Charles Emerson Murry, M.D., Ph.D.
CURRICULUM VITAE

Work Address: University of Washington, South Lake Union campus
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Home Address: 322 N 97th St, Seattle, WA 98103

Personal Information

Born: December 12, 1959, Bismarck, North Dakota
Family: Married to René T. Murry; Children Marit (b. 1991) and Jessica (b. 1996)

EDUCATION

1978-1979 Associate of Arts, Bismarck Jr. College
1979-1982 Bachelor of Science, Chemistry, University of North Dakota

Graduate School:

1984-1988 Ph.D., Department of Pathology, Duke University, under Keith A. Reimer, M.D., Ph.D. Dissertation title: "Mechanisms of Cell Injury During Myocardial Ischemia and Reperfusion"

Medical School:

1982-1989 M.D., Duke University School of Medicine

POSTGRADUATE TRAINING

Residency:
1989-1992 Department of Pathology, University of Washington Medical Center, Seattle, Washington

Fellowship:
1991-1993 Postdoctoral Research Fellowship, Department of Pathology, University of Washington School of Medicine, Seattle, WA
Research in vascular biology under Stephen M. Schwartz, M.D., Ph.D.

FACULTY POSITIONS HELD

3/06-present Co-Director, Institute for Stem Cell and Regenerative Medicine
University of Washington School of Medicine, Seattle, WA

1/05-present Director, Center for Cardiovascular Biology
University of Washington School of Medicine, Seattle, WA

7/04-present Professor, Department of Pathology
Professor, Department of Bioengineering
University of Washington School of Medicine, Seattle, WA

FACULTY POSITIONS HELD (continued)

7/00-6/04	Associate Professor, Department of Pathology Adjunct Associate Professor, Department of Bioengineering University of Washington School of Medicine, Seattle, WA
2/96-6/00	Assistant Professor, Department of Pathology, University of Washington School of Medicine, Seattle, WA
8/93-1/95	Acting Instructor, Department of Pathology, University of Washington School of Medicine, Seattle, WA

CERTIFICATION

1989	State of Washington Medical licensure, license # MD00028871
1992	Board-Certified in Anatomic Pathology, American Board of Pathology

HONORS AND AWARDS

Undergraduate:

1981	Ben Gustafson Scholarship for Outstanding Achievement in Chemistry
1982	Phi Beta Kappa
1982	Summa Cum Laude

Medical School:

1982-1983	Medical Alumni Scholarship
1984-1985	Eugene Stead Fellow

Graduate School:

1986	Winner, Sheard-Sanford Award (American Society of Clinical Pathologists award for outstanding student research)
1987	Runner-Up, Upjohn Award (International Society for Heart Research Young Investigator Award)

Residency:

1993	Arthur Purdy Stout Fellowship (Studied cardiovascular pathology with Dr. Margaret Billingham, Stanford University)

Fellowship:

1994	American Society for Investigative Pathology Merit Award
1996	Burroughs Wellcome Career Award in the Biomedical Sciences

Faculty:

1999	American Heart Association Council on Basic Cardiovascular Sciences Research Prize (Received $30,000 for support of a research fellow)
2000	Presidential Early Career Award in Science and Engineering
2003	Alumnus of the Year, Bismarck State College
2003	Basic Science Professor of the Quarter, UW School of Medicine
2005	Basic Science Professor of the Quarter, UW School of Medicine
2006	Basic Science Professor of the Quarter, UW School of Medicine
2007	Wall of Fame, Bismarck High School
2008	Distinguished Basic Science Teacher Award, UW School of Medicine ($5000 prize)
2010	Association of American Physicians
2011	Keith Reimer Distinguished Lecture, International Society for Heart Research

ORGANIZATIONS

International Society for Heart Research
Society for Cardiovascular Pathology
American Society for Investigative Pathology
North American Vascular Biology Organization
American Association for the Advancement of Science
American Heart Association Council on Basic Cardiovascular Sciences
American Heart Association Council on Arteriosclerosis, Thrombosis, and Vascular Biology
Heart Failure Society of America
International Society for Stem Cell Research

