



## CURRICULUM VITAE

**KALYANAM SHIVKUMAR, M.D., Ph.D, FACC, FHRS, FRCPI, FRCP (hon)**  
**Professor of Medicine, Radiology & Bioengineering**  
**Director, UCLA Cardiac Arrhythmia Center and EP Programs**  
**Director & Chief, Interventional Cardiovascular Programs, UCLA Health**  
**UCLA Health System**  
**David Geffen School of Medicine at UCLA**

**January 2017**

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*Qrroid:*



**KALYANAM SHIVKUMAR, M.D., Ph.D, FACC, FHRS, FRCPI, FRCP (Hon)**

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**EDUCATION:**

1973-85	Don Bosco Matriculation Higher Secondary School, Madras, India.
1985-90	University of Madras, Kilpauk Medical College, India; Degree: MD (MBBS)
1990-91	Rotating Internship (Medicine, Surgery and Obstetrics & Gynecology) University of Madras, Kilpauk Medical College, Madras, India
1991-94	Internal Medicine, Intern & Resident, Henry Ford Hospital, Detroit, MI
1994-95	Chief Medical Resident, Henry Ford Hospital, Detroit, MI
1995-98	Cardiology Fellow, UCLA School of Medicine, Los Angeles, CA
1998-99	Chief Cardiology Fellow, UCLA School of Medicine, Los Angeles, CA
1995-99	University of California, Los Angeles/Dept of Physiology; Degree: Ph.D.
1999-2000	Clinical Cardiac Electrophysiology Fellow Cedars-Sinai Medical Center & UCLA Medical Center, Los Angeles

**ACADEMIC APPOINTMENTS:**

<b>Chief Medical Resident:</b>	Henry Ford Hospital (1994-95), to Michael Lesch MD
<b>Chief Cardiology Fellow:</b>	UCLA School of Medicine/UCLA Medical Center; 1998-99
<b>Clinical Instructor:</b>	UCLA School of Medicine, Dept of Medicine: 1998-2000.
<b>Assistant Professor:</b>	University of Iowa College of Medicine, July 2000-June 2002 UCLA School of Medicine, Dept of Medicine: June 2002-6/2005
<b>Associate Professor:</b>	UCLA School of Medicine, Dept. of Medicine: 7/05-6/08
<b>Professor:</b>	UCLA School of Medicine, Dept. of Medicine: 7/1/08-(in-residence step V)
<b>Professor: (joint appt)</b>	UCLA School of Medicine, Dept of Radiology: 7/1/08-
<b>Professor: (joint appt)</b>	UCLA School of Engineering, July 2013-
<b>Professor:</b>	UCLA Molecular Cellular & Integrative Physiology IDP 2013-

**ADMINISTRATIVE APPOINTMENTS:**

<b>Director &amp; Chief,</b>	Interventional Cardiovascular Programs, UCLA Health System 5/2013-
<b>Director,</b>	Adult Cardiac Catheterization Laboratories, UCLA Health System 2013-
<b>Co-director,</b>	Gail and Gerald Oppenheimer Family Center for Neurobiology of Stress, 2011-present
<b>Chair,</b>	Cardiovascular Section, UCLA Business of Science Center: Jan 2011-present
<b>Director,</b>	Interventional Cardiac Electrophysiology: UCLA School of Medicine, 6/2002-present
<b>Director,</b>	Cardiac Electrophysiology Fellowship Program: UCLA School of Medicine, 6/2002-6/2011
<b>Academic Director, Cardiac Electrophysiology:</b>	West LA VAMC, Greater Los Angeles, 8/2008-present
<b>Director,</b>	UCLA Cardiac Arrhythmia Center & EP Programs: UCLA Health System, 2002-present
<b>Associate Director, Cardiac Electrophysiology:</b>	University of Iowa Hospitals and Clinics, 7/00-6/02

## NATIONAL COMMITTEES & EDITORIAL BOARDS:

**Section Editor:** *Heart Rhythm: Official Journal of the Heart Rhythm Society, USA* (2015-present)

**Associate Editor (Arrhythmias):** *Trends in Cardiovascular Medicine* (2014- )

**Editorial Board Member:** *Journal of the American College of Cardiology* (2014-), *Heart Rhythm: Official Journal of the Heart Rhythm Society, USA* (2005-2015)

**Guest Editor:** *Heart Rhythm: Official Journal of the Heart Rhythm Society, USA* (2012)

**Editorial Board Member:** *Pacing and Clinical Electrophysiology: Official Journal of the International Cardiac Pacing and Electrophysiology Society, USA* (2006-present)

**NIH-Center for Scientific Review:** Electrical Signaling, Ion Transport and Arrhythmias (ESTA) Study Section: 2004-present (temporary member)

**NIH-Center for Scientific Review:** Special Emphasis Panel member: Jan 2008

**NIH-Center for Scientific Review:** Special Emphasis Panel member, NIH-BRP Grant: June 2008

**NIH-Center for Scientific Review:** ad-hoc reviewer, NIH-SBIR/STTP Grants: November 2008

**NIH-Center for Scientific Review:** Special Emphasis Panel member, NIH-ESTA Grants: April 2009  
Cardiovascular Study Section: VA MERIT Awards: ad hoc panel member: June 2009

**NIH-Center for Scientific Review:** ad-hoc reviewer, NIH-SBIR/STTP Grants: July 2009

**NIH-Center for Scientific Review:** 2010: Ruth L. Kirschstein National Research Service Awards (NRSA) for Individual Postdoctoral Fellows (Parent F32)

**NIH-Center for Scientific Review:** Charter Member: Electrical Signaling, Ion Transport and Arrhythmias (ESTA) July 2010- June 2014.

**NIH-Center for Scientific Review:** DP-2 Editorial Panel Member: April 2014 & April 2015

**NIH-Center for Scientific Review:** ad hoc member CICS: October 2015

**NIH-Center for Scientific Review:** NIH Director's Pioneer Award (DP-1) Stage 2 Reviewer-Interview Panel Member: April 2016

Member: Fellowship Subcommittee, Heart Rhythm Society (2004-2008)

Member: Heart Rhythm Journal Subcommittee: Heart Rhythm Society (2012-2013)

Member, Cardiac Task Force: American Academy of Sleep Medicine: (2005-2006)

**Heart Rhythm Society:** Ambassador to India: 2013-present

**Heart Rhythm Society:** Journal subcommittee 2012-present

**Executive Committee Member** (2015-2017), North American Representative  
**Chair for ISAN 2019: USA**



International Society for  
Autonomic Neuroscience  
established 1995  
[www.autonomicneuroscience.info](http://www.autonomicneuroscience.info)

## HONORS / AWARDS & GRANTS:

### Honors:

American Society of Clinical Investigation (ASCI)-elected 2015



ASCI THE AMERICAN SOCIETY FOR CLINICAL INVESTIGATION

ASCI-Institutional Representative-University of California, Los Angeles (2015-present)

FRCPI-Fellow of the Royal College of Physicians of Ireland (*by courtesy- elected 2015*)

FRCP- Fellow of the Royal College of Physicians (UK)- (*honorary fellow- elected 2016*)



### Grants:

OT2TR001984-01: **Comprehensive Structural and Functional Mapping of the Mammalian Cardiac Nervous System**

Stimulating Peripheral Activity to Relieve Conditions (SPARC): Comprehensive Functional Mapping of Neuroanatomy and Neurobiology of Organs (OT2) **Role: PD/PI:** UCLA, Caltech, Harvard, UCI, UNMC, OHSU & Oxford University. Project dates: (10/1/2016-9/30/2019): (total \$ 8,600,000). **NIH- Common Fund.** [https://projectreporter.nih.gov/project\\_description.cfm?projectnumber=1OT2OD023848-01](https://projectreporter.nih.gov/project_description.cfm?projectnumber=1OT2OD023848-01)

**R01 (HL084261) Electrophysiological Effects of Neural Remodeling of the Ventricles**

**Role: PI:** Project Dates: 4/1/2006-12/31/2017 (Total \$ 1,931,250). **NIH: National Heart Lung and Blood Institute.** (Total \$ 3,862,500)

**R01 (HL117740-01): Percutaneous HIFU ablation with multimodal image guidance: NIH-National Heart Lung and Blood Institute.** Role: PI of MPI grant. (Total \$3,766,322) Funded period 2013-2017

**U18 EB021799**

09/30/2015 – 07/31/2017

**NIH**

PI: Ardell JL (PD/PI)

*Distributed electrode system for high-fidelity cardio-neural mapping*

**Role: PI (MPI Grant)**

**1K08 HL125730-01**

10/01/2014 - 09/30/2019

**NIH/NHLBI**

PI: Olujimi A. Ajijola, MD, PhD

*Anti-Arrhythmic Mechanisms of Bilateral Cardiac Sympathetic Decentralization*

**Role: Sponsoring mentor**

Glaxo-Smith-Klein

09/01/2014 - 08/31/2015

PI: Jeffery L. Ardell, PhD

*Peripheral neuromodulation for the treatment of heart failure and arrhythmias*

**Role: Co-PI**

**1F31 HL127974-01**

04/01/2015 - 03/31/2018

**NIH/NHLBI**

PI: Pradeep S. Rajendran, BS

*Myocardial infarction alters information processing within the intrinsic cardiac nervous system*

**Role: Sponsoring mentor**

**Pending:**

**1R01HL124971-01 (MPI): Spinal Neuraxial Modulation of Ventricular Excitability-Mechanism & Therapeutics**

**Completed:**

**R01 (HL067647-06A1): High Frequency Ultrasound Arrays for Cardiac Imaging: NIH- Bioengineering Research Partnership Grant. NIH: National Heart Lung and Blood Institute** Role: Project Director (UCLA): Project dates 7/1/2008-6/30/2013 (Total: \$ 1,100,000)

**American Heart Association: 11FTF7550004 : 2011-2016 (PI Vaseghi, sponsoring mentor: Shivkumar):** Autonomic regulation of infarct borderzones and the pathogenesis of sudden cardiac death.

