

¹⁻⁵CURRICULUM VITAE
(Prepared 8/25)

Name: Robert S. Kass, Ph.D.
Birthdate: June 13, 1946
Birthplace: New York, New York
Citizenship: USA

Academic Training

University of Michigan	Ph.D. Physics	1972
University of Michigan	M.Sc. Physics	1969
University of Illinois	B.Sc. w/High Distinction, Physics	1968

Professional Organizations & Societies

American Heart Association New York State Affiliate	1986-1996
Upstate New York Heart Association Founding Member	1991-1996
Biophysical Society	1976-
American Heart Association	1978-
Society of General Physiologists (Council Member)	1984-
American Association for the Advancement of Science	1984-
ASPET	1996-
Association for Medical School Pharmacology Chairs (Council Member)	1998-
Cardiac Electrophysiology Society	2002-
American Society for Biochemistry and Molecular Biology	2003-

Academic Appointments

2019 -	Alumni and David Hosack Professor of Pharmacology (in Neuroscience)
2015-19	Alumni and David Hosack Professor of Pharmacology (in Neuroscience) and Chair
2008-15	Vice Dean for Research, Alumni and David Hosack Professor of Pharmacology (in Neuroscience) and Chair
2005-08	Alumni and David Hosack Professor and Chair, Pharmacology (in Neuroscience)
1999-05	David Hosack Professor and Chair, Dept. of Pharmacology(in the Center for Neurobiology & Behavior)
1997-99	Professor and Chair, Dept. of Pharmacology(in the Center for Neurobiology & Behavior) Columbia University College of Physicians & Surgeons
1996-97	Professor and Chair, Dept.of Pharmacology Columbia University College of Physicians & Surgeons

- 1995-96 Professor and Chair, Dept. of Pharmacology
(Administrative)
Columbia University College of Physicians & Surgeons
- 1990-96 Professor of Physiology and Pediatrics
University of Rochester, Rochester, NY
- 1988-90 Professor of Physiology
University of Rochester, Rochester, NY
- 1982-88 Associate Professor of Physiology
University of Rochester, Rochester, NY
- 1977-82 Assistant Professor of Physiology
University of Rochester, Rochester, NY
- 1974-77 Post Doctoral Research Scientist
Richard W. Tsien, Ph.D., mentor
Dept. of Physiology, Yale Univ. School of Medicine
New Haven, CT
- 1972-74 Post Doctoral Fellow
Dept. of Physiology, University of Michigan School of Medicine
Ann Arbor, MI

Honors and Awards

Sigma Xi Scientific Research Honor Society: Elected 8/25

Case Western Reserve University: Cleveland, Ohio, US
| Keynote Lecturer

Society for General Physiology: Woods Hole, MA, US
2012-09-05 | Keynote Lecturer

Australian Physiological Society: VIC, VIC, AU

2010-02-10 | Keynote Lecturer

Columbia University Medical Center:

2009-04-10 | Dean's Distinguished Lecturer in Basic Sciences

Weill Cornell Medicine

2002-06-10 | Dean's Lecturer

Upstate Cardiac Electrophysiology Foundation: Syracuse, NY

Distinguished Research Award Distinction

Eighth Symposium on Calcium Antagonists: Tokyo, JP

1989-10-10 | Distinguished Lecturer

NHLBI Office of Administrative Management:

Bethesda, MD

1982-01-01 | Research Career Development Award (NHLBI)

University of Rochester Medical Center: Rochester, NY

1978-06-01 | Excellence in Teaching (Physiology)

Danforth Scholars Program University of Michigan

1968-09-01 | Danforth Fellow (Physics)

University of Illinois Urbana-Champaign: Urbana

1968 | High Distinction in Physics (Physics) Distinction

University of Illinois Urbana-Champaign:

1968 | Phi Beta Kappa (LAS)

University of Illinois Urbana-Champaign

1965 | Edmund J. James Scholar (LAS)

University of Illinois Urbana-Champaign

1964 | Phi Eta Sigma Engineering Honor Society

Research Grants

Clinical and Basic Science Studies in Long QT Syndrome Type 3
NHLBI: 2014-2019
Grant # R01HL123483

Calcium Dependent Spontaneous Activity as a Novel Therapeutic Target
of Inherited Arrhythmias Studied in Human Induced Pluripotent Stem
Cell Derived Cardiac Myocytes
NY Department of Health: 2014-2017
Grant # C029563

Modulation of KCNQ1 Channel Activity
National Institute of General Medicine: 2014-2022
Grant # R01GM109762

Nanion Syncro Patch 96
Office of the Director NIH: 2012-2013
Grant # S100E012338

Mechanistic Study of an Inherited Arrhythmia in a Complex Genetic Background
Using IPS Cell Derived Cardiomyocytes
NY State Department of Health: 2010-2013
Grant # C026432

Molecular Basis of Sudden Cardiac Death
NHLBI: 2001-2013
Grant # P01HL07849

Molecular Pharmacology of an Inherited Heart Disease
NHLBI: 198-2013
Grant R01HL056810

Molecular Determinants of K⁺ Channel Regulation in Heart
NHLBI: 1993-2014
Grant # R01HL044365

Regulation of Delayed Rectification in Heart by Protein Kinase A and C
National Science Foundation
Directorate for Biological Sciences: 1989-1993
Grant # 88222783

Actions of Norepinephrine on Ionic Channels in the Heart
National Science Foundation
Directorate for Biological Sciences: 1985-1988
Grant # 3337032
Ion Channels and the Therapy of Ventricular Arrhythmias
NHLBI: 1984-2006
Grant Number: P01HL030557

Charged Dihydropyridines – Probes of Ca²⁺ Channels
NHLBI: 1978-2003
Grant # R01HL021922

Modulation of Ion Channels in the Heart
NHLBI: 1978-1993
Grant # R55HL021922

Training Program in Pharmaceutical Sciences
National Institute of General Medical Sciences: 2003-2013
Grant # T32GM007182

Departmental and University Committees

Dean's Council on Scientific Opportunities 1999-2000
Chair, Honors and Awards Committee
Member, Louisa Gross Horwitz Prize Selection Committee
Chair, Basic Science Chairs and Institute Directors Committee
Dean's Campus Planning and Development Committee
Accreditation Committee
External Advisor - Basic Neuroscience Training Grant, Dept. of Clinical Psychiatry
External Advisor - Training Program in Arteriosclerosis – Dept. of Medicine
Scientific Advisory Board: "IN VIVO"
Service on various Ad Hoc Committees for Appointment and Promotions
Member of Search Committees for:
 Dean of the Faculty of Medicine, Vice President of Health Science Division
 Dean, School of Dental & Oral Surgery
 Chair, Department of Medicine
 Vice-Dean of Education, CUMC
Chair, Search Committee for Chair, Department of Physiology
Co-Chair, Committee for Postdoctoral Affairs
Member, Dean's Special Committee for Financial Management
Chair, Search Committee for Chair of Genetics
Member Provost Committee on Columbia University Tenure Review
Faculty Advisor to Office of Post Doctoral Affairs
Chair, Columbia University Scholar's Program Committee
Chair University Judicial Board

Educational Contributions

Teaching Responsibilities (a/o 1996, Columbia)

G9600: Molecular Pharmacology: from Membrane to Nucleus: Course Director
G8001: Advanced Pharmacology: lectures and course organization
G6001: Principles of Physiology (cardiac electrophysiology lectures)
Pediatric Journal Club
Medical Pharmacology: selected lectures and small group conferences.
Pathophysiology II: Mechanism of Human Disease
Ex Officio member of Pharmacology Graduate Student Committee
Molecular Cardiology Fellowship lectures

PhD., M.D./Ph.D. and Post Doctoral trainees and Present Positions:

1. Lisa Freeman, D.V.M., Ph.D. President, Northern Illinois University, DeKalb, IL
 Post doc, Rochester lfreeman1@niu.edu

2. Kevin J Malloy, Ph.D. Founder and Chief Operating Officer, Blue Ash Therapeutics,
Cincinnati, OH : malloy.kj@gmail.com
Grad Student, Rochester
3. Todd Scheuer, Ph.D. Retired Research Professor, University of Washington, Department of Pharmacology:
[linkedin.com/in/todd-scheuer-5170a713](https://www.linkedin.com/in/todd-scheuer-5170a713)
Graduate Student, Rochester
4. Michael Sanguinetti, Ph.D. Emeritus Professor, Internal Medicine, Cardiovascular Medicine, University of
Utah: m.sanguinetti@utah.edu
Post doc, Rochester, 1982-4
5. Junko Kurokawa, Ph.D. Professor, School of Pharmaceutical Sciences, University of
Post doc, CUMC Shizuoka, Japan: junkokuro@u-shizuoka-ken.ac.jp
6. Hugues Abriel, Ph.D. Co-Director, Institute of Biochemistry and Molecular Medicine,
Post doc, CUMC University of Bern, Switzerland.: hugues.abriel@ibmm.unibe.ch
7. Cecile Terrenoire, Ph.D. Associate Vice President, Process Development, NY Stem Cell Foundation, NYC:
cterrenoire@gmail.com
8. Colleen Clancy, Ph.D. Associate Vice Chancellor for Academic Personnel and Professor of
Post doc CUMC Physiology and Membrane Biology and Pharmacology, UC Davis:
ceclancy@ucdavis.edu
9. Joseph P. Arena, Ph.D. Corporate Director, Theratechnologies, Jersey City, NJ:
Post doc, Rochester arena99@comcast.net
10. Douglas Krafte, Ph.D. Chief Scientific Officer at Niroda Therapeutics.
Grad Student, Rochester
11. Xander Wehrens, MD., Ph.D. Juanita P. Quigley Endowed Chair in Cardiology, Baylor College of Medicine,
Houston, TX: wehrens@bcm.edu
Grad Student, CUMC
12. Joshua Atkins, M.D., Ph.D. Professor of Anesthesiology and Critical Care at the Hospital of the University
of Pennsylvania: jhatkins2003@gmail.com
MD, PhD Student CUMC
13. John Bankston, Ph.D. Associate Professor, Department of Physiology & Biophysics,
Grad Student, CUMC University of Colorado: john.bankstn@uc.denver.edu
wehrens@bcm.edu
14. Suneel Kateriya, Ph.D. Professor, School of Biotechnology, The
University, New Delhi, India: skateriya@jnu.ac.in
Post Doc: Rochester
15. David Y Chu. Assistant Professor of Neurology, Massachusetts General Hospital:
dychung@mgh.harvard.edu
MD, PhD Student CUMC
16. Seth Robey, Ph.D. Principal Scientist, Quantitative Pharmacology and
Pharmacometrics, Merck: Sethrobey@gmail.com
Grad Student, CUMC
17. Michihiro Tateyama, Ph.D. Associate Professor, Division of Biophysics and Neurobiology, National
Institute for Physiological Sciences, Japan: tateyama@nips.ac.jp
Post Doc, CUMC

18. Michael Bohnen, M.D., Ph.D. Cardiology Clinical Fellow, Department of Medicine,
CUMC: msb2127@cumc.columbia.edu
MD, PhD Student, CUMC

19. Gary Peng, M.D., Ph.D. Cardiology fellow at Brigham and Women's Hospital, Boston, MA
gpeng@bwh.harvard.edu
MD, PhD Student, CUMC

20. Mia Shandell, Ph.D. Postdoctoral Fellow, Department of Chemistry, University of York,
UK: mia.shandell@york.ac.uk
Grad Student, CUMC (joint with Chemistry)

21. Jeramiah Osteen, Ph.D. Senior Principal Scientist, Vertex Pharmaceuticals, San Diego, CA
jerryosteen@gmail.com
Grad Student, CUMC

22. Vivek Iyer, MD, MSE, FHRS Cardiac Electrophysiologist Specializing in Heart Rhythm
Abnormalities, Marin Health Cardiovascular Medicine, UCSF Health Clinic, Novato,
CA: 415-927-0666
Post Doc, CUMC

23. Sheila J. Carroll, M.D. Pediatric Cardiology, Weill Cornell Medicine, NYC
212-746-3561
MD, Fellow

24. Kevin Sampson, Ph.D. Assistant Director of Therapeutics Alliances, NYU, NYC
ksampson1@gmail.com
Post Doc: CUMC

25. Lei Chen, Ph.D. Sanofi Pasteur, Toronto, CA: process development and vaccine related projects:
drchenlei@gmail.com
Post Doc, CUMC

26. Wai-Meng Kwok, Ph.D. Director of Basic Science Research, Professor, Medical College of
Wisconsin: wmkwok@mcw.edu
Post Doc, Rochester

27. Joseph Cormier, Ph.D. VP Strategy and Operations, Unither Bioengineering, United
Therapeutics, Corp., Silver Springs, MD
Grad Student, CUMC *****@unither.com; *****@levotx.com

28. Ian Glasser, Ph.D. Cornell University Medical Center: iang00@gmail.com
Grad Student CUMC

29. Priscilla Chan, Ph.D.
Grad Student, CUMC

30. Kenneth Walsh, Ph.D. Professor Emeritus, Pharmacology & Physiology and Neuroscience, School
of Medicine, University of South Carolina: kenneth.walsh@uscmed.sc.edu
Post Doc, Rochester

31. Yiu Wa Kwan, Ph.D. Professor, Chinese University of Hong Kong, yuwakwan@cuhk.edu.hk
Post Doc, Rochester

32. Justus Anumonwo, Ph.D. Associate Professor of Molecular and Integrative Physiology, University of Michigan:
anumonwo@umich.edu
Post Doc, Rochester
33. Ramesh Bangalore, Ph.D. [linkedin.com/in/rameshbangalore](https://www.linkedin.com/in/rameshbangalore)
Post Doc, Rochester
34. Spencer Z. Rosero, M.D. Professor of Medicine Cardiology & Director, Cardiology Clinical Research,
University of Rochester School of Medicine; 585 275 4775
Fellow, Rochester
35. Luba Lacinova, Ph.D. Slovak Academy of Sciences: lubica.lacinova@savba.sk
Post Doc, Rochester
36. Ilaria Rivolta, Ph.D. Research Associate, IRCCS Pavia, Italy
Post Doc, CUMC
37. Thomas Hof, Ph.D. thomas.hof@hotmail.fr
Post Doc, CUMC
38. Leslie McKinney PhD Pharmacologist, FDA: [linkedin.com/in/leslie-mckinney-9631455](https://www.linkedin.com/in/leslie-mckinney-9631455)
Post Doc, Rochester
39. Ramon Campos Danilo, Ph.D. Assistant Professor Biophysics, Universidade Federal de Sao Paulo, Escola Paulista
de Medicina: Sao Paulo, SP, BR: drcbio@gmail.com
Post Doc, CUMC
40. Divya Kesters, Ph.D. Medical Affairs, GSK, Belgium: divya.kesters@gmail.com
Post Doc, CUMC
41. Xinle Zhou, Ph.D. Laboratory of Cell Fate Control, School of Life Sciences, Westlake University,
Hangzhou, 310024, China: xinlezou@hotmail.com
Post Doc, CUMC
42. Thomas Comollo, Ph.D. Adjunct Professor, Kean University. tcomollo@gmail.com
Post Doc, CUMC

