *in vivo* immunomodulatory function of symbiont-derived CD1d ligands.

*Status of Support: Active

*Project Number: 5R01AI165987-03

*Name of PD/PI: Sungwhan Oh

*Source of Support: NIH/NIAID

*Primary Place of Performance: Harvard Medical School

Project/Proposal Start and End Date: (MM/YYYY) (if available): 06/2022 – 05/2027

*Total Award Amount (including Indirect Costs): \$254,250

*Person Months (Calendar/Academic/Summer) per budget period.

Year (YYYY)	Person Months (##.##)
4. 2026	.24 Calendar
5. 2027	.24 Calendar

***Title: Gut Symbiont Lipid A Family; Structures and Immunomodulation in IBD.**

**** This Project was terminated effective May 12, 2025. This termination is subject to ongoing litigation between Harvard University and the United States Federal Government.*

*Major Goals: To assess the immunomodulatory activity of different lipid A molecules based on structure in vitro and examine the immunoprotective response induced by these lipid A molecules in a colitis disease model in mice.

*Status of Support: Active

*Project Number: HT94252310226

*Name of PD/PI: Dennis Kasper

*Source of Support: DOD

*Primary Place of Performance: Harvard Medical School

Project/Proposal Start and End Date: (MM/YYYY) (if available): 4/2023 – 3/2027

Total Award Amount (including Indirect Costs): \$4,407,375

Person Months (Calendar/Academic/Summer) per budget period.

Year (YYYY)	Person Months (##.##)
3. 2026	2.4 Calendar
4. 2027	2.4 Calendar

***Title: Tetraacylated lipid A enhancement of checkpoint blocking cancer immunotherapy**

*** This Project was terminated effective May 6, 2025. This termination is subject to ongoing litigation between Harvard University and the United States Federal Government.

*Major Goals: The proposed project investigates a novel molecule with the potential to enhance already clinically-approved cancer immunotherapy treatments. This approach is fundamentally different from other approaches in the field which aim to employ probiotics or fecal transplants to enhance cancer immunotherapy. The 4A-MPLA molecule can enhance α -PD-L1 therapy in a mouse model and we will determine mechanisms of action and potential breadth of therapeutic targets.

*Status of Support: Active

*Project Number: 1R21CA287104-01

*Name of PD/PI: Dennis Kasper

*Source of Support: NIH/NCI

*Primary Place of Performance: Harvard Medical School

Project/Proposal Start and End Date: (MM/YYYY) (if available): 12/2023 – 11/2025

Total Award Amount (including Indirect Costs): \$435,827

Person Months (Calendar/Academic/Summer) per budget period.

Year (YYYY)	Person Months (##.##)
2. 2025	0.6 Calendar

***Title: Gut complement system: Induction and protection against enteric infection**

*** This Project was terminated effective May 6, 2025. This termination is subject to ongoing litigation between Harvard University and the United States Federal Government.

*Major Goals: We hypothesize that microbiota-derived molecules can regulate luminal C3 levels, and by modulating C3 levels could serve as a novel strategy for combating infectious diseases.

*Status of Support: Active

*Project Number: 1R01AI181938-01A1

*Name of PD/PI: Dennis Kasper

*Source of Support: NIH

*Primary Place of Performance: Harvard Medical School

Project/Proposal Start and End Date: (MM/YYYY) (if available): 1/2025 – 12/2029

Total Award Amount (including Indirect Costs): \$3,856,329

* Person Months (Calendar/Academic/Summer) per budget period.

Year (YYYY)	Person Months (##.##)
1. 2024	1.8 Calendar
2. 2025	1.8 Calendar
3. 2026	1.8 Calendar
4. 2027	1.8 Calendar
5. 2028	1.8 Calendar

Report of Local Teaching and Training

Teaching of Students in Courses

Medical School

1975-1994	Annual Course in Infectious Disease (513M.J.) Lecture 100 medical students/year	Harvard Medical School 2 hours/year
1981-1996	Infectious Diseases Elective (Course Director) 350-375 medical students	Beth Israel Hospital, HMS 100 hours/year
1995-1997	ABS Infectious Disease (IDEP 503.J) 20-30 students/year	Harvard Medical School 2 hours/year
1997-2007	Immunology, Microbiology and Infectious Disease (IN704.0) 160 medical students/year	Harvard Medical School 4 hours/year
1997-2007	ABS Modern Medical Microbe Hunters (IN503.J) 30 medical students/year	Harvard Medical School 2 hours/year
1997-2009	Mechanisms of Microbial Pathogenesis (HST 040) 30 medical students/year	Harvard Medical School 4 hours/year
2000-	Microbiology 200 25 students/year	Harvard Medical School 4 hours/year

2005-2019	Immunology of Infectious Diseases 20-25 students/every other year 3-5 undergraduate students/every other year	Harvard Medical School 2 hours/every other year
2008	Novel Approaches to Development of Anti-infectives and Vaccines Nanocourse 45-100 students/postdocs/faculty/year	Harvard Medical School 10 hours/year
2018	Microbiology and Immunology 25 Students	Harvard Medical School 3 hours

Formal Teaching of Residents, Clinical Fellows and Research Fellows (post-docs)

2004	Plenary Lecturer Department of Microbiology and Molecular Genetics Annual Retreat (Falmouth, MA)	Harvard Medical School One hour lecture to Faculty and Postdoctoral Research Fellows
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Clinical Supervisory and Training Responsibilities

1981 – 1985	Supervised the clinical training of Clinical Fellows in Infectious Diseases/Beth Israel Hospital	6 Clinical Fellows/year 200 hours/year
1981-1985	Supervised the clinical training of Medical Residents on the Infectious Disease Elective/Beth Israel Hospital	24 Medical Residents/year 200 hours/year
1981 – 1995	Attending Physician/Beth Israel Hospital Medical Service	6 Residents and 4 Students/year 180 hours/year

