Richard Joseph Gumina, M.D., Ph.D., F.A.H.A., F.A.C.C.

Curriculum Vitae

OFFICE ADDRESS: Division of Cardiovascular Medicine
University of Nebraska Medical Center
982265 Nebraska Medical Center
Omaha, NE 68198-2265

OFFICE PHONE NO.: 740-602-1552

PERSONAL DATA:

HOME ADDRESS: 401 S 41st St. #109, Omaha, NE 68131
CELLULAR PHONE: 740-602-1552

MARITAL STATUS: Married to Patricia M. Witman, M.D.
Chief, Pediatric Dermatology, Nationwide Children's Hospital

CHILDREN NAMES: Megan E. Gumina
Kathryn F. Gumina
Julia C. Gumina
Richard J.D. Gumina

EDUCATION

9/1983 -6/1988	Bachelor of Science (Biochemistry) University of California, Davis, CA
8/1990 -5/1997	Medical Scientist Training Program Medical College of Wisconsin, Milwaukee, WI
7/1992-5/1996	Graduate School Medical College of Wisconsin, Milwaukee, WI Dissertation: "PECAM-1: from regulation of expression to its role in myocardial ischemia-reperfusion injury." Advisor: Peter J. Newman, Ph.D.
6/1997-6/1998	Postdoctoral Fellowship Department of Pharmacology and Toxicology and the Cardiovascular Research Center Medical College of Wisconsin, Milwaukee, WI Advisor: Garrett J. Gross, Ph.D.
7/1998-6/2001	Internal Medicine Residency Mayo Clinic, Rochester, MN
4/2001-3/2003	Clinician Investigator Fellow Division of Cardiovascular Diseases Mayo Clinic and Foundation, Rochester, MN
7/2001-6/2005	Cardiovascular Diseases Fellowship Mayo Clinic, Rochester, MN
7/2005-6/2006	Interventional Cardiology Fellowship Mayo Clinic, Rochester, MN

LICENSURE AND CERTIFICATION

Nebraska License No. 30452
Tennessee License No. 49488
Ohio License No. 35.089106

Diplomate of the American Board of Internal Medicine.
- Certified in Internal Medicine 2001- 2011
- Certified in Cardiovascular Medicine 2006
  -Recertified in Cardiovascular Medicine 2016
- Certified in Interventional Cardiology 2007
  -Recertified in Interventional Cardiology 2017

ACADEMIC APPOINTMENTS

7/1/2006-1/14/2006: Senior Associate Consultant, Interventional Cardiology
Division of Cardiovascular Diseases
Mayo Clinic and Foundation, Rochester, MN

1/2/2007-1/11/2013: Assistant Professor of Medicine (Tenure-track)
Cardiovascular Medicine
The Ohio State University, Columbus, OH

1/15/2013-12/31/2017 Assistant Professor of Medicine, Pharmacology, and Pathology, Immunology, and Microbiology
Division of Cardiovascular Medicine
Department of Medicine,
Vanderbilt University Medical School, Nashville, TN

1/01/2018-present Associate Division Chief for Cardiovascular Research
Associate Professor of Internal Medicine
Division of Cardiovascular Medicine
Department of Internal Medicine,
University of Nebraska Medical Center, Omaha, NE

EMPLOYMENT

4/1985-4/1986 Laboratory Assistant
Plant Genetics Incorporated, Davis, CA

6/1986-9/1986 Cell Biology Intern
Cell Culture Department
Genentech Incorporated, South San Francisco, CA

6/1987-9/1987 Molecular Biology Intern
Department of Developmental Biology
Genentech Incorporated, South San Francisco, CA

1/1987-2/1988 Immunology Intern
Department of Anatomy
University of California, Davis Medical School, Davis, CA

7/1988-7/1990 Biologist I
Department of Inflammation Biology and Immunology
Syntex Research, U.S.A., Inc., Palo Alto, CA

7/2006-12/2006 Senior Associate Consultant, Interventional Cardiology
Division of Cardiovascular Diseases

Mayo Clinic and Foundation, Rochester, MN

1/2007-1/2013 Assistant Professor of Medicine
Division of Cardiovascular Medicine
The Ohio State University
Columbus, Ohio

1/2013-12/31/2017 Assistant Professor of Medicine, Pharmacology, and Pathology, Immunology and Microbiology
Department of Medicine,
Division of Cardiovascular Medicine,
Vanderbilt University Medical Center, Nashville, TN

7/2013 – 12/29/2017 Staff Cardiologist (Interventional),
Department of Veterans Affairs, Veterans Health Administration,
Tennessee Valley Healthcare System, Nashville Campus, Nashville, TN

1/01/2018-present Associate Division Chief for Cardiovascular Research
Associate Professor of Internal Medicine
Division of Cardiovascular Medicine
Department of Internal Medicine
University of Nebraska Medical Center, Omaha, NE

PROFESSIONAL ORGANIZATIONS

American College of Cardiology (*Fellow)*
American Heart Association Council on Basic Cardiovascular Science *(Fellow)*
American Heart Association Council on Arteriosclerosis, Thrombosis & Vascular Biology (*Member)*
International Society for Heart Research (*Member)*
American Physiological Society *(Member)*

PROFESSIONAL ACTIVITIES (reverse chronological order)

2016-2017: Director, Cardiovascular Physiology Core, Division of Cardiovascular Medicine, Vanderbilt University Medical Center

2015-2016: Director, Cardiovascular Pathophysiology and Complications Core, Vanderbilt - NIDDK Mouse Metabolic Phenotyping Center.

2014-present: Director, Cardiovascular Medicine Research Symposium. Division of Cardiovascular Medicine. Vanderbilt University Medical Center.

2014-present: Co-Director, Cardiovascular Medicine Fellowship Research Program. Division of Cardiovascular Medicine. Vanderbilt University Medical Center.

2014-present: Member, Cardiovascular Medicine Fellowship Committee. Division of Cardiovascular Medicine. Vanderbilt University Medical Center.

2014-present: Member, Interventional Cardiology Fellowship Committee. Division of Cardiovascular Medicine. Vanderbilt University Medical Center.

2012: Committee Member, NPSG 3E Heparin Workgroup. The Ohio State University.

2009-2012: Director, Interventional Cardiovascular Research. The Ohio State University

2010-2012: Director, OSU/NCH American Heart Association Student Undergraduate Fellowship Program.

2009-2011: Member, Admissions Committee, The Ohio State University College of Medicine

2009-2010: Lead Physician, Risk Assessment Subcommittee, Cardiovascular Quality Management Committee Cardiovascular Risk Reduction Project. The Ross Heart Hospital. The Ohio State University.

2009: Member, CTSC KL2 Study Section Committee. The Ohio State University.

2009-2011: Member, Cardiovascular Medicine Fellowship Committee. Division of Cardiovascular Medicine, The Ohio State University.

2009-2012: Organizer, American Heart Association Young Investigator's Meeting. The Davis Heart and Lung Research Institute and The Ross Heart Hospital. The Ohio State University.

2008-2010: Committee Member, Davis Heart and Lung Research Institute Director Search Committee. The Ohio State University.

2008-2012: Lead Physician, Evidence-Based Practice Committee Acute Coronary Syndrome Practice Guidelines. The Ohio State University.

2007-2012: Committee Member, Research Committee. Cardiac Catheterization Laboratory. The Ohio State University.

2007-2012: Committee Member, Clinical Practice Committee. Cardiac Catheterization Laboratory. The Ohio State University.