SPECIAL NATIONAL RESPONSIBILITIES

- Councilor and Scientific Program Director, Society for Cardiovascular Pathology, 1999-2004
- Councilor, International Society for Heart Research, American Section, 2009-2011
- Chair, Stem Cell and Gene Therapy Interest Group, ISHR, 2009-2011
- Editorial Boards: Circulation, Circulation Research, Journal of Molecular and Cellular Cardiology
- Member, AHA NW Affiliate Study Section, 1994-1999
- Member and Chair (2001), AHA National Pathophysiology Study Section, 1999-2001
- Member, NIH Director's "Roadmap Committee" to chart future directions for NIH
- Member, NHLBI Director's "SPARK II Committee" to chart future directions for NHLBI
- Member, NHLBI Director's Stem Cell Center Advisory Committee
- Non-Standing Member, NHLBI ZRG1 (CCVS), 2002 and 2003
- Member, NHLBI Program Project Review Committee, 2006
- Member, NHLBI Special Emphasis Panel for BRP review, 2006
- Member, NHLBI ZRG1 Special Emphasis Panel for R01 review, 2007
- Member, NHLBI Special Emphasis Panel for SBIR review, 2009
- Member, NIH ZRG1 BCMB-S (98) R, Review Panel for RC-2 (GO) Grants, 2009
- Member, NIH ZRG1 BDA-A (52) R, Review Panel for RC-1 (Challenge) Grants, 2009
- Scientific organizing committees for conferences:
    - Society for Cardiovascular Pathology, 2001-2004
    - Heart Failure Society of America, 2006-2008
    - CRT 2007-2009: Angiomyogenesis & Cell Therapy conference, Washington DC
    - NHLBI Symposium on Cardiovascular Regenerative Medicine, 2009
    - Keystone Symposium on Cardiovascular Death, Growth and Regeneration, 2011
    - SBE/ISSCR conference on Stem Cell Engineering, 2012 (co-chair with Sean Polacek)

TEACHING RESPONSIBILITIES

Course director, Path 515, Molecular Basis of Disease: Atherosclerosis and Myocardial Infarction
Course director, Path 501, Mammalian stem cells in biology and disease
Lecturer, Course HuBio 547 on thrombosis, atherosclerosis, ischemia, myocardial infarction, genetics
Lecturer, Course HuBio 540 on heart failure, valvular and ischemic heart disease, and pract. labs
Lecturer, Course Path 410 on cardiac and vascular pathology, wound healing
Lecturer, Course Path 510 on cardiovascular pathology
Lecturer and course co-developer, Path 512 on cell death and tissue repair
Lectures and practical labs to Pathology residents on cardiovascular pathology

TRAINEES

- Member of the University of Washington Graduate Faculty.
- Faculty member of NIH training grants: Molecular and Cellular Biology, Cardiovascular Research Training Program, Experimental Pathology of Cardiovascular Disease, Bioengineering Cardiovascular Training, Developmental Biology, Molecular Medicine, Pediatric Nephrology, Anesthesiology and Perioperative Medicine Research, and Genetic Approaches to Aging Research.

- Past and Current Trainees

  High School and Undergraduate Students

  1. Rodney Reidel (undergraduate independent study, 1995)
  2. Cathy Gipaya (undergraduate independent study, 1995)
  3. Binh Lieu (undergraduate independent study, 1997-1998)
  4. Sanjat Kanjilal (undergraduate fellow of American Heart Association, 1999)
  5. Jenny Davidov (undergrad. fellow of Am. Heart Assoc., 2000; Hughes fellow 2001)
  6. Anna Leach (high school student - fellow of American Heart Association, 2001)
  7. Julia Reece (undergraduate independent study, 2004-2006)
  8. Sara Dupras (undergraduate independent study, 2004-2006)
  9. Brittany Hopkins (undergraduate independent study, 2005-2006)
  10. Mark Saiget (undergraduate independent study, 2005-2006)
  11. Kira Bendixen (undergraduate independent study, 2005-2006)
  12. Amartha Ogburu (high school student - Temple Univ. Physician Scientist Training Program, summer 2008)
  13. Jason Daza (undergraduate independent study, 2006-2008)
  14. Nina Tan (undergraduate independent study, 2006-2010)
  15. Gabriel Pratt (undergraduate independent study, 2067-2010)
  16. Douglas White (undergraduate independent study, 2009-2010)
  17. Erin Millman (undergraduate independent study, 2009-2010)
  18. Alex Chon (undergraduate independent study, 2009-2011)
  19. Makeda Carroll (high school student - Temple Univ. Physician Scientist Training Program, summer 2009)
  20. Matthew Fischer (undergraduate independent study, summers 2009; 2010)
  21. Tracie Lin (undergraduate independent study, 2010-2011)
  22. Melisssa Walzer (undergraduate independent study, 2010-present)
  23. Margaret Cui (undergraduate independent study, 2010-present)
  24. Emily Shih (undergraduate independent study, 2010-present)
  25. Ben Sabath (high school student, summers of 2010 and 2011)
  26. Heidi Gerstmeyer (high school student, summer 2011)

