

STEVE A. N. GOLDSTEIN M.A., M.D., Ph.D., F.A.A.P.
Vice Chancellor Health Affairs and Distinguished Professor
University of California, Irvine

Education

Brandeis University, Waltham	B.A./M.A.	1978	Biochemistry
Harvard Medical School, Boston	M.D.	1986	Medicine
Harvard University, Cambridge	Ph.D.	1986	Immunology

Career

- 1986-1993** **Harvard University and Howard Hughes Medical Institute**
Intern and Resident, Pediatric Medicine, Boston Children's Hospital
Clinical Fellow, Pediatric Cardiology, Boston Children's Hospital
Research Fellow, Ion Channel Biophysics, HHMI-Brandeis (C. Miller)
- 1993-2004** **Yale University, New Haven, CT**
Member, Boyer Center for Molecular Medicine
Assistant Professor, Pediatrics (Cardiology) and Cell & Molecular Physiology
Associate Professor with Tenure
Section Chief, Developmental Biology & Biophysics
Professor
- 2004-2011** **University of Chicago, Chicago, IL**
Professor, Pediatrics, Cancer Center, Computational Neuroscience, Molecular
Medicine, Neurobiology, Pharmacology & Pharmacogenomics
Chairman, Department of Pediatrics
Founding Physician-in-Chief, Comer Children's Hospital
Founding Director, Institute of Molecular Pediatric Science
Founding Co-PI, CTSA-Institute of Translational Medicine
Director, Pediatrician-Scientist Training Program
- 2011-2017** **Brandeis University, Waltham, MA**
Professor, Biochemistry
Provost and Senior Vice President for Academic Affairs
Senior Vice President and Advisor to the President
- 2017-2019** **Loyola University Chicago, IL**
Professor, Pediatrics and Cell & Molecular Physiology
Dean and Chief Diversity Officer, Stritch School of Medicine
Member, Board of Trustees, Loyola University Health System/Trinity Health
- 2019-present** **University of California, Irvine**
Distinguished Professor, Pediatrics, Physiology & Biophysics, and
Pharmaceutical Sciences
Vice Chancellor, Health Affairs
Governing Body Chair, UCI Health

Government and NGO service

- 2005-present National Institutes of Health, Bethesda, MD**
Scientific Advisor, Roadmap in Nanomedicine, DATACounts
- 2014-2017 National Science Foundation, Washington, DC**
Biological Sciences Directorate Advisory Committee
Member (2014-2015), Vice-Chair (2015-2017)
- 2018-present Association of American Medical Colleges, Washington, DC**
Member, Steering Committee, Group on Diversity and Inclusion (2018-2019)
Member, Liaison Committee on Medical Education Dean's Group (2018-2019)
Medical Center Leaders Caucus (2019 – 2022)
Council of Academic Health System Executives (CAHSE) (2019 – present)
- 2020-2022 Association of Academic Health Centers, Washington, DC**
Member, President's Council, Learning Health Systems
- 2021-2025 Health Ecosystem Collaborative, MITRE, Bedford MA**
Member, Leadership Group, Health Data Policy
- 2022-present Global Health Data Ecosystem, Boston, MA**
Co-creator with M. Bertagnolli MD (former Director NIH) and others
- 2024-present Foundation of the National Institutes of Health, Bethesda, MD**
Member, Health Data Think Tank

Academic Activities and Awards

Citations and Awards

Phi Beta Kappa, Magna Cum Laude, R. M. Bailer Science Award (1978, Brandeis)
Soma Weiss Lectureship (1980, Harvard)
Clinical Investigator Development Award (1992, NIH)
New Investigator Award (1994, Donaghue Foundation)
Yale University, Master of Arts Privatum (2001, honorary degree)
E. Mead Johnson Award (2001, Society for Pediatric Research)
Distinguished Clinical Scientist Award (2001, Doris Duke Charitable Foundation)
Pritzker Scholar (2004-2009, University of Chicago)
Orange County Business Journal, OC500, Directory of Influence. 2019.
Fellow, American Association for the Advancement of Science (AAAS), elected 2020
World's Top 2% Scientists 2021, Stanford University
22 Innovators to Watch in 2022 (The Irvine Standard)

