

## **J. Kevin Donahue, M.D.**

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### **Office Address:**

Rammelkamp 653  
MetroHealth Medical Center  
2500 MetroHealth Drive  
Cleveland, OH 44109  
(216) 778-7342/FAX (216) 778-1261  
kdonahue@metrohealth.org

### **Education and Training**

|            |           |  |
|------------|-----------|--|
| B.A.       | 1983-1987 | Washington University College of Arts and Sciences. Chemistry, magna cum laude         |
| M.D.       | 1987-1992 | Washington University School of Medicine.  |
| Residency  | 1992-1994 | Hospital of the University of Pennsylvania. Internal Medicine.                         |
| Fellowship | 1994-1999 | Johns Hopkins University School of Medicine. Cardiology and Cardiac Electrophysiology. |

### **Professional Appointments**

|              |   |
|--------------|---|
| 1986-1987    | Washington University. Research student, Michael J. Welch, Ph.D., advisor   |
| 1990-1991    | Washington University School of Medicine. Four Schools Physician-Scientist Program research fellowship, Peter B. Corr, Ph.D., advisor |
| 1995-1997    | Johns Hopkins University School of Medicine. Post-doctoral fellow, John H. Lawrence, M.D. and Eduardo Marbán, M.D., Ph.D., advisors   |
| 1999-2004    | Johns Hopkins University. Assistant Professor of Medicine   |
| 1999-2005    | Johns Hopkins Hospital. Active full-time staff, cardiac electrophysiology   |
| 1999-2005    | Johns Hopkins University Institute of Molecular Cardiobiology. Faculty member   |
| 2003-2005    | Johns Hopkins University. Director of Cardiac Genetics  |
| 2004-2005    | Johns Hopkins University. Associate Professor of Medicine   |
| 2005-present | Case Western Reserve University. Visiting Associate Professor of Medicine   |
| 2005-present | MetroHealth Medical Center, Cleveland, OH. Visiting full-time staff, cardiac electrophysiology.                                       |

### **Licensure and Board Certification**

|              |  |
|--------------|--|
| 1994-2006    | Maryland License D46652  |
| 1995-2005    | American Board of Internal Medicine: internal medicine board certified         |
| 1999-2009    | American Board of Internal Medicine: cardiovascular diseases board certified   |
| 2001-2011    | American Board of Internal Medicine: cardiac electrophysiology board certified |
| 2005-present | Ohio Medical License 35-087096   |

### **Professional Society memberships**

|       |   |
|-------|---|
| 1996- | Cardiac Electrophysiology Society                                   |
| 1998- | American Society of Gene Therapy                                    |
|       | 2004-2007 cardiovascular committee                                  |
| 1998- | American Heart Association basic sciences council, clinical council |

|                |  |   |
|----------------|--|---|
|                | 2001-<br>2005-2007                             | Fellow of the American Heart Association<br>Electrocardiography and Arrhythmias Committee |
| 2000-<br>2001- | Cardiac Muscle Society<br>Heart Rhythm Society |   |
|                | 2002-2003                                      | Publications Task Force   |
|                | 2003-2005                                      | Scientific Sessions Program Committee   |
|                | 2004-2006                                      | Research Subcommittee of the Health Policy Committee                                      |
|                | 2005-2007                                      | Fellowship Subcommittee of the Clinical and Research<br>Training Committee                |
|                | 2005-2006                                      | Young Investigator Award Committee  |

### **Awards and Honors**

|      |   |
|------|---|
| 1987 | Phi Beta Kappa Honorary Society   |
| 1987 | American Chemical Society, Charles D. Coryell Award                                 |
| 1990 | Four Schools Physician-Scientist Training Program                                   |
| 1996 | Astra-Merck, Young Investigator Competition, national finalist                      |
| 1998 | NASPE, Wilson Greatbatch, Ltd. Travel Award   |
| 1999 | Johns Hopkins University, Richard S. Ross Clinician Scientist Award                 |
| 2000 | American Heart Association, "Top 10 Research Advances in Cardiovascular<br>Disease" |
| 2001 | David H. Bernstein Idea Award in cardiovascular biology                             |