Summer Minority Undergraduate Students

<u>Name</u>	<u>Summer of:</u>	
Rhoda Reddix	1983	SURF Student
Calvert Warren	1985	SURF Student
Franklin Franco	1984	SURF Student
Julia Chiang	1991	Rochester High School Summer Student
Timothy Bensen	1993	McNair Summer Fellow
Adwoa Dadzie	1999	Bronx High School of Science
Kenneth Hoyte	2001	Colgate University
Randy Jackson	2002	Hunter College
Jesse Medina	2007	Brooklyn College

Editorial Assignments in Professional Journals of Last Five Years

Journal of Physiology
Physiological Genomics
Circulation
PNAS
Biophysical Journal

Pflugers Archiv European Journal of Physiology
Circulation Research
Science
Journal of Molecular and Cellular Cardiology
American Journal of Physiology, Cell and Heart
Journal of Pharmacology and Experimental Therapeutics
Journal of General Physiology
Journal of Neuroscience
Cardiovascular Drug Reviews
Cardiovascular Research
Member Editorial Board: Circulation Research (Term Expired)
Member Editorial Board: American Journal of Physiology, Heart and Circulatory Physiology (term expired (1996)).
Member Editorial Board: Journal of Pharmacology & Experimental Therapeutics
Member Editorial Board: Cardiovascular Research (term expired 1998)
Associate Editor: Molecular Pharmacology (2000-2006)
Associate Editor: The Journal of Clinical Investigation (2002 - 07)
Member Editorial Board: Journal of Molecular and Cellular Cardiology
Associate Editor Nature Scientific Reports (2018-)

Consultative

Member of multiple Ad Hoc NIH site visit teams for Heart and Lung Institute, and advisory boards including but not limited to:

State University of New York at Syracuse
University of Cincinnati, Department of Pharmacology and Cell Biophysics
University of Chicago, Department of Physiology
University of Massachusetts
Vanderbilt University
Duke University, Durham
University of Miami, Graduate Program Review Committee, Department of Molecular and Cellular Pharmacology
NSF Grant Reviews
NHLBI Special Review Committee, Winter Vascular Program Project
Member Peer Review Selection Committee, American Heart Association, NYS Affiliate.
Member American Heart Association: National Peer Review Committee on Cellular Physiology and Pharmacology
NHLBI Research Training Review Committee, Ad Hoc member
NHLBI - National Resource Training Committee
NHLBI Ad Hoc Member Program Project Reviews: multiple assignments
NHLBI – Reviewer, Winter Vascular Program Project
NIH – Scientific Reviewer, Special Emphasis Panel
NIH - Ad Hoc Member Cardiovascular A Study Section
AHA – Grant Peer Review, Molecular Signaling II
ChanTest – Scientific Advisory Board
Physiome: Scientific Advisory Board
NIH/CSR CVA Review Committee
CSR, NIH Critique Reviewer
NIH – Social Sciences, Nursing, Epidemiology and Methods (SNEM) Integrated Review Scientific Reviewer
American Heart Association (AHA) National Center – Peer Review, Electrophysiology & Arrhythmias/Regulation: Chair Review Panel (2004-2006)
NHLBI Strategic Planning Committee
CredibleMeds Advisory Board (2012-)

Presentations at Major National/International Meetings (representative list from 1995 - 2008)

1. SADS Conference on Long QT Syndrome, Boca Raton, Florida, January 1995.
2. Sendai International Symposium on Molecular and Cellular Mechanisms of Cardiovascular Regulation, May 1995, Sendai-Fukko-Memorial Hall, Sendai, Japan.
3. Myocardial ion channels and the physiology of cardiac arrhythmias. Death Valley, CA. February 23-26, 1996.
4. FASEB Summer Conference: June 30-July 4, 1996. Saxton's River, VT.
5. Symposium Maastricht, Amsterdam. Gene Targeted Strategies in Mice. December 1997
6. Rene Robaire Lecture (McGill University and Heart Institute, 1997) "Molecular pharmacology of wild type and mutant cardiovascular Na and Ca channels"
7. International Society for Heart Research, Rhodes Greece 1998
8. ASPET Symposium (organizer/presenter co-chair with Dr. Levi) San Francisco, Molecular Biology of Cardiac K⁺ Channels, April 1998
9. International Society for Heart Research, Greece, May 1998
10. International Pharmacological Congress, Munich Germany, July 1998
11. The Third Conference on ABC Protein and Ion Channels: From Gene to Disease - Kyodai-Kaikan, Kyoto, Japan "Sodium Channel Mutations and Inherited Cardiac Arrhythmias" 1999
12. NASPE Convention – Molecular Biology: Structure and Function of Cardiac Ion Channels, Ontario Canada. May 1999
13. One Hundred Eightieth Meeting of the Interurban Clinical Club – Albert Einstein College of Medicine, NYC "Molecular Pharmacology of Inherited Cardiac Arrhythmias: Progress and Puzzles 1999
14. A Tribute to Edouard Coraboeuf European Working Group, INSERM, Orsay, France Pharmacology of Ca²⁺ Channels in Normal and Genetically Altered Heart. September 1999
15. First International Workshop on Antiarrhythmias – Lisbon, Portugal "C-terminal Tails of Cardiac Voltage-gated Na⁺ and K⁺ Channels as Novel Molecular Targets to Control QT Duration in the Heart" 2001
16. Keynote Lecture- Upstate New York Cardiac Electrophysiology Society "Molecular determinants of Na and K channel regulation in heart: Insights from inherited ion channel mutations" 2001
17. ASTRAZENECA – XXIII Congress of the European Society of Cardiology, Stockholm, Sweden. Chair of session: Genetically Determined Arrhythmias Symposium. Presented: "C terminal tails of voltage-gated cardiac Na (SCN5A) and K (KCNQ1) alpha subunits as novel targets in antiarrhythmic drug development" 2001
18. ASPET/Experimental Biology – Symposium Chair "Local signaling complexes and regulation of ion channels: Novel roles in cardiac disease" 2002
19. Conference on Genetics of Cardiovascular and Metabolic Diseases – ISREC, Lausanne, Switzerland, Topic: Long QT Syndrome 2002
20. Days of Molecular Medicine - The Salk Institute, San Diego "Leucine/isoleucine Zipper Coordination of Ion Channel Macromolecular Signaling Complexes in Heart: Novel Molecular Pathways in Cardiovascular Disease" 2002
21. AZM Maastricht, Academisch Ziekenhuis Maastricht, Cardiologie – Brussels "Molecular Basis for Regulation of KCNQ1/KCNE1 Channel by the Sympathetic Nervous System: Novel Insight into Triggering of LQT-1/LQT-5 Arrhythmias" 2002

22. Cornell University – Dean’s Lecturer, NYC, “Uncoupling of Beta-adrenergic Regulation of a Heart K Channel by an Inherited Mutation of a Single Residue: from Molecule to triggered arrhythmias in the Long QT Syndrome” 2002
23. NASPE Annual Meeting – San Diego, “Regulation of Expression of Cardiac K Channels: Transgenic and Antisense Strategies” 2002
24. Frontiers in Molecular Pharmacology and Physiology - Colloquium in honor of Prof. Wolfgang Trautwein and Prof. Franz Hoffmann, Munich, “Molecular Determinants of Ion Channel Regulation in the Heart: Insights from Investigations of Inherited Cardiac Arrhythmias” 2002
25. Heart Failure Society of America - Annual Scientific Meeting, Florida. “Long QT and Molecular Basis for Early Afterdepolarization” 2002
26. Fozzard Symposium – ISHR Annual Meeting, Madison, Wisconsin, “Inherited Mutations of Cardiac Na Channels: Novel Insights into Mechanisms of Human Disease” 2002
27. Keystone Symposium – Symposium Chair *Molecular Pathology of Cardiac Arrhythmias*, Santa Fe, New Mexico “Ion Channel Mutations and Inherited Arrhythmias: Inherited Mutations Uncouple I_{Ks} Channels from Regulation by the Sympathetic Nervous System” 2003
28. Association for Medical School Pharmacology – Winter Meeting, Tuscon, AZ 2003
29. Biophysical Society Annual Meeting – Symposium *Macromolecular Signaling and Trafficking of Ion Channels* San Antonio, TX “The KCNQ1/KCNE1 Macromolecular Complex: Disruption by Mutation and Risk of Cardiac Arrhythmias” 2003
30. Experimental Biology/American Society for Pharmacology and Experimental Therapeutics ASPET *Polymorphisms in Signaling Cascades and Effector Molecules* Washington DC. “Functional consequences of Ion Channel Gene Variants: Relationships to Inherited Arrhythmias” 2004
31. 68th Annual Scientific Meeting of the Japanese Circulation Society – Keynote Lecturer and Co-Chair, Featured Research Session “Arrhythmia-Basic: and Genetic Basis” 2004.
32. Institute of Molecular Physiology and Genetics Bratislava’s 4th International Symposium “Membrane Channels, Transporters and Receptors” 2004
33. Cardiostim – 14th World Congress in Cardiac Electrophysiology and Cardiac Techniques. France. 2004
34. Gordon Research Conference on Cardiac Arrhythmias, Santa Barabara, CA. 2005.
36. Symposium on Roles of Sodium Entry on Calcium Homeostasis in Heart. San Diego, CA.; 2005.
37. HLCU Symposium on Translational Medicine, Utrecht, The Netherlands. "Bringing Insights from the Bench to the Bedside." April 2005.
38. FASEB Research Conference - Regulation of Ion Channels, Snowmass, CO. "The Long QT syndrome a rare disease with broad impact: From clinical phenotype to molecular mechanism" June 2005.
39. 1st International Meeting on Anchored cAMP Signaling Pathways, Berlin Germany; "Multiple roles of the AKAP Yotiao in PKA-dependent regulation of a heart potassium channel." October 2005
40. AHA Scientific Sessions 2005, Dallas, TX, November 2005
41. Co-Organizer, Keystone Symposium - Cardiac Arrhythmias: Linking Structural Biology to Gene Defects, Tahoe City, California. "K⁺ and Na⁺ Channel Dysfunction and Arrhythmogenesis." January 2006.
42. Molecular Function of Ion Channels Symposium, Copenhagen, Denmark; "Novel Insights into Ion Channel Structure, Function, and Regulation from Studies of Inherited Cardiac Arrhythmias." May 2006

43. 28th Annual International Society for Heart Research, Toronto, Canada; June 2006
45. AHA Scientific Sessions 2006, Chicago, Illinois; November 2006
46. A Kinase Anchoring Proteins, Portland, OR, October 2007.
47. University of Vermont Annual Research Retreat, November, 2007.
48. Case Western Reserve Research Festival, 2007.
49. University of Wisconsin Department of Physiology, November, 2007.
50. National Center for Biological Sciences, Bangalore, India, January, 2008.
51. Winter Symposium: Cardiovascular Research, Vellore, India, January, 2008.
52. Experimental Biology Symposium, Chair, Ion channels and Disease, San Diego, CA, April 2008.

Invited Lectures – Teaching as of 2004

Pediatric Neurology Grand Rounds, Neurological Institute, Columbia University, March 2001.

Grand Rounds, Cornell University, “Insight into the mechanistic basis and Treatment of Inherited Cardiac Arrhythmias: from Bedside to Cell to Bedside” 2001

Grand Rounds, University of Pennsylvania, Division of Cardiology, "Molecular mechanisms underlying inherited cardiac arrhythmias"

Cardiology Grand Rounds, Lecture. Columbia University, Department of Medicine. “Novel insight into the mechanisms of cardiac arrhythmias from studies of rare inherited disorders” 2000, 2001, 2002, 2006

Pediatric Cardiology Grand Rounds, Columbia University, 2002. "Genotyping patients: implications for detection and treatment of inherited arrhythmias"

Principles of Physiology, Columbia University, 2003 “Electrical Properties of the Heart”

Professor’s Rounds – Science is Basic to the Practice of Medicine (SBPM), 2003

International Long QT Symposium on the Web (2004)

Cardiology Fellows Lecture: Basic Cardiac Electrophysiology (2004)

Seminar Invitations ... summarized edited list through 2004

1. Cornell University Medical School, Physiology
2. SUNY at Buffalo, Physiology
3. SUNY at Buffalo, Biochemical Pharmacology
4. University of Maryland, Physiology
5. University of Massachusetts, Physiology
6. Columbia University School of Medicine, Pharmacology
7. University of Pennsylvania, Physiology
8. Texas Tech University, Physiology
9. University of Rochester, Physiology
10. Merck Institute for Therapeutic Research
11. University of Rochester, Membrane Workshop
12. New Jersey College of Dentistry and Medicine, Physiology
13. University of Iowa, School of Medicine, Physiology
14. Cornell University, Department of Physiology
15. University of Hawaii, Department of Physiology
16. St. John's University, Newfoundland, Canada
17. SUNY Buffalo, Biophysics
18. University of Bern, Bern, Switzerland