2007: Judge, Poster Session. Ohio Chapter-American College of Cardiology 17th Annual Meeting. Columbus, OH.

2002-2003 Chief Fellow, Clinician-Investigator Program. Mayo Clinic.

1992-1997: Committee Member, Clinical Exposure During Research Planning Committee. Medical College of Wisconsin.

1991-1992: Student Activity Chair, American Medical Student Association. Medical College of Wisconsin.

1991: Committee Member, Correlative Research Independent Study Program Planning Committee. Medical College of Wisconsin.

Journals (*ad hoc*)
Circulation, Arteriosclerosis, Thrombosis and Vascular Biology, Circulation: Cardiovascular Imaging, Hypertension, Cardiovascular Research, Journal of Molecular and Cellular Cardiology, American Journal of Physiology - Heart and Circulation, Journal of Pharmacology and Experimental Therapeutics, Thrombosis Research, Physiologic Genomics, Purinergic Signaling, British Journal of Pharmacology,

Grant Review.
2017 American Heart Association. Cardiac Biology, Clinical Study Section. Spring.
2015 Veteran's Administration, Merit Award, Cardiology B Study Section. Fall.
2015 Veteran's Administration, Merit Award, Cardiology B Study Section. Spring.
2015 American Heart Association. Vascular Wall Biology Study Section. Fall.
2015 American Heart Association. Vascular Wall Biology Study Section. Spring.
2012 American Heart Association. Cardiac Biology/Regulation - Clinical Study Section. October.
2012 American Heart Association. Cardiac Biology/Regulation - Clinical Study Section. March.
2011 American Heart Association. Basic Cell MSO 1 Study Section. March.

Other
Patents & Patent Applications

- "Platelet-Endothelial Cell Adhesion Molecule-1 Promoters and Uses Thereof." Patent Number 5,668,012. September 16, 1997
- "Therapeutic use of platelet-endothelial cell adhesion molecule-1 compositions." Patent Number 6,087,331. July 11, 2000.
- "Nitrotyrosinylated fatty acid binding protein and myoglobin for the detection of myocardial injury."
  Provisional application filed November 23, 2010.

Honors/Awards

Staff:
2009-2013: Center for Clinical and Translational Science (CCTS) Fellow. The Ohio State University

Fellowship/Residency:
2004 Mayo Award of Individual Excellence.
2002 AstraZeneca Young Investigator's Award. Third Prize - Basic Research
2001 Hartz Foundation Young Investigator Award
2001 Department of Internal Medicine Resident Research Award, Mayo Clinic and Foundation
1999 Mayo Medical School Excellence in Teaching Recognition
1998 Young Investigator Award. Vascular and Myocardial Aspects of Ischemic Heart Disease Meeting

Medical/Graduate School:
1997 The Armand J. Quick Award for Excellence in Biochemistry
Department of Biochemistry, Medical College of Wisconsin
1995 The Cardiovascular Award - Second Place
The Midwest Clinical Research Meeting
1995 Travel Award. American Society of Hematology Meeting
1995 Midwest Trainee Investigator Award. The Midwest Clinical Research Meeting
1995 Trainee Investigator Award. The Clinical Research Meeting
1993 Travel Award. Friends of the Medical College of Wisconsin
1992 Standing Ovation Award. Medical College of Wisconsin

TEACHING ACTIVITIES
2016 Preceptor: Vanderbilt University Medical Center
Course: Prevention of Ischemic Events
2016 Lecturer: Vanderbilt University Medical Center
Course: Pathology 351: Atherosclerosis, causes and complications
2015 Lecturer: Vanderbilt University Medical Center

	Course:	Pathology 351: Atherosclerosis, causes and complications
2012	Lecturer:	The Ohio State University College of Medicine
	Course:	Signature Program Translational Science
	Lecture:	Immunology/Inflammation Emphasis in Cardiology
2012	Lecturer:	The Ohio State University College of Dentistry
	Course:	Dentistry 604 – Human Physiology
	Lectures:	Cardiovascular Physiology (6 lectures total)
2011	Lecturer:	The Ohio State University College of Medicine
	Course:	Signature Program Translational Science
	Lecture:	Immunology/Inflammation Emphasis in Cardiology
2011	Lecturer:	The Ohio State University College of Dentistry
	Course:	Dentistry 604 – Human Physiology
	Lectures:	Cardiovascular Physiology (6 lectures total)
2010	Lecturer:	The Ohio State University College of Medicine
	Course:	Signature Program Translational Science
	Lecture:	Immunology/Inflammation Emphasis in Cardiology
2010	Lecturer:	The Ohio State University College of Dentistry
	Course:	Dentistry 604 – Human Physiology
	Lectures:	Cardiovascular Physiology (6 lectures total)
2009	Lecturer:	The Ohio State University College of Dentistry
	Course:	Dentistry 604 – Human Physiology
	Lectures:	Cardiovascular Physiology (6 lectures total)
2008	Lecturer:	The Ohio State University College of Dentistry
	Course:	Dentistry 604 – Human Physiology
	Lectures:	Cardiovascular Physiology (6 lectures total)
2007	Lecturer:	The Ohio State University School of Medicine
	Course:	Internal Medicine Core Curriculum
	Lecture:	The management of ST elevation and non ST elevation MI
2007	Preceptor:	The Ohio State University School of Medicine
	Course:	Introduction to Clinical Medicine
2006	Lecturer:	Mayo Clinic Coronary Care Unit
	Course:	Introduction to the CCU
	Lecture:	Hemodynamic Support Devices – IABP and TandemHeart Assist Device
2006	Instructor:	Central Line Workshop. Mayo Clinic Internal Medicine Program.
1998	Lecturer:	Medical College of Wisconsin, Department of Pharmacology and Toxicology
	Course:	Medical Pharmacology
	Lecture:	Gastrointestinal Pharmacology and Pharmacology Discussion Group Leader
1997	Lecturer:	Marquette School of Nursing
	Course:	Pharmacology for Advanced Practice Nurses
	Lectures:	Autonomic Nervous System Pharmacology Pharmacological Treatment of Congestive Heart Failure
1997	Lecturer:	University of Wisconsin - Milwaukee
	Course:	Topics in Clinical Laboratory Sciences; Clinical Pharmacology Section
	Lecture:	Cardiovascular Pharmacology

Mentorship:

Undergraduate Students:

1. Jessica Robinson, Norfolk University
   Vanderbilt University Enhancing Diversity in Graduate Education Program Intern, June 2017 - August 2017.

2. Richard Yu, Vanderbilt University, February 2014 – May 2017.
3. Jessica Robinson, Norfolk University
   Vanderbilt University Enhancing Diversity in Graduate Education Program Intern, June 2016 - August 2016.
4. William Wey, Vanderbilt University, February 2014 - March 2015.
5. Anna Word, Vanderbilt University, February 2014 - May 2014.
6. Ryan Huttinger, The Ohio State University, September 2011 - 2012.
7. Kathryn Stanfill, The Ohio State University, September 2011 - 2012.
8. William Aurand, The Ohio State University, June 2009 - 2012.
9. Shouvik Mahamud, The Ohio State University, March 2009 - 2012.
10. Hong He
    Recipient, AHA SURF Award 2011
    The Ohio State University, June 2011 - 2013.
11. Zachary Huttinger (Current: MD/PhD Student University of Michigan)
    Recipient, AHA SURF Award 2010 and 2011 and Undergraduate Research Award 2012.
    The Ohio State University, June 2009 – 2012.
10. Lauren Goodman
    Recipient, AHA SURF Award 2010 and
    Undergraduate Research Award. The Ohio State University, June 2009 – June 2011.
11. Lawrence Long,
    The Ohio State University, October 2007-January 2009.
    Undergraduate Research Award, June 2009.
12. Rohit Mital, The Ohio State University, March 2007- August 2009.