Editorial Boards

Editor, Quarterly Reviews of Biophysics, Cambridge University Press, 2001-2002
Editorial Advisory Board, Current Molecular Medicine, 2001-2006
Editor-in-Chief, Quarterly Reviews of Biophysics, Cambridge University Press, 2002-2007

Science, Medical and Educational Boards

Member, Scientific Board, Chicago Biomedical Consortium, 2005-2011
Chairman, Global Youth Summit on the Future of Medicine (Brandeis), 2013-2018
Healthcare Management and Policy Center, UCI, 2019-present
Chair, UCI Susan & Henry Samueli College of Health Sciences Advisory Board, 2019-present
Executive Committee, CEO Leadership Alliance of Orange County, Irvine, CA, 2020-present
Ex-officio, UCI Foundation Board 2024-present

Clinical Certifications and Affiliations

National Board of Medical Examiners (#259349), 1989
Physician Licensure, 1989-present (by State: MA #59702; CT #034213; IL #036.111231)
American Board of Pediatrics, Board Certified (#219280), 1992
Pediatric Cardiology, BE, 1991
Fellow, American Academy of Pediatrics, 2008-present
Advisor and Volunteer, Save the Children International, 2009-2013

Review, Grants

NIH-NHBLI ad hoc, 1993 onward
Israel Science Foundation, ad hoc, 1994 onward
American Heart Association, ad hoc, 1994 onward
NIH-NIGMS ad hoc, 1995 onward
NIH-CSR, ad hoc 2000 onward
NIH-MDCN3 ad hoc, 1999-2002; member, 2003-2007

Review, Journals

ACS Chemical Biology, American Journal of Physiology, Biochemistry, Biophysical Journal, Cell, Circulation Research, Circulation, eLife, EMBO Journal, EMBO Molec Med, FASEB Journal, Journal of Biological Chemistry, Journal of Clinical Investigation, Journal of General Physiology, Journal of Molecular Biology, Journal of Neuroscience, Journal of Physiology, Nature, Nature Communications, Nature Medicine, Nature Neuroscience, Nature Reviews Neuroscience, Neuron, Pediatric Research, PLOS, Proc. Nat'l. Acad. Sci. (USA), Science, and Science Signaling.

International Meetings Organized

Chairman, 1999 Ion Channel Structures and Function (New Haven)
Vice-Chairman, 2004 Ion Channel Gordon Research Conference
Chairman, 2006 Ion Channel Gordon Research Conference

Society Memberships

Biophysical Society, 1990-present
Society of General Physiologists, 1995-2010
Society Pediatric Research, 1997-present
American Pediatric Society, 2004-present
American College of Healthcare Executives, 2016-present

Other Professional

Commercial

Founder, Calamus Biosciences, LLC, Chicago & San Francisco, 2008 – 2016
Patents (5)

Consultant

Quidel, La Jolla, CA 1985-1990
American Cyanamid, Wayne, NJ, 1993-2000
PGxHealth, 2000-2008
Structural GenomiX, San Diego, CA, 2000-2002
Centecor (J&J), La Jolla, 2006-2012
Gene Grafts, Haifa, Israel, 2004 – 2016

Community

Member, Board of Directors, Wightwood School, Branford, CT, 1995 - 1998
Executive Committee, CEO Leadership Alliance of Orange County, 2019-present.

Executive Resume available on request

Research

My approach is to identify the genes for native channel currents, isolate protein partners, delineate the structural-mechanistic bases for operation, recapitulate physiology and pathophysiology, and develop diagnostic tests and therapies for life-threatening diseases.

Selected highlights

Mechanism and treatments for sudden cardiac ion channel diseases. We demonstrated that the pathogenesis for unpredictable, life-threatening cardiac arrhythmia is inherited predisposition for both inherited and acquired disorders of the heart. First, we identified rare inherited mutations associated with LQTS and sudden death. Then, we identified polymorphisms in the general U.S. population that sensitize patients to drug-induced LQTS by increasing the affinity for cardiac ion channels of common drugs. Further, sudden infant death syndrome (SIDS) was thought to be of non-cardiac origin, but we isolated rare sodium channel mutations that caused LQTS-like changes as well as a polymorphism in 10% of SIDS cases in African Americans that altered function under physiological stress (acidosis). Another common pathway links hypoxia and SUMO (next).