**R01HL087773-01A1: NIH / University of Auckland: The Cardiac Atlas Project: Establishment of a Cardiac MRI Database.** Project Dates: 7/01/07 – 06/30/2010 (total \$ 372,000)  
Role: Co-Investigator (mentor)

**Doris Duke Clinical Scientist Development Award:** 'The Role of Cardiac Restitution in the Genesis of VT and VF in Humans' (study of trans-myocardial differences in restitution characteristics). Principal Investigator: K. Shivkumar, MD PhD. (2001-2004): [\$300,000 in direct costs]. **The Doris Duke Charitable Foundation, Web:** <http://www.ddcf.org/print.aspx?pageid=1534&epslanguage=en>

**National Scientist Development Award: American Heart Association (National Center):** Jan 2004-Dec 2007: *Electrophysiological Characterization of Heterogeneity in Human Atria and Thoracic Veins.* (\$260,000)

**Fellow: American College of Cardiology**

**Fellow: Heart Rhythm Society**

**Teaching Awards:**

**Melvin L. Marcus Young Investigator Award:** American Heart Association, **Finalist** 1997. (Awarded by the Council on Circulation of the AHA). [Ref: *Circ* 1997;vol 96;pg I-J; Abst 98]

**Outstanding Teacher Award:** Dept. of Medicine, UCLA School of Medicine: **Winner** 1997-98#

**Outstanding Teacher Award:** Dept. of Medicine, UCLA School of Medicine: **Winner** 1996-97#

**Outstanding Teacher Award:** Dept. of Medicine, UCLA School of Medicine: **Nomination** 1995-96#

#Awarded by the UCLA, Internal Medicine Residency Program.

**Outstanding Teacher Award:** Division of Cardiology, David Geffen School of Medicine at UCLA. **Winner** 2003\* (\*Awarded by the UCLA Cardiology Fellowship Program)

**Outstanding Teacher Award:** Division of Cardiology, David Geffen School of Medicine at UCLA. **Winner** 2006\* (\*Awarded by the UCLA Cardiology Fellowship Program)

**Postgraduate Training:**

**Outstanding Resident Award 1995:** Henry Ford Medical Association.

**American College of Physicians: 1995 National Award:** Best Research Presentation (Associates)

**Trainee Investigator Award/Clinical Research Meeting, 1994 & 1995:** by AAP, ASCI & APCR.

**Intern of the Year 1991-1992,** Department of Internal Medicine Recognition Award: Henry Ford Hospital.

**American College of Physicians, 15th Regional Meeting;** Best Case Presentation, June 1993

**American College of Physicians, 16th Regional Meeting:** Best Research Presentation, May 1994.

**Medical School:**

Shri Jaigopal Garodia Aggarwal Gold Medal in **Rheumatology**, 1989-1990

Dr. S. Sambandam Endowment Fund Gold Medal in **Medicine**, 1989

Certificate of Honor in **Surgery**, 1989

Certificate of Honor in **Forensic Medicine** 1990

Gold Medal in **Microbiology**, 1988-1989

Certificate of Honor in **Physiology**, 1986

Gold Medal in **Pharmacology**, 1986-1987

**BOARD CERTIFICATION:**

American Board of Internal Medicine: **Internal Medicine**, Certified 1994-2004

American Board of Internal Medicine: **Cardiovascular Disease**, Certified 1999, recertified 2009

American Board of Internal Medicine: **Clinical Cardiac Electrophysiology**, Certified 2000, recertified 2009

## LICENSURE

Permanent License, Tamilnadu Medical Council: 8<sup>th</sup> February, 1991: Reg no: 48503 (Medical Council of India Certificate of Good Standing no: 22190)  
Permanent License, State of Michigan: #4301058705/1993-97  
Permanent License, State of California: #A 054053/1995-present  
Permanent License, State of Iowa: #33627, 2000-2004

## COMMITTEES:

American College of Physicians: Associates Meeting, Michigan: Scientific Program Committee. 1995  
Cardiopulmonary Resuscitation Committee: Henry Ford Hospital. 1994-95.  
DNR Committee: Henry Ford Hospital. 1994-95  
Resident Research Committee: Dept. of Medicine, Henry Ford Hospital 1994-95  
Residency Selection Committee: Dept. of Medicine, Henry Ford Hospital 1994-95  
Quality Improvement Team: Dept. of Medicine, Henry Ford Hospital 1994-95  
Representative: Library Committee, University of California Los Angeles 1995-96  
CCU Advisory Committee: Division of Cardiology, UCLA Medical Center 1995-2000  
Acute Care Committee: UCLA Medical Center 19962-2000; 2002-2008  
UCLA Cardiology Curriculum Committee: UCLA School of Medicine 1998-99  
UCLA Cardiology Clinical Guidelines Committee: UCLA School of Medicine 1998-99  
UCLA Cardiology Fellowship Executive Committee: UCLA School of Medicine. 2002-  
UCLA Code Blue, M&M committee: UCLA School of Medicine. 2002-2008  
Chair, EP Faculty Search Committee, UCLA School of Medicine 2002-2003  
Chair: UCLA Cardiac Electrophysiology Morbidity and Mortality Committee; 2002-present  
Member: UCLA Cardiac Surgery Chief Search Committee: 2005  
UCLA School of Medicine: Research Task Force: Jan-April, 2013  
UCLA School of Medicine: Thematic Research Task Force for Cardiovascular Research: July 2013-  
**Heart Rhythm Society**- Ambassador, Research Sub Committee, Vice Chair Research Committee

## GRANTS:

**-Student Grant; ICMR (Indian Council for Medical Research): 1986** 'Electrocardiographic changes in the first few hours after birth in normal neonates'.

**-American Heart Association Postdoctoral Fellowship (Greater Los Angeles Affiliate):1997-1999**  
'Modulation of the K-ATP Channel by Protein Kinase C and Adenosine': (\$56,200)

**-SCOR Grant in Sudden Cardiac Death, NIH 1995-2000 (Co-investigator Project 4: Regulation of Cellular K Balance):** SCOR Director: James N. Weiss, M.D.

**-Doris Duke Clinical Scientist Development Award:** The Doris Duke Foundation; 2001-2006 (\$300,000 in direct costs)

**-National Scientist Development Award: American Heart Association (National Center):** Jan 2004-Dec 2007: *Electrophysiological Characterization of Heterogeneity in Human Atria and Thoracic Veins.* (\$260,000)

**R01 (HL084261) Electrophysiological Effects of Neural Remodeling of the Ventricles**

Role: PI: Project Dates: 4/1/2006-3/31/2013 (Total \$ 1,931,250). **NIH: National Heart Lung and Blood Institute**. *Competitive renewal expected start date 4/1/2013-3/31/2018 (Total \$ 1,931,250) (peer review completed 7/2/2012: priority score 13, Percentile 2.0)*

**-NIH R01 (HL067647-06A1): High Frequency Ultrasound Arrays for Cardiac Imaging: NIH-Bioengineering Research Partnership Grant. NIH: National Heart Lung and Blood Institute** Role: Project Director (UCLA): Project dates 7/1/2008-6/30/2013

**-R01HL087773-01A1: NIH / University of Auckland :The Cardiac Atlas Project: Establishment of a Cardiac MRI Database.** Project Dates: 7/01/07 – 06/30/2010 (total \$ 372,000)  
Role: Co-Investigator

#### **MULTICENTER TRIALS/CLINICAL RESEARCH:**

Executive Committee Member & Steering Committee: DETERMINE Trial: 2005-2008

Steering Committee Member: RISK Study 2005-2009

Principal Investigator (UCLA): RHYTHM-ICD Trial: Sponsored by St Jude Medical Corporation

Principal Investigator (Univ of Iowa): Atrial Flutter Ablation: Navistar 8 mm catheter/Stockert Generator Study. Biosense-Webster, Johnson & Johnson

Principal Investigator: (UCLA) CryoCor: Atrial Flutter Ablation Study. (Cryocor, San Diego, CA)

Principal Investigator (UCLA): FOCUS-AF: Prorhythm Corporation: HIFU ablation for PAF.