Graduate Students:

1. Nuria Almendron, PhD, Visiting Graduate Student,
   Blood Center of Southeastern Wisconsin, Milwaukee, WI. July 1993 - October 1995.
2. Ivona Bresnjovic, (PhD), Summer Intern,
   Mayo Graduate School, June - August, 2002.

Medical Students:

1. Ryan Huttinger, LECOM, M1
   June-August 2015
2. Justin Morrison, The Ohio State University College of Medicine, M1
   Roessler Scholarship Medical College Research Rotation, June-August, 2011.
3. Kavita Betkerur, The Ohio State University College of Medicine, M1
   Roessler Scholarship Medical College Research Rotation, June-August, 2011.
4. Rohit Mital, Alpha Omega Alpha Summer Research Scholarship 2010
   The Ohio State University College of Medicine, M1. September 2009 - present.
5. Adam Reynolds, The Ohio State University College of Medicine, M1
   Roessler Scholarship Medical College Research Rotation, June-August, 2009.
   American Heart Association Student Scholarship in Cardiovascular Disease & Stroke 2009
6. Li Feng, The Ohio State University College of Medicine, M1
   Internal Medicine - Summer Research Program, June-August, 2009.
7. Ronak Patel, The Ohio State University College of Medicine, M4
   Medical Student 4 Research Elective, April 2009.
8. Michael Wesley Milks, The Ohio State University College of Medicine
   Roessler Scholarship Medical College Research Rotation, June - August, 2008.
   Recipient, Medical Student Travel Award, Eighth Annual Ohio State University Medical Center Research Day
9. Michael Nickoli, The Ohio State University College of Medicine
   Roessler Scholarship Medical College Research Rotation, June - August, 2008.

10. Sean McCarthy, MD, 2008 Ohio State Medical School Cardiovascular Research Award.
    The Ohio State University College of Medicine, M4
    Medical School Research Rotation, November 2007.
11. Kristopher E. Kurtz, MD, Mayo Medical School Research Rotation, June - August, 2002.

Post-doctoral Fellows:

1. Roman Covarrubias, PhD,
   Vanderbilt University, January 2015- present
2. Stephen Smith, PhD
   Vanderbilt University, October 2014-November 2015
3. Bo Zhang, MD, Visiting Scholar
   Institute of Organ Transplantation, Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology, July 2011 – December 2012.
4. Zhaobin Xu, MD, Visiting Scholar
   Central South University People's Republic of China, February 2010 – December 2012.
5. Minzi Deng, MD, Visiting Scholar,
   Central South University People's Republic of China, July- October 2009.
6. Weizhi Zhang, MD, Visiting Scholar
   Central South University People's Republic of China, October 2008 –October 2009.

Residents/Clinical Fellows:

1. John Flynn, MD
   Internal Medicine Research Rotation, 2014
   Project: Association of CD39 genetic variations with platelet function
2. Burcu Gul, MD, PhD
   Internal Medicine Research Rotation, 2013-2014
   Project: Association of CD39 genetic variations with secondary cardiovascular events.
3. Essa Essa, MD
   Internal Medicine Research Rotation, November 2010.
   Project: Levels of metalloproteinases in stress-induced cardiomyopathy.

Thesis Committees

1. Yuanjun Guo,
   Department of Pharmacology
   Vanderbilt University Medical Center, June 2015 – present.
2. Steven Boronyak
   Biomedical Engineering
   Vanderbilt University, August 2015
2. Nima Milani-Nejad
   MSTP, The Ohio State University
   September 2011 – January 2013
3. Christopher J. Traynham
   IBGP, The Ohio State University, April 2009 – June 2011
4. Levy Reyes
   IBGP, The Ohio State University, April 2009 – January 2013.
5. Daniel Pietras,
   MD-PhD Program, University of Cincinnati. July 2007 – June 2010.

PUBLICATIONS AND PRESENTATIONS

PUBLICATIONS:

Original Articles (published, reverse chronological order):

1. Absi TS, Galindo CL, **Gumina RJ**, Atkinson J, Guo Y, Tomasek K, Sawyer DB, Byrne JG, Kaiser CA, Shah AS, Su YR, Petracek M. Altered ADAMTS5 Expression and Versican Proteolysis: A Possible Molecular Mechanism in Barlow's Disease. *Ann Thorac Surg*. 2017 Dec 14. pii: S0003-4975(17)31611-9. doi: 10.1016/j.athoracsur.2017.11.035
2. De Giorgi M, Enjyoji K, Jiang G, Csizmadia E, Mitsuhashi S, **Gumina RJ**, Smolenski RT, Robson SC. Complete deletion of Cd39 is atheroprotective in apolipoprotein E-deficient mice. *J. Lipid Res.*, 2017 58(7):1292-1305. doi: 10.1194/jlr.M072132.
3. Smith SB, Xu Z, Novitskaya T, Zhang B, Chepurko E, Pu XA, Wheeler DG, Ziolo M, **Gumina RJ**. Impact of cardiac-specific expression of CD39 on myocardial infarct size in mice. *Life Sci.* Life Sci. 2017 Jun 15;179:54-59. doi: 10.1016/j.lfs.2016.10.016.
4. Kirabo A, Ryzhov S, Gupte M, Sengsayadeth S, **Gumina RJ**, Sawyer DB, Galindo CL. Neuregulin-1β induces proliferation, survival and paracrine signaling in normal human cardiac ventricular fibroblasts. *J Mol Cell Cardiol*. 2017 Mar 3;105:59-69. doi:10.1016/j.yjmcc.2017.03.001. [Epub ahead of print]
5. Zhang B, Novitskaya T, Wheeler DG, Xu Z, Chepurko E, Huttinger R, He H, Varadharaj S, Zweier JL, Song Y, Xu M, Harrell FE Jr, Su YR, Absi TS, Kohr MJ, Ziolo MT, Roden DM, Shaffer CM, Galindo CL, Wells QS, **Gumina RJ.** *Kcnj11* Ablation Is Associated With Increased Nitro-Oxidative Stress During Ischemia-Reperfusion Injury: Implications for Human Ischemic Cardiomyopathy. *Circ Heart Fail.* 2017 Feb;10(2). pii: e003523. doi:10.1161/CIRCHEARTFAILURE.116.003523.
6. Role of the CD39/CD73 Purinergic Pathway in Modulating Arterial Thrombosis in Mice. Covarrubias R, Chepurko E, Reynolds A, Huttinger ZM, Huttinger R, Stanfill K, Wheeler DG, Novitskaya T, Robson SC, Dwyer KM, Cowan PJ, **Gumina RJ**. *Arterioscler Thromb Vasc Biol.* 2016 Sep;36(9):1809-20. doi: 10.1161/ATVBAHA.116.307374. Epub 2016 Jul 14.
7. Sanders LN, Schoenhard JA, Saleh MA, Mukherjee A, Ryzhov S, McMaster WG, Nolan K, **Gumina RJ**, Thompson TB, Magnuson MA, Harrison DG, Hatzopoulos AK. The BMP Antagonist Gremlin 2 Limits Inflammation After Myocardial Infarction. *Circ Res*. 2016 Jul 22;119(3):434-49. doi: 10.1161/CIRCRESAHA.116.308700.
8. Stephenson MK, Lenihan S, Roman Covarrubias R, Huttinger RM, **Gumina RJ**, Sawyer DB, Galindo CL. Scanning electron microscopy of macerated tissue to visualize the extracellular matrix. *J Vis Exp*. 2016 Jun 14;(112). doi: 10.3791/54005.
9. Novitskaya T, Chepurko E, Covarrubias R, Novitskiy S, Ryzhov SV, Feoktistov I, **Gumina RJ.** Extracellular nucleotide regulation and signaling in cardiac fibrosis. *J Mol Cell Cardiol*. 2016 Feb 16;93:47-56.
10. Ryzhov S, Sung BH, Zhang Q, Weaver A, **Gumina RJ**, Biaggioni I, Feoktistov I. Role of adenosine A2B receptor signaling in contribution of cardiac mesenchymal stem-like cells to myocardial scar formation. *Purinergic Signal*. 2014 Sep;10(3):477-86.
11. Boudoulas KD, Ravi Y, Garcia D, Saini U, Sofowora GG, **Gumina RJ**, Sai-Sudhakar CB . Type of Valvular Heart Disease Requiring Surgery in the 21st Century: Mortality and Length-of-Stay Related to Surgery. Open Cardiovasc Med J. 2013 Sep 4;7:104-9.
12. Saini U, **Gumina RJ**, Wolfe B, Kuppusamy ML, Kuppusamy P, Boudoulas KD. Preconditioning mesenchymal stem cells with caspase inhibition and hyperoxia prior to hypoxia exposure decreases apoptosis and increases cell survival. *Journal of Cellular Biochemistry*. 2013 Nov;114(11):2612-23.
13. Boudoulas KD, Pederzolli A, Saini U, **Gumina RJ**, Mazzaferri EL Jr, Davis MB, Bush CA, Capers Q IV, Magorien R, Pompili VJ. Comparison of Impella and Intra-Aortic Balloon Pump in High-Risk Percutaneous Coronary Intervention: Vascular Complications and Incidence of Bleeding. *Acute Cardiac Care.* 2012 Dec;14(4):):120-4.