Laboratory and Other Research Supervisory and Training Responsibilities

1973-	Postdoctoral Research Fellow Mentor 6-10 postdoctoral research fellows in my own laboratory/year	500 hours/year
2001-2005	Chair, BBS Student Dissertation Advisory Committee (Don Smith, Ph.D.)	2 hours/month
2006-2009	Thesis Advisor, BBS Ph.D. Student (Erin Troy, Ph.D.)	Daily Mentorship for 3 years
2006-2011	Thesis Advisor, BBS Ph.D. Student (Hachung Chung)	Daily Mentorship
2012-2018	Thesis Advisor, BBS Ph.D. Student (Wen Zheng)	Daily Mentorship
2013-2019	Thesis Advisor, Immunology Ph.D. Student	Daily Mentorship

(Ximei Sun)

2013-2020	Thesis Advisor, Immunology Ph.D. Student (Kailyn Bailey Stefan)	Daily Mentorship
2019-2025.	Thesis advisor, BBS PhD student (Daniela Coronado)	Daily Mentorship

Formally Supervised Trainees and Faculty

1973-1976	Carol J. Baker, M.D. /Professor of Pediatrics; Chief, Division of Infectious Diseases, Baylor College of Medicine, Houston, Texas
1974-1976	Robert Baltimore, M.D./Professor of Pediatrics, Yale University School of Medicine, New Haven, Connecticut
1974-1977	Peter Rice, M.D./Professor of Medicine, University of Massachusetts Medical School, Worcester, MA
1979-1980	Morven Edwards, M.D./Professor of Pediatrics, Baylor College of Medicine
1979-1982	Alan Flesher, Ph.D. /Staff Scientist, Bristol Meyers Squibb, Seattle, WA
1980-1981	Andre Weintraub, Ph.D. /Professor of Clinical Microbiology, Karolinska Institute, Sweden
1982-1983	Michael Eads, M.D./ Medical Director, Classic Sleep Care, Agoura Hills, CA
1982-1983	Villi Valtonen, M.D./ Professor of Medicine, University of Helsinki, Finland
1982-1984	Richard Markam, M.D./Professor of Medicine, Johns Hopkins University School of Medicine and Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland
1982-1985	Dori Zaleznik, M.D./Associate Clinical Professor of Medicine, Beth Israel Deaconess Medical Center
1982-1986	Nancy Levy, Ph.D., Staff Scientist, Genzyme, Cambridge, MA
1983-1985	Robert Schifferle, DDS, Ph.D./Associate Professor of Periodontology and Oral Biology, SUNY, Buffalo
1983-1986	Michael Wessels, M.D./Professor of Pediatrics, Harvard Medical School; Chief, Division of Infectious Diseases, Children's Hospital
1985-1987	Joseph H. Crabb, Ph.D./Vice President, CSO and Director, Immucell, Portland, ME
1986-1987	Matti Valtonen, M.D./Professor of Medicine, University of Helsinki (Deceased)
1987-1989	James Breeling, M.D./Instructor in Medicine, HMS; Associate Chief of Staff, Brockton

West Roxbury VA Medical Center

- 1989-1991 Vincent Benedi, Ph.D./Professor Titular of Microbiology, University of Balearic Islands, Spain (Deceased)
- 1989-1992 Lisa Hirschhorn, M.D./ Senior Clinical Advisor at JSI Research and Training, Boston and Associate Director for Monitoring and Evaluation at the Harvard Medical School Division of AIDS, Harvard University
- 1990-1993 Marisa Marques, M.D./Associate Professor of Pathology, University of Alabama, Birmingham, Alabama
- 1990-1993 Rachel Haft, M.D., Instructor, Harvard Medical School; Internal Medicine and Infectious Diseases, Mt. Auburn Hospital, Cambridge, MA
- 1990-1993 Lawrence Paoletti, Ph.D./Associate Professor of Medicine, Harvard Medical School
- 1991-1992 Annalisa Pantosti, M.D./Faculty, Istitute Superiore di Sanita, Rome, Italy
- 1991-1993 Seiji Hori, M.D., Ph.D./Professor of Pharmacology, Jekei University, Toyko, Japan
- 1991-1994 James Michel, M.D., Ph.D./Dept. of Molecular and Cellular Biology, Harvard University
- 1991-1994 Lawrence Madoff, M.D., Professor of Medicine, University of Massachusetts Medical School
- 1992-1993 Debra Horensky, M.D./Chief of Biological Sciences, New Mexico State Department of Public Health Microbiology Laboratory; Adjunct Associate Professor, Molecular Genetics & Biology, University of New Mexico School of Medicine
- 1992-1994 Robert Deresiewicz, M.D./Biotechnology Stock Analyst
- 1992-1994 Arthur Tzianabos, Ph.D./Vice President, Program Management, Shire Pharmaceuticals, Lexington, MA
- 1993-1994 Wei-Jen Lin, Ph.D./Associate Professor of Microbiology, Department of Biological Sciences, California State Polytechnic University
- 1993-1996 Hilde-Kari Guttormsen, M.D., Ph.D./Assistant Professor of Medicine, Harvard Medical School
- 1993-1996 Claudia Gravekamp, Ph.D. Scientist, Cancer Therapy and Research Center, Institute for Drug Development; Faculty, University of Texas Health Science Center, San Antonio, Texas
- 1994-1997 Jing Li, Ph.D./Senior Scientist, Pfizer Pharmaceuticals
- 1995-1997 Anna Karin Brigsten, M.D., Pediatrics, Norway

1995-1997 Catherine Lachenauer, M.D./Assistant Professor in Pediatrics, Harvard Medical School

1995-1998 Laurie Comstock, Ph.D./Associate Professor of Medicine, Harvard Medical School

1995-1998 Julia Wang, Ph.D./Assistant Professor of Medicine, Harvard Medical School

1997-1998 Gaya Martirosian, M.D./Professor and Chair, Department of Microbiology, Silesian Medical School, Poland