19. University of Leuven, Department of Physiology, Leuven, Belgium
20. Max Planck Institute, Goettingen, Germany
21. Max Planck Institute for Medical Research, Heidelberg, Germany
22. Pfizer Central Research, Sandwich, England
23. SUNY Buffalo, Department of Biochemical Pharmacology
24. University of Pennsylvania, Department of Physiology
25. Dalhousie University, Departments of Pharmacology and Physiology
26. Johns Hopkins University
27. Hospital For Sick Children, Toronto
28. University of Michigan, Departments of Pharmacology and Physiology
29. Southwestern Medical Center, Dallas, Department of Neurobiology
30. Merck Institute, West Pointe, Pennsylvania
31. Bristol-Myers Squibb
32. University of Chicago, Department of Neurobiology
33. University of Chicago, Department of Pharmacological and Physiological Sciences
34. New York University Medical Center, Cardiology Section
35. NYU Medical Center – Cardiology Section
36. N.Y. Medical College
37. Merck Seminar – Rahway, New Jersey
38. Medical University of South Carolina, Department of Cell Biology and Anatomy
39. New York/New Jersey Molecular Biology Club of New Jersey Medical School
40. Tulane University Department of Pharmacology
41. University of Missouri Department of Pharmacology
42. University of Amsterdam, Noordwijk, The Netherlands, The Brugada Workshop
43. Weill Medical College of Cornell
44. New York Medical College, Valhalla
45. University of Washington, St. Louis, MO
46. University of Washington, Seattle
47. University of Chicago, IL
48. University of Colorado, Health Science Center
49. Workshop on Antiarrhythmics, Lisbon
50. University of Rochester
51. UMDNJ, Department of Microbiology and Molecular Genetics
52. University of Lausanne, Switzerland
53. University of California, San Diego
54. University of Pennsylvania
55. SUNY Buffalo
56. Cornell University
57. Mount Sinai School of Medicine, Physiology and Biophysics
58. Albert Einstein College of Medicine of Yeshiva University – Section of Molecular Cardiology
& Department of Molecular Pharmacology
59. E-Trade Center, Informed Investors meeting, NYC
60. Aventis Pharmaceuticals, NJ
61. State University, Buffalo
62. Vanderbilt University, Nashville, TN
63. Loyola University, Maywood, IL
64. University of Vermont, College of Medicine
65. CV Therapeutics, Inc., Palo Alto, CA
66. Vollum Institute, Portland, OR
67. Vanderbilt University, Nashville
68. Loyola University, Chicago
69. UMDNJ – N.J. Medical School
70. Medical University of South Carolina
71. University of California, Irvine
72. UMDNJ – Robert Wood Johnson Medical Sch., Physiol & Biophysics

73. UC Davis
74. University of Pennsylvania
75. University of Pittsburgh
76. University of Wisconsin
77. University of Vermont
78. Metro Health Center, Cleveland, OH
79. Medical University of South Carolina

Publications

Journal Articles

1. Kass RS, Tsien RW. Multiple effects of calcium antagonists on plateau currents in cardiac Purkinje fibers. *J Gen Physiol.* 1975;66(2):169-92. Epub 1975/08/01. doi: 10.1085/jgp.66.2.169. PubMed PMID: 1176946; PMCID: PMC2226200.
2. Kass RS, Siegelbaum S, Tsien RW. Incomplete inactivation of the slow inward current in cardiac Purkinje fibres [proceedings]. *J Physiol.* 1976;263(1):127P-8P. Epub 1976/12/01. PubMed PMID: 1011098.
3. Kass RS, Tsien RW. Control of action potential duration by calcium ions in cardiac Purkinje fibers. *J Gen Physiol.* 1976;67(5):599-617. Epub 1976/05/01. doi: 10.1085/jgp.67.5.599. PubMed PMID: 1271045; PMCID: PMC2214953.
4. Siegelbaum SA, Tsien RW, Kass RS. Role of intracellular calcium in the transient outward current of calf Purkinje fibres. *Nature.* 1977;269(5629):611-3. Epub 1977/10/13. doi: 10.1038/269611a0. PubMed PMID: 917108.
5. Kass RS, Lederer WJ, Tsien RW, Weingart R. Role of calcium ions in transient inward currents and aftercontractions induced by strophanthidin in cardiac Purkinje fibres. *J Physiol.* 1978;281:187-208. Epub 1978/08/01. doi: 10.1113/jphysiol.1978.sp012416. PubMed PMID: 702368; PMCID: PMC1282691.
6. Kass RS, Tsien RW, Weingart R. Ionic basis of transient inward current induced by strophanthidin in cardiac Purkinje fibres. *J Physiol.* 1978;281:209-26. Epub 1978/08/01. doi: 10.1113/jphysiol.1978.sp012417. PubMed PMID: 702372; PMCID: PMC1282692.
7. Tsien RW, Kass RS, Weingart R. Calcium ions and membrane current changes induced by digitals in cardiac Purkinje fibers. *Ann N Y Acad Sci.* 1978;307:483-90. Epub 1978/04/28. doi: 10.1111/j.1749-6632.1978.tb41978.x. PubMed PMID: 360946.
8. Weingart R, Kass RS, Tsien RW. Is digitalis inotropy associated with enhanced slow inward calcium current? *Nature.* 1978;273(5661):389-92. Epub 1978/06/01. doi: 10.1038/273389a0. PubMed PMID: 661951.
9. Kass RS, Siegelbaum SA, Tsien RW. Three-micro-electrode voltage clamp experiments in calf cardiac Purkinje fibres: is slow inward current adequately measured? *J Physiol.* 1979;290(2):201-25. Epub 1979/05/01. doi: 10.1113/jphysiol.1979.sp012768. PubMed PMID: 469751; PMCID: PMC1278832.
10. Tsien RW, Kass RS, Weingart R. Cellular and subcellular mechanisms of cardiac pacemaker oscillations. *J Exp Biol.* 1979;81:205-15. Epub 1979/08/01. PubMed PMID: 512578.
11. Kass RS. An optical monitor of tension for small cardiac preparations. *Biophys J.* 1981;34(1):165-70. Epub 1981/04/01. doi: 10.1016/S0006-3495(81)84843-6. PubMed PMID: 7213930; PMCID: PMC1327460.
12. Kass RS, Blair ML. Effects of angiotensin II on membrane current in cardiac Purkinje fibers. *J Mol Cell Cardiol.* 1981;13(9):797-809. Epub 1981/09/01. PubMed PMID: 7299830.
13. Kass RS. Nisoldipine: a new, more selective calcium current blocker in cardiac Purkinje fibers. *J Pharmacol Exp Ther.* 1982;223(2):446-56. Epub 1982/11/01. PubMed PMID: 7150411.

14. Kass RS, Scheuer T. Slow inactivation of calcium channels in the cardiac Purkinje fiber. *J Mol Cell Cardiol.* 1982;14(10):615-8. Epub 1982/10/01. PubMed PMID: 6296410.
15. Kass RS, Scheuer T, Malloy KJ. Block of outward current in cardiac Purkinje fibers by injection of quaternary ammonium ions. *J Gen Physiol.* 1982;79(6):1041-63. Epub 1982/06/01. doi: 10.1085/jgp.79.6.1041. PubMed PMID: 6286842; PMCID: PMC2216454.
16. Kass RS, Tsien RW. Fluctuations in membrane current driven by intracellular calcium in cardiac Purkinje fibers. *Biophys J.* 1982;38(3):259-69. Epub 1982/06/01. doi: 10.1016/S0006-3495(82)84557-8. PubMed PMID: 6809065; PMCID: PMC1328867.
17. Kass RS, Wiegers SE. The ionic basis of concentration-related effects of noradrenaline on the action potential of calf cardiac purkinje fibres. *J Physiol.* 1982;322:541-58. Epub 1982/01/01. doi: 10.1113/jphysiol.1982.sp014054. PubMed PMID: 7069631; PMCID: PMC1249687.
18. Scheuer T, Kass RS. Phenytoin reduces calcium current in the cardiac Purkinje fiber. *Circ Res.* 1983;53(1):16-23. Epub 1983/07/01. PubMed PMID: 6861294.
19. Kass RS. Delayed rectification in the cardiac Purkinje fiber is not activated by intracellular calcium. *Biophys J.* 1984;45(4):837-9. Epub 1984/04/01. doi: 10.1016/S0006-3495(84)84227-7. PubMed PMID: 6722269; PMCID: PMC1434923.
20. Kass RS, Sanguinetti MC. Inactivation of calcium channel current in the calf cardiac Purkinje fiber. Evidence for voltage- and calcium-mediated mechanisms. *J Gen Physiol.* 1984;84(5):705-26. Epub 1984/11/01. doi: 10.1085/jgp.84.5.705. PubMed PMID: 6096480; PMCID: PMC2228760.
21. Sanguinetti MC, Kass RS. Voltage-dependent block of calcium channel current in the calf cardiac Purkinje fiber by dihydropyridine calcium channel antagonists. *Circ Res.* 1984;55(3):336-48. Epub 1984/09/01. PubMed PMID: 6088117.
22. Sanguinetti MC, Kass RS. Regulation of cardiac calcium channel current and contractile activity by the dihydropyridine Bay K 8644 is voltage-dependent. *J Mol Cell Cardiol.* 1984;16(7):667-70. Epub 1984/07/01. PubMed PMID: 6206231.
23. Sanguinetti MC, Kass RS. Photoalteration of calcium channel blockade in the cardiac Purkinje fiber. *Biophys J.* 1984;45(5):873-80. Epub 1984/05/01. doi: 10.1016/S0006-3495(84)84233-2. PubMed PMID: 6329345; PMCID: PMC1434971.
24. Bennett PB, McKinney LC, Kass RS, Begenisich T. Delayed rectification in the calf cardiac Purkinje fiber. Evidence for multiple state kinetics. *Biophys J.* 1985;48(4):553-67. Epub 1985/10/01. doi: 10.1016/S0006-3495(85)83813-3. PubMed PMID: 2413917; PMCID: PMC1329334.
25. Bennett P, McKinney L, Begenisich T, Kass RS. Adrenergic modulation of the delayed rectifier potassium channel in calf cardiac Purkinje fibers. *Biophys J.* 1986;49(4):839-48. Epub 1986/04/01. doi: 10.1016/S0006-3495(86)83713-4. PubMed PMID: 2424513; PMCID: PMC1329536.
26. Sanguinetti MC, Krafte DS, Kass RS. Voltage-dependent modulation of Ca channel current in heart cells by Bay K8644. *J Gen Physiol.* 1986;88(3):369-92. Epub 1986/09/01. doi: 10.1085/jgp.88.3.369. PubMed PMID: 2428922; PMCID: PMC2228827.
27. Kass RS. Voltage-dependent modulation of cardiac calcium channel current by optical isomers of Bay K 8644: implications for channel gating. *Circ Res.* 1987;61(4 Pt 2):I1-5. Epub 1987/10/01. PubMed PMID: 2443269.
28. Kass RS, Krafte DS. Negative surface charge density near heart calcium channels. Relevance to block by dihydropyridines. *J Gen Physiol.* 1987;89(4):629-44. Epub 1987/04/01. doi: 10.1085/jgp.89.4.629. PubMed PMID: 2438373; PMCID: PMC2215915.
29. Arena JP, Kass RS. Block of heart potassium channels by clofilium and its tertiary analogs: relationship between drug structure and type of channel blocked. *Mol Pharmacol.* 1988;34(1):60-6. Epub 1988/07/01. PubMed PMID: 2455861.

30. Kass RS, Arena JP, DiManno D. Block of heart calcium channels by amlodipine: influence of drug charge on blocking activity. *J Cardiovasc Pharmacol.* 1988;12 Suppl 7:S45-9. Epub 1988/01/01. PubMed PMID: 2467128.
31. Krafte DS, Kass RS. Hydrogen ion modulation of Ca channel current in cardiac ventricular cells. Evidence for multiple mechanisms. *J Gen Physiol.* 1988;91(5):641-57. Epub 1988/05/01. doi: 10.1085/jgp.91.5.641. PubMed PMID: 2458428; PMCID: PMC2216148.
32. Walsh KB, Begenisich TB, Kass RS. Beta-adrenergic modulation in the heart. Independent regulation of K and Ca channels. *Pflugers Arch.* 1988;411(2):232-4. Epub 1988/02/01. PubMed PMID: 2451808.
33. Walsh KB, Kass RS. Regulation of a heart potassium channel by protein kinase A and C. *Science.* 1988;242(4875):67-9. Epub 1988/10/07. doi: 10.1126/science.2845575. PubMed PMID: 2845575.
34. Arena JP, Kass RS. Activation of ATP-sensitive K channels in heart cells by pinacidil: dependence on ATP. *Am J Physiol.* 1989;257(6 Pt 2):H2092-6. Epub 1989/12/01. doi: 10.1152/ajpheart.1989.257.6.H2092. PubMed PMID: 2513734.
35. Arena JP, Kass RS. Enhancement of potassium-sensitive current in heart cells by pinacidil. Evidence for modulation of the ATP-sensitive potassium channel. *Circ Res.* 1989;65(2):436-45. Epub 1989/08/01. PubMed PMID: 2752550.
36. Kass RS, Arena JP. Influence of pH_o on calcium channel block by amlodipine, a charged dihydropyridine compound. Implications for location of the dihydropyridine receptor. *J Gen Physiol.* 1989;93(6):1109-27. Epub 1989/06/01. doi: 10.1085/jgp.93.6.1109. PubMed PMID: 2549176; PMCID: PMC2216251.
37. Kass RS, Arena JP, Chin S. Cellular electrophysiology of amlodipine: probing the cardiac L-type calcium channel. *Am J Cardiol.* 1989;64(17):351-411; discussion I-2I. Epub 1989/11/07. doi: 10.1016/0002-9149(89)90958-2. PubMed PMID: 2554712.
38. Kass RS, Arena JP, Chin S. Modulation of calcium channels by charged and neutral dihydropyridines. *Ann N Y Acad Sci.* 1989;560:189-97. Epub 1989/01/01. doi: 10.1111/j.1749-6632.1989.tb24097.x. PubMed PMID: 2545132.
39. Walsh KB, Begenisich TB, Kass RS. Beta-adrenergic modulation of cardiac ion channels. Differential temperature sensitivity of potassium and calcium currents. *J Gen Physiol.* 1989;93(5):841-54. Epub 1989/05/01. doi: 10.1085/jgp.93.5.841. PubMed PMID: 2472462; PMCID: PMC2216233.
40. Arena JP, Walsh KB, Kass RS. Measurement, block, and modulation of potassium channel currents in the heart. *Prog Clin Biol Res.* 1990;334:43-63. Epub 1990/01/01. PubMed PMID: 2309009.
41. Kass RS, Arena JP, Chin S. Block of L-type calcium channels by charged dihydropyridines. Sensitivity to side of application and calcium. *J Gen Physiol.* 1991;98(1):63-75. Epub 1991/07/01. doi: 10.1085/jgp.98.1.63. PubMed PMID: 1658191; PMCID: PMC2229044.
42. Walsh KB, Arena JP, Kwok WM, Freeman L, Kass RS. Delayed-rectifier potassium channel activity in isolated membrane patches of guinea pig ventricular myocytes. *Am J Physiol.* 1991;260(4 Pt 2):H1390-3. Epub 1991/04/01. doi: 10.1152/ajpheart.1991.260.4.H1390. PubMed PMID: 1849375.
43. Walsh KB, Kass RS. Distinct voltage-dependent regulation of a heart-delayed IK by protein kinases A and C. *Am J Physiol.* 1991;261(6 Pt 1):C1081-90. Epub 1991/12/01. doi: 10.1152/ajpcell.1991.261.6.C1081. PubMed PMID: 1662903.
44. Anumonwo JM, Freeman LC, Kwok WM, Kass RS. Delayed rectification in single cells isolated from guinea pig sinoatrial node. *Am J Physiol.* 1992;262(3 Pt 2):H921-5. Epub 1992/03/01. doi: 10.1152/ajpheart.1992.262.3.H921. PubMed PMID: 1558202.
45. Freeman LC, Kass RS. Insensitivity of guinea pig ventricular delayed rectifier IK to intracellular trypsin: implications for channel structure and function. *Cardiovasc Res.* 1992;26(11):1131-6. Epub 1992/11/01. doi: 10.1093/cvr/26.11.1131. PubMed PMID: 1337868.