  Predocs

  1. Marsha Whitney (graduate student, 1999-2004)
  2. Jeannette Nussbaum (graduate student, 1999-2004)
  3. Marilyn Nourse (graduate student and postdoctoral fellow, 2000-2008
  4. Jeff Anderl (co-mentored graduate student, 2001-2006)
  5. Chiara Castellani (co-mentored graduate student, 2005-2006)
  6. Tom Robey (MSTP graduate student, 2003-2007)

TRAINEES (continued)

7. Alicia Moreno Gonzales (co-mentored graduate student, 2004-2007)
8. Jonathan Golob (MSTP graduate student, 2003-2009)
9. Kelly Stevens (graduate student and postdoctoral fellow, 2003-2009)
10. Sharon Paige (MSTP graduate student, 2007-2011)
11. Jason Tung (co-mentored graduate student, 2007-2011)
12. Anthony Rodriguez (co-mentored graduate student, 2007-2011)
13. Dan Halpin (co-mentored graduate student, 2008-2010)
14. Nathaniel Tulloch (MSTP graduate student, 2007-present)
15. David Smith (graduate student, 2008-2011; Masters degree)
16. Jia-Ling Ruan (graduate student, 2011-present)

Postdocs:

1. Ick-Mo Chung (postdoctoral fellow, 1995-1997)
2. Hans Reinecke (postdoctoral fellow, 1996-2000)
3. Leo Hofstra (postdoctoral fellow, 1996-1997)
4. Shiho Okuda (postdoctoral fellow, 1997-1998)
5. Ming Zhang (postdoctoral fellow, 1997-2000)
6. Al Aplin (postdoctoral fellow, 1998-2002)
7. Jitka Ismail Virag (postdoctoral fellow, 1999-2004)
8. Todd McDevitt (postdoctoral fellow, 2001-2004)
9. Michael Laflamme (postdoctoral fellow, 2001-2005)
10. Elina Minami (postdoctoral fellow, 2001-2008)
11. Shuichi Ueno (postdoctoral fellow, 2003-2006)
12. Yue Ma (postdoctoral fellow, 2004-2006)
13. Amanda Masino (postdoctoral fellow, 2005-2006)
14. Kent Chen (co-mentored postdoctoral fellow, 2005-2007)
15. Prabha Sampath (postdoctoral fellow, 2004-2008)
16. Tomoaki Osugi (postdoctoral fellow, 2004-2008)
17. Anna Naumova (co-mentored postdoctoral fellow, 2005-present)
18. Steve Korte (co-mentored postdoctoral fellow, 2007-present)
19. Sarah Fernandes (postdoctoral fellow, 2007-present)
20. Kareen Kreutziger (postdoctoral fellow, 2008-present)
21. John Mignone (postdoctoral fellow, 2008-2011)
22. Nathan Palpant (postdoctoral fellow, 2009-present)
23. James Chong (postdoctoral fellow, 2010-present)

GRANT FUNDING

Active Research Grants

NHLBI R01 HL084642-01
"Cell-Based Cardiac Repair"
April 1, 2011 – March 31, 2015
Annual Direct Costs: $395,000

GRANT FUNDING (continued)

NHLBI P01HL094374
"Stem Cells and Cardiovascular Repair" (C. Murry, Program PI)
Project 1, Vascularization and Growth of Myocardial Grafts (C. Murry, Project leader)
June 1, 2010—May 31, 2015
Annual Direct Costs: $310,000