1998-2001 Wiltrud Kalka-Moll, M.D./Assistant Professor of Microbiology and Internal Medicine, University of Cologne, Germany

1999-2002 Doo Ryeon Chung, Ph.D./Assistant Professor of Medicine, Hallym University School of Medicine, Korea

1999-2001 Alex Chang, Ph.D./Senior Research Chemist, Ferro Pfanstiehl Laboratories

1999-2001 Carolyn Hsu, Ph.D./Research Scientist, Abbott Laboratories

2000-2002 Angel Rosas, Ph.D./Investigator, NABI, Bethesda, MD

2000-2005 Brian Cobb, Ph.D./ Associate Professor, Department of Pathology, Case Western Reserve University School of Medicine

2001-2002 Philip Henneke, M.D./Assistant Professor, Department of Pediatrics, Freie University, Berlin, Germany

2001-2003 Shengmai Jiang, Ph.D./Research Associate in Pediatrics, Harvard Medical School

2002-2005 Sarkis Mazmanian, Ph.D./ Professor of Biology, California Institute of Technology

2002-2004 Joshua Steinberg, M.D./Postdoctoral Researcher, Division of Rheumatology, University of Pennsylvania

2002-2007 Marie Dennis, Ph.D./ Research Scientist, Florida State University, Tallahassee, Florida

2002-2005 Qun Wang, Ph.D./Research Scientist, Medimmune

2004-2008 LeeAnn Blalock, Ph.D./Research Scientist, Genocoea Biosciences, Cambridge, MA

2004-2007 Shite Sebastian, Ph.D./Research Scientist, Pfizer, Pearl River, NY

2005-2009 Ronit Cohen, M.D./ Assistant Professor in the Department of Clinical Microbiology and Infectious Diseases, Hadassah University Hospital, Jerusalem, Israel

2005-2010 Jinyou Duan, Ph.D./ Professor, College of Science, Northwest A & F University, Shaanxi, China

2005-2010 Tae Hyun Kim, Ph.D./Research Fellow in Medicine and Microbiology and Molecular Genetics, Harvard Medical School

2005-2007 Sanna Edelman, Ph.D./Faculty, University of Helsinki

2005-2008 Mark Kazmierczak, Ph.D./Center for Food Safety and Applied Nutrition, Laurel, Maryland

2005-2007 Trent Fowler, Ph.D./Research Fellow in Newborn Medicine Research Program, Brigham and Women's Hospital

2005-2006 Keun-Hwa Lee, Ph.D./Assistant Professor of Microbiology, Korea University, Seoul, South Korea

2005-2013 Fikri Avci, Ph.D./Assistant Professor, University of Georgia, Alabama

2006-2009 Darren Wiggelsworth, Ph.D./DARPA, Maryland

2008-2010 Sabina Chalabaev, Ph.D./ Scientist, Pasteur Institute

2008-2014 Ding Ding An, Ph.D./Assistant Professor in Pediatrics, Children's Hospital, Harvard Medical School

2008-2015 Surya Dasgupta, Ph.D./ Research Scientist, University of California, San Diego

2008-2010 Atsushi Yoshida, M.D., Ph.D./Research Fellow in Medicine, Harvard Medical School

2008-2019 Deniz Erturk-Hasdemir, Ph.D., Senior Scientist, Ultragenyx Pharmaceutical, Inc., Framingham, MA

2008-2010 Nikki Reading, Ph.D., Scientific Content Specialist at The Selva Group, an inVentiv Communications Company (Texas)

2009-2010 Erin Troy, Ph.D./ Research Fellow, Tufts University Medical Center (Ph.D. student in my laboratory from 2006-2009)

2010-2018 Nihal Okan, Ph.D., Research Scientist, Evelo Therapeutics, Cambridge, MA

2010-2018 Neil Surana, M.D., Ph.D., Assistant Professor, Pediatrics and Microbiology, Duke University, Durham, NC

2011-2017 Naama Geva-Zatorsky, Ph.D., Principal Investigator, Technion, Haifa, Israel

2011-2016 Avner Fink, Ph.D., Hadassah University Medical School, Jerusalem

2011-2012 Hachung Chung, Ph.D., Assistant Professor of Microbiology, Columbia University, New York (Ph.D. Student in my laboratory from 2006-2011)

2011-2020 Sungwhan Oh, Ph.D., Assistant Professor, Brigham and Women's Hospital, Harvard Medical School

2012-2018 Wen Zheng, Harvard Medical School, BBS Graduate Student

2013-2019 Ximei Sun, Associate, IDG Capital, Beijing, China (HMS Immunology Graduate Student)

2013-2020 Kailyn Bailey Stefan, Immunology Graduate Student

2013-2016 Jason Hudak, Ph.D., Evelo Therapeutics, Cambridge, MA

2014-2022 Francesca Gazzaniga, Ph.D., Assistant Professor of Pathology, Massachusetts General Hospital, Harvard Medical School

2014-2018 Lesley Pisman, Ph.D., Patent Specialist, Chapel Hill, North Carolina

2015-2021 Guiseppe Stefanetti, Ph.D., Assistant Professor, University of Urbino, Italy

2016-2023 Meng Wu, Ph.D., Research Fellow in Immunology, Harvard Medical School

2016-2021 Xinyang Song, Ph.D., Assistant Professor, Chinese Academy of Science, Shanghai, China

2018-2023 Wen Zheng, Ph.D., Research Fellow in Immunology, Harvard Medical School

2018- Hyoung-so Cho, Ph.D., Research Fellow in Immunology, Harvard Medical School

2019-2020 Weigang Lu, Ph.D., Research Fellow in Immunology, Harvard Medical School

2020- Marit Ilves, Ph.D., Research Fellow in Immunology, Harvard Medical School

2020- Daniela Coronado, Graduate Student BBS Program, Harvard Medical School

2021- Tiandi Yang, PhD., Research Fellow in Immunology, Harvard Medical School

Formal Teaching of Peers (e.g., CME and other continuing education courses)

No presentations below were sponsored by outside entities.