46. Freeman LC, Kwok WM, Kass RS. Phosphorylation-independent regulation of cardiac IK by guanine nucleotides and isoproterenol. *Am J Physiol.* 1992;262(4 Pt 2):H1298-302. Epub 1992/04/01. doi: 10.1152/ajpheart.1992.262.4.H1298. PubMed PMID: 1314511.
47. Haymes AA, Kwan YW, Arena JP, Kass RS, Hinkle PM. Activation of protein kinase C reduces L-type calcium channel activity of GH3 pituitary cells. *Am J Physiol.* 1992;262(5 Pt 1):C1211-9. Epub 1992/05/01. doi: 10.1152/ajpcell.1992.262.5.C1211. PubMed PMID: 1317102.
48. Freeman LC, Kass RS. Expression of a minimal K⁺ channel protein in mammalian cells and immunolocalization in guinea pig heart. *Circ Res.* 1993;73(5):968-73. Epub 1993/11/01. PubMed PMID: 8403266.
49. Freeman LC, Kass RS. Delayed rectifier potassium channels in ventricle and sinoatrial node of the guinea pig: molecular and regulatory properties. *Cardiovasc Drugs Ther.* 1993;7 Suppl 3:627-35. Epub 1993/08/01. PubMed PMID: 8251433.
50. Kass RS, Freeman LC. Potassium channels in the heart Cellular, molecular, and clinical implications. *Trends Cardiovasc Med.* 1993;3(4):149-59. Epub 1993/07/01. doi: 10.1016/1050-1738(93)90016-Y. PubMed PMID: 21244942.
51. Kwan YW, Kass RS. Interactions between H⁺ and Ca²⁺ near cardiac L-type calcium channels: evidence for independent channel-associated binding sites. *Biophys J.* 1993;65(3):1188-95. Epub 1993/09/01. doi: 10.1016/S0006-3495(93)81152-4. PubMed PMID: 8241399; PMCID: PMC1225838.
52. Kwok WM, Kass RS. Block of cardiac ATP-sensitive K⁺ channels by external divalent cations is modulated by intracellular ATP. Evidence for allosteric regulation of the channel protein. *J Gen Physiol.* 1993;102(4):693-712. Epub 1993/10/01. doi: 10.1085/jgp.102.4.693. PubMed PMID: 8270910; PMCID: PMC2229174.
53. Welling A, Kwan YW, Bosse E, Flockerzi V, Hofmann F, Kass RS. Subunit-dependent modulation of recombinant L-type calcium channels. Molecular basis for dihydropyridine tissue selectivity. *Circ Res.* 1993;73(5):974-80. Epub 1993/11/01. PubMed PMID: 8403267.
54. Bangalore R, Baidur N, Rutledge A, Triggle DJ, Kass RS. L-type calcium channels: asymmetrical intramembrane binding domain revealed by variable length, permanently charged 1,4-dihydropyridines. *Mol Pharmacol.* 1994;46(4):660-6. Epub 1994/10/01. PubMed PMID: 7969044.
55. Kwok WM, Kass RS. Inhibition of pinacidil induced IK(ATP) in heart by changes in extracellular pH. *Cardiovasc Res.* 1994;28(6):836-40. Epub 1994/06/01. doi: 10.1093/cvr/28.6.836. PubMed PMID: 7923288.
56. Lai LP, Deng CL, Moss AJ, Kass RS, Liang CS. Polymorphism of the gene encoding a human minimal potassium ion channel (minK). *Gene.* 1994;151(1-2):339-40. Epub 1994/12/30. PubMed PMID: 7828904.
57. Nelson EJ, Li CC, Bangalore R, Benson T, Kass RS, Hinkle PM. Inhibition of L-type calcium-channel activity by thapsigargin and 2,5-t-butylhydroquinone, but not by cyclopiazonic acid. *Biochem J.* 1994;302 (Pt 1):147-54. Epub 1994/08/15. doi: 10.1042/bj3020147. PubMed PMID: 7520693; PMCID: PMC1137202.
58. Freeman LC, Kass RS. Cholinergic inhibition of slow delayed-rectifier K⁺ current in guinea pig sino-atrial node is not mediated by muscarinic receptors. *Mol Pharmacol.* 1995;47(6):1248-54. Epub 1995/06/01. PubMed PMID: 7603467.
59. Gingrich KJ, Roberts WA, Kass RS. Dependence of the GABAA receptor gating kinetics on the alpha-subunit isoform: implications for structure-function relations and synaptic transmission. *J Physiol.* 1995;489 (Pt 2):529-43. Epub 1995/12/01. doi: 10.1113/jphysiol.1995.sp021070. PubMed PMID: 8847645; PMCID: PMC1156777.
60. Kwan YW, Bangalore R, Lakitsh M, Glossmann H, Kass RS. Inhibition of cardiac L-type calcium channels by quaternary amlodipine: implications for pharmacokinetics and access to dihydropyridine binding site. *J Mol Cell Cardiol.* 1995;27(1):253-62. Epub 1995/01/01. PubMed PMID: 7760349.
61. An RH, Bangalore R, Rosero SZ, Kass RS. Lidocaine block of LQT-3 mutant human Na⁺ channels. *Circ Res.* 1996;79(1):103-8. Epub 1996/07/01. PubMed PMID: 8925557.

62. An RH, Davies MP, Doevendans PA, Kubalak SW, Bangalore R, Chien KR, Kass RS. Developmental changes in beta-adrenergic modulation of L-type Ca^{2+} channels in embryonic mouse heart. *Circ Res.* 1996;78(3):371-8. Epub 1996/03/01. PubMed PMID: 8593695.
63. Bangalore R, Mehrke G, Gingrich K, Hofmann F, Kass RS. Influence of L-type Ca channel alpha 2/delta-subunit on ionic and gating current in transiently transfected HEK 293 cells. *Am J Physiol.* 1996;270(5 Pt 2):H1521-8. Epub 1996/05/01. doi: 10.1152/ajpheart.1996.270.5.H1521. PubMed PMID: 8928856.
64. Davies MP, An RH, Doevendans P, Kubalak S, Chien KR, Kass RS. Developmental changes in ionic channel activity in the embryonic murine heart. *Circ Res.* 1996;78(1):15-25. Epub 1996/01/01. PubMed PMID: 8603498.
65. Davies MP, Freeman LC, Kass RS. Dual actions of the novel class III antiarrhythmic drug NE-10064 on delayed potassium channel currents in guinea pig ventricular and sinoatrial node cells. *J Pharmacol Exp Ther.* 1996;276(3):1149-54. Epub 1996/03/01. PubMed PMID: 8786546.
66. Doevendans PA, Becker KD, An RH, Kass RS. The utility of fluorescent in vivo reporter genes in molecular cardiology. *Biochem Biophys Res Commun.* 1996;222(2):352-8. Epub 1996/05/15. doi: 10.1006/bbrc.1996.0747. PubMed PMID: 8670208.
67. Kass RS, Davies MP. The roles of ion channels in an inherited heart disease: molecular genetics of the long QT syndrome. *Cardiovasc Res.* 1996;32(3):443-54. Epub 1996/09/01. PubMed PMID: 8881507.
68. Freeman LC, Pacioretty LM, Moise NS, Kass RS, Gilmour RF, Jr. Decreased density of Ito in left ventricular myocytes from German shepherd dogs with inherited arrhythmias. *J Cardiovasc Electrophysiol.* 1997;8(8):872-83. Epub 1997/08/01. PubMed PMID: 9261713.
69. Heath B, Xia J, Kass RS. Molecular pharmacology of UK-118, 434-05, a permanently charged amlodipine analog. *Int J Cardiol.* 1997;62 Suppl 2:S47-54. Epub 1998/03/06. PubMed PMID: 9488195.
70. Kass RS. Genetically induced reduction in small currents has major impact. *Circulation.* 1997;96(6):1720-1. Epub 1997/10/10. PubMed PMID: 9323051.
71. An RH, Wang XL, Kerem B, Benhorin J, Medina A, Goldmit M, Kass RS. Novel LQT-3 mutation affects Na^{+} channel activity through interactions between alpha- and beta1-subunits. *Circ Res.* 1998;83(2):141-6. Epub 1998/08/01. PubMed PMID: 9686753.
72. Heath BM, Xia J, Dong E, An RH, Brooks A, Liang C, Federoff HJ, Kass RS. Overexpression of nerve growth factor in the heart alters ion channel activity and beta-adrenergic signalling in an adult transgenic mouse. *J Physiol.* 1998;512 (Pt 3):779-91. Epub 1998/10/14. doi: 10.1111/j.1469-7793.1998.779bd.x. PubMed PMID: 9769421; PMCID: PMC2231244.
73. Wang W, Xia J, Kass RS. MinK-KvLQT1 fusion proteins, evidence for multiple stoichiometries of the assembled IsK channel. *J Biol Chem.* 1998;273(51):34069-74. Epub 1998/12/16. doi: 10.1074/jbc.273.51.34069. PubMed PMID: 9852064.
74. An R, Heath BM, Higgins JP, Koch WJ, Lefkowitz RJ, Kass RS. Beta2-adrenergic receptor overexpression in the developing mouse heart: evidence for targeted modulation of ion channels. *J Physiol.* 1999;516 (Pt 1):19-30. Epub 1999/03/06. doi: 10.1111/j.1469-7793.1999.019aa.x. PubMed PMID: 10066919; PMCID: PMC2269209.
75. Lacinova L, An RH, Xia J, Ito H, Klugbauer N, Triggle D, Hofmann F, Kass RS. Distinctions in the molecular determinants of charged and neutral dihydropyridine block of L-type calcium channels. *J Pharmacol Exp Ther.* 1999;289(3):1472-9. Epub 1999/05/21. PubMed PMID: 10336541.
76. Abriel H, Motoike H, Kass RS. KChAP: a novel chaperone for specific K^{+} channels key to repolarization of the cardiac action potential. Focus on "KChAP as a chaperone for specific K^{+} channels". *Am J Physiol Cell Physiol.* 2000;278(5):C863-4. Epub 2000/05/04. doi: 10.1152/ajpcell.2000.278.5.C863. PubMed PMID: 10794658.

77. Abriel H, Wehrens XH, Benhorin J, Kerem B, Kass RS. Molecular pharmacology of the sodium channel mutation D1790G linked to the long-QT syndrome. *Circulation*. 2000;102(8):921-5. Epub 2000/08/23. doi: 10.1161/01.cir.102.8.921. PubMed PMID: 10952963.
78. Benhorin J, Taub R, Goldmit M, Kerem B, Kass RS, Windman I, Medina A. Effects of flecainide in patients with new SCN5A mutation: mutation-specific therapy for long-QT syndrome? *Circulation*. 2000;101(14):1698-706. Epub 2000/04/12. doi: 10.1161/01.cir.101.14.1698. PubMed PMID: 10758053.
79. Doevendans PA, Kubalak SW, An RH, Becker DK, Chien KR, Kass RS. Differentiation of cardiomyocytes in floating embryoid bodies is comparable to fetal cardiomyocytes. *J Mol Cell Cardiol*. 2000;32(5):839-51. Epub 2000/04/25. doi: 10.1006/jmcc.2000.1128. PubMed PMID: 10775488.
80. Kass RS, Cabo C. Channel structure and drug-induced cardiac arrhythmias. *Proc Natl Acad Sci U S A*. 2000;97(22):11683-4. Epub 2000/10/26. doi: 10.1073/pnas.97.22.11683. PubMed PMID: 11050193; PMCID: PMC34333.
81. Wehrens XH, Abriel H, Cabo C, Benhorin J, Kass RS. Arrhythmogenic mechanism of an LQT-3 mutation of the human heart Na(+) channel alpha-subunit: A computational analysis. *Circulation*. 2000;102(5):584-90. Epub 2000/08/02. doi: 10.1161/01.cir.102.5.584. PubMed PMID: 10920073.
82. Abriel H, Cabo C, Wehrens XH, Rivolta I, Motoike HK, Memmi M, Napolitano C, Priori SG, Kass RS. Novel arrhythmogenic mechanism revealed by a long-QT syndrome mutation in the cardiac Na(+) channel. *Circ Res*. 2001;88(7):740-5. Epub 2001/04/17. PubMed PMID: 11304498.
83. Dhar Malhotra J, Chen C, Rivolta I, Abriel H, Malhotra R, Mattei LN, Brosius FC, Kass RS, Isom LL. Characterization of sodium channel alpha- and beta-subunits in rat and mouse cardiac myocytes. *Circulation*. 2001;103(9):1303-10. Epub 2001/03/10. doi: 10.1161/01.cir.103.9.1303. PubMed PMID: 11238277.
84. Kurokawa J, Abriel H, Kass RS. Molecular basis of the delayed rectifier current I_(ks) in heart. *J Mol Cell Cardiol*. 2001;33(5):873-82. Epub 2001/05/10. doi: 10.1006/jmcc.2001.1377. PubMed PMID: 11343411.
85. Kurokawa J, Motoike HK, Kass RS. TEA(+)-sensitive KCNQ1 constructs reveal pore-independent access to KCNE1 in assembled I(Ks) channels. *J Gen Physiol*. 2001;117(1):43-52. Epub 2001/01/03. doi: 10.1085/jgp.117.1.43. PubMed PMID: 11134230; PMCID: PMC2232469.
86. Rivolta I, Abriel H, Tateyama M, Liu H, Memmi M, Vardas P, Napolitano C, Priori SG, Kass RS. Inherited Brugada and long QT-3 syndrome mutations of a single residue of the cardiac sodium channel confer distinct channel and clinical phenotypes. *J Biol Chem*. 2001;276(33):30623-30. Epub 2001/06/19. doi: 10.1074/jbc.M104471200. PubMed PMID: 11410597.
87. Benhorin J, Moss AJ, Bak M, Zareba W, Kaufman ES, Kerem B, Towbin JA, Priori S, Kass RS, Attali B, Brown AM, Ficker E. Variable expression of long QT syndrome among gene carriers from families with five different HERG mutations. *Ann Noninvasive Electrocardiol*. 2002;7(1):40-6. Epub 2002/02/15. PubMed PMID: 11844290.
88. Clancy CE, Kass RS. Defective cardiac ion channels: from mutations to clinical syndromes. *J Clin Invest*. 2002;110(8):1075-7. Epub 2002/10/24. doi: 10.1172/JCI16945. PubMed PMID: 12393842; PMCID: PMC150807.
89. Clancy CE, Tateyama M, Kass RS. Insights into the molecular mechanisms of bradycardia-triggered arrhythmias in long QT-3 syndrome. *J Clin Invest*. 2002;110(9):1251-62. Epub 2002/11/06. doi: 10.1172/JCI15928. PubMed PMID: 12417563; PMCID: PMC151612.
90. Cormier JW, Rivolta I, Tateyama M, Yang AS, Kass RS. Secondary structure of the human cardiac Na⁺ channel C terminus: evidence for a role of helical structures in modulation of channel inactivation. *J Biol Chem*. 2002;277(11):9233-41. Epub 2001/12/14. doi: 10.1074/jbc.M110204200. PubMed PMID: 11741959.
91. Liu H, Tateyama M, Clancy CE, Abriel H, Kass RS. Channel openings are necessary but not sufficient for use-dependent block of cardiac Na(+) channels by flecainide: evidence from the analysis of disease-linked mutations. *J Gen Physiol*. 2002;120(1):39-51. Epub 2002/06/27. doi: 10.1085/jgp.20028558. PubMed PMID: 12084774; PMCID: PMC2311398.