14. Huttinger ZM, Milks MW, Nickoli MS, Long LC,Wheeler DG, Dwyer KM, Cowan PJ, Robson SC, d'Apice AJF, **Gumina RJ**. Ectonucleotide triphosphate diphosphohydrolase-1 role in resistance to arterial thrombosis. *Am J Pathol*. Jul;181(1):322-33.
15. Essa E, Zile MR, Stroud RE, Rice A, **Gumina RJ**, Leier CV, Spinale FG. Changes in Matrix Metalloproteinases (MMPs) and Tissue Inhibitors of MMPs Plasma Profiles in Stress-Induced Cardiomyopathy. *J Card Fail*. 2012 Jun;18(6):487-92
16. Wheeler DG, Joseph ME, Mahamud SD, Aurand WL, Mohler PJ, Pompili VJ, Dwyer KM, Nottle MB, Harrison SJ, d'Apice AJF, Robson SC, Cowan PJ, **Gumina RJ**. Transgenic swine: expression of human CD39 (ectonucleotide triphosphate diphosphohydrolase-1) protects against myocardial ischemic injury. *J Mol Cell Cardiol.* 2012 May;52(5):958-61.
17. Cai M, Huttinger ZM, He H, Zhang W, Li F, Goodman LA, Wheeler DG, Druhan LJ, Zweier JL, Dwyer KM, He G, d'Apice AJ, Robson SC, Cowan PJ, **Gumina RJ.** Transgenic over expression of ectonucleotide triphosphate diphosphohydrolase-1 protects against murine myocardial ischemic injury. *Journal of Molecular and Cellular Cardiology.* (2011) 51(6):927-35
18. Cunha SR, Hund TJ, Hashemi S, Voigt N, Li N, Wright P, Koval O, Li J, Gudmundsson H, **Gumina RJ**, Karck M, Schott JJ, Probst V, Le Marec H, Anderson ME, Dobrev D, Wehrens XH, Mohler PJ. Defects in Ankyrin-Based Membrane Protein Targeting Pathways Underlie Atrial Fibrillation. *Circulation*. (2011) 124(11):1212-22.
19. Essa E, Velez MR, Smith S, Raman SV and **Gumina RJ**. A 72 year old male presenting with weakness and atrial fibrillation: Case Report of Wet Beriberi. *Journal of Cardiovascular Magnetic Resonance.* (2011) 12;13(1):41
20. Zaidi A and **Gumina RJ**, Myocardial Bridging in an adult patient with d-Transposition of the Great Arteries, *Congenital Heart Disease* (2011) 6:157-61.
21. Mital R, Zhang W, Cai M, Huttinger ZM, Goodman LA, Wheeler DG, Ziolo MT, Dwyer K, d'Apice A, Zweier JL, He G, Cowan P, **Gumina RJ**. Antioxidant network expression abrogates oxidative post-translational modifications in mice. *American Journal of Physiology - Heart and Circulatory Physiology.* (2011)300:H1960-70.
22. **Gumina RJ**, Newman PJ, Gross GJ. Effect on ex vivo platelet aggregation and in vivo cyclic flow with Na+/H+ exchange inhibition. *Journal of Thrombosis and Thrombolysis.* (2011) 31(4):431-5
23. **Gumina RJ**, Yang EH, Sandhu GS, Prasad A, Bresnahan JF, Lennon RJ, Rihal CS, Holmes DR Jr, Singh M. Survival benefit with concomitant clopidogrel and glycoprotein IIb/IIIa inhibitor therapy at *ad hoc* percutaneous coronary intervention. *Mayo Clinic Proceedings*. (2008) 83:995-1001.
24. Bunch TJ, Rihal CS, **Gumina RJ**, Cooper L, Caplice NM. Progression of nonculprit plaque stenosis following successful percutaneous intervention. *Angiology* (2008) 59:236-239.
25. **Gumina RJ.** New trials and therapies for acute myocardial infarction. *Medical Clinics of North America.* (2007) 91(4):729-49. *Review.*
26. **Gumina RJ**, Callahan M, Murphy JG. Bland-White-Garland Syndrome: Not just a Pediatric Coronary Anomaly? *Journal of Invasive Cardiology.* (2007) 19:E9.
27. **Gumina RJ**, O'Cochlain DF, Kurtz C, Bast P, Pucar D, Mishra P, Miki T, Seino S, Macura S, Terzic A. KATP channel knockout worsens myocardial calcium stress-load in vivo and impairs recovery in stunned heart. *American Journal of Physiology - Heart and Circulatory Physiology.* (2007) 292:H1706-1713.
28. **Gumina RJ**, Murphy JG, Rihal CS, Lennon RJ, Wright RS. Long-term survival after right ventricular infarction. *American Journal of Cardiology.* (2006) 98:1571-1573.
29. **Gumina RJ**, Schultz JE, Moore J, Beier N, Schelling P, Gross GJ. Cardioprotective-mimetics reduce myocardial infarct size in animals resistant to ischemic preconditioning. *Cardiovascular Drugs and Therapy*. (2005) 19:315-322.
30. Yang EH, **Gumina RJ**, Lennon RJ, Holmes DR Jr., Rihal CS, Singh M. Emergency Coronary Artery Bypass Surgery for Percutaneous Coronary Interventions: Changes in the Incidence,

Clinical Characteristics, and Indications from 1979 to 2003. *Journal of the American College of Cardiology* (2005) 46: 2004-2009.