- Plant, L.D., et al. 2020. Hypoxia produces pro-arrhythmic late sodium current in cardiac myocytes by SUMOylation of Nav1.5 channels ***Cell Reports*** 30(7):2225-36. e4
- Plant, L.D., et al. 2006. A common cardiac sodium channel variant associated with sudden infant death in African Americans, *SCN5A* S1103Y. ***J. Clin. Invest.*** 116:430-435.
- Sesti, F., et al. 2000. A common polymorphism associated with antibiotic-induced cardiac arrhythmia. ***Proc Natl Acad Sci.*** 97:10613-10618.
- Abbott, G. W., et al. 1999. MiRP1 forms IKr potassium channels with HERG and is associated with cardiac arrhythmia. ***Cell.*** 97:175-186.

SUMO regulation of excitable membranes—response to hypoxia. We discovered in 2005 that SUMO, a protein regulator previously known for its activity on nuclear transcription factors, is required for normal operation of ion channels at the cell surface. First, we showed this for K2P1 (I_{KSO} in cerebellar granule neurons), Kv2.1 (I_{DR} in hippocampal neurons), and then Nav1.2 (brain) and Nav1.5 (heart). This new regulatory pathway acts by covalent modification of channels with SUMO by enzymes we showed to be resident at the plasma membrane. The surprising emergence of SUMO regulation outside of the nucleus is an active area as new plasma membrane targets are identified, in vivo regulators of SUMOylation are pursued, and we study its role in disease, notably, acute hypoxia in the brain and heart.

- Kotler, O., et al. 2023. SUMOylation of Nav1.2 channels regulates the velocity of backpropagating action potentials in cortical pyramidal neurons. *eLife*. 12:e8143.
- Plant, L.D., et al. 2016. SUMOylation of Nav1.2 channels mediate the early response to acute hypoxia in central neurons. *eLife*. 5:e20054.
- Plant, L.D., et al. 2012. SUMOylation silences heterodimeric TASK potassium channels containing K2P1 subunits in cerebellar granule neurons. *Science Signaling*. 5 (251), ra84.
- Rajan, S., et al. 2005. Sumoylation silences the plasma membrane leak K⁺ channel K2P1. *Cell*. 121:37-47.

Design of peptide therapeutics to treat inflammatory diseases. We create de novo peptide blockers of ion channels using phage display and structural biology. Designed based on natural neurotoxins the method has succeeded in isolation of ligands of improved specificity that diminish unwanted side effects of current medications. With nM-pM affinity for “orphan” receptors that previously lacked specific inhibitors, one example is C6 that has revealed the role of the hHv1 proton channel in human sperm and neutrophils and is being used now in animal models to suppress inflammatory tissue damage in lung injury/acute respiratory distress, neuropathic pain, and neurodegeneration. We also develop methods, notably, single molecule spectroscopy to study target-peptide composition in live cells in real time.

- Zhao, R., et al. 2023. Protection from acute lung injury by a peptide designed to inhibit the voltage-gated proton channel. *iScience* 26(1). doi.org/10.1016/j.isci.2022.105901
- Zhao, R., et al. 2021. Direct activation of the proton channel by albumin leads to human sperm capacitation and sustained release of inflammatory mediators by neutrophils *Nature Communications* 12(10).
- Zhao, R., et al. 2020. Tethered peptide neurotoxins display two blocking mechanisms in the K⁺ channel pore as do their untethered analogues *Science Advances* 6(10): eaaz3439.
- Zhao, R., et al. 2018. Role of human Hv1 channels in sperm capacitation and white blood cell respiratory burst established by a designed peptide inhibitor *Proc. Natl. Acad. Sci. (USA)*. Dec 11;115(50) E11847-E11856.