NHLBI P01HL094374
Administrative Core (C. Murry, Core Director)
Annual Direct Costs: $100,000

NHLBI Bioengineering Research Partnership R01 HL64387
"Engineered Cardiac Morphogenesis" (Buddy Ratner, Program PI; Charles Murry, Co-PI)
Sept 1, 2006 – August 31, 2011
Annual Direct Costs (Murry project): $228,725

NIGMS P01 GM81619
UW-FHCRC Center for Human Embryonic Stem Cell Research (C. Anthony Blau, Program PI)
Project 3 "Cardiac Differentiation from Human Embryonic Stem Cells"(C. Murry, Project PI)
August 1, 2007 – July 31, 2012
Annual Direct Costs: $193,000

NIH/NIDDK-NHLBI U24 DK076126 (R. LeBoeuf, Program PI)
Mouse Metabolic Phenotyping Center Consortium: Diabetes and Diabetic Complications
"Cardiovascular Core" (C Murry, Core PI)
August 24, 2006-May 31, 2011
Annual Direct Costs (Murry Core): $90,000

NIH RC1 HL099230 (Charles Murry, C. Yuan, Multi-PIs)
"Ferritin-Based Molecular Imaging of Cardiac Stem Cell Therapy"
October 1, 2009 – September 30, 2011
Annual Direct Costs: $301,204

U01 HL100405 (E. Morrisey, PI; C. Murry, Project Leader)
"Expansion of cardiac and hematopoietic progenitors by Wnt and Notch "
September 30, 2009 – September 29, 2016
Annual Direct Costs: $100,000

Submitted Research Grants

R01HL105435 (C. Murry, PI)
Induced Pluripotent Stem Cells and Human Cardiomyopathy

R01HL110996 (C. Murry, PI)
Integration of Engineered Human Myocardium

Spent Research Grants (last 5 years)

Surmodics Corporation (C. Murry, PI)
"Biomaterial Strategies to Modify Infarct Remodeling"
March 1, 2010 – February 28, 2011
Annual Direct Costs: $50,000

Mend A Heart Foundation
"Induction of Cardiac Differentiation From iPS Cells"
Date: September 1, 2008 – August 31, 2009
Total direct costs: $37,500

Children's Cardiomyopathy Foundation
"Comparative Analysis of Human iPS Cells to Generate Vascularized Cardiac TissueConstructs"
December 1, 2008 – November, 30, 2009
Total direct costs: $50,000

NHLBI Program Project Grant P01 HL-03174
"Myocardial Infarct Repair"
(C. Murry, Program PI and Project leader)
August 1, 2003 – July 31, 2008

NHLBI Program Project Grant P01 HL-03174
"Administrative Core" (C. Murry, Core leader)
August 1, 2003 – July 31, 2008

"Cardiac Grafts: Skeletal Myoblasts and Remodeling"
NHLBI Collaborative R01 Grant (R01 HL61553)
December 1, 1998 - December 31, 2005 (2 year extension for Presidential Career Award)
Annual Direct Costs: $250,000

UW/FHCRC Exploratory Center Grant for Human Embryonic Stem Cell Research
GM69983 (C. Anthony Blau, Program PI; Charles Murry, Project PI)
September 30, 2003 – September 29, 2006
Annual Direct Costs (Murry project): $48,555

Sponsored research agreement from Geron Corporation
"Creating Human Myocardium in the Mouse and Rat Heart"
March 1, 2007 – February 28, 2009
Total Direct Costs: $174,290

PATENTS

Title: Purified Compositions of Embryonic Stem Cell Derived Differentiating Cells
Inventors: Charles E. Murry, Michael A. Laflamme, Marsha L. Whitney
Application Number: 10/920,795
Status: Pending

PATENTS (cont.)