31. Pucar P, Dzeja PP, Bast P, **Gumina RJ**, Drahl C, Lim L, Juranic N, Macura S, Terzic A. Mapping hypoxia-induced bioenergetic rearrangements in the guinea pig heart by ^{18}O-assisted ^{31}P-NMR spectroscopy and ^{1}H-NMR spectroscopy. *Molecular and Cellular Biochemistry* (2004) 256 257:281-289.
32. Hodgson DM, Zingman LV, Kane GC, Perez-Terzic C, Bienengraeber M, Ozcan C, **Gumina RJ**, Pucar D, O'Coclain F, Mann DL, Alekseev AE, Terzic A. Cellular remodeling in heart failure disrupts K_{ATP} channel-dependent stress tolerance. *EMBO Journal* (2003) 22:1732-1742.
33. **Gumina RJ**, Pucar D, Bast P, Hodgson DM, Kurtz C, Dzeja PP, Miki T, Seino S, Terzic A. Knockout of the K_{ATP} channel subunit Kir6.2 negates ischemic preconditioning-induced protection of myocardial energetics. *American Journal of Physiology - Heart and Circulatory Physiology.* (2003) 284:H2106-2113.
34. **Gumina RJ**, Wright RS, Kopecky SL, Miller WL, Williams BA, Reeder GS, Murphy JG. Strong predictive value of TIMI risk score analysis for in-hospital and long-term survival of patients with right ventricular infarction. *European Heart Journal* (2002) 23:1678-1683.
35. **Gumina RJ**, Shields R, Foley DA, Tefferi A, Rooke T. Polycythemia vera--a case report and discussion on pathogenic mechanisms of increased thrombosis. *Angiology* (2002) 53:587-591.
36. Zingman LV, Hodgson DM, Bast PH, Kane GC, Perez-Terzic C, **Gumina RJ**, Pucar D, Bienengraeber M, Dzeja PP, Miki T, Seino S, Alekseev AE, Terzic A. Kir6.2 is required for adaptation to stress. *Proceedings of the National Academy of Science USA* (2002) 99:13278-13283.
37. Pucar D, Bast P, **Gumina RJ**, Lim L, Drahl C, Juranic N, Macura S, Janssen E, Wieringa B, Terzic A , Dzeja PP. Adenylate kinase AK1 knockout heart: Energetics and functional performance under ischemia-reperfusion. *American Journal of Physiology - Heart and Circulatory Physiology.* (2002) 283:H776-H782.
38. **Gumina RJ**, Terzic A, Gross GJ. Do NHE-1 inhibition and ischemic preconditioning share common cardioprotective mechanisms? *Basic Research in Cardiology (*2001) 96:318-324. *Review.*
39. **Gumina RJ**, Moore J, Schelling P, Beier N, Gross GJ. Na(+)/H(+) exchange inhibition prevents endothelial dysfunction after I/R injury. *American Journal of Physiology - Heart and Circulatory Physiology.* (2001) 281:H1260-1266.
40. **Gumina RJ**, Jahangir A, Gross GJ, Terzic A. Cardioprotection: emerging pharmacotherapy. *Expert Opinion on Pharmacotherapy* (2001) 2:730-752. *Review.*
41. Nithipatikom K, DiCamilli RF, Kohler S, **Gumina RJ**, Falck JR, Campbell WB, Gross GJ. Determination of cytochrome P-450 metabolites of arachidonic acid in coronary venous plasma during ischemia and reperfusion in dogs. *Analytical Biochemistry* (2001) 292:115-124.
42. **Gumina RJ**, Gross GJ. Cardioprotective effects of Na^+/H^+ exchange inhibitors. *Drugs of the Future*. (2001) 26(3): 253. *Review.*
43. **Gumina RJ**, Auchampach J, Wang RG, Buerger E, Eickmeier C, Moore J, Daemmgen J, Gross GJ. Na^+/H^+ exchange inhibition-induced cardioprotection in dogs: effects of neutrophils versus cardiomyocytes. *American Journal of Physiology - Heart and Circulatory Physiology.* (2000) 279:H1563-1570.
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47. **Gumina RJ**, Gross GJ. If ischemic preconditioning is the gold standard has a platinum standard arrived? Comparison to NHE inhibition. *Journal of Thrombosis and Thrombolysis* (1999) 8:39-44. *Review.*
48. **Gumina RJ**, Mizumura T, Beier N, Schelling P, Schultz JJ, Gross GJ. A new Na^+/H^+ (NHE-1) inhibitor, EMD 85131, limits infarct size in dogs when administered prior to or after coronary artery occlusion. *Journal of Pharmacology and Experimental Therapeutics* (1998) 286:175-183.
49. **Gumina RJ**, Newman PJ, Kenny D, Warltier DC, Gross GJ. The leukocyte cell adhesion molecules and its involvement in myocardial ischemia-reperfusion injury. *Basic Research in Cardiology* (1997) 92:201-213. *Review*
50. **Gumina RJ**, Kirschbaum NE, Piotrowski K, Newman PJ. Characterization of the human Platelet/Endothelial Cell Adhesion Molecule-1 promoter: Identification of a GATA-2 binding element required for optimal transcriptional activity. *Blood* (1997) 89:1260-1269.
51. **Gumina RJ**, Schultz JJ, Yao Z, Kenny D, Warltier DC, Newman PJ, Gross GJ. Antibody to PECAM-1 reduces myocardial infarct size in a rat model of ischemia and reperfusion injury. *Circulation* (1996) 94:3327-3333.
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54. **Gumina RJ**, Freire-Moar J, DeYoung L, Webb DR, Devens BH. Transduction of the IFN-γ signal for HLA-DR expression in the promonocytic line THP-1 involves a late acting protein kinase C activity. *Cellular Immunology* (1991) 138: 265 - 279.
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BOOK CHAPTERS/EDITOR:

1. Covarrubias R, Major A, **Gumina RJ.** Animal Models of Ischemic Heart Disease: From Atherosclerosis and Thrombosis to Myocardial Infarction. *in* Encyclopedia of Cardiovascular Research and Medicine, Elsevier Inc, 2017.
2. **Gumina RJ** , Section VII Editor; Interventional Cardiology. *in* McGraw-Hill Specialty Board Review Cardiology, McGraw-Hill Companies, 2011.
3. Bayram M, Mazzaferri ML Jr., **Gumina RJ.** Chapter 40. ST Segment Elevation Myocardial Infarction (STEMI). *in* McGraw-Hill Specialty Board Review Cardiology, McGraw-Hill Companies, 2011.
4. **Gumina RJ**, Holmes, DR, Jr. Optimal patient preparation and selection to avoid complications *in* The Handbook of Complications During Percutaneous Coronary Interventions. Editor: Eric Eeckhout. Publisher: Taylor and Francis Medical. 2007.
5. **Gumina RJ**, Reeder RS, Wright RS, Murphy JJ. Right Ventricular Infarction *in* Mayo Cardiology Review Second Edition. Editor: Joseph J. Murphy.

PUBLISHED/BROADCAST INTERVIEWS

1. Content Expert. American Journal of Physiology – Heart and Circulatory Podcasts. "Macrophage MMP-9 Accelerates Cardiac Aging."

https://ajpheart.podbean.com/e/macrophage-mmp-9-accelerates-cardiac-aging/. March 15, 2017.

2. Content Expert. American Journal of Physiology – Heart and Circulatory Podcasts. "TNF and Cardiac Stem Cell Differentiation." http://ajpheart.podbean.com/e/tnf-and-cardiac-stem-cell-differentiation/. November 1, 2016.