Discovery of Ion channel accessory subunits. We discovered the MinK-related gene superfamily (MiRPs, KCNE2-4), which assemble into voltage-gated K⁺ channels (Kv) to produce native currents and mediate diseases such as long QT syndrome (LQTS) and periodic paralysis. As genes for Kv subunits were discovered it became clear they did not recapitulate native currents on their own. We showed MinK (KCNE1), a 129 residue, single membrane span protein, established the attributes of mixed complexes (e.g., unitary conductance, gating kinetics, regulation, ion selectivity, drug sensitivity) through association with KCNQ1 and

HERG subunits that form I_{Ks} and I_{Kr} in the heart and their association with inherited and acquired arrhythmia. Accessory subunits allow the same Kv subunits to operate distinctly in different cells. Other subunits we have studied include APPs, KChIPs, DPPs, & KCTDs.

- Zhao, R., et al. 2025. Amyloid Precursor Protein and C99 are subunits in human microglial Hv1 channels that enhance current and inflammatory mediator release. *Proc. Natl. Acad. Sci.* 122 (43) doi.org/10.1073/pnas.2509903122
- O'Kelly, et al. 2002. Forward Transport: 14-3-3 binding overcomes dibasic retention in endoplasmic reticulum by dibasic signals. *Cell.* 111:577-588.
- Abbott, G. W., et al. 2001. MiRP2 forms potassium channels in skeletal muscle with Kv3.4 and is associated with periodic paralysis. *Cell.* 104:217-231.
- Tai, K-K. & S.A.N. Goldstein. 1998. The conduction pore of a cardiac potassium channel. *Nature.* 391:605-8.

Discovery of the K2P channels: the basis for background K⁺ currents.

We discovered the K2P superfamily in yeast, worms, flies, and mammals in 1995, 50 years after Hodgkin and Huxley described background K⁺ currents to control excitable membrane function by setting resting potential, subject to a plethora of regulatory influences. We showed the currents were passed by dedicated pathways rather than “leak” through miscellaneous portals. Over the following years, we have helped to describe the 15 KCNK genes for K2P channels in humans, elucidating their roles in the heart and nervous system and their tissue-specific and developmental regulation. This field has matured to the phase of seeking disease associations. In yeast, we called the channels TOKs because they operate as outward rectifiers; unique to fungi, TOKs serve as receptors for RNA virus toxins that impact agriculture and human infections, with commercial and therapeutic utility.

- Thomas, D., et al. 2008. Alternative translation initiation in rat brain yields K_{2P}2.1 K⁺ channels permeable to sodium. *Neuron.* 58:859-870.
- Ahmed, A., et al. 1999. A molecular target for viral killer toxin: TOK1 potassium channels. *Cell.* 99:283-291.
- Goldstein, S.A.N., et al. 1996. A K⁺-selective leak channel with two pore domains cloned from *Drosophila melanogaster* by expression in *Saccharomyces cerevisiae*, ORK1. *Proc Natl Acad Sci.* 93:13256-13261.
- Ketchum, K. A., et al. 1995. A new family of outwardly rectifying K⁺ channel proteins with two pore domains in tandem. *Nature.* 376:690-5.

Active Grants

NIH/NHLBI R01HL159711-07 (PIs Goldstein / Zhao) 07/01/22 – 06/30/26

hHv1 channels in neutrophils and the innate immune inflammatory response

This research addresses the absence of an effective medical therapy for acute lung injury (ALI), a common disorder in patients with infectious pneumonia, and its severe form, acute respiratory distress syndrome (ARDS) that is fatal in 40% of patients. The work is broadly impactful because neutrophils damage the lungs in infectious ALI/ARDS by releasing mediators under the control of hHv1 and cause other inflammatory diseases. Here, we confront ALI by a novel strategy: targeting hHv1, both directly and by blocking a natural activator of hHv1, albumin (Alb), offering two ways to combat the disease at the earliest stage before it becomes a more complex disorder.