1995-1996	Recognition and Management of Infectious Disease Emergencies Infectious Disease in Primary Care: Office and Hospital Practice, Harvard Medical School	Lecture (100-150 Primary Care Practitioners/4 hours/year)
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Local Invited Presentations

No presentations below were sponsored by outside entities.

1992	Lecture: Bacterial Meningitis/Medical Grand Rounds Department of Medicine, BWH
1992	Lecture: Group B <i>Streptococcus</i> : virulence & vaccines/Medical Grand Rounds

Department of Medicine, CH
 1994 Lecture: Bacterial Meningitis/Medical Grand Rounds
 Department of Medicine/Beth Israel Hospital
 1995 Lecture: Group B Streptococcus/Medical Grand Rounds
 Department of Medicine, BWH
 1996 Lecture: Bacteroides fragilis/Surgical Grand Rounds
 Department of Surgery, BWH
 1998 Lecture: Development of vaccines to prevent neonatal group B Streptococcal
 infections/Medical Grand Rounds
 Department of Medicine, CH
 1998 Lecture: Pathogenesis of intraabdominal sepsis/Medical Grand Rounds
 Department of Medicine, MGH
 1998 Maxwell Finland Visiting Professor, Brockton-West Roxbury VA Medical Center, West
 Roxbury, Massachusetts
 2001 Lecture/Immunology Seminar Series
 Program in Immunology, HMS
 2002 Lecture: T-Cells in Peritoneal Inflammation: friend or foe?/Medical Grand Rounds
 Department of Medicine, BWH
 2002 Featured Speaker, Brigham and Women's Hospital Research Report
 2004 Lecture: Immunomodulation: a new approach to preventing inflammatory complications of
 infection/Medical Grand Rounds
 Department of Medicine, West Roxbury VA Medical Center
 2004 Lecture: Immunomodulation prevents post-infectious and post-surgical complications in
 the peritoneum/Medical Grand Rounds
 Department of Medicine, Mt. Auburn Hospital
 2004 Discussant/Case Records at Massachusetts General Hospital
 2004 Featured Speaker, Bug Alert, The Longwood Seminars at Harvard Medical School
 2006 Invited Plenary Speaker: Molecular Basis of Infection and Host Response/Harvard
 Medical School Quad Centennial
 2007 Plenary Lecturer, 17th Annual Workshop, Center for the Study of Inflammatory Bowel
 Disease, Mass. General Hospital
 2008 Seminar Speaker, 24th Annual Shipley Symposium on Microbial Pathogenesis, Harvard
 Medical School
 2009 Seminar Speaker, DFCI-BWH-JDC Immunology Research Seminar Series, Dana-Farber
 Cancer Institute, Brigham and Women's Hospital and Joslin Diabetes Center
 2010 Seminar Speaker, Center for the Study of Inflammatory Bowel Disease 20th Annual
 Workshop: Gene – Environment Interactions in Health and Disease, Massachusetts
 General Hospital
 2010 Plenary Lecturer, Gastrointestinal Unit Research Seminar, Massachusetts General Hospital
 2012 Keynote Speaker, 2012 GI Unit Research Retreat, Massachusetts General Hospital
 2012 Plenary Lecturer, Society of Neuroimmunology Symposium, Brigham and Women's
 Hospital
 2013 Seminar Speaker, MGH Immunology Seminar Series, Center for Immunology and
 Inflammatory Diseases
 2014 Seminar Speaker, Joint BWH-DFCI Immunology Seminar Series
 2024 Invited speaker Department of Immunology retreat

Report of Regional, National and International Invited Teaching and Presentations

Invited Presentations and Courses

Regional, National, and International Invited Presentations and Courses

No presentations below were sponsored by outside entities.

Regional

- 1986 Visiting Professor, Dartmouth Medical School, Hanover, New Hampshire
- 1988 Constance Rollins Lecturer, University of New Hampshire
- 1991 Visiting Professor, University of Massachusetts, Amherst, Massachusetts
- 1995 Plenary Lecturer, Interurban Clinical Club, Boston
- 1996 Chairman and Plenary Lecturer, Society for Glycobiology, Boston
- 1997 Plenary Lecturer, Whitehead Institute for Biomedical Research (press seminar), Boston
- 1998 Plenary Lecturer, 8th International Congress on Infectious Disease, Boston
- 2000 Plenary Lecturer, Society for Glycobiology, Woods Hole, MA
- 2000 Lecturer, Department of Biochemistry, Boston University School of Medicine, Boston
- 2001 Plenary Lecturer, Scientific Advisory Meeting, Society for Women's Health Research, Boston, MA
- 2001 Lecturer, Medical Grand Rounds, Rhode Island Hospital, Providence, RI
- 2001 Featured Speaker, University/Biomedical Industry Partnerships in 2001: Academic and Corporate Perspective, Harvard Biomedical Community, Cambridge, MA
- 2002 Lecturer, Seminar Series, The Forsyth Institute, Boston, MA
- 2002 Lecturer, Medical Grand Rounds, Brown University, Providence, RI
- 2004 Invited Lecturer, Novartis Institutes for BioMedical Research Scientific Seminar Series, Cambridge, MA
- 2004 Plenary Lecturer, Biodefense – 2004 – Boston, Waltham, MA
- 2004 Plenary Lecturer, Workshop on Antigen Processing and Presentation, Jackson Laboratories, Bar Harbor, Maine
- 2005 Distinguished Guest Speaker, 12th International Congress of Mucosal Immunology, Boston Marriott Copley Place, Boston
- 2006 Lecturer, Graduate Program in Immunology, Tufts University Sackler School of Graduate Biomedical Sciences
- 2006 Plenary Lecturer, American Association of Immunologists Annual Meeting, Immunology 2006, Boston
- 2008 Plenary Lecturer, 108th American Society for Microbiology General Meeting, Boston
- 2009 Seminar Speaker, Department of Microbiology and Section of Infectious Diseases Research Seminar Series, Boston University School of Medicine, Boston
- 2009 Seminar Speaker, Immunology and Virology Program, University of Massachusetts Medical School, Worcester, MA
- 2009 Plenary Lecturer, 14th International Congress of Mucosal Immunology (ICMI 2009), Boston
- 2010 Plenary Lecturer, Federation of Clinical Immunology Societies 2010 (FOCIS), Boston
- 2011 Invited Lecturer, Cell Press LabLinks Symposium: Gut Microbiota and Immune Regulation, Dana-Farber Cancer Institute, Boston, MA
- 2012 Speaker, 11th ISNI International Congress of Neuroimmunology, Westin-Copley Place, Boston, MA
- 2013 Plenary Lecturer, Immunology Seminar Series, Mass. General Hospital