PUBLISHED ABSTRACTS:

1. Covarrubias R, **Gumina RJ**. CD39/CD73 Expressing Exosomes Protect Against Arterial Thrombosis. *Poster presentation.* Arteriosclerosis Thrombosis and Vascular Biology 2017.
2. Galindo CL, **Gumina RJ**, Su YR, Absi TS. Altered ADAMTS5 Gene Expression and Versican Proteolysis: a possible etiology of Barlow's Disease. *Oral presentation*. The Society of Thoracic Surgeons 53rd Annual Meeting 2017.
3. Covarrubias R, Chepurko E, Reynolds A, Huttinger ZM, Huttinger R, Stanfill K, Wheeler DG, Novitskaya T, Robson SC, Dwyer KM, Cowan PJ, **Gumina RJ**, Role of the CD39/CD73 Purinergic Pathway in Modulating Arterial Thrombosis in Mice. *Poster presentation.* Arteriosclerosis Thrombosis and Vascular Biology 2016.
4. Flynn J, Cleator J, Haddad E, Song Y, Harrell F, Oates J, Boutaud O, **Gumina RJ.** Association of genetic determinants of CD39 expression with platelet aggregation. *Poster presentation.* Arteriosclerosis Thrombosis and Vascular Biology 2015.
5. Faria TO, Bennuri S, Chepurko E, **Gumina RJ**, Knollmann B, Huke S. Increased Regional Pannexin1 (Px1) Channel Expression linked to Focal Ischemia is Pro-Arrhythmic During Stress. *Poster Presentation.* Experimental Biology 2015
6. Gul B, Delaney JT, Song Y, Bowton EA, Sutcliffe CB, Chepurko E, Novitskaya T, Denny JC, Harrell FE, Wells QS Jr, Cleator JH, **Gumina RJ**. CD39-associated SNP and Secondary Cardiovascular Events. *Poster presentation*. American Heart Association Scientific Sessions 2014.
7. Novitskaya T, Su YR, Maltais S, Absi TS, **Gumina RJ**. CD39/CD73 Pathway In End-stage Human Ischemic Cardiomyopathy, CD39/CD73 Pathway In End-stage Human Ischemic Cardiomyopathy. *Poster presentation*. American Heart Association Scientific Sessions 2014.
8. Xu Z, Wheeler DG, Zhang B, He H, Dwyer KM, d'Apice AJF, Robson SC, Cowan PJ, **Gumina RJ**. CD39 expression negates isoproterenol induced LV dysfunction. *Poster presentation.* International Society for Heart Research 2012 Meeting, Banff, Canada 2012.
9. Xu Z, Wheeler DG, **Gumina RJ**. *In vivo* exacerbation of ischemia-induced diastolic dysfunction in mice devoid of Kir6.2. *Poster presentation.* International Society for Heart Research 2012 Meeting, Banff, Canada 2012.
10. He H, Zhang B, Aurand W, Huttinger Z, Wheeler DG, Gao E, **Gumina RJ**. KCNJ11 knockout negates the female survival advantage post-myocardial infarction. *Poster presentation.* International Society for Heart Research 2012 Meeting, Banff, Canada 2012.
11. Xu Z, Gokce S, Mahamud SD, Wheeler DG, Dwyer KM, d'Apice AJF, Robson SC, Cowan PJ, **Gumina RJ**. CD39 expression modulated ischemia induced diastolic dysfunction. *Moderated Poster Session*. American College of Cardiology 61st Annual Scientific Session. Chicago, Illinois, 2012.
12. Huttinger ZM, Milks MW, Nickoli MS, Long LC,Wheeler DG, Dwyer KM, Cowan PJ, Robson SC, d'Apice AJF, **Gumina RJ**. Role of adenosine receptor engagement in ectonucleotide triphosphate diphosphohydrolase-1 mediated resistance to conduit arterial thrombosis in mice. *Oral presentation*. American Heart Association Scientific Sessions 2011, Orlando, Florida, 2011.
13. Wheeler DG, Joseph ME, Mahamud SD, Aurand WL, Mohler PJ, Pompili VJ, Dwyer KM, Nottle MB, Harrision SJ, d'Apice AJF, Robson SC, Cowan PJ, **Gumina RJ**. Transgenic expression of human CD39 (ectonucleotide triphosphate diphosphohydrolase-1) in swine protects against

myocardial ischemic injury. *Oral presentation*. American Heart Association Scientific Sessions 2011, Orlando, Florida, 2011.

14. Nickoli MS, Milks MW, Wheeler DG, Dwyer KM, Cowan PJ, Robson SC, d'Apice AJF, **Gumina RJ**. Ectonucleoside triphosphate diphosphohydrolase-1 (ENTDP-1/CD39) over-expression delays *in vivo* carotid arterial thrombosis in mice. *Oral presentation*. American Heart Association Scientific Sessions 2009, Orlando, Florida, 2009.
15. McCarthy S and **Gumina RJ**. Sex differences in *in vivo* thrombosis. *Poster Presentation.* Arteriosclerosis Thrombosis and Vascular Biology 2008, Atlanta, Georgia, 2008.
16. **Gumina RJ**, Yang EH, Sandhu GS, Prasad A, Bresnahan JF, Lennon RJ, Rihal CS, Holmes DR Jr, Singh M. Mortality benefit with concomitant clopidogrel therapy and GP IIb/IIIa antagonists at the time of *ad hoc* percutaneous intervention *Oral Presentation*. I2 Summit 2006, Atlanta, Georgia, 2006.
17. Yang EH, **Gumina RJ**, Lennon RJ, Holmes DR Jr., Rihal CS, Singh M. Emergency Coronary Artery Bypass Surgery for Percutaneous Coronary Interventions: Changes in the Incidence, Clinical Characteristics, and Indications from 1979 to 2003. *Poster presentation.* Transcatheter Cardiovascular Therapeutics 2005. Washington D.C.
18. **Gumina RJ**, O'Cochlain DF, Kurtz KE, Bast P, Pucar D, Mishra P, Miki T, Seino S, Macura S, Terzic A. *In vivo* myocardial calcium mishandling in Kir6.2-knockout mice captured by manganese-enhanced cardiac magnetic resonance imaging: a mechanism for development of diastolic dysfunction. *Poster presentation.* American Heart Association Scientific Sessions. New Orleans, Louisiana, 2004.
19. Hodgson DM, Zingman LV, Kane GC, Perez-Terzic C, Bienengraeber M, Ozcan C, **Gumina RJ**, Pucar D, O'Coclain DF, Mann DL, Alekseev AE, Terzic A. Cellular remodeling in heart failure disrupts K_{ATP} channel dependent stress tolerance. *Poster presentation*. Fifth International Conference on ABC Proteins and Ion Channels P21, 2003.
20. Hodgson DM, Zingman LV, Kane GC, Bienengraeber M, Perez-Terzic C, Ozcan C, **Gumina RJ**, Mann DL, Alexeev AE, Terzic A. K_{ATP} channel-dependent stress tolerance in heart failure disrupted by cellular remodeling. *Poster presentation*. American Heart Association Molecular Mechanisms of Growth, Death, & Regeneration in the Myocardium, 2003.
21. **Gumina RJ**, Kurtz CE, Bast P, Hodgson D, O'Coclain F, Miki T, Seino S, Terzic T. Deletion of Kir6.2 worsens diastolic dysfunction in the stunned myocardium. *Oral presentation*. American College of Cardiology 52nd Annual Scientific Session, Chicago, Illinois, 2003.
22. **Gumina RJ**, Pucar D, Bast P, Hodgson D, Dzeja PP, Miki T, Seino S, Terzic A. Knockout of cardiac sarcolemmal K_{ATP} channels negates bioenergetic protection of ischemic preconditioning. *Oral presentation*. American Heart Association Scientific Sessions. Chicago, Illinois, 2002.
23. **Gumina RJ**, Bast P, Pucar D, Valverde A, Hodgson D, Dzeja PP, Miki T, Seino S, Terzic A. Knockout of the K_{ATP} channel pore-forming subunit Kir6.2 aggravates myocardial stunning. *Poster presentation*. American Heart Association Scientific Sessions. Chicago, Illinois, 2002.
24. **Gumina RJ**, Bast P, Terzic A. Myocardial stunning is aggravated by knockout of the cardiac sarcolemmal K_{ATP} channel pore-forming subunit Kir6.2. *Oral presentation*. Eighth Annual AstraZeneca Cardiovascular Young Investigators' Forum. San Francisco, California, 2002.
25. **Gumina RJ**, Bast P, Terzic A. NHE-1 inhibition prevents ischemic contracture in a murine model of stunning. *Poster presentation*. Advances in Na^+-H^+ Exchange Research: From Molecular Regulation to Therapeutic Development. London, Ontario, Canada, 2002.
26. **Gumina RJ**, Wright RS, Murphy JG, Miller WL, Williams BA, Reeder GS, Kopecky SL. Prognostic Implications of TIMI Risk Score in Patients with Right Ventricular Infarction. *Oral presentation.* American Heart Association Scientific Sessions. Anaheim, California, 2001.
27. **Gumina RJ**, Grill JP, Murphy JG, Wright JS. Despite aggressive utilization of primary reperfusion, right ventricular infarction is associated with increased in-hospital morbidity and mortality. *Poster presentation.* XXIst Congress of the European Society of Cardiology. Barcelona, Spain, 1999.