Principal Investigator (UCLA): TTOP-AF: Ablation Frontiers: RF ablation for persistent AF

#### **SCIENTIFIC ACTIVITIES:**

##### **Journal Peer Review:**

*Nature (2014-present)*

*Nature Biomedical Engineering (2016-)*

*Science-Translational Research 2012-present*

*Circulation (1999-present)*

*Circulation Research (1998-present)*

*Journal of the American College of Cardiology (1997-present)*

*Arteriosclerosis Thrombosis and Vascular Biology (1997)*

*American Journal of Physiology: Heart and Circulatory Physiology (1998-present)*

*Journal of Cardiovascular Pharmacology & Experimental Therapeutics (1998-present)*

*Anesthesiology (2000)*

*Journal of Cardiovascular Electrophysiology (2000-present)*

*Cardiovascular Research (2001-present)*

*Pacing and Clinical Electrophysiology (2001-present)*

*Heart Rhythm (2004-present), editorial board member*

*Journal of Electrocardiology (2002-present)*

*Journal of Cardiac Failure (2004-present)*

*New England Journal of Medicine (2008-present)*

*American College of Cardiology (Annual Scientific Sessions)*

*American Heart Association (Annual Scientific Sessions)*

*Heart Rhythm Society (Annual Scientific Sessions)*

##### **Steering Committees:**

***EnligHTNment Trial:*** Global study of Renal Denervation Sponsor St Jude Medical .2013

##### **Grant Peer Review:**

University of Nebraska; 1998: The NRI (Nebraska Research Initiative, University of Nebraska campuses)  
Canadian Institute of Science and Research 2001  
Reynolds Research Center: Peer Review Committee: 2003 (American Heart Association)  
National Institutes of Health: ESTA (Electrical Signaling, Ion Transport and Arrhythmias) Study Section:  
2004, 2006

**Abstract Grading:**

Abstracts for the 61st Annual International Scientific Assembly of the ACCP 1995, New York  
Abstracts for the 63rd Annual International Scientific Assembly of the ACCP 1997, New Orleans  
Abstracts for the 64th Annual International Scientific Assembly of the ACCP 1998  
Abstracts for the 65th Annual International Scientific Assembly of the ACCP 1999  
Abstracts for the American College of Cardiology 2004-2013  
Abstracts for the American College of Cardiology 2005  
Abstracts for the American College of Cardiology 2006  
Abstracts for the American College of Cardiology 2007  
Abstracts for the American College of Cardiology 2009  
Abstracts for the American College of Cardiology 2010  
Abstracts for the American College of Cardiology 2011  
Abstracts for the American College of Cardiology 2012  
Abstracts for the American College of Cardiology 2013  
Abstracts for the Heart Rhythm Society Annual Meeting 2007  
Abstracts for the Heart Rhythm Society Annual Meeting 2008  
Abstracts for the Heart Rhythm Society Annual Meeting 2009  
Abstracts for the Heart Rhythm Society Annual Meeting 2010  
Abstracts for the Heart Rhythm Society Annual Meeting 2011  
Abstracts for the Heart Rhythm Society Annual Meeting 2012  
Abstracts for the Heart Rhythm Society Annual Meeting 2013  
Abstracts for the Cardiac Electrophysiology Society 2013

**National Committees:**

Member (Cardiac Electrophysiology): Expert Panel: American Academy of Sleep Medicine: 2007  
Member: Heart Rhythm Society Fellowship Subcommittee: 2005-present

**MEMBERSHIPS:**

American College of Cardiology (Fellow): 2004-present  
American Medical Association 1994-1999  
American College of Physicians (Member 1991-1995)  
American College of Chest Physicians (member 1992-1995)  
American Heart Association: Basic Science Council: 1994-present  
American Heart Association: Clinical Cardiology Council & Lännec Society (AHA)  
Osler Club (Henry Ford Hospital) 1991-95  
North American Society of Pacing and Electrophysiology/Heart Rhythm Society; 2002-present

**BIOMEDICAL INNOVATION AND ENTREPRENUERSHIP:**

**PATENTS:**

*Methods For Gated Or Pulsed Application Of Radiofrequency Current In The Treatment Of Cardiac Disorders:* WO 2006/050059 A2: (Co-inventor)



*Defibrillation shock strength determination technology*: US Pat. 6675042 (Co-inventor)

*Endovascular Catheter Air-Block*: Claiming priority to US 60/763604, filed Jan 2006: WO 2007/089309 A2: (Lead Inventor). US patent no: 8,419,685 Issued April 16, 2013

*Method to protect the esophagus and other mediastinal structures during cardiac and thoracic interventions*  
USPTO Application #: 2009032651 (Lead Inventor)

#### **SCIENTIFIC COMPANIES:**

*EP Dynamics Inc*: founded 2007, Cardiac Access Systems: co-founder, board member. Two FDA approvals and devices in market as of Q1 2014

*Epic Medical Inc*: founded 2009, Technology for epicardial interventions, co-founder and board member

#### **Corporate Board Membership:**

Bio-Sig Technologies: Corporate board member: 2012-2014

**UCLA Course (course co-chair)**: Advancing Bioengineering Innovations (ABI): Course no 233A and 233B. UCLA 2012. Oversight of [http://www.research.ucla.edu/tech/bsc\\_fellowship.pdf](http://www.research.ucla.edu/tech/bsc_fellowship.pdf). This course aims to develop new medical technology solutions that solve unmet clinical needs. It is aimed to teach students a framework for innovation and product development that can be applied to any industry. Course open to UCLA students in the Schools of Medicine, Engineering, Law and Business.

#### **LECTURES/TALKS:**

- 1. Scripps Clinic Symposium: 4<sup>th</sup> Annual Percutaneous Catheter Ablation of Atrial Fibrillation.** San Diego, CA. Aug. 2013. (AF-By the guidelines and the Future)
- 2. Japanese Heart Rhythm Society 2013.** Japan: ‘Advances in Catheter Ablation’. July 2013.
- 3. ISHR (international Society of Heart Research) World Congress.** July 2013: “Cardiac Autonomics”
- 4. Heart Rhythm 2013** – Denver, CO. May 2013: multiple lectures: [Neural Remodeling and Cardiac Arrhythmias, ICD Shocks: Drugs or Ablation, Renal Denervation]
- 5. St. Lukes Episcopal Hospital (Texas Heart Institute) Grand Rounds:** “Epicardial VT Ablation”. May 2013.
- 6. Royal College of Physicians (Ireland):** “Advances in Catheter Ablation”, Dublin, Ireland. April 2013.
- 7. The Fifth Ventricular Arrhythmia Symposium of China:** “Current Situation and Prospects of VT treatment in the USA and Asia” China. March 2013. Nanjing
- 8. 13th Annual New Frontiers in Heart Failure Therapy (NY):** “Autonomic Modulation of Heart Failure: A New Frontier?” New York, NY. Jan. 2013.

- 9. Boston Scientific-The Senior EP Fellows Course:** “Practical Anatomy for the Electrophysiologist”. Feb. 2012, Chicago
- 10. Texas EP Live Symposium:** ‘VT Ablation’ March 2012.
- 11. Texas EP Live Symposium:** “Presidential Debates Recurrent VT in Patients with ICD’s – Do We Wait Too Long to Ablate?” March 2012.
- 12. Medintelligence (CME).** San Diego, CA. March 2012. ‘Catheter Ablation of VT’
- 13. 3rd Annual Symposium on Interventional Pericardiology** - Boston, MA Cleveland Clinic - Center for Continuing Education, May 2012.
- 14. Innovations in VT** - , Heart Rhythm Society satellite symposium. MediaSphere Medical, LLC. May 2012.
- 15. Heart Rhythm 2012** - Boston, MA. May 2012: multiple talks
- 16. Cardiology Grand Rounds-UCSF:** “Autonomic regulation of VT: from pathophysiology to therapeutics.” San Fransisco, CA. Dec. 2012.
- 17. 3rd Euro VT/VF Meeting 2011:** “MRI based late enhancement”. Berlin, Germany, Nov. 2011
- 18. NYU Langone Medical Center:** “Advanced Concepts in Electrophysiology (ACE) Session. New York, Nov. 2011
- 19. 2nd Annual Contemporary, Challenging, and Controversial Issues in Electrophysiology VT Symposium:** “Philadelphia Comprehensive Management of FrequentVT or Storm: What’s in the Tool Box?” Philadelphia, Nov. 2011.
- 20. VeniceArrhythmias2011:** “Anatomy of the Heart for Electrophysiologists The Ventricels: Normal and Abnormal Anatomy; New Tech. and App. In Catheter Ablation; Young Corner Controversies 2nd GEN. or EP/senior Doctors”. Venice, Italy, Oct. 2011.
- 21. The California Heart Rhythm Symposium (UCSF):** Epicardial VT Ablation. Sept. 2011.
- 22. 4th Asia Pacific Heart Rhythm Society, Fukuoka Japan:** Ablation of CAD-VT and ARVC-VT; Hybrid Ablation Therapy Current Status and fut. Devel. Sept. 2011.
- 23. 3rd Annual Percutaneous Catheter Ablation of Atrial Fibrillation:** How to Incorporate this Therapeutic Option into Your Practice. San Diego, CA. Aug. 2011.
- 24. Kansas City Heart Rhythm:** “Management of VT Storm in 2011: Global Perspective to Improved Patient Outcomes. August 2011.
- 25. Heart Rhythm Society:** San Fransisco. May 2011.
- 26. Cleveland Clinic:** Presenter. Ohio, May 2011.