### **Professional Service**

#### **Editorial Board:**

Circulation Research 1999-2005

#### **Invited reviewer:**

Circulation, The Journal of Gene Medicine, Journal of the American College of Cardiology, Molecular Therapy, Journal of the American Medical Association, American Journal of Physiology, Journal of Electrocardiography, Heart Rhythm, Journal of Cardiovascular Electrophysiology, PACE, Journal of Molecular and Cellular Cardiology

#### **Grant reviewer:**

Food and Drug Administration Orphan Drug Program, AHA—Mid-Atlantic Chapter, Isreal Science Foundation, NIH—Ad hoc PPG review

#### **Abstract reviewer:**

American Heart Association national meeting, American Society of Gene Therapy national meeting

#### **Advisory Committees:**

Data Safety Monitoring Board, Clinical trial on the use of D-Stat to prevent hematoma formation in prepectoral pockets. (Sponsor: Vascular Solutions, Inc.)

#### **Conference Organizer/ Session Chair Responsibilities**

11/99 AHA, session chair: Advances in Defibrillator Therapy

5/00 NASPE, sessions chair: Neurohumoral and Pharmacological Modulation of Arrhythmias; Congestive Heart Failure—Autonomic Nervous System  
 9/00 European Muscle Conference, session chair: Myocardial Gene Therapy  
 2/01-2/03 CARDIAC EP SUMMIT, Scientific Director and Conference Organizer  
 5/01 NASPE, session chair: Mutations, Polymorphisms and Alternative Splicing of Channel Genes and Arrhythmias  
 10/01 NASPE futures conference, invited participant.  
 5/03 NASPE, session chair: Pharmacogenetics  
 5/04 ASGT, session chair: Cardiovascular gene therapy  
 6/04 Cardiostim, session chair: cardiac genetics  
 5/05 Heart Rhythm 2005, session chair: Gene transfer techniques in arrhythmia research

### Medical School Service

8/01-11/01 JHU Department of Medicine Research Protocol Prioritization Committee

### Educational activities:

#### Teaching

1999-2005 Johns Hopkins University Attending physician: Electrophysiology Service and Electrophysiology Laboratory (25% effort)  
 2002-2005 Johns Hopkins University Molecular and Cellular Physiology journal club

#### Mentoring

| <u>Name</u>                                  | <u>Rank/dates</u>                      | <u>Current Position</u>  |
|--|--|--|
| Xiao-Lei Pan, MD                             | Post-doctoral fellow<br>4-12/2000      | Post-doctoral fellow<br>University of Kansas   |
| Harikrishna Tandri, MD                       | Medical resident<br>7/2000-6/2001      | Post-doctoral fellow<br>Johns Hopkins University   |
| 2003 NASPE young investigator award finalist |  |  |
| Stephan Lehnart, MD                          | Post-doctoral fellow<br>11/2000-9/2001 | Post-doctoral fellow<br>Columbia University  |
| Alexander Bauer, MD                          | Post-doctoral fellow<br>4/2001-4/2003  | Lecturer in Medicine<br>University of Heidelberg   |
| Kan Kikuchi, MD                              | Post-doctoral fellow<br>9/2002-9/2004  | Associate in Cardiology<br>Second Department of Internal Medicine<br>University of Occupational and<br>Environmental Health, Japan |
| Tetsuo Sasano, MD                            | Post-doctoral fellow<br>7/2003-9/2005  | Post-doctoral fellow<br>Johns Hopkins University   |

Ning Feng, MD, PhD

Post-doctoral fellow  
10/2004-9/2005

Post-doctoral fellow  
Johns Hopkins University

### **Training grant participation**

1999-2005 Cardiology Training Grant, PI David Kass, MD (Role: Co-investigator)

### **Research Support**

#### **Current**

2001-2006 NIH/NHLBI. R01 HL67148  
“Focal Modification of Electrical Conduction in the Heart”  
Role: Principal investigator, 20% effort. Direct cost \$250,000/year