92. Marx SO, Kurokawa J, Reiken S, Motoike H, D'Armiento J, Marks AR, Kass RS. Requirement of a macromolecular signaling complex for beta adrenergic receptor modulation of the KCNQ1-KCNE1 potassium channel. *Science*. 2002;295(5554):496-9. Epub 2002/01/19. doi: 10.1126/science.1066843. PubMed PMID: 11799244.
93. Rivolta I, Clancy CE, Tateyama M, Liu H, Priori SG, Kass RS. A novel SCN5A mutation associated with long QT-3: altered inactivation kinetics and channel dysfunction. *Physiol Genomics*. 2002;10(3):191-7. Epub 2002/09/05. doi: 10.1152/physiolgenomics.00039.2002. PubMed PMID: 12209021.
94. Splawski I, Timothy KW, Tateyama M, Clancy CE, Malhotra A, Beggs AH, Cappuccio FP, Sagnella GA, Kass RS, Keating MT. Variant of SCN5A sodium channel implicated in risk of cardiac arrhythmia. *Science*. 2002;297(5585):1333-6. Epub 2002/08/24. doi: 10.1126/science.1073569. PubMed PMID: 12193783.
95. Wilde AA, Antzelevitch C, Borggrefe M, Brugada J, Brugada R, Brugada P, Corrado D, Hauer RN, Kass RS, Nademanee K, Priori SG, Towbin JA, Study Group on the Molecular Basis of Arrhythmias of the European Society of C. Proposed diagnostic criteria for the Brugada syndrome. *Eur Heart J*. 2002;23(21):1648-54. Epub 2002/11/27. doi: 10.1053/euhj.2002.3382. PubMed PMID: 12448445.
96. Wilde AA, Antzelevitch C, Borggrefe M, Brugada J, Brugada R, Brugada P, Corrado D, Hauer RN, Kass RS, Nademanee K, Priori SG, Towbin JA, Study Group on the Molecular Basis of Arrhythmias of the European Society of C. Proposed diagnostic criteria for the Brugada syndrome: consensus report. *Circulation*. 2002;106(19):2514-9. Epub 2002/11/06. doi: 10.1161/01.cir.0000034169.45752.4a. PubMed PMID: 12417552.
97. Chiello Tracy C, Cabo C, Coromilas J, Kurokawa J, Kass RS, Wit AL. Electrophysiological consequences of human IKs channel expression in adult murine heart. *Am J Physiol Heart Circ Physiol*. 2003;284(1):H168-75. Epub 2002/10/22. doi: 10.1152/ajpheart.00661.2002. PubMed PMID: 12388269.
98. Clancy CE, Kass RS. Pharmacogenomics in the treatment of epilepsy. *Pharmacogenomics*. 2003;4(6):747-51. Epub 2003/11/05. doi: 10.1517/phgs.4.6.747.22822. PubMed PMID: 14596638.
99. Clancy CE, Kurokawa J, Tateyama M, Wehrens XH, Kass RS. K⁺ channel structure-activity relationships and mechanisms of drug-induced QT prolongation. *Annu Rev Pharmacol Toxicol*. 2003;43:441-61. Epub 2003/01/24. doi: 10.1146/annurev.pharmtox.43.100901.140245. PubMed PMID: 12540747.
100. Clancy CE, Tateyama M, Liu H, Wehrens XH, Kass RS. Non-equilibrium gating in cardiac Na⁺ channels: an original mechanism of arrhythmia. *Circulation*. 2003;107(17):2233-7. Epub 2003/04/16. doi: 10.1161/01.CIR.0000069273.51375.BD. PubMed PMID: 12695286.
101. Glaaser IW, Kass RS, Clancy CE. Mechanisms of genetic arrhythmias: from DNA to ECG. *Prog Cardiovasc Dis*. 2003;46(3):259-70. Epub 2003/12/20. PubMed PMID: 14685943.
102. Kass RS, Kurokawa J, Marx SO, Marks AR. Leucine/isoleucine zipper coordination of ion channel macromolecular signaling complexes in the heart. Roles in inherited arrhythmias. *Trends Cardiovasc Med*. 2003;13(2):52-6. Epub 2003/02/15. PubMed PMID: 12586439.
103. Kass RS, Moss AJ. Long QT syndrome: novel insights into the mechanisms of cardiac arrhythmias. *J Clin Invest*. 2003;112(6):810-5. Epub 2003/09/17. doi: 10.1172/JCI19844. PubMed PMID: 12975462; PMCID: PMC193679.
104. Kurokawa J, Chen L, Kass RS. Requirement of subunit expression for cAMP-mediated regulation of a heart potassium channel. *Proc Natl Acad Sci U S A*. 2003;100(4):2122-7. Epub 2003/02/05. doi: 10.1073/pnas.0434935100. PubMed PMID: 12566567; PMCID: PMC149969.
105. Liu H, Atkins J, Kass RS. Common molecular determinants of flecainide and lidocaine block of heart Na⁺ channels: evidence from experiments with neutral and quaternary flecainide analogues. *J Gen Physiol*. 2003;121(3):199-214. Epub 2003/02/26. doi: 10.1085/jgp.20028723. PubMed PMID: 12601084; PMCID: PMC2217334.

106. Tateyama M, Kurokawa J, Terrenoire C, Rivolta I, Kass RS. Stimulation of protein kinase C inhibits bursting in disease-linked mutant human cardiac sodium channels. *Circulation*. 2003;107(25):3216-22. Epub 2003/06/11. doi: 10.1161/01.CIR.0000070936.65183.97. PubMed PMID: 12796143.
107. Tateyama M, Rivolta I, Clancy CE, Kass RS. Modulation of cardiac sodium channel gating by protein kinase A can be altered by disease-linked mutation. *J Biol Chem*. 2003;278(47):46718-26. Epub 2003/09/23. doi: 10.1074/jbc.M308977200. PubMed PMID: 14500710.
108. Wehrens XH, Rossenbacker T, Jongbloed RJ, Gewillig M, Heidbuchel H, Doevendans PA, Vos MA, Wellens HJ, Kass RS. A novel mutation L619F in the cardiac Na⁺ channel SCN5A associated with long-QT syndrome (LQT3): a role for the I-II linker in inactivation gating. *Hum Mutat*. 2003;21(5):552. Epub 2003/04/04. doi: 10.1002/humu.9136. PubMed PMID: 12673799.
109. Clancy CE, Kass RS. Theoretical investigation of the neuronal Na⁺ channel SCN1A: abnormal gating and epilepsy. *Biophys J*. 2004;86(4):2606-14. Epub 2004/03/26. doi: 10.1016/S0006-3495(04)74315-5. PubMed PMID: 15041696; PMCID: PMC1304107.
110. Dilly KW, Kurokawa J, Terrenoire C, Reiken S, Lederer WJ, Marks AR, Kass RS. Overexpression of beta2-adrenergic receptors cAMP-dependent protein kinase phosphorylates and modulates slow delayed rectifier potassium channels expressed in murine heart: evidence for receptor/channel co-localization. *J Biol Chem*. 2004;279(39):40778-87. Epub 2004/07/24. doi: 10.1074/jbc.M406010200. PubMed PMID: 15272004.
111. Kass RS. Sodium channel inactivation goes with the flow. *J Gen Physiol*. 2004;124(1):7-8. Epub 2004/07/01. doi: 10.1085/jgp.200409123. PubMed PMID: 15226362; PMCID: PMC2229599.
112. Kim J, Ghosh S, Liu H, Tateyama M, Kass RS, Pitt GS. Calmodulin mediates Ca²⁺ sensitivity of sodium channels. *J Biol Chem*. 2004;279(43):45004-12. Epub 2004/08/19. doi: 10.1074/jbc.M407286200. PubMed PMID: 15316014.
113. Kurokawa J, Motoike HK, Rao J, Kass RS. Regulatory actions of the A-kinase anchoring protein Yotiao on a heart potassium channel downstream of PKA phosphorylation. *Proc Natl Acad Sci U S A*. 2004;101(46):16374-8. Epub 2004/11/06. doi: 10.1073/pnas.0405583101. PubMed PMID: 15528278; PMCID: PMC525330.
114. Motoike HK, Liu H, Glaaser IW, Yang AS, Tateyama M, Kass RS. The Na⁺ channel inactivation gate is a molecular complex: a novel role of the COOH-terminal domain. *J Gen Physiol*. 2004;123(2):155-65. Epub 2004/01/28. doi: 10.1085/jgp.200308929. PubMed PMID: 14744988; PMCID: PMC2217430.
115. Rossenbacker T, Carroll SJ, Liu H, Kuiperi C, de Ravel TJ, Devriendt K, Carmeliet P, Kass RS, Heidbuchel H. Novel pore mutation in SCN5A manifests as a spectrum of phenotypes ranging from atrial flutter, conduction disease, and Brugada syndrome to sudden cardiac death. *Heart Rhythm*. 2004;1(5):610-5. Epub 2005/04/27. doi: 10.1016/j.hrthm.2004.07.001. PubMed PMID: 15851228.
116. Tateyama M, Liu H, Yang AS, Cormier JW, Kass RS. Structural effects of an LQT-3 mutation on heart Na⁺ channel gating. *Biophys J*. 2004;86(3):1843-51. Epub 2004/03/03. doi: 10.1016/S0006-3495(04)74251-4. PubMed PMID: 14990510; PMCID: PMC1304018.
117. van Bemmelen MX, Rougier JS, Gavillet B, Apotheloz F, Daidie D, Tateyama M, Rivolta I, Thomas MA, Kass RS, Staub O, Abriel H. Cardiac voltage-gated sodium channel Nav1.5 is regulated by Nedd4-2 mediated ubiquitination. *Circ Res*. 2004;95(3):284-91. Epub 2004/06/26. doi: 10.1161/01.RES.0000136816.05109.89. PubMed PMID: 15217910.
118. Abriel H, Kass RS. Regulation of the voltage-gated cardiac sodium channel Nav1.5 by interacting proteins. *Trends Cardiovasc Med*. 2005;15(1):35-40. Epub 2005/03/30. doi: 10.1016/j.tcm.2005.01.001. PubMed PMID: 15795161.
119. Chen L, Kass RS. A-kinase anchoring proteins: different partners, different dance. *Nat Cell Biol*. 2005;7(11):1050-1. Epub 2005/12/31. PubMed PMID: 16385733.
120. Chen L, Kurokawa J, Kass RS. Phosphorylation of the A-kinase-anchoring protein Yotiao contributes to protein kinase A regulation of a heart potassium channel. *J Biol Chem*. 2005;280(36):31347-52. Epub 2005/07/09. doi: 10.1074/jbc.M505191200. PubMed PMID: 16002409.