27. **American College of Cardiology:** Keynote Speaker. New Orleans, April 2011.
28. **St. Jude Research Lyceum Series:** Keynote speaker. Minn., March 2011.
29. **Boston AF:** Satellite symposium speaker. Boston, Jan. 2011.
30. **Cardiostim, Nice 2010 France: Entrainment:** *'Reentry in the Atrium'*. June 17, 2010
31. **Cardiostim, Nice 2010 France:** *Approaches to Limit Adverse Effect of Catheter Ablation in AF.* June 16, 2010
32. **UCLA Department of Surgery Grand Rounds:** *"The future of CV interventions"*. May 2010
33. **Heart Rhythm Society:** Mapping and Ablation of Variant Accessory Pathways. April 2010
34. **First Interventional Pericardiology Summit (Cleveland Clinic):** *Future Epicardial Interventions.* March 2010
35. **National Fellows Symposium: Denver Tech Center.** *Arrhythmias and Congenital Heart Disease.* Feb. 2010
36. **Sree Chitra Tirunal Institute of Medical Sciences and Technology:** Catheter Ablation of VT: Jan 2010.
37. **Arrhythmias in ACHD: TCPEPS 2010. Featured Speaker, Chennai India Jan 2010**
38. **SRMC University, Chennai, India: Device Therapy In Adult Congenital heart disease.**Chennai, India. Sept. 2009
39. **SRMC University, Chennai, India: Biophysics of RFA and other Ablation Methods.**Chennai, India. Sept. 2009
40. **Chennai Symposium on Sudden Cardiac Death:** Keynote Speaker., Chennai, India. Sept. 2009
41. **Chennai EP Summit: 2009: Commemoration of the 25th Year of Sri Ramachandra Medical** Chennai, India. Sept.
42. **Electrophysiology Morning Conference:** *'Mechanisms of Arrhythmias in Humans: From Known to the Unknown'*: Hospital of the University of Pennsylvania, Philadelphia , PA. Aug 28th 2009.
43. **Electrophysiology Grand Rounds:** *'Ventricular Tachycardia: Catheter Ablation and Beyond'*:Hospital of the University of Pennsylvania, Philadelphia , PA. Aug 27th 2009.
44. **Fellows Symposium:** July 2009
45. **Clinical Applications and Beyond:** Co-Chair: Talk: *Epicardial Ablation: State of the Art.* June 12, 2009

- 46: 4th Annual Frontiers in Biomedical Devices Conference: Keynote/Plenary Session Speaker:** 'New Advances in Cardiac Arrhythmia'. Irvine, CA: June 9, 2009.
- 47. Heart Rhythm Society:** *Translational Electrophysiology: From Learning to Burning - How Basic Science can Help VT Ablation*, May 15 2009
- 48: Heart Rhythm Society: AF Summit:** *Future of Integrated Imaging and Robotics for AF Ablation Guidance*, May 14, 2009.
- 49: 17th Annual Arrhythmia Management Symposium:** 'Cardiac Magnetic Resonance Imaging: Utility For Risk Assessment. Cornell Club, New York City, NY May 2, 2009
- 50: Grand Rounds: Sharp Memorial Hospital:** 'Management of VT': San Diego, CA March 27 2009.
- 51: San Diego EP Society:** 'Catheter Ablation of VT State of the Art' .San Diego, CA: March 26, 2009
- 52: Dallas AF Symposium:** *Ablation of AF: Understanding non-pharmacologic therapy of AF: What we know and its evolution of our strategies:* March 6, 2009.
- 53. ISECON:** 'Epicardial Ablation; Ahmedabad, India: Feb 2009
- 54: ISECON:** 'Complex Flutters' Ahmedabad, India: Feb 2009
- 55: Cardiology Grand Rounds: Hospital Henri Mondor:** 'Catheter Ablation of Ventricular Tachycardia': Paris, France, 2008
- 56: 9th International Dead Sea Symposium:** Chair: YIA Symposium. Tel Aviv, Israel, 2008
- 57: 9th International Dead Sea Symposium:** *Epicardial Ablation of AF* Tel Aviv, Israel, 2008
- 58. 9th International Dead Symposium:** 'Epicardial Ablation of VT' Tel Aviv, Israel, 2008
- 59. National EP Fellows Course:** dir. John Miller MD: *Placement of Catheters: Transseptal & Epicardial*. Phoenix AZ. Dec, 2008
- 60. National EP Fellows Course:** dir. John Miller MD: *Complex Flutter Ablation and Validation of Line of Block*. Phoenix, AZ. Dec.2008
- 61. 2nd Annual Western Atrial Fibrillation Symposium, Univ of Utah:** 'Molecular Basis of Fractionated Electrograms'. Park City, UT. Dec.2008
- 62. 3rd Annual International VT/VF Symposium** (organized by U Penn and Massachusetts General Hospital); 'Effect of Autonomic Nervous System on SCD': Oct. 2008.
- 63. University of Michigan: Department of Medicine Grand Rounds:** 'Ventricular Arrhythmias: Mechanistic Insights from Catheter Ablation'. April 24, 2008.
- 64. VT Ablation-Techniques & Results.:** Seoul, Korea. Aug 2007

**65. Ventricular Tachycardia: Overview of the Latest Ablation Strategies':** Kansas University, KS – January 2007

**66. Speaker: Debate: Protagonist:** "VT Ablation Should be Attempted in All Patients with Ventricular Fibrillation': San Diego, CA – Jan. 2007

**Chair:** Ventricular Arrhythmias Clinical Issues

B. Epicardial Ablation: The Institutional Experience at UCLA

B. Ablation of Ventricular Tachycardia: Live and Video Case Presentations

A. Unconventional Treatments for VT/VT

A. Epicardial Approach to Ventricular Tachycardia Ablation

**67. Oregon Health Sciences University: 'Ventricular Tachycardia: 'Mechanistic Insights from Catheter Ablation':** Nov. 2007

**68. International VT/VF Symposium** (organized by U Penn and Massachusetts General Hospital); 'Effect of Autonomic Nervous System on Substrate-based VT/VF and Their Triggers': Oct. 2007.

**69. Venice Arrhythmia Symposium:** Oct. 2007

**70. Controversies in Cardiology:** Primary Percutaneous Ablation for AF, Cedars-Sinai Medical Center, Oct.2007

**71. Clinical Leadership Summit: (dir. K. Ellenbogen MD):** Managing Complex VT's (followed by panel discussion)- Stevenson, Callans & Shivkumar, Boston, MA, Sept. 2007

**72. Seventh Electrical Intervention Symposium: Asan Medical Center:** Seoul, South Korea, Epicardial Ablation: Sept. 2007

**73. Clinical Applications and Beyond Meeting:** Intracardiac Echocardiography (ICE) in AF Procedures San Francisco, CA. Aug. 2007.

**74. Special EP Fellows Symposium:** 'Advanced Concepts for Catheter Ablation of VT': San Francisco, CA. Aug.2007

**75. Heart Rhythm Society:** Denver, CO - May 2007: multiple talks

**76. Hot Topics in Cardiology:** 'Controversies in Catheter Ablation of Atrial Fibrillation – Debate' &'Catheter Ablation of Stable and Unstable VT': Maui, HI. April 2007

**77. National Electrophysiology Fellows Conference:** 'Unusual Accessory Pathways': **Washington D.C.** Mar. 2007

**78. American College of Cardiology (ACC) –** New Orleans, Mar. 2007

**79. Fellow's Conference:** 'What Electrophysiologists Need to Know About Cardiac Anatomy to do Transeptal Catheterizations and Ablation Procedures': Ann Arbor, MI – Feb. 2007

- 80. Society of Thoracic Surgeons Symposium:** 'Interviews with Experts: A Collaborative Approach to Resolving Atrial Fibrillation. Mar. 2007.
- 81. The University of Kansas Hospital Grand Rounds:** 'A Practical Approach to Ventricular  
dirts. F. Morady and A. Strickberger. Mar. 2007
- 82. EP Tracings:** 'A Case Based Approach'; Nov. 2006 , Chicago
- 83. Arrhythmias: State of the Art':** Wichita Falls, TX. Oct. 2006
- 84. Heart failure University:** 'Electrophysiologic Interventions in Heart Failure'. Los Angeles,CA . Dec. 2006.
- 85. Advances in Cardiac Rhythm Management:** 'New Technology in Catheter Ablation': San Diego, CA. Nov. 2006
- 86. Cedars Sinai Medical Center- Arial Fibrillation: State of the Art conference:** 'Lesion Forming Technologies': Marina Del Rey, CA .Oct. 2006
- 87. United Regional Health Care System:** 'Non-pharmacological Management of Cardiac. Los Angeles, CA. Oct. 2006
- 88. Cedar's Sinai Medical Center - Controversies and Advances in the Treatment of Cardiovascular Disease Symposium:** 'Primary Percutaneous Therapy Should Become the Standard': Beverly Hills, CA .Oct. 2006
- 89. Clinical Leadership Summit:** VT Ablation Case Presentations and Discussion: Boston, MA Oct. 2006
- 90. Scientific Sessions of the Chinese Society of Pacing and Electrophysiology.** China. 2006
- 91. Clinical Applications and Beyond:** 'Current Treatment Options for AF'. 2006
- 92. Cardiostim: World Congress in Cardiac Electrophysiology & Cardiac Techniques:** Nice, France. 2006
- 93. Heart Rhythm Society:** Boston, MA. May 2006:
- 94. Eisenhower Medical Center:** 'Recent Advances in Cardiac EP': Palm Springs, CA .Mar. 2006
- 95. American College of Cardiology:** Atlanta, GA – Mar. 2006
- 96. Cardiovascular Innovation Symposium:** GE, Crotonville, NY – Feb. 2006
- 97. Cleveland Clinic - EP Fellows Round Table Meeting:** Cleveland, OH – Jan. 2006
- 98. Atrial Fibrillation Symposium:** 'The Feasibility for Ventricular Scar Visualization with 2006'Therapy Optimization of ICD/CRT (D), a Case Based Approach': Nanjing, China -.June 2006:
- 99. North Texas EP Society:** Recent Advances in Catheter Ablation of VT: Dallas, TX, Dec. 2007