2003-2006 NIH/NIBIB R01 EB002846  
“Improved methods for myocardial gene transfer”  
Role: Principal Investigator, 20% effort. Direct cost \$180,000/year

#### **Pending**

none

#### **Previous**

2003-2005 Foundation For Fighting Blindness (P.I. Quan Dong Nguyen)  
An open label pilot (phase I/II) study of combretastatin A4 phosphate in macular degeneration  
Role: Co-Investigator, 2% effort

2003-2005 NIH/NHLBI R01 HL072922 (P.I. Richard Rivers)  
“Network vasomotor response to tissue adenosine”  
Role: Co-Invstigator, 5% effort

2003-2005 Donald W. Reynolds Cardiovascular Clinical Research Center (P.I. Marbán)  
“Novel therapeutics targeted at prevention of sudden cardiac death”  
Role: Reynolds associate, 15% effort

2005 Genzyme Corporation  
“Serotype comparison for AAV gene transfer in cardiac myocytes”  
Role: Principal Investigator, 1% effort

2001-2004 AHA. Scientist-Development Grant #0130350N  
“Focal Modification of Electrical Conduction in the Heart”

2000-2004 NIH/NHLBI. P50 HL52307 (P.I. Eduardo Marbán)  
“Specialized Center of Research in Sudden Cardiac Death”  
Role: Co-investigator on Project 1 and Director of the Virus Vector Core,

2000-2002 NIH/NHLBI. R01 HL66381-01 (P.I. Brad Nuss)  
“Gene Therapy for Heart Failure”  
Role: Associate Investigator, 10% effort

## **Bibliography**

### **Abstracts (previous 3 years)**

Bauer A, Heldman AW, Rade JJ, Miller JM, McDonald AD, Peller L, Donahue JK. Atrioventricular nodal gene transfer allows recovery of ventricular function in a model of chronic atrial fibrillation and tachycardia-induced cardiomyopathy. North American Society of Pacing and Electrophysiology 2003.

Tandri H, Griffith L, Tang T, Nasir K, Capps M, Calkins H, Donahue JK. Clinical course and long-term follow-up of patients receiving implantable cardioverter-defibrillators. North American Society of Pacing and Electrophysiology 2003.

McDonald AD, Peller LM, Donahue JK. Comparison of three systems for large scale recombinant adenovirus purification. American Society of Gene Therapy 2003.

Kikuchi K, McDonald AD, Donahue JK. Highly effective viral gene transfer to the cardiac atria. American Society of Gene Therapy 2003.

Bauer A, McDonald A, Peller L, Donahue JK. Atrioventricular nodal gene transfer suppresses myocardial apoptotic processes in pigs with chronic atrial fibrillation and tachycardia-induced cardiomyopathy. Heart Rhythm 2004.

Murata M, Champion HC, McDonald AD, Kass DA, Donahue JK, Marban E. Genetic calcium channel blocker as a focal drug surrogate in the heart. Heart Rhythm 2004.

Sasano T, Kikuchi K, McDonald A, Mills K, Peller L, Donahue K. Efficient focal, homogeneous gene transfer after coronary infusion of adenoviruses. American Society of Gene Therapy 2004.

McDonald AD, Cysan A, Sethuraman B, Donahue JK. Repositioning ICD leads to the outflow track lowers DFT. Cardiac 2004.

Bauer A, McDonald A, Donahue JK. Crossregulation between  $G_i\alpha_2$  and adenylyl cyclase in AV nodes of swine with chronic atrial fibrillation and heart failure. American Heart Association 2004.

Kikuchi K, Sasano T, McDonald AD, Mills KJ, Donahue JK. Targeted modification of atrial electrophysiology by homogeneous transmural atrial gene transfer. American Heart Association 2004.

Lickfett LM, Calkins H, Nasir K, Dickfeld TM, Eldadah Z, Jayam V, Leng C, Tommselli G, Donahue JK, Halperin HR, Luderitz B, Berger R. Paroxysmal pattern of atrial flutter predicts non-isthmus dependency in patients referred for catheter ablation of atrial flutter. Heart Rhythm 2005.