121. Clancy CE, Kass RS. Inherited and acquired vulnerability to ventricular arrhythmias: cardiac Na⁺ and K⁺ channels. *Physiol Rev.* 2005;85(1):33-47. Epub 2004/12/25. doi: 10.1152/physrev.00005.2004. PubMed PMID: 15618477.
122. Kass RS. The channelopathies: novel insights into molecular and genetic mechanisms of human disease. *J Clin Invest.* 2005;115(8):1986-9. Epub 2005/08/03. doi: 10.1172/JCI26011. PubMed PMID: 16075038; PMCID: PMC1180558.
123. Moss AJ, Kass RS. Long QT syndrome: from channels to cardiac arrhythmias. *J Clin Invest.* 2005;115(8):2018-24. Epub 2005/08/03. doi: 10.1172/JCI25537. PubMed PMID: 16075042; PMCID: PMC1180552.
124. Nerbonne JM, Kass RS. Molecular physiology of cardiac repolarization. *Physiol Rev.* 2005;85(4):1205-53. Epub 2005/09/27. doi: 10.1152/physrev.00002.2005. PubMed PMID: 16183911.
125. Shushi L, Kerem B, Goldmit M, Peretz A, Attali B, Medina A, Towbin JA, Kurokawa J, Kass RS, Benhorin J. Clinical, genetic, and electrophysiologic characteristics of a new PAS-domain HERG mutation (M124R) causing Long QT syndrome. *Ann Noninvasive Electrocardiol.* 2005;10(3):334-41. Epub 2005/07/21. doi: 10.1111/j.1542-474X.2005.00643.x. PubMed PMID: 16029385.
126. Terrenoire C, Clancy CE, Cormier JW, Sampson KJ, Kass RS. Autonomic control of cardiac action potentials: role of potassium channel kinetics in response to sympathetic stimulation. *Circ Res.* 2005;96(5):e25-34. Epub 2005/02/26. doi: 10.1161/01.RES.0000160555.58046.9a. PubMed PMID: 15731462.
127. Chen L, Kass RS. Dual roles of the A kinase-anchoring protein Yotiao in the modulation of a cardiac potassium channel: a passive adaptor versus an active regulator. *Eur J Cell Biol.* 2006;85(7):623-6. Epub 2006/05/02. doi: 10.1016/j.ejcb.2006.03.002. PubMed PMID: 16647783.
128. Fredj S, Lindegger N, Sampson KJ, Carmeliet P, Kass RS. Altered Na⁺ channels promote pause-induced spontaneous diastolic activity in long QT syndrome type 3 myocytes. *Circ Res.* 2006;99(11):1225-32. Epub 2006/11/04. doi: 10.1161/01.RES.0000251305.25604.b0. PubMed PMID: 17082480; PMCID: PMC4454351.
129. Fredj S, Sampson KJ, Liu H, Kass RS. Molecular basis of ranolazine block of LQT-3 mutant sodium channels: evidence for site of action. *Br J Pharmacol.* 2006;148(1):16-24. Epub 2006/03/08. doi: 10.1038/sj.bjp.0706709. PubMed PMID: 16520744; PMCID: PMC1617037.
130. Glaaser IW, Bankston JR, Liu H, Tateyama M, Kass RS. A carboxyl-terminal hydrophobic interface is critical to sodium channel function. Relevance to inherited disorders. *J Biol Chem.* 2006;281(33):24015-23. Epub 2006/06/27. doi: 10.1074/jbc.M605473200. PubMed PMID: 16798729.
131. Kass RS. Sodium channel inactivation in heart: a novel role of the carboxy-terminal domain. *J Cardiovasc Electrophysiol.* 2006;17 Suppl 1:S21-S5. Epub 2006/05/12. doi: 10.1111/j.1540-8167.2006.00381.x. PubMed PMID: 16686678.
132. Kass RS, Moss AJ. Mutation-specific pharmacology of the long QT syndrome. *Handb Exp Pharmacol.* 2006(171):287-304. Epub 2006/04/14. PubMed PMID: 16610349.
133. Lehnart SE, Terrenoire C, Reiken S, Wehrens XH, Song LS, Tillman EJ, Mancarella S, Coromilas J, Lederer WJ, Kass RS, Marks AR. Stabilization of cardiac ryanodine receptor prevents intracellular calcium leak and arrhythmias. *Proc Natl Acad Sci U S A.* 2006;103(20):7906-10. Epub 2006/05/05. doi: 10.1073/pnas.0602133103. PubMed PMID: 16672364; PMCID: PMC1472543.
134. Bankston JR, Kass RS. Fading sodium channels in failing hearts. *Circ Res.* 2007;101(11):1073-4. Epub 2007/11/28. doi: 10.1161/CIRCRESAHA.107.165597. PubMed PMID: 18040022.
135. Bankston JR, Sampson KJ, Kateriya S, Glaaser IW, Malito DL, Chung WK, Kass RS. A novel LQT-3 mutation disrupts an inactivation gate complex with distinct rate-dependent phenotypic consequences. *Channels (Austin).* 2007;1(4):273-80. Epub 2008/08/19. doi: 10.4161/chan.4956. PubMed PMID: 18708744.

136. Bankston JR, Yue M, Chung W, Spyres M, Pass RH, Silver E, Sampson KJ, Kass RS. A novel and lethal de novo LQT-3 mutation in a newborn with distinct molecular pharmacology and therapeutic response. *PLoS One*. 2007;2(12):e1258. Epub 2007/12/07. doi: 10.1371/journal.pone.0001258. PubMed PMID: 18060054; PMCID: PMC2082660.
137. Chen L, Marquardt ML, Tester DJ, Sampson KJ, Ackerman MJ, Kass RS. Mutation of an A-kinase-anchoring protein causes long-QT syndrome. *Proc Natl Acad Sci U S A*. 2007;104(52):20990-5. Epub 2007/12/21. doi: 10.1073/pnas.0710527105. PubMed PMID: 18093912; PMCID: PMC2409254.
138. Seeböhm G, Strutz-Seeböhm N, Birkin R, Dell G, Bucci C, Spinosa MR, Baltaev R, Mack AF, Korniyuchuk G, Choudhury A, Marks D, Pagano RE, Attali B, Pfeufer A, Kass RS, Sanguinetti MC, Tavares JM, Lang F. Regulation of endocytic recycling of KCNQ1/KCNE1 potassium channels. *Circ Res*. 2007;100(5):686-92. Epub 2007/02/13. doi: 10.1161/01.RES.0000260250.83824.8f. PubMed PMID: 17293474.
139. Terrenoire C, Simhaee D, Kass RS. Role of sodium channels in propagation in heart muscle: how subtle genetic alterations result in major arrhythmic disorders. *J Cardiovasc Electrophysiol*. 2007;18(8):900-5. Epub 2007/05/17. doi: 10.1111/j.1540-8167.2007.00838.x. PubMed PMID: 17504259.
140. Bankston JR, Kass RS. Ion channels: The voltage-sensor quartet. *Nature*. 2008;456(7219):183-5. Epub 2008/11/14. doi: 10.1038/456183a. PubMed PMID: 19005542; PMCID: PMC2685185.
141. Holland KD, Kearney JA, Glauser TA, Buck G, Keddache M, Blankston JR, Glaaser IW, Kass RS, Meisler MH. Mutation of sodium channel SCN3A in a patient with cryptogenic pediatric partial epilepsy. *Neurosci Lett*. 2008;433(1):65-70. Epub 2008/02/05. doi: 10.1016/j.neulet.2007.12.064. PubMed PMID: 18242854; PMCID: PMC2423278.
142. Kass RS, Lindegger N, Hagen B, Lederer WJ. Another calcium paradox in heart failure. *J Mol Cell Cardiol*. 2008;45(1):28-31. Epub 2008/05/28. doi: 10.1016/j.yjmcc.2008.04.001. PubMed PMID: 18504047.
143. Lehnart SE, Mongillo M, Bellinger A, Lindegger N, Chen BX, Hsueh W, Reiken S, Wronska A, Drew LJ, Ward CW, Lederer WJ, Kass RS, Morley G, Marks AR. Leaky Ca²⁺ release channel/ryanodine receptor 2 causes seizures and sudden cardiac death in mice. *J Clin Invest*. 2008;118(6):2230-45. Epub 2008/05/17. doi: 10.1172/JCI35346. PubMed PMID: 18483626; PMCID: PMC2381750.
144. Nicolas CS, Park KH, El Harchi A, Camonis J, Kass RS, Escande D, Merot J, Loussouarn G, Le Bouffant F, Baro I. IKs response to protein kinase A-dependent KCNQ1 phosphorylation requires direct interaction with microtubules. *Cardiovasc Res*. 2008;79(3):427-35. Epub 2008/04/09. doi: 10.1093/cvr/cvn085. PubMed PMID: 18390900; PMCID: PMC2781743.
145. Sampson KJ, Terrenoire C, Cervantes DO, Kaba RA, Peters NS, Kass RS. Adrenergic regulation of a key cardiac potassium channel can contribute to atrial fibrillation: evidence from an I Ks transgenic mouse. *J Physiol*. 2008;586(2):627-37. Epub 2007/11/17. doi: 10.1113/jphysiol.2007.141333. PubMed PMID: 18006587; PMCID: PMC2375578.
146. Chung DY, Chan PJ, Bankston JR, Yang L, Liu G, Marx SO, Karlin A, Kass RS. Location of KCNE1 relative to KCNQ1 in the I(KS) potassium channel by disulfide cross-linking of substituted cysteines. *Proc Natl Acad Sci U S A*. 2009;106(3):743-8. Epub 2009/01/10. doi: 10.1073/pnas.0811897106. PubMed PMID: 19131515; PMCID: PMC2630058.
147. Kurokawa J, Bankston JR, Kaihara A, Chen L, Furukawa T, Kass RS. KCNE variants reveal a critical role of the beta subunit carboxyl terminus in PKA-dependent regulation of the IKs potassium channel. *Channels (Austin)*. 2009;3(1):16-24. Epub 2008/12/17. doi: 10.4161/chan.3.1.7387. PubMed PMID: 19077539; PMCID: PMC2773666.
148. Lindegger N, Hagen BM, Marks AR, Lederer WJ, Kass RS. Diastolic transient inward current in long QT syndrome type 3 is caused by Ca²⁺ overload and inhibited by ranolazine. *J Mol Cell Cardiol*. 2009;47(2):326-34. Epub 2009/04/18. doi: 10.1016/j.yjmcc.2009.04.003. PubMed PMID: 19371746; PMCID: PMC2703681.
149. Terrenoire C, Houslay MD, Baillie GS, Kass RS. The cardiac IKs potassium channel macromolecular complex includes the phosphodiesterase PDE4D3. *J Biol Chem*. 2009;284(14):9140-6. Epub 2009/02/17. doi: 10.1074/jbc.M805366200. PubMed PMID: 19218243; PMCID: PMC2666564.

150. Bankston JR, Kass RS. Molecular determinants of local anesthetic action of beta-blocking drugs: Implications for therapeutic management of long QT syndrome variant 3. *J Mol Cell Cardiol.* 2010;48(1):246-53. Epub 2009/06/02. doi: 10.1016/j.yjmcc.2009.05.012. PubMed PMID: 19481549; PMCID: PMC2813422.
151. Lu JT, Kass RS. Recent progress in congenital long QT syndrome. *Curr Opin Cardiol.* 2010;25(3):216-21. Epub 2010/03/13. doi: 10.1097/HCO.0b013e32833846b3. PubMed PMID: 20224391; PMCID: PMC3151313.
152. Osteen JD, Gonzalez C, Sampson KJ, Iyer V, Rebolledo S, Larsson HP, Kass RS. KCNE1 alters the voltage sensor movements necessary to open the KCNQ1 channel gate. *Proc Natl Acad Sci U S A.* 2010;107(52):22710-5. Epub 2010/12/15. doi: 10.1073/pnas.1016300108. PubMed PMID: 21149716; PMCID: PMC3012494.
153. Osteen JD, Sampson KJ, Kass RS. The cardiac IKs channel, complex indeed. *Proc Natl Acad Sci U S A.* 2010;107(44):18751-2. Epub 2010/10/27. doi: 10.1073/pnas.1014150107. PubMed PMID: 20974964; PMCID: PMC2973886.
154. Sampson KJ, Iyer V, Marks AR, Kass RS. A computational model of Purkinje fibre single cell electrophysiology: implications for the long QT syndrome. *J Physiol.* 2010;588(Pt 14):2643-55. Epub 2010/05/26. doi: 10.1113/jphysiol.2010.187328. PubMed PMID: 20498233; PMCID: PMC2916994.
155. Sampson KJ, Kass RS. Location, location, regulation: a novel role for beta-spectrin in the heart. *J Clin Invest.* 2010;120(10):3434-7. Epub 2010/09/30. doi: 10.1172/JCI44810. PubMed PMID: 20877007; PMCID: PMC2947339.
156. Sampson KJ, Kass RS. Molecular mechanisms of adrenergic stimulation in the heart. *Heart Rhythm.* 2010;7(8):1151-3. Epub 2010/02/17. doi: 10.1016/j.hrthm.2010.02.013. PubMed PMID: 20156590; PMCID: PMC2891219.
157. Chandrasekhar KD, Lvov A, Terrenoire C, Gao GY, Kass RS, Kobertz WR. O-glycosylation of the cardiac I(Ks) complex. *J Physiol.* 2011;589(Pt 15):3721-30. Epub 2011/06/15. doi: 10.1113/jphysiol.2011.211284. PubMed PMID: 21669976; PMCID: PMC3171881.
158. Chen L, Kass RS. A-kinase anchoring protein 9 and IKs channel regulation. *J Cardiovasc Pharmacol.* 2011;58(5):459-13. Epub 2011/09/03. doi: 10.1097/FJC.0b013e328318232c80c. PubMed PMID: 21885989; PMCID: PMC3226347.
159. Moreno JD, Zhu ZI, Yang PC, Bankston JR, Jeng MT, Kang C, Wang L, Bayer JD, Christini DJ, Trayanova NA, Ripplinger CM, Kass RS, Clancy CE. A computational model to predict the effects of class I anti-arrhythmic drugs on ventricular rhythms. *Sci Transl Med.* 2011;3(98):98ra83. Epub 2011/09/03. doi: 10.1126/scitranslmed.3002588. PubMed PMID: 21885405; PMCID: PMC3328405.
160. Quinn TA, Granite S, Alessie MA, Antzelevitch C, Bollensdorff C, Bub G, Burton RA, Cerbai E, Chen PS, Delmar M, Difrancesco D, Earm YE, Efimov IR, Egger M, Entcheva E, Fink M, Fischmeister R, Franz MR, Garny A, Giles WR, Hannes T, Harding SE, Hunter PJ, Iribe G, Jalife J, Johnson CR, Kass RS, Kodama I, Koren G, Lord P, Markhasin VS, Matsuoka S, McCulloch AD, Mirams GR, Morley GE, Nattel S, Noble D, Olesen SP, Panfilov AV, Trayanova NA, Ravens U, Richard S, Rosenbaum DS, Rudy Y, Sachs F, Sachse FB, Saint DA, Schotten U, Solovyova O, Taggart P, Tung L, Varro A, Volders PG, Wang K, Weiss JN, Wettwer E, White E, Wilders R, Winslow RL, Kohl P. Minimum Information about a Cardiac Electrophysiology Experiment (MICEE): standardised reporting for model reproducibility, interoperability, and data sharing. *Prog Biophys Mol Biol.* 2011;107(1):4-10. Epub 2011/07/13. doi: 10.1016/j.pbiomolbio.2011.07.001. PubMed PMID: 21745496; PMCID: PMC3190048.
161. Wang K, Terrenoire C, Sampson KJ, Iyer V, Osteen JD, Lu J, Keller G, Kotton DN, Kass RS. Biophysical properties of slow potassium channels in human embryonic stem cell derived cardiomyocytes implicate subunit stoichiometry. *J Physiol.* 2011;589(Pt 24):6093-104. Epub 2011/10/26. doi: 10.1113/jphysiol.2011.220863. PubMed PMID: 22025662; PMCID: PMC3286688.
162. Chan PJ, Osteen JD, Xiong D, Bohnen MS, Doshi D, Sampson KJ, Marx SO, Karlin A, Kass RS. Characterization of KCNQ1 atrial fibrillation mutations reveals distinct dependence on KCNE1. *J Gen Physiol.* 2012;139(2):135-44. Epub 2012/01/18. doi: 10.1085/jgp.201110672. PubMed PMID: 22250012; PMCID: PMC3269792.