100. **Boston AF Symposium:** Today's Tools: Impact on Safety and Efficacy of Ablation; ,Boston, MA. Jan. 2007.
101. **Heart Rhythm Society Talk 2005:** 'Catheter Ablation of Post Maze Tachycardias' 2005
102. **Heart Rhythm Society Talk 2005:** Transseptal Catheterization. 2005
103. **ACC Session Talk:** 'Epicardial Ablation of VT' 2005
104. **Taking the Congestion out of CHF:** 'Implantable Devices: How Much do I Need to Know for Managing my Heart Failure Patients': San Francisco, CA – Oct. 2005
102. **How to Ablate Children & Adolescents':** Boston, MA – Oct. 2005
106. **AF Summit:** 'Epicardial AF Ablation': Cleveland OH - October 2005
107. **Clinical Leadership Summit:** 'What an Interventional Electrophysiologist Needs to know about Anatomy' 2005
108. **American Heart Association:** Dallas, TX – Nov. 2005: multiple talks
109. **Cleveland Clinic Atrial Fibrillation Summit:** 'Percutaneous Pulmonary Vein Isolation': 2004
110. **Cornell University Medical Center, NY: Catheter Ablation of Complex Arrhythmias:** Jan 8-9, 2004:(including live demonstration course)
111. **CARE Hyderabad:** Advances in Catheter Ablation. Nov. 2004
112. **Heart Rhythm Society Talk: 2004: Complex intracardiac EGM's** 2004
113. **Heart Rhythm Society Talk: 2004: Transseptal Catheterization** 2004
114. **UCLA Medical Grand Rounds:** *Catheter Ablation: State of the Art:* April 2003.
115. **UCLA Medical Housestaff Noon Conference:** Best EKG's of 2003. June 2003.
116. **Electrophysiology Grand Rounds: University of Michigan:** 'Percutaneous Epicardial Ablation' (including live demonstration case) Dec. 2003
117. **Grand Rounds:** '*Advances in Arrhythmia Management*': Bakersfield Memorial Medical Center: Nov 2002
118. **Cardiology Grand Rounds:** '*Catheter Ablation of A-fib*': UCLA Division of Cardiology, Nov 2002
119. **Grand Rounds:** *Advances in Catheter Ablation:* Tarzana Regional Medical Center: Sept 2002
120. **UCLA Cardiothoracic Surgery Grand Rounds:** "*Interventional Approaches to the Management of Cardiac Arrhythmias: State of the Art*": Dept of CT Surgery UCLA. Sept 3, 2002

121. **UCLA Cardiology Symposium 2002:** 'Prevention of SCD and management of atrial fibrillation': 2002.Santa Monica CA, Aug. 2002
122. **Cardiology Grand Rounds:** *Interventional Electrophysiology: Learning While Burning.* UCLA School of Medicine. Aug. 2002
123. **Cardiology Grand Rounds:** *Advances in Catheter Ablation of Cardiac Arrhythmias:* St Lukes Hospital: Nassif Heart Center, Cedar Rapids, IA. 2002
124. **Symposium Co-director:** *Symposium on Catheter Ablation of Complex Arrhythmias,* CARE Cardiovascular Institute, Hyderabad, India. April 4-6, 2002.
125. **Clinical Applications and Beyond Meeting:** St Jude Medical Institute: Park City, UT 'Catheter Ablation of Atrial Fibrillation: New Technologies': Jan, 2002.
126. **Core Curriculum Lecture:** *Mechanisms of Sudden Cardiac Death:* Department of Medicine, University of Iowa, Oct 2001.
127. **The Iowa Anticoagulation Symposium:** 'Management of Atrial Fibrillation'. Oct 2001
128. **Weekly Cardiovascular Conference: University of Iowa:** *Catheter Ablation of Ventricular Tachycardia:State of the Art.* Oct 2001
129. **Medical Grand Rounds: University of Iowa,** Department of Internal Medicine: 'Catheter Ablation of Atrial Fibrillation: State of The Art?': October 4, 2001
130. **Cardiac Electrophysiology Conference: Beth Israel Deaconess Medical Center, Harvard University.** 'Catheter Ablation of Atrial Fibrillation: What Are The Physiological Lessons?'. August 24, 2001.
131. **Weekly Cardiovascular Conference: University of Iowa:** *Catheter Ablation of Ventricular Tachycardia:State of the Art.* Univ of Iowa, June 2001.
132. **Electrophysiology/EKG Conference:** For EP and Cardiology Fellows: **Medical College of Pennsylvania/Hahnemann University Hospitals.** April 4 2001.
133. **Cardiology Grand Rounds: Medical College of Pennsylvania/Hahnemann University Hospitals:** *The Interface Between Cardiac Electrophysiology and Heart Failure.* April 4, 2001
134. **Weekly EP Conference, University of Iowa:** *Cinefluoroscopic Anatomy for Ablations,* Apr 3, 2001
135. **Electrophysiology/Electrocardiography Conference:** *Wide Complex Tachycardias* (Part I and Part II) **University of Iowa,** Feb 2001.
136. **Weekly Cardiovascular Conference: University of Iowa** *Catheter Ablation of Atrial Fibrillation: State-of-the-Art.* Dec 20, 2000
137. **Weekly EP Conference: University of Iowa** *Supraventricular Tachycardias Part I,* Dec 19, 2000



- 138. Cardiac Echo Conference: University of Iowa** *Pulmonary Vein Ablation for Focal Atrial Fibrillation: The use of Imaging modalities pre and post-ablation.* December 15, 2000
- 139. Medical Grand Rounds: University of Iowa**, Department of Internal Medicine: *From Fruitflies to Stuff Noses: Cardiac Electrophysiology From Cell to Bedside:* October 26, 2000.
- 140. Core Curriculum Lectures: The Origin and Propagation of the Cardiac Impulse:** Division of Cardiology, (Part I and Part II) , **University of Iowa**, August 2000.
- 141. Cardiology Conference: University of Iowa**, Division of Cardiology: *New Insights Into the Mechanism of Sudden Cardiac Death*, March, 2000
- 142. Clinical Electrophysiology Conference: University of Oklahoma**, Cardiac Arrhythmia Research Institute: *New Insights Into the Mechanism of Sudden Cardiac Death*, Feb 23, 2000
- 143. Cardiology Grand Rounds: University of Utah**, *Mechanism of Hypoxic Potassium Loss in Mammalian Myocardium*, Feb 2000.
- 144. Endocrinology Grand Rounds:** Division of Endocrinology, Dept of Medicine: *The Sulphonyurea Controversy: Some Answers From The Heart:* May 27, 1998
- 145. Critical Care Conference: UCLA School of Medicine**, Dept of Internal Medicine: *Pathophysiology of Pulmonary Edema:* March 1998.
- 146. Cardiology Conference: UCLA School of Medicine**, Division of Cardiology: *Right Ventricle the Neglected Neighbor of the Left:* April 18,1997
- 147. UCLA Cardiovascular Research Laboratory Conference: Mechanism of Hypoxic Potassium Loss in Rabbit Ventricle:** March 31, 1997
- 148. Cardiology Conference: UCLA School of Medicine**, Division of Cardiology: *Why is the Subendocardium Prone to Ischemic Injury?:* Jan 10, 1997.
- 149. Cardiology Conference: UCLA School of Medicine: Anticoagulation in Atrial Fibrillation, With Special Reference to the SPAF III Trial:** Oct 1996.
- 150. Critical Care Conference: UCLA School of Medicine**, Dept of Internal Medicine: *Valvular Heart Disease:* October 28, 1996, May 1998.
- 151. Critical Care Conference: UCLA School of Medicine**, Dept of Internal Medicine: *Pulmonary Edema:* May 20 1996.
- 152. Cardiology Grand Rounds: The Increased Vulnerability of The Subendocardium to Ischemic Injury:** Henry Ford Hospital, May 15, 1996.
- 153. Core-Curriculum Lecture: UCLA School of Medicine**, Dept of Internal Medicine: *Management of Atrial Fibrillation:* Jan 2 1996.

**154. Cardiology Curriculum Lecture: UCLA School of Medicine, Division of Cardiology: Coronary Physiology.** Oct 1995.

**155. Medical Grand Rounds: Henry Ford Hospital:** May 5, 1995; *Pathophysiology of Right Ventricular Dysfunction.*

**156. Core-Curriculum Lecture: Henry Ford Hospital,** Dept. of Internal Medicine, *Pathophysiology of Coronary Artery Disease* Oct 1994.