Title: Formulation to Improve the Survival of Transplanted Cells
Investors: Charles E. Murry, Michael A. Laflamme
Application Number: 11/336,502
Status: Issued

PUBLISHED PEER-REVIEWED JOURNAL ARTICLES

1. *Murry CE, Jennings RB, Reimer KA. Preconditioning with ischemia: A delay of lethal cell injury in ischemic myocardium. *Circulation* 74:1124-1136, 1986. (*This is the most highly cited paper published in Circulation, cited >3400 times.)
2. Reimer KA, Murry CE, Yamasawa I, Hill ML, Jennings RB. Four brief periods of ischemia cause no cumulative ATP loss or necrosis. *Am J Physiol* 251:H1306-H1315, 1986.
3. Uraizee A, Reimer KA, Murry CE, Jennings RB. Failure of superoxide dismutase to limit myocardial infarct size after 40 minutes of ischemia and four days of reperfusion in dogs. *Circulation* 75:1237-1248, 1987.
4. Reimer KA, Long JB, Murry CE, Jennings RB. Three-dimensional distribution of collateral blood flow within the anatomic area at risk after circumflex coronary artery occlusion in dogs. *Bas Res Cardiol* 82:473-485, 1987.
5. Richard VJ, Murry CE, Jennings RB, Reimer KA. Therapy to reduce free radical content during reperfusion does not limit the size of infarcts caused by 90 minutes of ischemia in dogs. *Circulation* 78:473-480, 1988.
6. Kinsman JM, Murry CE, Richard VJ, Jennings RB, Reimer KA. The xanthine oxidase inhibitor oxypurinol does not limit infarct size in a canine model of 40 minutes of ischemia with reperfusion. *J Am Coll Cardiol* 12:209-217, 1988.
7. Go LO, Murry CE, Richard VJ, Weischedel GR, Jennings RB, Reimer KA. Myocardial neutrophil accumulation during reperfusion after reversible or irreversible ischemic injury. *Am J Physiol* 255:H1188-H1988, 1988.
8. Reimer KA, Murry CE, Richard VJ. The role of neutrophils and free radicals in the ischemic-reperfused heart: Why the confusion and controversy? *J Molec Cell Cardiol* 21:1225-1239, 1989.
9. Richard VJ, Murry CE, Jennings RB, Reimer KA. Oxygen-derived free radicals and postischemic myocardial reperfusion: Therapeutic implications. *Fundam Clin Pharmacol* 4:85-103, 1990.
10. Murry CE, Richard VJ, Reimer KA, Jennings RB. Ischemic preconditioning slows energy metabolism and delays ultrastructural damage during sustained ischemia. *Circ Res* 66:913-931, 1990.

PUBLISHED PEER-REVIEWED JOURNAL ARTICLES (continued)