NIH/NINDS (PIs Zhao / Goldstein)

06/08/23 – 06/07/26

R61/R33 Innovation Grants to Nurture Initial Translational Efforts (IGNITE): Assay Development and Neurotherapeutic Agent Identification

Here we develop and deploy a novel HTS assay to identify botanical Hv1 channel blockers that will suppress production, release, and damage caused by microglia inflammatory mediators, providing a new pharmacological approach to neuropathic pain. R61: Optimize the HTS assay, seeks to improve and validate the performance and sensitivity of the live-cell, fluorescence-based HTS assay for small molecules. The R33 phase: select leads from a unique library of plant extracts (>1,500 extracts with >15,000 estimated compounds), assess potency and specificity of hits as inhibitors of Hv1 channels by electrophysiology. R33: Study suppression of the microglial inflammatory response with identified botanical Hv1 blockers to suppress release of ROS and proinflammatory cytokines attenuating chronic pain in a spinal nerve transection-induced mouse model.

Submitted Grants

NIH/NHBLI R01 (co-PIs Goldstein and Chiamvimonvat)

Nav1.5 SUMOylation as a therapeutic target for acute MI arrhythmia and pump failure

Myocardial infarction (MI) is a life-threatening disease for 7 million people worldwide each year. During the acute phase of MI there is an excess of I_{LATE} , a sodium current that passes through cardiac Nav1.5 channels and contributes to dangerous arrhythmias, heart muscle dysfunction, and sudden death. Here, we study the inhibition of Nav1.5 SUMOylation as a new therapeutic strategy to suppress I_{LATE} and its dangerous effects.

NIH/NIA R01 (mPIs Zhao and Goldstein)

Structural and Functional Regulation of Hv1 Proton Channels by Accessory Proteins

This research investigates how voltage-gated proton channels (Hv1) are regulated by newly-identified accessory proteins: the members of the APP and KCNE families. By defining these interactions in human microglia and neutrophils, we aim to uncover mechanisms that control inflammation and immune responses. The findings will address a critical gap in proton channel biology and identify novel therapeutic targets to reduce Hv1-driven inflammatory damage in conditions such as Alzheimer's Disease, ischemic stroke, neuropathic pain, and acute lung injury.

Grants Completed Last 12 years

BSF 2017243 (co-PIs J. Chill and S. Goldstein)

10/01/18 – 09/30/22

The role of toxin dynamics in molecular recognition between KcsA and its inhibitors

This renewal award from the Binational Science Foundation supports our study by NMR spectroscopy and electrophysiology to describe the basis for neurotoxin binding on channel function (Dr. Chill is a faculty member at Bar Ilan University).

NIH/NIGMS R01 GM111716 (PI Goldstein)

04/01/15 – 03/31/20

De novo protein neurotoxins for ion channels

This research employs a novel phage display strategy to create specific peptide neurotoxins for orphan receptors to treat Atrial Fibrillation and Type 2 Diabetes.

BSF 2013185 (co-PIs J. Chill and S. Goldstein)

10/01/14 – 09/30/18

Channel-toxin complexes reveal the mechanism of KcsA inhibition

This research employs NMR spectroscopy and electrophysiology to describe the structural basis for neurotoxin binding and channel function.

NIH/NHLBI R01 HL105949 (PI Goldstein)

07/01/11 – 11/30/16

Channels with KCNE Subunits: Conformational Dynamics

This research employs spectroscopy and electrophysiology to describe movement of the proteins in these channels critical to cardiac rhythm as they function in real time.

NIH/NIGMS U54 GM087519 (PI Core 5 Goldstein)

05/01/10 – 04/30/15

Membrane protein structural dynamics consortium

A consortium. Role: Goldstein was Executive Advisor and the PI of Core 5 (Phage display synthetic toxin pipeline) to develop high affinity ligands for target proteins.

NIH/NINDS R01 NS058505 (PI Goldstein)

07/01/07 – 06/30/13

New Family of Voltage-gated Potassium Channel Regulatory Subunits

The three aims are: (1) to study SUMO and Kv2.1 in vitro and in hippocampal cells. (2) To study SUMO, Kv4.3, KChAP and KChIP2 in vitro and cerebellar granule neurons. (3) To assess the mechanistic basis for SUMO action on Kv channels.