2015 Plenary Lecturer, American Society for Biochemistry and Molecular Biology, Boston
 2015 Plenary Lecturer, 5th Annual Harley A. Haynes Lectureship and Symposium, Boston
 2016 Invited Lecturer, Broad Institute, Cambridge
 2017 Invited Lecturer, Immunology Seminar Series, Harvard Medical School
 2018 Plenary Lecturer, Treg Summit 2018, Boston
 2022 Plenary Lecturer, Innate Immunity Day in Honor of Dr. Robert F. Finberg, University of Massachusetts

National

1980 Visiting Professor, University of Colorado, Denver, Colorado
 1983 Visiting Professor, University of Minnesota
 1984 Visiting Professor, SUNY, Buffalo, New York
 1984 Plenary Lecturer, Bacterial Vaccine Symposium, National Institutes of Health
 1984 Paul Bunn Lecturer, Syracuse University Health Sciences Center, Syracuse, New York
 1985 Lecturer, Infectious Diseases Society of America, Minneapolis, Minnesota
 1985 Visiting Professor, The New York Hospital-Cornell University Medical Center, New York
 1985 Visiting Professor, Bowman Gray University, Winston-Salem, North Carolina
 1985 Visiting Professor, University of Texas, San Antonio, Texas
 1986 Visiting Professor, Albert Einstein College of Medicine, New York
 1988 Keynote Lecturer, Infectious Diseases Society of Puerto Rico and the Caribbean
 1989 Plenary Lecturer, UCLA Conference on Bacterial Virulence, Park City, Utah
 1991 Visiting Professor, Albert Einstein College of Medicine, New York
 1993 Visiting Professor, Yale Medical School, New Haven, Connecticut
 1993 Visiting Professor, University of Texas, Southwestern Medical School, Dallas, Texas
 1993 Plenary Lecturer, Cold Springs Harbor, New York
 1993 Glenn Koenig Lecturer, Vanderbilt University, Nashville, Tennessee
 1994 Visiting Professor, University of Texas, San Antonio, Texas
 1994 Plenary Lecturer, Anaerobe Society of the Americas, Marina Del Rey
 1994 Visiting Professor, Northwestern University, Chicago, Illinois
 1995 Plenary Lecturer, American Association of Physicians, San Diego
 1995 Plenary Lecturer and Congress Organizer, International Society for Anaerobic Bacteria, Puerto Rico
 1996 Plenary Lecturer, Anaerobe Society of the Americas, Chicago, Illinois
 1997 Plenary Lecturer, American Association of Physicians, Washington, D.C.
 1997 Plenary Lecturer, Federation of American Societies for Experimental Biology (FASEB) Summer Research Conference, Copper Mountain, Colorado
 1997 Plenary Lecturer, The Chicago Society of Internal Medicine, Chicago
 1997 Lecturer, Microbiology Seminar, Roger Williams Medical Center, Brown University, Providence, Rhode Island
 1998 Lecturer, Medical Grand Rounds, The New York Hospital-Cornell Medical Center, New York
 1998 Lecturer, Medical Grand Rounds, New York University Medical Center, New York
 1998 Donald Zucker Visiting Professor, New York Hospital-Cornell Medical Center, New York
 1999 Visiting Professor, Graduate School of Cell Biology, University of Michigan
 1999 Plenary Lecturer, 5th National Symposium on Basic Aspects of Vaccines, Walter Reed Army Institute of Research, Bethesda, Maryland
 2000 Plenary Lecturer, 2000 Keystone Symposia, Santa Fe, New Mexico

2000 Plenary Lecturer, FASEB Conference, Copper Mountain, Colorado

2001 Chair Pro-Tem, Department of Medicine, Northwestern University Medical School

2003 Plenary Lecturer, American Academy of Microbiology, Key Largo, Florida

2004 Plenary Lecturer, Expert Panel on B Cell Biology, Wyeth Laboratories, New Jersey

2004 Plenary Lecturer, Carbohydrate Moieties as Vaccine Candidates, NIH/NIAID, Bethesda, Maryland

2005 Invited Lecturer, Vaccine Research Center, NIH/NIAID, Bethesda

2005 Plenary Lecturer, 8th Annual Upstate New York Immunology Conference, New York

2006 Keynote Speaker, CCFA Microbial-Host Interactions Workshop, St. Petersburg, Florida

2006 Plenary Lecturer, American Society for Microbiology, 106th General Meeting, Orlando, Florida

2006 Plenary Lecturer, Society for Mucosal Immunity 2006 Annual Meeting, San Francisco, CA

2007 Plenary Lecturer, Biosafety Conference, Emory University, Atlanta, Georgia

2007 Plenary Lecturer, FOCIS 2007, San Diego, CA

2008 Lecturer, Immunology Colloquium, University of Arizona, Tucson, Arizona

2008 Keynote Speaker, Microbial Polysaccharides of Medical Agriculture and Industrial Importance, FASEB Summer Research Conferences, Carefree, Arizona