11. Wharton JM, Richard VJ, Murry CE, Dixon EG, Reimer KA, Meador J, Smith WM, Ideker RE. Electrophysiological effects of monophasic and biphasic stimuli in normal and infarcted dogs. *PACE* 13:1158-1172, 1990.
12. Tanaka M, Earnhardt RC, Murry CE, Richard VJ, Jennings RB, Reimer KA. Hypoxic reperfusion to remove ischemic catabolites prior to arterial reperfusion does not limit the size of myocardial infarcts in dogs. *Cardiovasc Res* 25:7-16, 1991.
13. Murry CE, Richard VJ, Jennings RB, Reimer KA. Myocardial protection is lost before contractile function recovers from ischemic preconditioning. *Am J Physiol* 260(Heart Circ Physiol 29):H796-H804, 1991.
14. Jennings, RB, Murry CE, Reimer KA. Preconditioning myocardium with ischemia. *Cardiovasc Drugs Ther* 5:933-938, 1991.
15. Sharar SR, Winn RK, Murry CE, Harlan JM, Rice CL. A CD18 monoclonal antibody increases the incidence and severity of subcutaneous abscess formation after high-dose *Staphylococcus aureus* injection in rabbits. *Surgery* 110:213-219, 1991.
16. Murry CE, Schmidt RS. Tissue invasion by *Pneumocystis carinii*: A possible cause of cavitary pneumonia and pneumothorax. *Human Pathol* 23:1380-1387, 1992.
17. Tanaka M, Richard VJ, Murry CE, Jennings RB, Reimer KA. Superoxide dismutase plus catalase therapy delays neither cell death nor the loss of the TTC reaction in experimental myocardial infarction in dogs. *J Molec Cell Cardiol* 25:367-378, 1993.
18. Murry CE, Giachelli CM, Schwartz SM, Vracko R. Macrophages express osteopontin during repair of myocardial necrosis. *Am J Pathol* 145:1450-1462, 1994.
19. Richard VJ, Murry CE, Reimer KA. Healing of myocardial infarcts in dogs. Effects of late reperfusion. *Circulation* 92:1891-1901, 1995.
20. Murry CE, Bartosek T, Giachelli CM, Alpers CE, Schwartz SM. PDGF-A mRNA expression in fetal, adult, and atherosclerotic human aortas. Analysis by competitive PCR. *Circulation* 93:1095-1106, 1996.
21. Maresh GA, Erezyilmaz D, Murry CE, Nochlin D, Snow AD. Detection and quantitation of perlecan mRNA levels in Alzheimer's Disease and normal aged hippocampus by competitive reverse transcription-polymerase chain reaction. *J Neurochem* 67: 1132-1144, 1996.
22. Murry CE, Kay MA, Hauschka S, Bartosek T., Schwartz SM. Muscle differentiation during repair of myocardial necrosis in rats via gene transfer with MyoD. *J Clin Invest* 98: 2209-2217, 1996.
23. Murry CE, Wiseman RW, Schwartz SM, Hauschka SD. Skeletal myoblast transplantation for repair of myocardial necrosis. *J Clin Invest* 98: 2512-2523, 1996.
24. Murry CE, Gipaya CT, Bartosek T, Benditt EP, Schwartz SM. Monoclonality of smooth muscle cells in human atherosclerosis. *Am J Pathol* 151: 697-706, 1997.
25. Giachelli CM, Lombardi D, Johnson RJ, Murry CE, Almeida M. Evidence for a role of osteopontin in macrophage infiltration in response to pathological stimuli *in vivo*. *Am J Pathol* 152:353-358, 1998.

PUBLISHED PEER-REVIEWED JOURNAL ARTICLES (continued)

26. Taguchi J, Murry CE, Herren BI, Pech M, Schwartz SM, Lindner V. A quantitative method for determination of endothelial mRNA expression *in vivo*. *Am J Pathol* 152: 903-912, 1998.

27. Chung I-M, Schwartz SM, Murry CE. Clonal architecture of normal and atherosclerotic aorta: Implications for atherogenesis and vascular development. *Am J Pathol* 152: 913-923, 1998.

28. Lattanzi L, Salvatori G, Coletta M, Sonnino C., Cusella De Angelis MG, Gioglio L, Murry CE, Kelly R, Ferrari G, Mavilio F, Crescenzi M, Cossu G. Myogenic conversion of human fibroblasts by adenoviral vector-mediated MyoD gene transfer. An alternative strategy for *ex vivo* gene therapy of primary myopathies. *J Clin Invest* 101:2119-2128, 1998.

29. Roest PAM, Bakker E, Fallaux FJ, Murry CE, den Dunnen JT. New possibilities for prenatal diagnosis of muscular dystrophies: forced myogenesis using an adenoviral MyoD-vector. *Lancet* 353(9154):727-728, 1999.

30. Reinecke H, Zhang M, Bartosek T, Murry CE. Survival, integration, and differentiation of cardiocyte grafts. A study in normal and injured rat hearts. *Circulation* 100:193-202, 1999.

31. Okuda M, Takahashi M, Suero J, Murry CE, Traub O, Kawakatsu H, Berk BC. Shear stress stimulation of p130(cas) tyrosine phosphorylation requires calcium-dependent c-Src activation. J Biol Chem 274:26803-26809, 1999.

32. Reinecke H, MacDonald G, Hauschka SD, Murry CE. Electromechanical coupling between cardiac and skeletal muscle: Implications for myocardial infarct repair. *J Cell Biol* 149:731-740, 2000.

33. Jono S, McKee MD, Murry CE, Shioi A, Nishizawa Y, Mori K, Morii H, Giachelli CM. Phosphate regulation of vascular smooth muscle cell calcification. *Circ Res* 87:E10-17, 2000.