Training Grants

UC Irvine 2019-present (Faculty)

Immunology Training Grant (PI E. Perlman)

Cardiovascular Applied Research & Entrepreneurship Training Program (PI C. Hughes)

Epilepsy Research Training Program (PI. T. Baram)

Medical Scientist Training Program (PI A. Goldin)

University of Chicago 2004-2011 (Steering Committee and/or Faculty)

Interdisciplinary Scientist Program

Biophysics & Synthetic Biology

Cardiovascular Pathophysiology & Biochemistry

Brandeis University 2011-2016 (Faculty)

Quantitative Biology; Biochemistry; Neurobiology

Trainees

Trainees are engaged in the theory and methodology. My mentoring style is to listen, counsel, delegate and hold people accountable as crucial members of the enterprise to help them gain skills and assume responsibility for their achievements.

Postdoctoral Research Fellows (41)

D. Rosenthal, M.D.	1993-1994	Faculty (Stanford University)
J. Du, M.D.	1993-1995	Research scientist (Retired)
K. K. Tai, Ph.D.	1993-1997	Research scientist (Academia)
K. W. Wang, Ph.D.	1993-1997	Dean, School of Pharmacy (Qingdao)
A. Sellers, Ph.D.	1994-1995	Research scientist (Industry)
K. Ketchum, Ph.D.	1995-1996	Research scientist (Industry)

N. Ilan, Ph.D.	1996-2000	Faculty (Tel Aviv/Deceased)
A. Ahmed, Ph.D.	1997-1999	Faculty (King's College London)
C. Lopes, Ph.D.	1997-2000	Faculty (University of Rochester)
N. Zilberberg, Ph.D.	1997-2001	Faculty (Ben Gurion University)
G. Abbott, Ph.D.	1997-2001	Faculty, Physiology and Biophysics (UCI)
F. Sesti, Ph.D.	1997-2001	Faculty (Rutgers)
D. Bockenbauer, M.D.	1998-2000	Faculty (University College London)
T. Shih, Ph.D.	1998-2003	Unknown
N. Nikoleva, Ph.D.	1999-2002	Research scientist (Industry)
H. Chen, Ph.D.	2000-2003	Faculty (SUNY, Albany)
I. O'Kelly, Ph.D.	2000-2002	Faculty (University of Manchester)
D. Levy, M.D., Ph.D.	2001-2006	Administration (Abbott Laboratories)
A. Kollewe, Ph.D.	2001-2009	Research scientist (Academia)
S. Rajan, Ph.D.	2001-2006	CEO (Prana Diabetes)
C. Wilkens Ph.D.	2002-2003	Research scientist (Industry)
Q. Liu Ph.D.	2003-2004	Research scientist (Industry)
L. Plant Ph.D.	2003-2007	Faculty (Northeastern University)
H. Soh Ph.D.	2003-2007	Faculty (University of Portsmouth)
D. Thomas Ph.D.	2004-2007	Faculty (Medical University, Heidelberg)
Z. Takacs Ph.D.	2004-2008	Research scientist (Columbia University)
A. Lewis Ph.D.	2004-2010	Faculty (University of Portsmouth)
Z. McCrossen Ph.D.	2004-2010	Research scientist (Academia)
Y. Mishina Ph.D.	2006-2009	Research scientist (Academia)
J. Silva Ph.D.	2008-2010	Faculty (Washington University St. Louis)
L. Zuniga Ph.D.	2008-2010	Faculty (Universidad de Talca)
R. Xia Ph.D.	2010-2011	Research scientist (Industry)
R. Zhao Ph.D.	2010-2017	Goldstein laboratory
D. Urusova Ph.D.	2011-2013	Research scientist (Academia)
H. Dia Ph.D.	2011-2017	Goldstein laboratory
D. Xiong Ph.D.	2012-2019	Research scientist (Industry)
R. Finol-Urdaneta Ph.D.	2013-2014	Postdoctoral fellow (Brandeis)
S. Williams Ph.D.	2014-2015	Research scientist (Industry)
T. Li Ph.D.	2014-2017	Postdoctoral fellow (MIT)
D. LaJoie, Ph.D.	2016-2017	Research scientist (Industry)
B. Bezabeh Ph.D.	2020-2023	Research scientist (Industry)
M. Kourghi Ph.D.	2020-2023	Research scientist (Industry)