2009 Plenary Lecturer, American College of Rheumatology Annual Scientific Meeting, Philadelphia, PA

2009 Plenary Lecturer, 1st International Conference on Immune Tolerance, Boston, MA

2009 Plenary Lecturer, Arthur M. Sackler Colloquia of the National Academy of Science, Irvine, CA

2009 Plenary Lecturer, Scripps Research Institute, LaJolla, CA

2011 Plenary Lecturer, American Chemical Society Meeting, Anaheim, CA

2011 Invited Lecturer, Department of Microbiology and Immunology, Stanford University School of Medicine, Stanford, CA

2011 Invited Speaker, University of Michigan, Student Symposium

2011 Plenary Speaker, FASEB Summer Conference, Carefree, AZ

2012 Invited Speaker, Pfizer, Pearl River, NY

2012 Plenary Speaker, 7th International Conference on Tularemia, Beaver Run Resort, Breckenridge, Colorado

2012 Keynote Presentation, NIAID-Juvenile Diabetes Research Foundation International-Helmley Charitable Trust Workshop, "Microbiome-Induced Immunoregulation: Consequences on Health and Immune-Mediated Diseases," Bethesda, MD

2013 Plenary Speaker, Keystone Symposium, The Gut Microbiome: The Effector/Regulatory Immune Network, Taos, New Mexico

2013 Plenary Speaker, Gordon Research Conference on Glycobiology, Ventura Beach, CA

2013 Plenary Speaker, NIAID Rocky Mountain Summer Symposium, Hamilton, Montana

2013 Invited Speaker, Immunology Series, Department of Immunology, University of California, San Francisco

2014 Invited Speaker, Spotlight Lecture, GSK Scinovations Lecture, GSK Renaissance Pennsylvania, Philadelphia, PA

2014 Invited Speaker, Department of Immunology, University of Pittsburgh

2014 Invited Speaker, 2014 Anderson Symposium: Host Interactions with the Microbiome, The Beirne B. Carter Center for Immunology Research, University of Virginia

2014 Plenary Lecturer, FOCIS 2014, Chicago, IL

2015 Invited Lecturer, Kavli Foundation, Washington, DC

2016 Invited Lecturer, Broad Institute, Cambridge, MA

- 2017 Immunology Seminar, Harvard Medical School
- 2017 Plenary Lecturer, Merck Microbiome Symposium
- 2017 Harvard Medical School Discovery Council
- 2018 French-American Chamber of Commerce of New England, keynote address
- 2018 Plenary Lecturer, TReg Summit, Boston, MA
- 2019 Plenary Lecturer, 13th Jenner Glycobiology and Medicine Symposium, Boston, MA
- 2019 Plenary Lecturer, New York City Inflammatory Bowel Disease Research Day, New York, NY
- 2022 Invited Lecturer, Center for Immunity and Inflammation, Rutgers New Jersey Medical School, New Jersey
- 2022 Plenary Lecturer, Howard T. Ricketts Symposium: Honoring Dr. Olaf Schneewind, University of Chicago
- 2023. Albany Prize for Biomedical Research recipient speaker Albany NY

International

- 1980 Visiting Professor, Kitosato University Hospital, Japan
- 1980 Keynote Lecturer, Miura Medical Research Foundation, Tokyo
- 1982 Plenary Lecturer, English Society for Anaerobic Microbiology, Cambridge, England
- 1983 Plenary Lecturer, International Streptococcal Symposium, Gotenberg, Sweden
- 1983 Plenary Lecturer, International Society for Infectious Diseases, Vienna
- 1986 Plenary Lecturer, International Congress of Infectious and Parasitic Diseases, Munich, Germany
- 1987 Visiting Professor, American Physician Fellowship, Israel
- 1988 Plenary Lecturer, International Symposium on Anaerobic Bacteria, Monte Carlo
- 1989 Keynote Lecturer, International Society for Infectious Diseases, Montreal, Canada
- 1989 Plenary Lecturer, European Society of Microbiology, Munich, Germany
- 1989 Lecturer, Von Humboldt Symposium, Heidelberg, Germany
- 1989 Plenary Lecturer, International Congress of Chemotherapy, Jerusalem, Israel
- 1990 Visiting Professor, Istituto Superiore di Sanita, Rome Italy
- 1991 Visiting Professor, McGill University, Montreal, Canada
- 1991 Plenary Lecturer, International Congress of Chemotherapy, Berlin, Germany
- 1991 Plenary Lecturer, Canadian Bacterial Virulence Network, Vancouver, Canada
- 1992 Plenary Lecturer, International Society for Infectious Diseases, Nairobi, Kenya
- 1993 Plenary Lecturer, International Congress of Chemotherapy, Stockholm, Sweden
- 1994 Plenary Lecturer, United States and Japan Cooperative Medical Science Program, Tokyo
- 1995 Visiting Professor, Royal Melbourne Hospital for Women, Melbourne, Australia
- 1995 Plenary Lecturer, 7th European Congress of Clinical Microbiology and Infectious Diseases, Vienna
- 1995 Plenary Lecturer, Australian Society for Microbiology, Australia
- 1996 Plenary Lecturer and Congress Organizer, International Society for Infectious Diseases, Hong Kong
- 1996 Plenary Lecturer, XII Lancefield International Symposium on Streptococci, Paris, France
- 1997 Plenary Lecturer, United States and Japan Cooperative Medical Science Program, Nagasaki, Japan
- 1997 Plenary Lecturer, XVI Congreso de la Sociedad Española de Microbiología, Barcelona, Spain
- 1997 Plenary Lecturer, ICAAC, Toronto