Zardkoohi O, Tandri J, Calkins H, Donahue JK. Clinical course and long term outcome of patients with idiopathic ventricular fibrillation. *Heart Rhythm* 2005.

Feng N, Sasano T, McDonald A, Esaias C, Bauer A, Donahue JK. Cellular responses to *in vivo* gene transfer using inhibitory G proteins as a model system. American Heart Association 2005.

Sasano T, McDonald A, Feng N, Esaias C, Donahue JK. Targeted gene therapy for elimination of post-myocardial infarction ventricular tachycardia. American Heart Association 2005.

Kapur NK, Kapur S, Bian C, Deming CB, Donahue K, Champion HC, Kass DA, Rade JJ. Modulation of Atrial Thromboresistance in Acute Heart Failure. American Heart Association 2005.

### **Invited Lectures**

- 1/99 Baylor University Division of Cardiology Grand Rounds. "Factors Affecting Adenoviral Gene Transfer to the Myocardium."
- 4/99 German Society of Cardiology. "An Update on Myocardial Gene Therapy."
- 6/99 International Symposium on Molecular Approaches to the Therapy of Heart Failure. "*In vivo* Myocardial Gene Transfer Delivery Systems."
- 6/00 International Society of Heart Research. "Basic Parameters Relevant to Myocardial Virus Delivery."
- 5/01 Dartmouth University Division of Cardiology Grand Rounds. "Gene Therapy for Cardiac Arrhythmias."
- 5/01 National Institutes of Health. US-Russia Joint Symposium on New Developments in Cardiac Arrhythmias. "Prospects for Gene Therapy to Treat Arrhythmic Diseases."
- 6/01 Visiting Professor of Cardiology. King Edward VI Memorial Hospital, Bermuda.
- 9/01 Visiting Professor of Pharmacology. State University of New York, Syracuse, New York.
- 11/01 University of Maastricht Department of Cardiology Grand Rounds. "Gene Therapy for Cardiac Arrhythmias."
- 12/01 European Science Foundation Workshop on Cardiovascular Genomics. Maastricht, the Netherlands. "Ion Channel Regulation: from arrhythmias to genes to channels (to cures?)."
- 4/02 Cardiovascular Cell and Gene Therapy Conference. Massachusetts General Hospital. Boston, MA. "Gene Therapy for Arrhythmias in Heart Failure".
- 5/02 North American Society of Pacing and Electrophysiology Annual Meeting. "Combining a career in clinical EP and basic research: from the perspective of a young investigator", "Myocardial Gene Transfer".
- 6/02 CardioStim. Nice, France. "AV Node Gene Therapy for Rate Control in Atrial Fibrillation"
- 9/02 Duke University Division of Cardiology Grand Rounds. "The Prospects for Gene Therapy to Treat Cardiac Arrhythmias".