Thesis and undergraduate students (15)

J. Xie	MA Program, Yale-BMB	1995-1997
C. Komer	MD Program, Yale	1997-1999
A. Qasim	MA Program, Yale-Physiology	1997-1999
L. Kim	MD/PhD Program, Yale-Physiology	1999-2003
E. Johnson	MD/PhD Program, UC- Chemistry	2006-2008
K. Ruscic	MD/PhD Program, UC-Comp Neurosci	2006-2012
J. Park	Brandeis undergraduate	2011-2015
O. Levine	Brandeis undergraduate	2012-2013
C. Klinger	Brandeis undergraduate	2012-2013

M. Shapiro	Brandeis undergraduate	2012-2015
F. Zhao	Brandeis undergraduate	2012-2016
K. Kennedy	PhD Program, Brandeis Biochemistry	2013-2016
M. Nayak	PharmD Program, UCI	2023-present
P. Sophanpanichkul	PharmD Program, UCI	2023-present
Yiwen Deng	PharmD Program, UCI	2024-present

Faculty Scholars (13, *5 were fellows first in Goldstein laboratory)

P. Gallagher MD	Yale, NICU	1997-2000
S. Frankel PhD	Yale, DBB	1998-2002
*D. Bockenhauer MD	Yale, DBB	2000-2002
P. Bowers MD	Yale, Cardiology	2000-2003
M. Butler PhD	UChicago, IMPS	1998-2008
I. Dementieva PhD	UChicago, IMPS	2006-2011
*L. Plant PhD	UChicago, IMPS	2007-2017
*Z. Takacs PhD	UChicago, IMPS	2008-2011
Z. Vargass PhD	Brandeis, Biochemistry	2012-2013
J. Romero-Munoz PhD	LUC, Cell & Molecular Physiology	2017-2019
*R. Zhao PhD	UCI, Physiology and Biophysics	2017-present
*H. Dia PhD	UCI, Physiology and Biophysics	2017-present
Z. Wang PhD	UCI, Physiology and Biophysics	2020-2023

Teaching

Director, Journal Club on Transport, 1994-2001
 Director, Postgraduate courses in pediatric research, 1996-2000
 Director, Departmental seminar series on biomedical research, 1999-2003
 Director, Ion channel research group seminars, 2000-2011
 Faculty, medical school courses in physiology, 1999-2010
 Faculty, medical school courses in cell biology, 1999-2010
 Faculty, clinical: Attending in General Pediatrics, 1994-2011
 Faculty, clinical: Morning Report, 1994-2011
 Chair & Physician-in-Chief Rounds, 1994-2011
 Faculty, undergraduate courses in neurophysiology, 1999-present*
 Faculty, undergraduate courses in biophysics, 1999-present*
 Faculty, graduate courses in neurophysiology, 1999-present
 Faculty, graduate courses in biophysics, 1999-present
 UCI BioSci 199 (Physiology of Ion Channels), 2023-present
 UCI Physiology 200, 2023-present; UCI Physiology 200R, 2023-present
 UCI Physiology 299, 2023-present

Invited lectures (selected)

1998 American Pediatric Society (New Orleans)
 1998 Gordon Research Conference on Ion Channels
 1998 Bristol-Myers Symposium (Salt Lake City)