1998 Plenary Lecturer, EU-US Workshop, Siena, Italy

1998 Plenary Lecturer, Nobel Symposium, Stockholm, Sweden

1998 Plenary Lecturer, 2nd World Congress on Anaerobic Bacteria and Infections, Nice, France

1999 Honorary Plenary Lecturer, Japanese Infectious Disease Society, Tokyo

2002 Plenary Lecturer, 10th International Society of Infectious Diseases, Singapore

2002 Lecturer, 12th European Congress of Clinical Microbiology and Infectious Diseases, Milan, Italy

2002 Guest Lecturer, Chiron, Siena, Italy

2003 Lecturer, Vietnam-CDC-Harvard Medical School AIDS Partnership (VCHAP), Hanoi and Ho Chi Minh City, Vietnam

2003 Featured Speaker, National Research Council of Canada's Institute for Biological Sciences (NRC/IBS) 75th Anniversary Symposium, Ottawa, Canada

2003 Guest Lecturer, Chiron, Siena, Italy

2003 Plenary Lecturer, 2nd Meeting of the Spanish Vaccines Society, Las Palmas de Gran Canaria, Spain

2004 Symposium Lecturer, 11th International Congress of Infectious Diseases, Cancun, Mexico

2004 Guest Lecturer, Chiron, Siena, Italy

2004 Plenary Lecturer, Korean Society of Infectious Diseases, Seoul, South Korea

2004 Lecturer, Medical Grand Rounds, Seoul University Hospital, Seoul, South Korea

2005 Plenary Lecturer, Annual Joint Meeting on Immunology Teaching and Research (AJMITR), Hanoi, Vietnam (organized by Military Medical University (MMU) and National Institute of Hygiene and Epidemiology (NIHE))

2005 Invited Lecturer, Host-Pathogen Interaction and Human Disease (Cell Journal, MGH and Wellcome Trust), Wellcome Trust Conference Center, Hinxton, Cambridge, UK

2005 Wedum Memorial Lecturer, American Biological Safety Association, Vancouver, British Columbia

2006 Plenary Lecturer, 6th Louis Pasteur Conference on Infectious Diseases, Paris, France

2006 Plenary Lecturer, 36th Annual Meeting of the Japanese Society for Immunology, Osaka, Japan

2007 Plenary Lecturer, Gut Flora in Health and Disease Workshop, Amsterdam, The Netherlands

2008 Plenary Speaker, B Cell Workshop, University of Oxford, Department of Pediatrics, St. Anne's College, Oxford, UK

2008 Plenary Speaker, Workshop on Nutritional Immunology, Technical University of Denmark, Elsinore, Denmark

2008 Keynote Speaker, Microbial-Host Interaction: Tolerance vs. Allergy. 64th Nestlé Nutrition Institute Workshop Pediatric Program, Sydney, Australia

2009 Lecturer, Astra Zeneca Faculty Seminar Series, Faculty of Life Sciences, University of Manchester, England

2009 Keynote Lecturer, 5th AICCS Carbohydrate Symposium, Banff, Alberta

2010 RGE Murray Lecturer, Department of Microbiology and Immunology, Schulich School of Medicine & Dentistry, The University of Western Ontario, London, Ontario

2010 Plenary Lecturer, World Immune Regulation Meeting, WIRM-IV, Davos, Switzerland

2011 Plenary Lecturer, 15th International Congress of Mucosal Immunology (ICMI), Université Paris Descartes, Paris, France

2011 Plenary Lecturer, Pasteur Institute, Paris, France

2012 Plenary Lecturer, 8th National Carbohydrate Symposium, Alberta Glycomics Centre, University of Alberta, Banff Park Lodge Resort, Banff, Alberta

- 2012 Plenary Lecturer, Harvard Armenise Symposium, Certosa di Potignano, Italy
- 2012 Plenary Lecturer, Scientific Exchange Meeting, Novartis Vaccines & Diagnostics, Siena, Italy
- 2012 Plenary Lecturer, Keystone Symposia on Molecular and Cellular Biology, Immunological Mechanisms of Vaccination, Ottawa, Canada
- 2013 Plenary Lecturer, Cell Symposia, Microbiome and Host Health 2013, Lisbon Portugal
- 2013 Keynote Speaker, International Congress on Meningeal Vaccines, Havana, Cuba
- 2013 Plenary Lecturer, The Fondation-Merieux Symposium on Targeting Commensal Flora to Better Shape Protective Immune Responses for Better Disease Prevention and Therapy, Annecy, France
- 2013 Plenary Lecturer, Cambridge Immunology Forum 2013, “The Microbiota meets the Immune System”, Pembroke College, Cambridge, England
- 2013 Keynote Lecturer, Vietnamese Medical Association, Ho Chi Minh City, Vietnam
- 2014 Keynote Lecturer, System-Wide Networks in Immunology, VIB, Ghent, Belgium
- 2014 Keynote Lecturer, 20th Congress of the International Organization for Mycoplasma, Blumenau, Brazil
- 2014 Invited Speaker, Charles Gould Easton Seminar Series, Department of Immunology, University of Toronto
- 2015 Invited Speaker, McGill University, Montreal, Canada
- 2015 Invited Speaker, Cold Spring Harbor Asia Symposium, Suzhou, China
- 2015 Invited Speaker, Chinese Academy of Science, Institute of Carbohydrate Chemistry, Shanghai, China
- 2015 Invited Speaker, Yangling University, Yangling, China
- 2015 Invited Speaker, Chinese Academy of Science, Institute of Bacteriology, Beijing, China
- 2015 Invited Speaker, Chinese Academy of Science, Institute of Biophysics, Beijing, China
- 2016 Plenary Speaker, Next Gen Immunology 2016, Weizmann Institute, Rehovot, Israel
- 2016 Keynote Lecturer, Israel Society for Microbiology, Bar Ilan University, Israel
- 2019 Plenary Lecturer, Global Drug Commercialization Center (GDCC) Symposium, Chengdu, China
- 2019 Keynote Lecturer, Quebec Microbiome Research Symposium, Montreal
- 2022 Plenary Lecturer, Research and Innovation in Vaccine Development Against Infectious Diseases, University of Siena, Italy
- 2024 Paul Ehrlich and Ludwig Darmstetter Prize recipient speaker Frankfurt, Germany