- 5/03 North American Society of Pacing and Electrophysiology Annual Meeting. “Gene Therapy for Cardiac Arrhythmias.”
- 7/03 Atrial Fibrillation Summit. The Cleveland Clinic Foundation. Cleveland, OH. “Cellular and Molecular Alterations in Atrial Fibrillation”.
- 8/03 XIV Paavo Nurmi Symposium. Genetic and Molecular Basis of Cardiac Arrhythmias. Helsinki, Finland. “Gene transfer techniques in treatment of cardiac channelopathies”.
- 9/03 University of California San Diego Division of Cardiology Grand Rounds. “Gene Therapy for Cardiac Arrhythmias”.
- 9/03 2<sup>nd</sup> Fairberg Workshop. Cardiac Engineering: From Genes & Cells to Structure & Function. Erice, Sicily, Italy. “Gene Therapy for Arrhythmias”.
- 10/03 Washington University Division of Cardiology Grand Rounds. “Gene Therapy for Cardiac Arrhythmias”.
- 10/03 Harold W. Siebens Conference on Genetic and Cell Therapies for Cardiovascular Disease. Mayo Clinic Foundation. Rochester, MN. “Gene Therapy and Arrhythmogenesis”.
- 11/03 University of Wisconsin Division of Cardiology Grand Rounds. “Gene Therapy for Cardiac Arrhythmias”.
- 11/03 University of Indiana Division of Cardiology Grand Rounds. “Gene Therapy for Cardiac Arrhythmias”.
- 12/03 The Cleveland Clinic Foundation Division of Cardiology Grand Rounds. “Gene Therapy for Cardiac Arrhythmias”.
- 3/04 Keystone Symposium on the Molecular Biology of Cardiac Disease. Keystone, CO. “Gene Therapy for Cardiac Arrhythmias.”
- 4/04 Visiting Professor of Cardiac Electrophysiology. University of Western Ontario. London, Ontario, Canada.
- 5/04 Heart Rhythm Society Annual Meeting. “Plenary session: Genetics, Genomics and Gene Therapy of Electrophysiology”, “Bench to bedside. Life in the middle”
- 5/04 American Medical Association Media Briefing. “The next generation of therapies for atrial fibrillation.”
- 6/04 Cardiostim. “AV node gene therapy”, “The future of somatic gene therapy”
- 10/04 NIBIB. Bioengineering grantees meeting. “Targeted genetic alteration of the cardiac atria by homogeneous transmural gene transfer.” 10/04 New Arrhythmia Technologies Retreat. “Gene therapy for tachyarrhythmias.”
- 11/04 American Heart Association Challenges in Cardiology Training Roundtable. “Transition from trainee to faculty.”
- 11/04 American Heart Association Annual Meeting. “Therapeutic applications of myocardial gene transfer.”
- 1/05 3<sup>rd</sup> Fairberg Workshop. The Communicative Cell. Sintra, Portugal. “Modification of cellular communication by gene transfer”.
- 5/05 Heart Rhythm Society Annual Meeting. “Nuts and bolts of myocardial gene transfer”.
- 11/05 William Beaumont Hospital, Royal Oaks, MI. Visiting Professor in Cardiology.

## **Editorials**

1. Tomaselli GF and Donahue JK. Point of View: Somatic Gene Transfer and Cardiac Arrhythmias – Problems and Prospects. *J Cardiovasc Electrophysiol* 14:547-551 2003.
2. Donahue JK. Sonic the Hedgehog to the rescue? *Gene Therapy* (in press).

## **Book chapters**

1. Donahue JK. Adenovirus-mediated myocardial gene therapy, in Hasenfuss G, Marbán E (eds): *Molecular Approaches to Heart Failure Therapy*. Darmstadt, Germany, Steinkopff Verlag Publishing, 2000, pp 100-111.
2. Janssen PML, Lehnart SE, Donahue JK, Prestle J, Marbán E and Hasenfuss G. Adenovirus-mediated transfection of multicellular cardiac preparations, in Hasenfuss G, Marbán E (eds): *Molecular Approaches to Heart Failure Therapy*. Darmstadt, Germany, Steinkopff Verlag Publishing, 2000, pp 112-125.
3. Donahue JK. Ion Channel Regulation: from arrhythmias to genes to channels (to cures?). Doevendans P and Kääb S (eds) *Cardiovascular Genomics: new pathophysiological concepts*. Dordrecht, the Netherlands, Kluwer Academic Publishers, 2002 pp 159-165.
4. Donahue JK and Marbán E. Gene therapy for cardiac arrhythmias, in Runge MS, Patterson C (eds) *Principles of Molecular Cardiology*. Totowa, NJ, Humana Press, Inc., 2005, pp353-358.
5. Donahue JK, McDonald AD, Fraser H, Rade JJ, Miller JM, and Heldman AH. Gene therapy for atrial fibrillation, in Zenati M and Schwartzman D (eds) *Innovative Management of Atrial Fibrillation*. Malden, MA, Blackwell Publishing, Inc., 2005, pp171-177.