1998 American Heart Association (Dallas)
1999 American Physiology Society (Keystone)
1999 Niland Lecture, University of Michigan (Ann Arbor)
1999 Life Sciences Colloquium (Brandeis University)
2000 Keystone/Ion channel disease (Tahoe)
2000 American Pediatric Society (Boston)
2000 Gordon Research Conference on EC-coupling
2000 Institute Science & Technology (Kwangu)
2000 American Heart Assoc (New Orleans)
2000 Korean Physiological Society Keynote (Taegu)
2001 Society Pediatric Research (Baltimore)
2002 U.K. Physiological Society (Leeds)
2004 Gordon Research Conference on Ion Channels
2004 Bierman Lecture, McGill University (Montreal)
2007 U.K. Physiological Society (Leeds)
2007 Rambam Hospital Lecture Series (Haifa)
2008 Université de Montréal and McGill University XXVth
2008 Gordon Research Conference on Ion Channels
2009 Ion Channels 2009 (Vancouver)
2010 Technion Institute Seminars (Haifa)
2010 International Symposium: K2P Kanale (Marburg)
2010 Drug Discovery 2010 (Coventry)
2011 New Frontiers in Ion Channel Physiology (Hamburg)
2012 Getz Memorial Lecture in Cardiology (Brandeis)
2013 American Physiological Society (Boston)
2013 OXION Guest Lecture (Oxford University)
2013 FASEB/Ion channel regulation (Nassua)
2014 Physiology Colloquium Annual Guest Speaker (Yale)
2015 5th International Ion Channel Conference (Luzhou)
2015 Ion Channel Symposium (Zhejiang University)
2015 Pharmacology Guest Speaker (Peking University, Beijing)
2015 Medical College Guest Speaker (Xi'an Military Medical University)
2015 Israel Society for Biochemistry & Molecular Biology (Bar-Ilan University, Ramat-Gan)
2018 Tennessee Physiological Society Keynote (UT, Vanderbilt and St. Jude, Memphis)
2018 Texas Tech University Health Sciences Center (Lubbock)
2019 Artificial Intelligence in Biomedicine (UCLA)
2022 Keynote - The Future of Healthcare (UCI)
2023 Precision Medicine World Conference (Silicon Valley)
2023 Harnessing the Power of Real-World Evidence (UC CDI2 Systemwide)
2023 Sophion Bioscience Ion Channel Modulation Symposium (Beckman Center, CA)
2024 Health Care Forecast Conference, Irvine, CA
2024 Grand Rounds, Children's Hospital of Philadelphia, PA
2025 Dorfman Lecture, University of Chicago, IL

Bibliography

Google Scholar link: <https://tinyurl.com/ycnqnwqt>

In March 2026: citations 15,302; h-index 59; i10-index 100

Peer-reviewed

1. Chu, N.Y.C., Goldstein, S.A., and Keehn, P.M. 1981. Substituent effects on the spectral behavior and synthesis of mercury 1,5-diarylthiocarbazonates. *Can J Chem.* **59**:679-87.
2. Goldstein, S.A., and Van Vunakis, H. 1981. Determination of Fluphenazine, related phenothiazine drugs and metabolites by combined high performance liquid chromatography and radioimmunoassay. *J Pharmacol Exp Ther.* **217**:36-43.
3. Goldstein, S.A.N., and Mescher, M.F. 1985. Carbohydrate moieties of MHC Class I alloantigens are not required for their recognition by T lymphocytes. *J Exp Med.* **162**:1381-6.
4. Goldstein, S.A.N., and Mescher, M.F. 1986. Cell-size, supported artificial membranes (Pseudocytes): response of precursor cytotoxic T lymphocytes to Class I MHC proteins. *J Immunol.* **137**:3383-92.
5. Goldstein, S.A.N., and Mescher, M.F. 1987. Cell-sized supported artificial membranes for studying cell-cell interactions. In: Goheen, S.C., ed., Membrane Proteins: Proceedings of the Membrane Protein Symposium. San Diego, CA. *Bio-Rad Public.*, U.S.A., 243-58.
6. Goldstein, S.A.N., and Mescher, M.F. 1987. Cytotoxic T cell activation by Class I protein on cell-size, artificial membranes: antigen density and Lyt-2/3 function. *J Immunol.* **138**:2034-43.
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2. Identification of toxin ligands. Patent number: 8716437. Date: May 6, 2014. Inventors: Steven A Goldstein and Zoltan Takacs
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4. Compositions and methods for inhibiting inflammatory response and treating inflammatory diseases. Provisional patent application: 63/194,502. Date: May 28, 2021. Published 01 December 2022. Assignees: University of California. Inventor: Steve A. N. Goldstein
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