**157. General Internal Medicine Grand Rounds; Henry Ford Hospital,** Dept. of Internal Medicine, *Aortic Stenosis-Pathophysiology and Management:* Jan 1993.

#### **COURSES TAUGHT:**

- 1. An Overview of Electrocardiography :** UCLA, School of Dentistry, 7/96 & 7/97: Course no DS-300.04 (Physical Diagnosis for the Dental Resident, Dir B. Fryemiller, DDS)
- 2. Clinical Fundamentals Course:** UCLA School of Medicine, 1996-97 (for second year medical students), course directors: M. Wilkes, MD and E. Milgrom, MD.
- 3. Advanced Clinical Skills Course:** UCLA School of Medicine, 1996-present (for second year medical students): *Examination of the Cardiovascular System* (course dir: JanH. Tillisch, MD)
- 4. Coronary Care Unit: Monthly Core Lecture Series:** Dept of Medicine, UCLA School of Medicine. July 1996 - present: *SVT's, EKG diagnosis of AMI.*
- 5. MSTP Mentor:** STAR/MSTP Mentoring Program: 1997-98
- 6. Physiology 201; Cardiovascular Physiology:** Clinical Application of Basic Science: Instructor, for first year medical students. (course dir: Robert Ross, MD) 1997,1998
- 7. Pharmacology N 225:** Cardiac glycosides, anti-anginals and antiarrhythmics. UCLA School of Nursing: 1998 & 99. (Course director: Mary Ann Lewis, Dr PH)
- 8. Internal Medicine Board Review:** Dept. of Medicine, UCLA School of Medicine: 1998 & 99
- 9. Basic and Advanced Concepts in Clinical Electrophysiology :** For Cardiology Fellows, EP Fellows and Allied Professionals: August-November 2000 (every Tuesday 7-9AM)
- 10. Clinical Cardiac Electrophysiology Conference:** For Cardiology Fellows, EP Fellows and Allied Professionals: monthly (July 2002-present)

#### **TRAINEES:**

**Stuart Christenson, MD:** Clinical and Research EP Fellow Oct 2000-Feb 2001: Current position: Faculty Cardiology Attending, Mayo Clinic, Rochester MN

**John J. Cai, MD:** Cardiology Fellow, 7/2000 –5/2002: Current Position: Cardiac EP Fellow, Loyola University Medical Center, Chicago, IL (7/2002-2003), Clinical EP Practice.

**David A. Cesario MD PhD** (July 2003-June 2004): Clinical EP Fellow; 2004-2008: Assistant Professor, UCLA Cardiac Arrhythmia Center: Current Position: Associate Professor of Medicine, Director, Electrophysiology, USC School of Medicine

**Sen Ji MD PhD** (July 2003-June 2004, General Cardiology Fellow): 2004-2005: EP Fellow:2005-2006): Current position: Attending Electrophysiologist: Kaiser Permanente, CA

**Ramandeep Brar MD:** EP fellow (2005-2006): Current position: Clinical Electrophysiologist: Long Beach, CA

**Chad Bidart MD:** EP fellow (2006-2007): Current Position: Clinical Electrophysiologist, Reno, NV

**\*Marmar Vaseghi MD** (Medical Resident 2003-2004, Cardiology fellow 2004-present), research electives in EP, STAR Awardee, Cardiology Fellow, UCLA School of Medicine: Current Position: Associate Director of

Research and Attending Electrophysiologist, UCLA Cardiac Arrhythmia Center. AHA fellow faculty transition grant awardee.

- \***Eric Buch, MD:** Cardiology Fellow (2002-2007, EP fellow 2007-2008): STAR Awardee, UCLA. Current position: Director Specialized Program for AF: UCLA Cardiac Arrhythmia Center
- Nicolas Lellouche MD:** EP Fellow (clinical and research) 2005-2007: Current position: Associate Professor and Director Cardiac EP, Paris France.
- Rafael Ramirez PhD:** Post-doctoral fellow 2007-2011
- Shiro Nakahara MD PhD:** Research and Clinical Fellow: (2007-2009)
- Carlos De Diego MD:** Research and Clinical Fellow: (2008-2009) Current Position: Asst Prof: Spain
- Jason Bradfield MD:** Clinical Cardiac Electrophysiology: (2008-2009) Current position: Director Cardiac EP Olive View UCLA Medical Center and Attending EP UCLA Cardiac Arrhythmia Center
- Amish Dave MD:** Clinical Cardiac Electrophysiology Fellow: (2009-2010), Current position: Asst Professor: Methodist-DeBakey Medical Center, Houston, TX
- Roderick Tung, MD:** Advanced Clinical Fellow & Clinical Instructor: (2008-2009): Current position: Director, Specialized Program on VT, UCLA Cardiac Arrhythmia Center: (2009-present)
- Minnette Williams MD:** Advanced Clinical Fellow & Clinical Instructor: (2008-2009)
- Nilesh S. Mathuria MD:** Clinical Cardiac Electrophysiology Fellow: (2009-2010); Current Position; Assistant Professor, UT Houston, Texas
- Yoav Michowitz MD:** Advanced Clinical and Research Fellow (2008-2011): Current Position: Assistant Professor: Tel Aviv Medical Center, Israel
- Tara Bourke MD:** Advanced Clinical and Research Fellow (2008-2011): Current Position: Assistant Professor, Karolinska Institute, Sweden. **MD Thesis (Univ of Galway, Ireland)** done at UCLA under my direction
- Joseph Wu MD:** Advanced Clinical Fellow & Clinical Instructor (2011-2012): Current Position: Assistnat Professor, Attending EP, Kaiser Permanente, Los Angeles
- Mossaab Shuraih MD** Clinical Cardiac Electrophysiology Fellow: (2011-2012);
- Melissa Frederick MD** Clinical Cardiac Electrophysiology Fellow: (2011-2012);
- Rahul Kumar MD** Clinical Cardiac Electrophysiology Fellow: (2011-2012);
- Daigo Yagashita MD** Clinical and Research Cardiac Electrophysiology Fellow: (2012-2014);
- \***Olujimi Ajijola MD:** STAR Awardee, PhD candidate, graduate student in my lab, Clinical EP Fellow (2013-2014)
- Una Buckley MD:** **MD Thesis (for Ireland degree)** to be done at UCLA Cardiac Arrhythmia Center: 2014-2015.

\* Research and Clinical Trainees pursuing higher degrees (MS or PhD in my lab as a part of postgraduate medical training)

#### **SPECIAL TECHNIQUES/COURSES/CME PROGRAMS:**

- 1. Radiofrequency Catheter Ablation of Atrial Fibrillation Workshop: Univ of Iowa 2001:** Course Director (monthly)
- 2. Transseptal Workshop Univ of Iowa: 2001-2002:** Course Director (monthly)
- 3. Ablation of Complex Arrhythmias Utilizing Percutaneous Transthoracic Epicardial Ablation:** CARE Cardiovascular Institute, India: April 4-6, 2002

#### **CME PROGRAMS:**

**Transseptal Catheterization:** A Multimedia Tutorial, for physicians, trainees and associated professionals: 2002 (sponsored by the DAIG division of St Jude Medical)

**INTERNATIONAL COURSES ORGANIZED** (as course director):

**The California Heart Rhythm Symposium: 2007:** Jointly Sponsored by UCLA, UCSD and UCSF. A special supplement to the national journal Heart Rhythm is being released with articles based on talks delivered at this meeting. (see <http://www.cardiology.med.ucla.edu/arrhythmia/>). Venue: Fairmont Miramar, Santa Monica CA

**The California Heart Rhythm Symposium: 2008:** Jointly Sponsored by UCLA, UCSD and UCSF. A special supplement to the national journal Heart Rhythm is being released with articles based on talks delivered at this meeting. Venue: San Diego, CA

**The California Heart Rhythm Symposium: 2009:** Jointly Sponsored by UCLA, UCSD and UCSF. Venue: San Francisco, CA

**The California Heart Rhythm Symposium: 2010:** Jointly Sponsored by UCLA, UCSD and UCSF. A special supplement to the national journal Heart Rhythm is being released with articles based on talks delivered at this meeting. Venue: Santa Monica, CA

**CLINICAL RESPONSIBILITIES:**

**Attending Interventional Electrophysiologist:** University of Iowa Hospitals and Clinics:7/00-6/02  
-Responsible for clinical care and providing consultative and procedural services in cardiac electrophysiology.

**Attending Interventional Electrophysiologist:** VAMC, University of Iowa: July 2000-6/2002  
-Responsible for clinical care and providing consultative and procedural services in cardiac electrophysiology.

**Attending Interventional Electrophysiologist:** UCLA Medical Center: July 2002-present  
Responsible for clinical care and providing consultative and procedural services in cardiac electrophysiology.