163. Glaaser IW, Osteen JD, Puckerin A, Sampson KJ, Jin X, Kass RS. Perturbation of sodium channel structure by an inherited Long QT Syndrome mutation. *Nat Commun.* 2012;3:706. Epub 2012/03/20. doi: 10.1038/ncomms1717. PubMed PMID: 22426227; PMCID: PMC3518026.
164. Li Y, Chen L, Kass RS, Dessauer CW. The A-kinase anchoring protein Yotiao facilitates complex formation between adenylyl cyclase type 9 and the IKs potassium channel in heart. *J Biol Chem.* 2012;287(35):29815-24. Epub 2012/07/11. doi: 10.1074/jbc.M112.380568. PubMed PMID: 22778270; PMCID: PMC3436180.
165. Osteen JD, Barro-Soria R, Robey S, Sampson KJ, Kass RS, Larsson HP. Allosteric gating mechanism underlies the flexible gating of KCNQ1 potassium channels. *Proc Natl Acad Sci U S A.* 2012;109(18):7103-8. Epub 2012/04/18. doi: 10.1073/pnas.1201582109. PubMed PMID: 22509038; PMCID: PMC3344993.
166. Wang M, Kass RS. Stoichiometry of the slow I(k_s) potassium channel in human embryonic stem cell-derived myocytes. *Pediatr Cardiol.* 2012;33(6):938-42. Epub 2012/03/17. doi: 10.1007/s00246-012-0255-2. PubMed PMID: 22421958.
167. Chung WK, Sampson KS, Kass RS. A novel channelopathy in pulmonary arterial hypertension. *N Engl J Med.* 2013;369(22):2162. Epub 2013/11/29. doi: 10.1056/NEJMc1311060. PubMed PMID: 24283236.
168. Ma L, Roman-Campos D, Austin ED, Eyries M, Sampson KS, Soubrier F, Germain M, Tregouet DA, Borczuk A, Rosenzweig EB, Girerd B, Montani D, Humbert M, Loyd JE, Kass RS, Chung WK. A novel channelopathy in pulmonary arterial hypertension. *N Engl J Med.* 2013;369(4):351-61. Epub 2013/07/26. doi: 10.1056/NEJMoa1211097. PubMed PMID: 23883380; PMCID: PMC3792227.
169. Moreno JD, Yang PC, Bankston JR, Grandi E, Bers DM, Kass RS, Clancy CE. Ranolazine for congenital and acquired late INa-linked arrhythmias: in silico pharmacological screening. *Circ Res.* 2013;113(7):e50-e61. Epub 2013/07/31. doi: 10.1161/CIRCRESAHA.113.301971. PubMed PMID: 23897695; PMCID: PMC3896218.
170. Terrenoire C, Wang K, Tung KW, Chung WK, Pass RH, Lu JT, Jean JC, Omari A, Sampson KJ, Kotton DN, Keller G, Kass RS. Induced pluripotent stem cells used to reveal drug actions in a long QT syndrome family with complex genetics. *J Gen Physiol.* 2013;141(1):61-72. Epub 2013/01/02. doi: 10.1085/jgp.201210899. PubMed PMID: 23277474; PMCID: PMC3536519.
171. Xiao L, Koopmann TT, Ordog B, Postema PG, Verkerk AO, Iyer V, Sampson KJ, Boink GJ, Mamarbachi MA, Varro A, Jordaens L, Res J, Kass RS, Wilde AA, Bezzina CR, Nattel S. Unique cardiac Purkinje fiber transient outward current beta-subunit composition: a potential molecular link to idiopathic ventricular fibrillation. *Circ Res.* 2013;112(10):1310-22. Epub 2013/03/28. doi: 10.1161/CIRCRESAHA.112.300227. PubMed PMID: 23532596; PMCID: PMC4465785.
172. Yu H, Lin Z, Mattmann ME, Zou B, Terrenoire C, Zhang H, Wu M, McManus OB, Kass RS, Lindsley CW, Hopkins CR, Li M. Dynamic subunit stoichiometry confers a progressive continuum of pharmacological sensitivity by KCNQ potassium channels. *Proc Natl Acad Sci U S A.* 2013;110(21):8732-7. Epub 2013/05/08. doi: 10.1073/pnas.1300684110. PubMed PMID: 23650380; PMCID: PMC3666726.
173. Barro-Soria R, Rebolledo S, Liin SI, Perez ME, Sampson KJ, Kass RS, Larsson HP. KCNE1 divides the voltage sensor movement in KCNQ1/KCNE1 channels into two steps. *Nat Commun.* 2014;5:3750. Epub 2014/04/29. doi: 10.1038/ncomms4750. PubMed PMID: 24769622; PMCID: PMC4019390.
174. Iyer V, Sampson KJ, Kass RS. Modeling tissue- and mutation- specific electrophysiological effects in the long QT syndrome: role of the Purkinje fiber. *PLoS One.* 2014;9(6):e97720. Epub 2014/06/04. doi: 10.1371/journal.pone.0097720. PubMed PMID: 24892747; PMCID: PMC4043730.
175. Bohnen MS, Iyer V, Sampson KJ, Kass RS. Novel mechanism of transient outward potassium channel current regulation in the heart: implications for cardiac electrophysiology in health and disease. *Circ Res.* 2015;116(10):1633-5. Epub 2015/05/09. doi: 10.1161/CIRCRESAHA.115.306438. PubMed PMID: 25953919; PMCID: PMC4428686.
176. Clancy CE, Chen-Izu Y, Bers DM, Belardinelli L, Boyden PA, Csernoch L, Despa S, Fermini B, Hool LC, Izu L, Kass RS, Lederer WJ, Louch WE, Maack C, Matiazzi A, Qu Z, Rajamani S, Ripplinger CM, Sejersted OM, O'Rourke B,

- Weiss JN, Varro A, Zaza A. Deranged sodium to sudden death. *J Physiol.* 2015;593(6):1331-45. Epub 2015/03/17. doi: 10.1113/jphysiol.2014.281204. PubMed PMID: 25772289; PMCID: PMC4376414.
177. Iyer V, Roman-Campos D, Sampson KJ, Kang G, Fishman GI, Kass RS. Purkinje Cells as Sources of Arrhythmias in Long QT Syndrome Type 3. *Sci Rep.* 2015;5:13287. Epub 2015/08/21. doi: 10.1038/srep13287. PubMed PMID: 26289036; PMCID: PMC4542521.
178. Chen L, Sampson KJ, Kass RS. Cardiac Delayed Rectifier Potassium Channels in Health and Disease. *Card Electrophysiol Clin.* 2016;8(2):307-22. Epub 2016/06/05. doi: 10.1016/j.ccep.2016.01.004. PubMed PMID: 27261823; PMCID: PMC4893812.
179. Eng G, Lee BW, Protas L, Gagliardi M, Brown K, Kass RS, Keller G, Robinson RB, Vunjak-Novakovic G. Autonomous beating rate adaptation in human stem cell-derived cardiomyocytes. *Nat Commun.* 2016;7:10312. Epub 2016/01/20. doi: 10.1038/ncomms10312. PubMed PMID: 26785135; PMCID: PMC4735644.
180. Lorberbaum T, Sampson KJ, Chang JB, Iyer V, Woosley RL, Kass RS, Tatonetti NP. Coupling Data Mining and Laboratory Experiments to Discover Drug Interactions Causing QT Prolongation. *J Am Coll Cardiol.* 2016;68(16):1756-64. Epub 2016/10/16. doi: 10.1016/j.jacc.2016.07.761. PubMed PMID: 27737742; PMCID: PMC5082283.
181. Lorberbaum T, Sampson KJ, Woosley RL, Kass RS, Tatonetti NP. An Integrative Data Science Pipeline to Identify Novel Drug Interactions that Prolong the QT Interval. *Drug Saf.* 2016;39(5):433-41. Epub 2016/02/11. doi: 10.1007/s40264-016-0393-1. PubMed PMID: 26860921; PMCID: PMC4835515.
182. Barro-Soria R, Ramentol R, Liin SI, Perez ME, Kass RS, Larsson HP. KCNE1 and KCNE3 modulate KCNQ1 channels by affecting different gating transitions. *Proc Natl Acad Sci U S A.* 2017;114(35):E7367-E76. Epub 2017/08/16. doi: 10.1073/pnas.1710335114. PubMed PMID: 28808020; PMCID: PMC5584458.
183. Bohnen MS, Peng G, Robey SH, Terrenoire C, Iyer V, Sampson KJ, Kass RS. Molecular Pathophysiology of Congenital Long QT Syndrome. *Physiol Rev.* 2017;97(1):89-134. Epub 2016/11/04. doi: 10.1152/physrev.00008.2016. PubMed PMID: 27807201; PMCID: PMC5539372.
184. Bohnen MS, Roman-Campos D, Terrenoire C, Jnani J, Sampson KJ, Chung WK, Kass RS. The Impact of Heterozygous KCNK3 Mutations Associated With Pulmonary Arterial Hypertension on Channel Function and Pharmacological Recovery. *J Am Heart Assoc.* 2017;6(9). Epub 2017/09/11. doi: 10.1161/JAHA.117.006465. PubMed PMID: 28889099; PMCID: PMC5634293.
185. Peng G, Barro-Soria R, Sampson KJ, Larsson HP, Kass RS. Gating mechanisms underlying deactivation slowing by two KCNQ1 atrial fibrillation mutations. *Sci Rep.* 2017;7:45911. Epub 2017/04/07. doi: 10.1038/srep45911. PubMed PMID: 28383569; PMCID: PMC5382920.
186. Bohnen MS, Ma L, Zhu N, Qi H, McClenaghan C, Gonzaga-Jauregui C, Dewey FE, Overton JD, Reid JG, Shuldiner AR, Baras A, Sampson KJ, Bleda M, Hadinnapola C, Haimel M, Bogaard HJ, Church C, Coghlan G, Corris PA, Eyries M, Gibbs JSR, Girerd B, Houweling AC, Humbert M, Guignabert C, Kiely DG, Lawrie A, MacKenzie Ross RV, Martin JM, Montani D, Peacock AJ, Pepke-Zaba J, Soubrier F, Suntharalingam J, Toshner M, Treacy CM, Trembath RC, Vonk Noordegraaf A, Wharton J, Wilkins MR, Wort SJ, Yates K, Graf S, Morrell NW, Krishnan U, Rosenzweig EB, Shen Y, Nichols CG, Kass RS, Chung WK. Loss-of-Function ABCC8 Mutations in Pulmonary Arterial Hypertension. *Circ Genom Precis Med.* 2018;11(10):e002087. Epub 2018/10/26. doi: 10.1161/CIRCGEN.118.002087. PubMed PMID: 30354297; PMCID: PMC6206877.
187. Shandell MA, Quejada JR, Yazawa M, Cornish VW, Kass RS. Detection of Nav1.5 Conformational Change in Mammalian Cells Using the Noncanonical Amino Acid ANAP. *Biophys J.* 2019;117(7):1352-63. Epub 2019/09/16. doi: 10.1016/j.bpj.2019.08.028. PubMed PMID: 31521331; PMCID: PMC6818161.
188. Li Y, Hof T, Baldwin TA, Chen L, Kass RS, Dessauer CW. Regulation of IKs Potassium Current by Isoproterenol in Adult Cardiomyocytes Requires Type 9 Adenylyl Cyclase. *Cells.* 2019;8(9). Epub 2019/08/30. doi: 10.3390/cells8090981. PubMed PMID: 31461851; PMCID: PMC6770663.

189. McKeithan WL, Feyen DAM, Bruyneel AAN, Okolotowicz KJ, Ryan DA, Sampson KJ, Potet F, Savchenko A, Gomez-Galeno J, Vu M, Serrano R, George AL, Jr., Kass RS, Cashman JR, Mercola M. Reengineering an Antiarrhythmic Drug Using Patient hiPSC Cardiomyocytes to Improve Therapeutic Potential and Reduce Toxicity. *Cell Stem Cell*. 2020;27(5):813-21 e6. Epub 2020/09/16. doi: 10.1016/j.stem.2020.08.003. PubMed PMID: 32931730; PMCID: PMC7655512.
190. Cashman JR, Ryan D, McKeithan WL, Okolotowicz K, Gomez-Galeno J, Johnson M, Sampson KJ, Kass RS, Pezhouman A, Karagueuzian HS, Mercola M. Antiarrhythmic Hit to Lead Refinement in a Dish Using Patient-Derived iPSC Cardiomyocytes. *J Med Chem*. 2021;64(9):5384-403. Epub 2021/05/05. doi: 10.1021/acs.jmedchem.0c01545. PubMed PMID: 33942619.
191. Johnson M, Gomez-Galeno J, Ryan D, Okolotowicz K, McKeithan WL, Sampson KJ, Kass RS, Mercola M & Cashman JR. (2021). Human iPSC-derived cardiomyocytes and pyridyl-phenyl mexiletine analogs. *Bioorg Med Chem Lett* **46**, 128162.
192. Zou X, Wu X, Sampson KJ, Colecraft HM, Larsson HP, Kass RS. Pharmacological rescue of specific long QT variants of KCNQ1/KCNE1 channels. *Front Physiol*. 2022;13:902224. Epub 20221123. doi: 10.3389/fphys.2022.902224. PubMed PMID: 36505078; PMCID: PMC9726718.
193. Comollo TW, Zou X, Zhang C, Kesters D, Hof T, Sampson KJ, Kass RS. Exploring mutation specific beta blocker pharmacology of the pathogenic late sodium channel current from patient-specific pluripotent stem cell myocytes derived from long QT syndrome mutation carriers. *Channels (Austin)*. 2022;16(1):173-84. doi: 10.1080/19336950.2022.2106025. PubMed PMID: 35949058; PMCID: PMC9373745.
194. Chen L, Peng G, Comollo TW, Zou X, Sampson KJ, Larsson HP, Kass RS. Two small-molecule activators share similar effector sites in the KCNQ1 channel pore but have distinct effects on voltage sensor movements. *Front Physiol*. 2022;13:903050. Epub 20220725. doi: 10.3389/fphys.2022.903050. PubMed PMID: 35957984; PMCID: PMC9359618.
195. Redel-Traub G, Sampson KJ, Kass RS, Bohnen MS. Potassium Channels as Therapeutic Targets in Pulmonary Arterial Hypertension. *Biomolecules*. 2022;12(10). Epub 20220922. doi: 10.3390/biom12101341. PubMed PMID: 36291551; PMCID: PMC9599705.
196. Kass RS. Perspective on White Paper from the 2022 UC Davis Cardiovascular Research Symposium. *J Physiol*. 2023. Epub 20230518. doi: 10.1113/JP284441. PubMed PMID: 37199332.
197. Kass RS. Calmodulin mutations can underlie the phenotype of long QT syndrome variant 1. *J Physiol*. 2023. Epub 20230809. doi: 10.1113/JP285220. PubMed PMID: 37555447.
198. Zou X, Shanmugam SK, Kanner SA, Sampson KJ, Kass RS & Colecraft HM. (2023). Divergent regulation of KCNQ1/E1 by targeted recruitment of protein kinase A to distinct sites on the channel complex. *Elife* **12**
199. Morgenstern TJ, Darko-Boateng A, Afriyie E, Shanmugam SK, Zhou X, Choudhury P, Desai M, Kass RS, Clarke OB & Colecraft HM. (2024). Ion channel inhibition by targeted recruitment of NEDD4-2 with divalent nanobodies. *bioRxiv*.
200. Shanmugam SK, Kanner SA, Zou X, Amarh E, Choudhury P, Soni R, Kass RS & Colecraft HM. (2025). Decoding polyubiquitin regulation of K(V)7. 1 (KCNQ1) surface expression with engineered linkage-selective deubiquitinases. *Nat Commun* **16**, 5805.