28. Wright JS, Murphy JG, **Gumina RJ**, Grill JP, SL Kopecky. In hospital and long-term outcome of right ventricular infarction in a defined community population. *Oral presentation.* First International Congress on Heart Disease, Washington D.C., 1999.
29. **Gumina RJ**, Pfeiffer EA, Oh JK, McGoon MD. Constrictive pericarditis: Differential diagnosis by clinical, hemodynamic, echocardiographic and radiographic findings. *Published.* Society of General Internal Medicine 22nd Annual Meeting. San Francisco, California, 1999.
30. Morales C, **Gumina RJ**, Omen AJ. Lemierre's Syndrome: The forgotten one. *Poster presentation.* American College of Physicians Meeting. New Orleans, Louisiana, 1999.
31. **Gumina RJ**, Beier N, Schelling P, Gross GJ. Inhibition of the sodium-hydrogen exchanger preserves endothelial cell function. *Poster presentation.* American Heart Association 72nd Scientific Sessions, Atlanta, Georgia, 1999.
32. **Gumina RJ**, Schelling P, Gross GJ. Simultaneous administration of subthreshold doses of Na^+/H^+ antiport inhibitor, EMD 96785, and K_{ATP} opener, bimakalin, produces a marked reduction in myocardial infarct size in the dog. *Oral presentation*. American Heart Association 72nd Scientific Sessions, Atlanta, Georgia, 1999.
33. **Gumina RJ**, Wang RG, Gross GJ. Sodium-hydrogen exchange inhibitors do not inhibit platelet aggregation but do inhibit neutrophil activation both *in vitro* and *in vivo*. *Poster presentation.* XXIst Congress of the European Society of Cardiology, Barcelona Spain, 1999.
34. **Gumina RJ**, Buerger E, Daemmgen J, Gross GJ. Direct comparison of ischemic preconditioning and Na^+/H^+-exchange inhibition. *Oral presentation.* American Heart Association 71st Scientific Sessions, Dallas, Texas, 1998.
35. **Gumina RJ**, Buerger E, Daemmgen J, Gross GJ. Antiarrhythmic and cardioprotective effect of Na^+/H^+-exchange inhibition. *Poster presentation.* International Society for Heart Research - XXth Annual Meeting of the American Section. Ann Arbor, Michigan, 1998.
36. **Gumina RJ**, Buerger E, Daemmgen J, Gross GJ. Na^+/H^+ exchange inhibition and ischemic preconditioning synergize to decrease infarct size due to prolonged ischemia. *Poster presentation.* International Society for Heart Research - XXth Annual Meeting of the American Section. Ann Arbor, Michigan, 1998.
37. **Gumina RJ**, Gross GJ. NHE-1 inhibition is more efficacious than ischemic preconditioning at reducing prolonged myocardial ischemia-reperfusion injury. *Poster presentation.* Vascular and Myocardial Aspects of Ischemic Heart Disease. Incline Village, Nevada, 1998.
38. **Gumina RJ**, Kirschbaum N, Piotrowski K, Newman PJ. Characterization of the PECAM-1 promoter. *Oral presentation.* American Society of Hematology Meeting. Seattle, Washington, 1995.
39. **Gumina RJ**, Kenny D, Newman PJ. Cloning and characterization of canine PECAM-1: Identification of several conserved functional domains. *Poster presentation.* American Society of Hematology Meeting. Seattle, Washington, 1995.
40. **Gumina RJ**, Schultz JJ, Yao Z, Kenny D, Warltier DC, Gross G, Newman PJ. Characterization of rat PECAM-1 and demonstration that antibody to PECAM-1 decreases myocardial infarct size. *Oral presentation.* The Midwest Clinical Research Meeting. Chicago, Illinois, 1995.
41. **Gumina RJ**, Schultz JJ, Yao Z, Kenny D, Warltier DC, Gross G, Newman PJ. Antibody to PECAM-1 decreases myocardial infarct size. *Oral presentation.* Clinical Research Meeting. San Diego, California, 1995.
42. **Gumina RJ**, Newman PJ, Kirschbaum N, vanTuinen P. Chromosomal location and basis for alternative splicing of the human PECAM-1 gene. *Poster presentation.* The Aspen M.D./Ph.D. Student Conference. Aspen, Colorado, 1993.
43. **Gumina RJ**, Kirschbaum N, vanTuinen P, Newman PJ. Localization of the human PECAM-1 gene to the long arm of chromosome 17: relationship to the glycoprotein IIb/IIIa complex and ICAM-2. *Poster presentation.* International Society on Thrombosis and Haemostasis. New York, New York, 1993.

44. **Gumina RJ**, Freire-Moar J, DeYoung L, Mensi N, Webb DR, Devens BH. Transduction of the IFN-γ signal for HLA-DR expression in the promonocytic line THP-1 involves a late acting protein kinase C activity. *Poster presentation.* The American Society of Biochemistry and Molecular Biology/American Association of Immunologists Conference. New Orleans, Louisiana, 1990.