**Director, Interventional Electrophysiology:** UCLA Medical Center: July 2002-present  
-Responsible for oversight of clinical care (consultative and procedural) in cardiac electrophysiology  
-Interface closely with medical center for credentialing and quality of care, safety improvement in labs

**Chair, UCLA Cardiovascular Interventional Committee;** Ronald Reagan UCLA Medical Center: 2009-present

**PUBLICATIONS:**

1. Gajalakshmi B, D V, **Shivkumar K**. The electrocardiographic pattern in newborns, infants and young children. *Biomedicine*. 1989;18:19-22.
2. Gheorghiade M, **Shivkumar K**, Schultz L, Jafri S, Tilley B, Goldstein S. Prognostic significance of electrocardiographic persistent ST depression in patients with their first myocardial infarction in the placebo arm of the Beta-Blocker Heart Attack Trial. *Am Heart J*. 1993;126(2):271-278.
3. Stein PD, Gottschalk A, Henry JW, **Shivkumar K**. Stratification of patients according to prior cardiopulmonary disease and probability assessment based on the number of mismatched segmental equivalent perfusion defects. Approaches to strengthen the diagnostic value of ventilation/perfusion lung scans in acute pulmonary embolism. *Chest*. 1993;104(5):1461-1467.
4. **Shivkumar K**, Ravi K, Henry JW, Eichenhorn M, Stein PD. Right ventricular dilatation, right ventricular wall thickening, and Doppler evidence of pulmonary hypertension in patients with a pure restrictive ventilatory impairment. *Chest*. 1994;106(6):1649-1653.
5. **Shivkumar K**, Ravi K, Henry JW, Eichenhorn MS, Stein PD. Chest radiographs fail to detect right ventricular enlargement and right atrial enlargement in patients with a pure restrictive ventilatory impairment. *Chest*. 1994;106(2):381-384.
6. Stein PD, Hamid MS, **Shivkumar K**, Davis TP, Khaja F, Henry JW. Effects of cyclic flexion of coronary arteries on progression of atherosclerosis. *Am J Cardiol*. 1994;73(7):431-437.
7. Krishnan SC, **Shivkumar K**, Garan H, Ruskin JN. Increased vulnerability of the subendocardium to ischaemic injury: an electrophysiological explanation. *Lancet*. 1995;346(8990):1612-1614.
8. **Shivkumar K**, Narins RG. Do diuretics cause heart disease? *Ann Intern Med*. 1995;123(11):891-892.
9. **Shivkumar K**, Jafri SM, Gheorghiade M. Antithrombotic therapy in atrial fibrillation: a review of randomized trials with special reference to the Stroke Prevention in Atrial Fibrillation II (SPAF II) Trial. *Prog Cardiovasc Dis*. 1996;38(4):337-342.
10. **Shivkumar K**, Deutsch NA, Lamp ST, Khuu K, Goldhaber JI, Weiss JN. Mechanism of hypoxic K loss in rabbit ventricle. *J Clin Invest*. 1997;100(7):1782-1788.
11. **Shivkumar K**, Schultz L, Goldstein S, Gheorghiade M. Effects of propranolol in patients entered in the Beta-Blocker Heart Attack Trial with their first myocardial infarction and persistent electrocardiographic ST-segment depression. *Am Heart J*. 1998;135(2 Pt 1):261-267.
12. **Shivkumar K**. Images in cardiovascular medicine. Labile repolarization from "cell to bedside". *Circulation*. 2000;102(7):817-818.
13. **Shivkumar K**, Feliciano Z, Boyle NG, Wiener I. Intradivice interaction in a dual chamber implantable cardioverter defibrillator preventing ventricular tachyarrhythmia detection. *J Cardiovasc Electrophysiol*. 2000;11(11):1285-1288.

14. Doshi RN, Goodman J, Naik AM, **Shivkumar K**, Chen PS, Peter CT. Initial experience with an active-fixation defibrillation electrode and the presence of nonphysiological sensing. *Pacing Clin Electrophysiol.* 2001;24(12):1713-1720.
15. Nerheim P, Krishnan SC, Olshansky B, **Shivkumar K**. Apoptosis in the genesis of cardiac rhythm disorders. *Cardiol Clin.* 2001;19(1):155-163.
16. Olshansky B, **Shivkumar K**. Patient--heal thyself? Electrophysiology meets alternative medicine. *Pacing Clin Electrophysiol.* 2001;24(4 Pt 1):403-405.
17. **Shivkumar K**, Espejo M, Kobashigawa J, Watanabe M, Ikeda M, Chuang J, Patel J, Moriguchi J, Hamilton M, Kawata N, Laks H. Sudden death after heart transplantation: the major mode of death. *J Heart Lung Transplant.* 2001;20(2):180.
18. **Shivkumar K**, Weiss JN. Atrial fibrillation: from cells to computers. *Cardiovasc Res.* 2001;52(2):171-173.
19. Christenson SD, Olshansky B, **Shivkumar K**. Unusual response to atrial extrastimulus testing. *J Cardiovasc Electrophysiol.* 2002;13(2):200.
20. Jagasia DH, **Shivkumar K**. Carvedilol reduced mortality and morbidity caused by myocardial infarction in patients with left ventricular dysfunction. *ACP J Club.* 2002;136(1):7.
21. **Shivkumar K**. Mechanisms of arrhythmias: are we still "learning while burning"? (editorial). *J Cardiovasc Electrophysiol.* 2002;13(4):393-394.
22. **Shivkumar K**, Murali NS, Krishnan SC. The molecular basis of cardiac arrhythmias. *J Nucl Cardiol.* 2002;9(2):206-214.
23. Swerdlow C, **Shivkumar K**, Zhang J. Determination of the upper limit of vulnerability using implantable cardioverter-defibrillator electrograms. *Circulation.* 2003;107(24):3028-3033.
24. Bello D, Kipper S, Valderrabano M, **Shivkumar K**. Catheter ablation of ventricular tachycardia guided by contrast-enhanced cardiac computed tomography. *Heart Rhythm.* 2004;1(4):490-492.
25. Cesario D, Bhargava M, Valderrabano M, Fonarow GC, Wilkoff B, **Shivkumar K**. Azygos vein lead implantation: a novel adjunctive technique for implantable cardioverter defibrillator placement. *J Cardiovasc Electrophysiol.* 2004;15(7):780-783.
26. Cesario DA, Valderrabano M, Cai JJ, Ji S, Shannon KM, Weiss JN, Wiener I, Olshansky B, Chen PS, **Shivkumar K**. Electrophysiological characterization of cardiac veins in humans. *J Interv Card Electrophysiol.* 2004;10(3):241-247.
27. Ji S, Cesario D, Valderrabano M, **Shivkumar K**. The molecular basis of cardiac arrhythmias in patients with cardiomyopathy. *Curr Heart Fail Rep.* 2004;1(3):98-103.
28. Ji S, Cesario DA, Swerdlow CD, **Shivkumar K**. Left ventricular endocardial lead placement using a modified transeptal approach. *J Cardiovasc Electrophysiol.* 2004;15(2):234-236.

29. **Shivkumar K**, Weiss JN. The slippery slope of human ventricular arrhythmias. *J Cardiovasc Electrophysiol*. 2004;15(12):1364-1365.
30. **Shivkumar K**, Valderrabano M. Use of potassium channel openers for pharmacologic modulation of cardiac excitability. *J Cardiovasc Electrophysiol*. 2004;15(7):821-823.
31. Tede NH, **Shivkumar K**, Perloff JK, Middlekauff HR, Fishbein MC, Child JS, Laks H. Signal-averaged electrocardiogram in Ebstein's anomaly. *Am J Cardiol*. 2004;93(4):432-436.
32. Valderrabano M, Cesario DA, Ji S, Shannon K, Wiener I, Swerdlow CD, Oral H, Morady F, **Shivkumar K**. Percutaneous epicardial mapping during ablation of difficult accessory pathways as an alternative to cardiac surgery. *Heart Rhythm*. 2004;1(3):311-316.
33. Belikov S, Marijic J, Laks H, Staudacher M, Boyle N, **Shivkumar K**, Odum J. Sepsis from insidious pacemaker infection and unsuspected tricuspid valve endocarditis: the importance of transesophageal echocardiography in guiding explantation strategy. *J Cardiothorac Vasc Anesth*. 2005;19(4):505-507.
34. Cesario DA, Broder HJ, Fishbein MC, **Shivkumar K**. Histopathologic characterization of the atrioventricular conduction axis following catheter ablation. *Heart Rhythm*. 2005;2(5):532-535.
35. Glikson M, Swerdlow CD, Gurevitz OT, Daoud E, **Shivkumar K**, Wilkoff B, Shipman T, Friedman PA. Optimal combination of discriminators for differentiating ventricular from supraventricular tachycardia by dual-chamber defibrillators. *J Cardiovasc Electrophysiol*. 2005;16(7):732-739.
36. Mahajan A, Moore J, Cesario DA, **Shivkumar K**. Use of thoracic epidural anesthesia for management of electrical storm: a case report. *Heart Rhythm*. 2005;2(12):1359-1362.
37. Pai RK, Boyle NG, Child JS, **Shivkumar K**. Transient left recurrent laryngeal nerve palsy following catheter ablation of atrial fibrillation. *Heart Rhythm*. 2005;2(2):182-184.
38. **Shivkumar K**. Pulmonary-vein cryoisolation versus left-atrial linear cryoablation for atrial fibrillation. *Nat Clin Pract Cardiovasc Med*. 2005;2(9):446-447.
39. Vaseghi M, Cesario D, Shannon KM, **Shivkumar K**. Incessant tachycardia following catheter ablation of an accessory pathway: what is the mechanism? *Heart Rhythm*. 2005;2(4):441-442.
40. Vaseghi M, Cesario D, Swerdlow CD, **Shivkumar K**. Counterclockwise atrial flutter in dextrocardia. *Heart Rhythm*. 2005;2(6):673-674.
41. Vaseghi M, Cesario DA, Ji S, Shannon KM, Wiener I, Boyle NG, Fonarow GC, Valderrabano M, **Shivkumar K**. Beyond coronary sinus angiography: the value of coronary arteriography and identification of the pericardiophrenic vein during left ventricular lead placement. *Pacing Clin Electrophysiol*. 2005;28(3):185-190.
42. Vaseghi M, Cesario DA, Valderrabano M, Boyle NG, Ratib O, Finn JP, Wiener I, **Shivkumar K**. Impedance monitoring during catheter ablation of atrial fibrillation. *Heart Rhythm*. 2005;2(9):914-920.