Report of Clinical Activities and Innovations

Current Licensure and Certification

- 1973 American Board of Internal Medicine
- 1973 Massachusetts Medical License

Practice Activities

- | | | | |
|-----------|---------------------|------------------------------|---------------|
| 1974-1977 | Infectious Disease | Boston City Hospital | 2 months/year |
| 1977-1980 | Infectious Diseases | Brigham and Women’s Hospital | 2 months/year |

1977-1980	Internal Medicine	Brigham and Women's Hospital	1 month/year
1981-1994	Internal Medicine	Beth Israel Hospital	1 month/year
1981-1995	Infectious Disease	Beth Israel Hospital	2 months/year

Report of Technological and Other Scientific Innovations

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Use of Zwitterionic Polysaccharides for the Specific Modulation of Immune Processes (Kasper DL, Roehrl MH, Wang JW), US Patent No. 10/432406, filed 2003

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Complex Human Gut Microbiome Cultured in an Anaerobic Human Gut-on-a-Chip (Bein, A; Calamari, EL; Camacho, DM; Cronce, MJ; Fadel, C; Gazzaniga, FS; Ingber, DE; Jalili-Firoozinezhad, S; Kasper, D; Nestor, BA; Novak, R), US Serial No. 15/733,716, filed 10/2/20, pending

Complex Human Gut Microbiome Cultured in an Anaerobic Human Gut-on-a-Chip (Bein, A; Calamari, EL; Camacho, DM; Cronce, MJ; Fadel, C; Gazzaniga, FS; Ingber, DE; Jalili-Firoozinezhad, S; Kasper, D; Nestor, BA; Novak, R), Australia Serial No. 2019247650, filed 4/2/19, pending

Complex Human Gut Microbiome Cultured in an Anaerobic Human Gut-on-a-Chip (Bein, A; Calamari, EL; Camacho, DM; Cronce, MJ; Fadel, C; Gazzaniga, FS; Ingber, DE; Jalili-Firoozinezhad, S; Kasper, D; Nestor, BA; Novak, R), Canada Serial No. 3095749, filed 4/2/19 pending

Complex Human Gut Microbiome Cultured in an Anaerobic Human Gut-on-a-Chip (Bein, A; Calamari, EL; Camacho, DM; Cronce, MJ; Fadel, C; Gazzaniga, FS; Ingber, DE; Jalili-Firoozinezhad, S; Kasper, D; Nestor, BA; Novak, R), U.K. Serial No. 2016980.1, filed 4/2/19, pending

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Methods and Compositions for Treating Cancer (Gazzaniga, FS; Kasper, D; Park, JS; Sharpe, AH), Australia Serial No. 2020237225, filed 3/12/20, pending

Methods and Compositions for Treating Cancer (Gazzaniga, FS; Kasper, D; Park, JS; Sharpe, AH), Brazil Serial No. 112021017864, filed 3/12/20, pending

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Narrative Report (limit to 500 words)

I work at the interface of microbiology and immunology and focus primarily on infectious diseases. I have had a long interest in bacterial polysaccharides and have developed a vaccine to prevent neonatal infection with group B *Streptococcus* (GBS). GBS has been one of the most serious infections of

newborns throughout the world. We showed that 1) infants born to antibody-positive women acquired maternal anticapsular antibody in utero and were protected against infection. This seminal observation defined antibody deficiency as a key risk factor for GBS infection and was the rationale for developing a polysaccharide-based vaccine. We identified, structurally defined, and immunochemically analyzed each capsular polysaccharide representing the 9 capsular types of GBS; 3) created polysaccharide and polysaccharide-protein conjugate vaccines as well as conducted extensive testing in animals in early clinical trials; and developed a new paradigm for the mechanism of immunogenicity of polysaccharide-protein conjugates.

I have been doing microbiome research for nearly 50 years working specifically at the interface of the microbiome and the immune system. My work has profound implications for human health in delineating the roles of gut microbes and microbial molecules in stimulating development, maturation and modulation of the immune system in health and disease. Using a powerful combination of innovatively integrated microbiology, immunology, chemistry and genetics, his work has led to this new and dynamic research field. We were the first to identify specific microbial molecules found on bacteria in the gut and discovered molecules that modulate the immune system. We defined the phylogenetic diversity, immune mechanisms, and immunomodulatory therapeutic potential of gut bacteria and investigated their central role in controlling manifestations and susceptibility to both autoimmune and infectious diseases. We discovered several new avenues by which a symbiont can influence host immunity, including: 1) glycosphingolipids made by *Bacteroides fragilis* can modulate invariant NKT cells and thereby control experimental colitis; 2) identification of microbial metabolites of bile acid as key regulators of gut regulatory T cells (Treg) acting through the Vitamin D receptor (VDR); 3) discovering polysaccharide A (PSA) from *B. fragilis* and determining its mechanism of stimulating IL-10 production by regulatory T cells, as well as how PSA modulates control of Th1/Th2 balance of the systemic immune system; 4) development of detailed insight into mechanistic interactions of PSA with the host, resulting in protection against immune-mediated disease; 5) finding that the commensal microbiota elicit protective maternal antibodies protecting neonates from enterotoxigenic pathogens; 6) identifying the first molecules from the microbiome with potent immunomodulatory effects; 7) broadly identifying the immunomodulatory effects of phylogenetically diverse human gut microbes and showed most microbes exert several specialized, complementary, and redundant transcriptional and immunomodulatory effects; 8) demonstrating that triangulation of microbe-phenotype relationships is an effective method for reducing the noise inherent in microbiota studies and enabling identification of causal microbe; and, 9) discovering that combined blockade of the RGMb/PD-L2 plus PD-1/PD-L1 interactions promoted tumor regression in germ-free, antibiotic-treated, and specific pathogen-free mice, as well as in mice colonized with stool from melanoma patient non-responders to α PD-1, where α PD-1 or α PD-L1 treatment alone failed. My work has provided a structural foundation for investigation of gut microbiota-host mutualism, highlighting key players that have important therapeutic potential.