PRESENTATIONS AT REGIONAL, NATIONAL & INTERNATIONAL MEETINGS:

2017 Precision Medicine in the Cardiac Catheterization Lab. Indiana University, Cardiovascular Medicine Grand Rounds.
2017 The intersection of inflammation and thrombosis; Precision Medicine in the Cardiac Catheterization Lab. University of Nebraska, Cardiovascular Medicine Grand Rounds.
2014 Angiographic vs. Functional Significance in CAD - The Use of FFR. Cardiology 2014: Advances in Science and Practice. Vanderbilt Cardiovascular Medicine Practice Updates. The Vanderbilt Marriott Hotel.
2011 Anti-Platelet Therapy & PPI Consensus in Pre-Op Evaluation. 1st Annual Central Ohio NAAMA Scientific Symposium. The Ohio State University. Columbus, OH, USA.
2011 Coronary Artery Disease. Webcast. OSU College of Medicine. OSU MedNet21 CME Webcast.
2010 Antiplatelet therapy in an 84-year-old s/p NSTEMI and PCI: Balancing efficacy and bleeding in the elderly. 2nd Annual Contemporary Multi-Disciplinary Cardiovascular Medicine. Orlando, FL, USA.
2010 Managing CAD in a 68-year-old with PCI: How do I choose between bare-metal and drug-eluting stent? 2nd Annual Contemporary Multi-Disciplinary Cardiovascular Medicine. Orlando, FL, USA.
2010 October 15, 2010. The Survivor of Acute STEMI/NSTEMI in the PCI Era: Optimal vs. Realistic. 2nd Annual Contemporary Multi-Disciplinary Cardiovascular Medicine. Orlando, FL, USA.
2010 The Next Generation of Oral Platelet Inhibition for STEMI & ACS: Are the Bleeding Risks too Great? 2nd Annual Interventional Cardiology Symposium. The Ohio State. Columbus, OH, USA.
2009 Novel approaches to antiplatelet therapy for thrombotic vascular events and cardioprotection." Department of Internal Medicine, Grand Rounds, The Ohio State University.
2009 Potatoes, mosquitoes and cardiovascular protection. The Klassen Research Day, Division of Cardiothoracic Surgery, The Ohio State University.
2009 ACS: Assessment, Evaluation & Care of the Patient. The "Heart of It All" Conference, Columbus, Ohio,
2009 Antioxidants and heart failure. Eight Annual Heart Failure Update. The Ohio State University. Columbus, Ohio.
2009 Intertwined mechanisms: antithrombosis and cardioprotection. Division of Cardiovascular Medicine, University of Cincinnati.
2009 Application of Left Ventricular Assist Devices in the Cardiac Catheterization Laboratory. Cardiovascular Ground Rounds, University of Kentucky.
2009 Career choices as a MD/PhD. MD/PhD Program Visiting Professor, University of Kentucky.
2009 Circulatory Assist Devices in the Cath Lab for Patients with Acute Myocardial Infarction and Cardiogenic Shock. Acute Myocardial Infarction 2009: Raising the Bar on Therapies and Outcomes. The Ohio State University.
2009 VADs Work in the Cath Lab. TRENDS: Traditional & Progress. The Blackwell Hotel. Columbus, OH, USA.
2009 Mosquitoes, potatoes, and cardioprotection. Cardiovascular Grand Rounds. Division of Cardiovascular Medicine, University of Missouri,
2009 Ventricular Assist Devices. Cardiology Conference, Kettering Medical Center.
2008 Evolution of Vascular Closure: Solutions for Control Solutions for Control Following Percutaneous Procedures. Cardiology and Beyond - A symposium for cardiologists, cardiovascular surgeons and cardiology program directors. St. Louis, MO.

2008 Transition from Manual Compression to Closure: Why and How? TCT Breakfast Symposium. The Evolution of Vascular Closure: From Manual Compression to Current Closure Options. TCT 2008. Washington DC.
2008 Reemplazo Valvular Percutáneo. XI Curso Internacional de Cardiología International de Clínica Reñaca. Viña del Mar, Chile.
2008 Rol de los Dispositivos de Asistencia Ventricular Percutáneos. XI Curso Internacional de Cardiología International de Clínica Reñaca. Viña del Mar, Chile. August 2008.
2004 Mayo Clinic Coronary Care Unit Advanced Specialty Day.
2002 Department of Pharmacology and Toxicology Seminar Series, Medical College of Wisconsin.
2001 American Heart Association Scientific Sessions. Symposium on Cardioprotective Mechanisms.

RESEARCH PROGRAM

Clinical Studies:

1. Principal Investigator. (Investigator initiated study). Genetic regulation of nucleotidase expression profile in circulating blood cells.
2. Principal Investigator. (Investigator initiated study). Evaluation of novel serum and genetic biomarkers for the detection of ischemic coronary events.
3. Co-Principal Investigator. (Investigator initiated study). Cardiac release of matrix metalloproteinases during stress-induced cardiomyopathy.

Current Grant Support:

Active

1. R01 HL127442-01A1 – Gumina (PI: 35%) 07/15/2017 – 07/14/2022
   NIH/NHLBI
   Ectonucleotidases in ischemic heart disease.
   This research program will investigated the role of ectonucleotidase on post-MI cardiac inflammation and remodeling, specifically examining the impact of CD39 on myeloid cells and fibroblasts.

2. 17GRNT33700188– Gumina (PI: 15%) 07/01/2017 – 06/30/2019
   American Heart Association AWRP Winter 2017 Grant-in-Aid
   Nucleotidases in atherothrombosis.
   This research will examine the impact of nulceotidase activity in the development of atherosclerosis and the impact on thrombosis.

Completed Research Support:

1. U24DK059637 VUMC subcontract – Gumina (PI: 5%) 08/01/2016 – 12/31/2017
   NIH/NIDDK
   Vanderbilt Mouse Metabolic Phenotyping Center. This research subcontract supports the cores that facilitate the mission of the VMMPC.

2. K08 HL094703 Gumina (PI: 75%) 08/04/2009 - 07/31/2015
   NIH/NHLBI
   Effect of sarcolemmal KATP channels on ROS/RNS generation and calcium handling

3. R21 HL096038 Gumina (PI: 15%) 07/01/2009 - 06/30/201
   NIH/NHLBI
   CD39-mediated cardiovascular protection

4. 10CRP4160147 Crestanello (PI) 07/01/2010 - 06/30/2012

Great Rivers Affiliate Research Committee of the American Heart Association
Hybrid revascularization: a collaborative approach to coronary artery disease.
Role: Co-investigator (3%)

5. Davis-Bremmer Award 2008 04/01/2008 - 03/30/2009
The Ohio State University Medical Center

6. 09SDG2280345 Gumina (PI) 07/01/2009 - 06/30/2013
Am Heart Assn
Influence of KATP channel activity on ROS/RNS generation and the effects on calcium modulatory proteins.
**Grant relinquished secondary to acceptance of K08*

7. Clinician-Investigator Fellowship.
Division of Cardiovascular Medicine, Department of Internal Medicine,
Mayo Clinic and Foundation, April 2001-March 2003.

8. Cardiovascular Research Center Community Advisory Board Fellowship.
Department of Pharmacology and Toxicology and the Cardiovascular Research Center,
Medical College of Wisconsin, June 1997 - June 1998.

9. Medical Scientist Training Program Fellowship.
Medical College of Wisconsin, July 1990 - May 1997.

10. Predoctoral Fellowship.
American Heart Association, Wisconsin Affiliate, July 1994 - July 1995.

Completed Training grants:

1. 10UFEL4180090 Gumina (PI) 06/01/2010 – 05/31/2012
Great Rivers Affiliate Research Committee of the American Heart Association
Student Undergraduate Research Fellowship
Training grant for undergraduate research (5 students per summer) in cardiovascular diseases and stroke.

2. 12UFEL10070000 Gumina (PI) 02/01/2012 - 01/31/2014
Great Rivers Affiliate Research Committee of the American Heart Association
Student Undergraduate Research Fellowship
Training grant for undergraduate research (5 students per summer) in cardiovascular diseases and stroke.