43. Boyle NG, **Shivkumar K**. Arrhythmia diagnosis: simple and elegant. *Heart Rhythm*. 2006;3(6):680-681.
44. Buch E, Cesario DA, **Shivkumar K**. The autonomic innervation of the ligament of Marshall. *J Cardiovasc Electrophysiol*. 2006;17(6):600-601.
45. Cesario DA, Brar R, **Shivkumar K**. Alterations in ion channel physiology in diabetic cardiomyopathy. *Endocrinol Metab Clin North Am*. 2006;35(3):601-610, ix-x.
46. Cesario DA, Shenoda M, Brar R, **Shivkumar K**. Left ventricular lead stabilization utilizing a coronary stent. *Pacing Clin Electrophysiol*. 2006;29(4):427-428.
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246. Buckley U, Rajendran P & Shivkumar K. Ganglionated Plexus Ablation for Atrial Fibrillation: Just because we can, does that mean we should? *Heart Rhythm* 2017 (in press)  
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### **Special Journal Issue Editor:**

**Journal of Physiology: 2016- Cardiac Autonomic Control in Health and Disease** eds: Shivkumar & Ardell  
On March 12 and 13, 2015 an international conference was held at the University of California Los Angeles on the theme: Autonomic nervous system control of the heart in health and disease. The symposium brought together basic physiologists, clinicians and theoreticians to highlight recent advances in the emerging field of neurocardiology, specifically as related to emerging opportunities for treatment of cardiac arrhythmias and heart failure. Participants at the symposium described various emerging approaches for diagnosis and therapy including cardio-neural mapping, neuromodulation, ablation, advanced imaging and optogenetics, ionic mechanism, and theoretical modelling of the anatomical substrates (neural and cardiac).

This special issue of the journal will include White paper review articles on Molecular and Cellular Neurocardiology, Translational Neurocardiology and Clinical Neurocardiology with Drs. Habecker (Oregon Health Sciences), Ardell (UCLA) and Shivkumar (UCLA) coordinating the reviews. The issue will include articles from a number of recognized experts including: W. Jaening (Germany), M. Anderson (Hopkins), D. Paterson (Oxford), Fukuda (Japan), I. Zucker (Nebraska), I. Efimov (Georgetown), Dell'Italia (Univ. Alabama Birmingham), P-S Chen (Indiana), Foreman (Oklahoma), Joyner (Mayo), Goldberger (Northwestern) and D. Zipes (Indiana).

### **Special Journal Supplement Editor:**

**The California Heart Rhythm Symposium: Heart Rhythm 2008.** (Heart Rhythm is the official journal of the Heart Rhythm Society). This special issue features articles based on a series of lectures delivered at the California Heart Rhythm Symposium on 19 and 20<sup>th</sup> of Oct 2007.

<http://www.heartrhythmjournal.com/issues/>

**The California Heart Rhythm Symposium: Heart Rhythm 2009.** (Heart Rhythm is the official journal of the Heart Rhythm Society). This special issue features articles based on a series of lectures delivered at the California Heart Rhythm Symposium on 3 and 4<sup>th</sup> of Oct 2008.

<http://www.heartrhythmjournal.com/issues/>

**Electrophysiology Clinics: 'Epicardial Interventions in Electrophysiology':** A 15 article issue; Elsevier, Spring 2010.

### SCIENTIFIC COMMUNICATIONS:

1. **Shivkumar K**, Narins RG: Do Diuretics Cause Heart Disease? **Ann Internal Med**, 1995 Dec 1;123(11): 891-892.
2. **Shivkumar K**: Commentary: The Use of Beta Blockers in Acute Myocardial Infarction. **Evidence Based Medicine** (5) 16, 2000/ **ACP Journal Club** Jan 2000: **Ann Internal Med**.
3. **Shivkumar K**: Images in Medicine; Labile Repolarization from Cell to Bedside. **Circulation** 2000;105:817-8
4. Jagasia D and **Shivkumar K**: Commentary: The CAPRICORN Study (*Lancet*. 2001;357(9266):1385-90). **Evidence Based Medicine** 2001/ **ACP Journal Club** Jan 2001: (**Annals of Internal Med**).
5. Valderrabano M & **Shivkumar K**. Commentary: MIRACLE ICD Trial. **Evidence Based Cardiovascular Medicine**. 2003
6. Bradfield J and **Shivkumar K**: Commentray: ACP Journal Club **Ann Intern Med**. 2010;152(4):JC-23

### BOOKS:

**Braunwald Series: Atlas of Electrophysiology in Heart Failure**

**Editors: Kalyanam Shivkumar MD PhD**, Gregg C. Fonarow, MD, James N. Weiss MD and Jagat Narula MD PhD : **2005, Current Science**, Philadelphia, PA (Total sales > 30,000 copies)

**Electrophysiology Clinics: 'Epicardial Interventions in Electrophysiology':** A 15 article issue; Elsevier, Spring 2010.

**BOOK CHAPTERS:**

- C1. **Shivkumar K**, Weiss JN: *ATP-Sensitive Potassium Channels*. Chap 10. In '**Cardiac Electrophysiology: From Cell to Bedside**' ed Zipes, D & Jalife, J, **3rd ed**. W.B. Saunders Philadelphia, 1999.
- C2. Swerdlow CD and Shivkumar K: ICD's Clinical Aspects. In '**Cardiac Electrophysiology: From Cell to Bedside**' ed Zipes, D & Jalife, J, **4th ed**. W.B. Saunders Philadelphia, 2003.
- C3. **Shivkumar K**, Valderrabano M & Narula J: Ventricular Arrhythmias in Nonischemic Dilated Cardiomyopathy; Chapter 11. **Atlas of Electrophysiology in Heart Failure**. Editors: **Kalyanam Shivkumar MD PhD**, Gregg C. Fonarow, MD, James N. Weiss MD and Jagat Narula MD PhD : 2005, Current Medicine, Philadelphia, PA
- C4. Dec GW, Pai RK, **Shivkumar K** & Wiener I: Cardiac Resynchronization Therapy : Chapter 7: **Atlas of Electrophysiology in Heart Failure**. Editors: **Kalyanam Shivkumar MD PhD**, Gregg C. Fonarow, MD, James N. Weiss MD and Jagat Narula MD PhD: 2005, Current Medicine, Philadelphia, PA
- C5. **Shivkumar K** & Perloff JK: Arrhythmias following correction of congenital heart disease in **Adults with Congenital Heart Disease**: 3 rd edition: Perloff JK and Child JS eds Elsevier 2008.
- C6. Vaseghi M, Buch E and **Shivkumar K**: Electrophysiologic Interventions in Heart Failure. Colucci ed **Atlas of Heart Failure**. Current Medicine
- C7. Cesario D, Boyle NG and **Shivkumar K**: Energy Sources for Catheter Ablation: in '**Cardiac Electrophysiology: From Cell to Bedside**' ed Zipes, D & Jalife, J, **5th ed**. Elsevier, 2008
- C8. Buch E, Boyle NG & **Shivkumar K**: Principles of Mapping and Ablation. In 'Handbook of EP' eds Steinberg & Mittal. 2009
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- C10. **Shivkumar K**. Applied Cardiac Anatomy for Catheter Ablation of Atrial Fibrillation. **Atrial Fibrillation: From Bench to Bedside**: 199, 2008.
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#### **ABSTRACTS PRESENTED AT REGIONAL MEETINGS:**

1. **Shivkumar K**, Kaatz S. The Foster Kennedy Syndrome: A case report and literature review. (Presented American College of Physicians, Associates meeting, Lansing, MI, 1993) (*ACP Award winning presentation*)
2. **Shivkumar K**, Davis TP, Hamid MS, Khaja F, Stein PD. Cyclic Flexion of the Coronary Arteries Contribute to the Progression of Atherosclerosis. (Presented 16th Annual ACP Associates Meeting, Flint, MI 1994) (*ACP Award winning presentation*).

#### **RESEARCH INTERESTS:**

Mechanisms of Cardiac Arrhythmias in Humans  
Autonomic Regulation of Atrial and Ventricular Myocardium  
New Technologies and Therapeutics for Cardiovascular Diseases

#### **CLINICAL INTERESTS:**

##### **Interventional Electrophysiology:**

Complex Catheter Ablation:



- Catheter Ablation of Ventricular Tachycardia
- Macro-reentrant tachycardias in patients with adult congenital heart disease
- Innovative approaches to catheter ablation of cardiac arrhythmias including percutaneous epicardial ablations