## **Peer-reviewed articles**

1. Yamada K, McHowat J, Yan G, Donahue K, Peirick K, Kleber A, and Corr P. Cellular uncoupling induced by the accumulation of long chain acetylcarnitine during ischemia. *Circulation Research* 74:83-95, 1994.
2. Donahue JK, Kikkawa K, Johns D, Marbán E, and Lawrence JH. Ultrarapid, highly efficient viral gene transfer to the heart. *Proceedings of the National Academy of Sciences* 94:4664-4668, 1997.
3. Donahue JK, Kikkawa K, Thomas AD, Marbán E, and Lawrence JH. Acceleration of widespread adenoviral gene transfer to intact rabbit hearts by coronary perfusion with low calcium and serotonin. *Gene Therapy* 5:630-634, 1998.
4. Donahue JK, Orias D, Berger RD, Tomaselli GF, Lawrence JH, and Calkins H. Comparison of adenosine effects on AV node reentry and atrioventricular reciprocating tachycardias. *Clinical Cardiology* 21:743-746 1998.

5. Lehnart SE, Janssen PML, Franz WM, Donahue JK, Lawrence JH, Marbán E, Prestle J, and Hasenfuss G. Preservation of myocardial function after adenoviral gene transfer in isolated myocardium. *American Journal of Physiology* 279: H986-H991 2000.
6. Donahue JK, Heldman AH, Fraser H, McDonald AD, Miller JM, Rade JJ, Eschenhagen T and Marbán E. Focal Modification of Electrical Conduction in the Heart by Viral Gene Transfer. *Nature Med* 6:1395-1398 2000.
7. Nagata K, Marbán E, Lawrence JL and Donahue JK. Phosphodiesterase inhibitor-mediated potentiation of adenovirus delivery to myocardium. *J Mol Cell Cardiol* 33:575-580 2001.
8. Lehnart SE and Donahue JK. Gene therapy for the treatment of common cardiac arrhythmias, Braunwald E (ed) *MDCConsult.com website* invited review published 3/2001.
9. Calkins H, Ramza BM, Brinker J, Atiga W, Donahue K, Nsah E, Taylor E, Halperin H, Lawrence JH, Tomaselli G, and Berger RD. Prospective randomized comparison of the safety and effectiveness of placement of endocardial pacemaker and defibrillator leads using the extrathoracic subclavian vein guided by contrast venography versus the cephalic approach. *Pacing Clin Electrophysiol* 24:456-464 2001.
10. Neyroud N, Nuss HB, Lepo M, Marbán E, Donahue JK. Gene delivery to cardiac muscle. *Methods Enzymol* 346:323-34 2002.
11. Zhou L, Burnett AL, Huang PL, Becker LC, Kuppusamy P, Kass DA, Donahue JK, Proud D, Sham J, Dawson TM and Xu KY. Lack of nitric oxide synthase depresses ion transporting enzyme function in cardiac muscle. *Biochem Biophys Res Commun* 294:1030-1035 2002.
12. Janssen P, Schillinger W, Donahue JK, Zeitz O, Emami S, Weil J, Eschenhagen T, Hasenfuss G, Prestle J. Gi $\alpha$ -2 overexpression depresses the  $\beta$ -adrenergic response in multicellular myocardial preparations and isolated cardiac myocytes. *Cardiovascular Research* 55:300-308 2002.
13. Marbán E, Nuss HB, Donahue JK. Gene therapy for cardiac arrhythmias. *Cold Spring Harb Symp Quant Biol* 67: 527-531 2002.
14. Atiga WL, Worley SJ, Hummel J, Berger RD, Gohn, DC, Mandalakas NJ, Kalbfleisch S, Halperin H, Donahue K, Tomaselli G, Calkins H, and Daoud E. Prospective Randomized Comparison of Cooled Radiofrequency Versus Standard Radiofrequency Energy for Ablation of Typical Atrial Flutter *Pacing Clin Electrophysiol* 25:1172-1178 2002.
15. Lehnart S, Donahue JK. Coronary perfusion cocktails for in vivo gene transfer. *Methods Mol Biol* 219:213-218 2003.
16. Bauer A, McDonald AD, Donahue JK. Pathophysiological findings in a model of persistent atrial fibrillation and severe congestive heart failure. *Cardiovasc Res* 61:764-770 2004.