Select Book Chapters/Review Articles

1. Tsien, R.W., Weingart, R., Lederer, W.J., Kass, R.S. 1977. On the inotropic and arrhythmogenic effects of digitalis. International Symposium on Myocardial Failure. Tegernsee, June, 1976.
2. Tsien, R.W., Weingart, R., Lederer, W.J., Kass, R.S. 1978. On the inotropic and arrhythmogenic effects of digitalis. In: Biophysical Aspects of Cardiac Muscle. M. Morad, ed., Academic Press, pp. 345-368.
3. Tsien, R.W., Kass, R.S., Weingart, R. 1978. Calcium ions and membrane current changes induced by digitalis in cardiac Purkinje fibers. Annal NY Acad. Sci. 307:483-490.
4. Weingart, R., Tsien, R.W., Kass, R.S. 1978. Effects of digitalis on ionic currents in cardiac Purkinje fibers. International Congress Series, No. 470. Excerpta Medica: 90:808-813.
5. Kass, R.S., Scheuer, T. 1982. Calcium ions and cardiac electrophysiology. In: Calcium Blockers: Mechanisms of Action and Clinical Applications. Eds. S.F. Flaim and R. Zelis. Urban and Schwarzenberg, Baltimore, pp. 3-19.
6. Kass, R.S. 1983. Measurement and block of voltage-dependent calcium current in the heart. In: Ca²⁺ Entry Blockers, Adenosine, and Neurohumors. Eds. G.F. Merrill and H.R. Weiss. Urban and Schwarzenberg, Baltimore, pp. 3-18.
7. Kass, R.S. 1983. Effects of calcium-channel blockers on ionic currents in the heart. In: Nifedipine in Clinical Practice. Theroux and Waters, eds. Excerpta Medica. Princeton, pp. 181-195.
8. Kass, R.S. 1984. The ionic basis of electrical activity in the heart. In: Function of the Heart in Normal and Pathological States. N. Sperelakis, ed., Martinus Nijhoff. The Hague. pp. 83-96.
9. Kass, R.S., Bennett, P.B. 1984. Microelectrode voltage clamp: the cardiac Purkinje fiber. In: Voltage and Patch Clamping with Microelectrodes. Eds. T.G. Smith, H. Lecar, S. Redman, and P. Gage. Waverly Press, New York. pp. 178-191.
10. Kass, R.S., Sanguinetti, M.C. 1984. Voltage clamp studies of calcium channel blockage in the heart. In: Ca Antagonists: Mechanism of Action on Cardiac Muscle and Vascular Smooth Muscle. N. Sperelakis and J.B. Caufield, eds. Martinus Nijhoff. Boston, pp. 47-62.
11. Kass, R.S., Sanguinetti, M.C., Krafte, D.S. 1986. Inactivation and modulation of cardiac Ca channels. In: Cardiac Muscle: Regulation of Excitation and Contraction, R. D. Nathan, editor, Academic Press. pp. 29-53.
12. Kass, R.S., Sanguinetti, M.C., Bennett, P.B., Coplin, B.E., Krafte, D.S. 1985. Voltage-dependent modulation of cardiac Ca channels by dihydropyridines. In: Cardiovascular Effects of Dihydropyridine Type Calcium Antagonists and Agonists. A. Fleckenstein and C.V. Van Breemen, eds. Berlin: Springer-Verlag. pp. 198-217.
13. Kass, R.S., Krafte, D.S. 1987. Electrophysiology of Ca channels in excitable cells: channel types, permeation, gating and modulation. In: Receptor Biochemistry and Methodology. J.C. Venter, D.J. Triggle, series eds. Alan R. Liss, New York, pp. 71-88.
14. Kass, R.S., Arena, J.P., Wiener, R.S. 1987. Membrane potential and nisoldipine block of calcium channels in the heart: Interactions with channel gating. In: Nisoldipine. Hugenholtz and Meyer, eds. Berlin: Springer-Verlag, pp. 13-26.
15. Kass, R.S., Arena, J.P. 1988. Membrane potential and dihydropyridine block of calcium channels in the heart: influence of drug ionization on blocking activity. In: The Calcium Channel: Structure, Function, and Implications. Morad and Nayler, eds. Springer Verlag, Berlin, pp. 81-91.
16. Arena, J.P., K.B. Walsh, and R.S. Kass. 1988. Measurement, block, and modulation of potassium channels in the heart. In: Potassium channels: basic function and therapeutic aspects. T.J. Colatsky, Ed. New York: Alan R. Liss.
17. Kass, R.S., Arena, J.P., Chin, S. 1989. Modulation of Calcium Channels by Charged and Neutral Dihydropyridines. Annals of the NY Academy of Sciences. 560:189-197.
18. Kass, R.S., Arena, J.P. 1990. Charged and neutral dihydropyridines: probes of the L-type calcium channel. In: Japan-USA symposium on cardiovascular drugs. In: Recent Advances In Ca Channels and Ca Antagonists. K. Yamada and S. Shibata, eds. Pergamon Press, New York.

19. Freeman, L.C., Kwok, W.M., Anumonwo, J., Kass, R.S. 1992. Potassium channels in the heart: physiological function and neurohormonal regulation. In: Potassium Channel Modulators: Pharmacological, Molecular, and Clinical Aspects. A. Weston and T. Hamilton, eds. Blackwell Scientific Publications, Ltd. Oxford. Chapter 8, pp. 181-203.
20. Kwok, W.M, Freeman, L.C., Anumonwo, J., Kass, R.S. 1992. Delayed rectification in the heart: regulation and physiology. NATO ASI SERIES. Regulation of Ion Channels. M.Morad, ed. Springer-Verlag, Heidelberg.
21. Kass, R.S. 1993. Molecular pharmacology of cardiac L-type Ca channels. 1993. In: Handbook of Membrane Channels: Molecular and Cellular Physiology. Camillo Paracchia, Ed. Academic Press, Orlando, FL
22. Kass, R.S. 1994. Dihydropyridine modulation of cardiovascular L-type calcium channels: molecular and cellular pharmacology. In: Ion Channels in the Cardiovascular System, Eds W.A. Catterall, and A.M. Brown. Futura Publishing, Armonk, NY. pp. 425-440
23. Kass, R.S. 1994a. Ionic Basis of Electrical Activity in the Heart. In: Physiology and Pathophysiology of the Heart. Ed. N. Sperelakis, Norwell, MA. Kluwer Academic.
24. Kass, R.S. 1994c. Molecular pharmacology of calcium channels. In: Handbook of Membrane Channels: Molecular and Cellular Physiology. Ed. C. Peracchia. Orlando, FL. Academic Press.
25. Kass, R.S. 1994d. Delayed potassium channels in the heart: cellular, molecular and regulatory properties. In: Cardiac Electrophysiology. Eds. D. Zipes and J. Jalife. Philadelphia, PA. W.B. Saunders.
26. Kass, R.S., Bangalore, R. 1994. Measurement of dihydropyridine modulation of cardiac L-type calcium channels: molecular and cellular implications. In: Methods in Neurosciences: Ion Channels of Excitable Cells. Ed. T. Narahashi. Academic Press pp. 189-204
27. Kass, R.S. 1996. Genesis of cardiac arrhythmias: roles of calcium and delayed potassium channels in the heart. In: Molecular Biology of Membrane Transport Disorders. Eds. T. Andreoli, D. Fambrough, J. Hoffman, M. Welsh, S. Schultz and A.M. Brown.. New York, NY.Plenum Press pp. 595-604
28. Kass, R.S., Davies, M.P. & Freeman, L.C. (1996). Functional differences between native and recombinant forms of I_{Ks}. In Molecular and Cellular Mechanisms of Cardiovascular Regulation, ed. Endoh, M., Tokyo:Springer Verlag. pp. 33-46
29. Kass, R.S. (1996). Delayed potassium in the heart: regulatory and molecular properties. In Molecular Physiology and Pharmacology of Cardiac Ion Channels and Transporters, eds. Morad, M., Ebashi, S., Trautweub, W. & Kurachi, Y., Kluwer Academic Publishers pp. 169-176
30. Kass, R.S. (1999) Cardiovascular Specific Gene Expression. eds. Doevendans, Reneman, van Bilsen. Kluwer Academic Publishers, the Netherlands.
31. Kass, R.S. (2000). Cellular and Molecular Basis of Electrical Activity in the Heart. In: Principles of Medical Biology. eds. Bittar et al. JAI Press Inc.
32. Heath, B.M., Wehrens, X. & Kass, R.S. (2000) Molecular Physiology of Cardiac Potassium Channels. In: Cardiovascular Biology. eds. Archer, Rush. Kluwer Academic/Planum Publishers.
33. Kass, R., Rivolta, I. (2000) Cellular and Molecular Basis of Electrical Activity in the Heart. In: Heart Physiology and Pathophysiology 4th Edition, eds. Nicholas Sperelakis et al. Academic Press.
34. Abriel, H., Kass, R.S., Rivolta, I. (2000) Ion Channels As Targets of Drugs In: Cell Physiology Sourcebook: A Molecular Approach, 3rd Edition, eds. Nicholas Sperelakis et al. Academic Press.
35. Heath, B., Gingrich, K., Kass, R.S. (2001) Ion Channels in the Heart: Cellular and Molecular Properties of Cardiac Na, Ca, and K Channels. In: Handbook of Physiology. Section 2 - The Cardiovascular System Vol. 1 - The Heart, eds. Ernest Page, Harry Fozzard, John Solaro. Oxford University Press
36. Jeanne M. Nerbonne and Robert S. Kass (2002) Physiology and Molecular Biology of Ion Channels Contributing to Ventricular Repolarization. In: Basic Electrophysiology, Pharmacology, and Molecular Biology of Ventricular Repolarization. eds. E. Gussak et al. Humana Press Inc.

37. Colleen E. Clancy, Junko Kurokawa, Michihiro Tateyama, Xander H.T. Wehrens, Robert S. Kass. (2003) K⁺ Channel Structure-activity Relationships and Mechanisms of Drug-induced QT Prolongation. Annu. Rev. Pharmacol. Toxicol. 43:441-61
38. Colleen E. Clancy, Robert S. Kass. (2003) Pharmacogenomics in the treatment of epilepsy. *Pharmacogenomics* 4(6), 747-751.
39. Glaaser IW, Kass RS & Clancy CE. (2003). Mechanisms of genetic arrhythmias: from DNA to ECG. *Prog Cardiovasc Dis* 46, 259-270.
40. Kass RS & Moss AJ. (2003). Long QT syndrome: novel insights into the mechanisms of cardiac arrhythmias. *J Clin Invest* 112, 810-815.
41. Liu H, Clancy C, Cormier J & Kass R. (2003). Mutations in cardiac sodium channels: clinical implications. *Am J Pharmacogenomics* 3, 173-179.
42. Clancy CE & Kass RS. (2005). Inherited and acquired vulnerability to ventricular arrhythmias: cardiac Na⁺ and K⁺ channels. *Physiol Rev* 85, 33-47.
43. Moss AJ & Kass RS. (2005). Long QT syndrome: from channels to cardiac arrhythmias. *J Clin Invest* 115, 2018-2024.
44. Nerbonne JM & Kass RS. (2005). Molecular physiology of cardiac repolarization. *Physiol Rev* 85, 1205-1253.
45. Chen L, Kass RS. (2005) A-kinase anchoring proteins: different partners, different dance. *Nat Cell Biol.* 7(11):1050-1.
46. Kass RS, Moss AJ. (2006) Mutation-specific pharmacology of the long QT syndrome. *Handb Exp Pharmacol.* 2006;(171):287-304.
47. Chen L, Kass RS. (2006) Dual roles of the A kinase-anchoring protein Yotiao in the modulation of a cardiac potassium channel: a passive adaptor versus an active regulator. *Eur J Cell Biol.* 85(7):623-6.
48. Kass RS. (2006) Sodium channel inactivation in heart: a novel role of the carboxy-terminal domain. *J Cardiovasc Electrophysiol. Suppl* 1:S21-S25.
49. Terrenoire C, Simhaee D, Kass RS. (2007) Role of sodium channels in propagation in heart muscle: how subtle genetic alterations result in major arrhythmic disorders. *J Cardiovasc Electrophysiol.* 2007 Aug;18(8):900-5. Epub 2007 May 14.
50. Bankston JR, Kass RS. (2007) Fading sodium channels in failing hearts. *Circ Res.* 2007 Nov 26;101(11):1073-4. 2:
53. Sampson KJ, Kass RS. 2010. Location, location, regulation: a novel role for β -spectrin in the heart. *J Clin Invest.* 120(10):3434-7. PMID: PMC2947339
54. Sampson KJ, Kass RS. 2010. Molecular mechanisms of adrenergic stimulation in the heart. *Heart Rhythm.* 7(8):1151-3. PMID: PMC2891219
55. Chen L, Kass RS. A-kinase anchoring protein 9 and IKs channel regulation. 2011. *J Cardiovasc Pharmacol.* 58(5):459-13. PMID: PMC322634
56. Chen L, Sampson KJ, Kass RS. Cardiac Delayed Rectifier Potassium Channels in Health and Disease. *Card Electrophysiol Clin.* 2016;8(2):307-22. Epub 2016/06/05. doi: 10.1016/j.ccep.2016.01.004. PubMed PMID: 27261823; PMID: PMC4893812.
57. Bohnen MS, Peng G, Robey SH, Terrenoire C, Iyer V, Sampson KJ, Kass RS. Molecular Pathophysiology of Congenital Long QT Syndrome. *Physiol Rev.* 2017;97(1):89-134. Epub 2016/11/04. doi: 10.1152/physrev.00008.2016. PubMed PMID: 27807201; PMID: PMC5539372.