17. Vasamreddy CR, Jayam V, Lickfett L, Nasir K, Bradley DJ, Eldadah Z, Dickfeld T, Donahue K, Halperin HS, Berger R, Calkins H. Technique and results of pulmonary vein angiography in patients undergoing catheter ablation of atrial fibrillation. *J Cardiovasc Electrophys* 15:21-26 2004.
18. Eldadah Z and Donahue JK. Successful implantable cardioverter defibrillator placement in an ambulatory patient without thoracic venous access. *J Cardiovasc Electrophys* 15:716-718 2004.
19. Bauer A, Donahue JK, Voss F, Becker R, Kraft P, Senges JC, Kelemen K, Katus HA, Schoels W. Pro- and antiarrhythmic effects of fast cardiac pacing in a canine model of acquired long QT syndrome. *N-S Arch Pharmacol* 369:447-454 2004.
20. Donahue JK, Bauer A, Kikuchi K, McDonald AD. Gene Transfer Techniques for Cardiac Arrhythmias. *Ann Med* 36 (supplement 1):98-106 2004.
21. Donahue JK. Gene Therapy for Cardiac Arrhythmias. *Annals of the New York Acad Sci* 1015:332-338 2004.
22. Murata M, Cingolani E, McDonald AD, Donahue JK, Marban E. Creation of a genetic calcium channel blocker by targeted GEM gene transfer in the heart. *Circ Res* 95:398-405 2004.
23. Bauer A, McDonald AD, Peller L, Rade JJ, Miller JM, Heldman AW and Donahue JK. Physiologically-relevant heart rate control from gene therapy in persistent atrial fibrillation. *Circulation* 110:3115-3120 2004.
24. Kikuchi K, McDonald AD, Donahue JK. Targeted Modification of Atrial Electrophysiology by Homogeneous Transmural Atrial Gene Transfer. *Circulation* 111:264-270 2005.
25. Roguin A, Donahue JK, Bomma CS, Bluemke DA, Halperin HR. Cardiac magnetic resonance imaging in a patient with implantable cardioverter-defibrillator. *Pacing Clin Electrophysiol* 28:336-338 2005.
26. Lickfett L, Calkins H, Nasir K, Dickfeld T, Eldadah Z, Jayam V, Leng C, Tomaselli G, Donahue K, Halperin H, Luderitz Berndt, Berger R. Clinical prediction of cavotricuspid isthmus dependence in patients referred for catheter ablation of "typical" atrial flutter. *J Cardiovasc Electrophysiol* 16:969-973 2005.
27. Donahue JK, Kikuchi K, Sasano T. Gene Therapy for Cardiac Arrhythmias. *Trends in Cardiovascular Med* 15:219-224 2005.
28. Donahue JK, Bauer A, Kikuchi K, Sasano T. Modification of cellular communication by gene transfer. *Annals of the New York Acad Sci* 1047:157-165 2005.
29. Reynolds DW, Chen PS, Deal BJ, Donahue JK, Ellenbogen KA, Epstein AE, Friedman PA, Hammill SC, Hohnloser SH, Kanter RJ, Lindsay BD, Natale A, Saffitz J, Stevenson WG.

Highlights of Heart Rhythm 2005, the Annual Scientific Sessions of the Heart Rhythm Society, May 4-7, 2005, New Orleans, Louisiana. Heart Rhythm. 2:1025-1033 2005.

30. Henrikson CA, Brinker JA, Donahue JK. Temporary placement of a defibrillating lead in the treatment of infection and ventricular tachycardia. Heart Rhythm 3:222-224 2006..

### **Inventions**

|      |   |
|------|---|
| 1998 | Gene delivery systems and methods, (US Patent #6,376,471)                       |
| 2001 | Gene therapy for cardiac arrhythmias, (pending application #09/947,953)         |
| 2001 | Improved methods for gene therapy delivery, (pending application #09/977,865)   |
| 2003 | Method of gene transfer to the cardiac atria, (pending application #10/859,604) |
| 2005 | Gene delivery compositions and methods (US Patent #6,855,701)                   |