34. Imanishi T, Murry CE, Reinecke H, Hano T, Nishio I, Liles WC, Hofsta L, Kim K, O'Brien KD, Schwartz SM, Han DK. Cellular FLIP is expressed in cardiomyocytes and down-regulated in TUNEL-positive grafted cardiac tissues. *Cardiovasc Res* 48:101-110, 2000.

35. Reinecke H, Murry CE. Transmural replacement of myocardium after skeletal myoblast grafting into the heart. Too much of a good thing? *Cardiovasc Pathol* 9: 337-344, 2000.

36. Murry CE, Jerome KR, Reichenbach DR. Fatal parvovirus myocarditis in a 5 year-old girl. *Human Pathology* 32: 342-345, 2001.

37. Zhang M, Methot D, Poppa V, Fujio Y, Walsh K, Murry CE. Cardiomyocyte Grafting for Cardiac Repair: Graft Cell Death and Anti-Death Strategies. *J Mol Cell Cardiol* 33:907-921, 2001.

38. Whitney ML, Otto KG, Blau CA, Reinecke H, Murry CE. Control of myoblast proliferation with a synthetic ligand. *J Biol Chem* 276: 41191-41196, 2001.

39. McDevitt TC, Angello JC, Whitney ML, Reinecke H, Hauschka SD, Murry CE, Stayton PS. In vitro generation of differentiated cardiac myofibers on micropatterned laminin surfaces. *J Biomed Mater Res* 60:472-479, 2002.

40. Reinecke H, Poppa V, Murry CE. Skeletal muscle stem cells do not transdifferentiate into cardiomyocytes after cardiac grafting. *J Mol Cell Cardiol* 34:241-249, 2002.

PUBLISHED PEER-REVIEWED JOURNAL ARTICLES (continued)

41. Laflamme MA, Myerson D, Saffitz JE, Murry CE. Evidence for cardiomyocyte repopulation by extracardiac progenitors in transplanted human hearts. *Circ Res* 90(6):634-640, 2002.
42. Carter YM, Thomas R, Bargatze R, Poppa V, Jutila M, Murry CE, Allen MD. Intracoronary E-/L-selectin blockade reduces neutrophil infiltration in heart transplantation. *Ann Thorac Surg* 74(6):2064-2070; discussion 2070-2071, 2002.
43. Murry CE, Whitney ML, Reinecke H. Muscle cell grafting for the treatment and prevention of heart failure. *J Cardiac Failure* 8(6) (suppl):S532-S541, 2002.
44. Ismail JA, Poppa V, Kemper LE, Scatena M, Giachelli CM, Coffin D, Murry CE. Immunohistologic labeling of murine endothelium. *Cardiovasc Pathol* 12(2):82-90, 2003.
45. McDevitt TC, Woodhouse KA, Hauschka SD, Murry CE, Stayton PS. Spatially organized layers of cardiomyocytes on biodegradable polyurethane films for myocardial repair. *J Biomed Mater Res* 66:586-595, 2003.
46. Virag JAI, Murry CE. Myofibroblast and endothelial proliferation in murine myocardial infarct repair. *Am J Pathol* 163:2433-2440, 2003.
47. Reinecke HR, Minami E, Poppa V, Murry CE. Evidence for fusion between cardiomyocytes and skeletal myoblasts. *Circ Res* 94:56-60, 2004.
48. Shi D, Reinecke H, Murry CE, Torok-Storb B. Myogenic fusion of human bone marrow stromal cells, but not hematopoietic cells. Blood 204:290-294, 2004.
49. *Murry CE, Soonpaa MH, Reineke H, Nakijima H, Nakijima HO, Rubart M, Pasumarthi KBS, Virag JI, Bartemez SH, Poppa V, Bradford G, Dowell JD, Williams D, Field LJ. Haematopoietic stem cells do not transdifferentiate into cardiac myocytes in myocardial infarcts. *Nature* 428:664-668, 2004. (*Faculty of 1000 listing)
50. Rossow CF, Minami E, Chase EG, Murry CE, Santana LF. NFATc3-Induced reductions in voltage-gated K+ currents after myocardial infarction. *Circ Res* 94:1340-1350, 2004.
51. Reinecke H, Minami E, Virag JI, Murry CE. Gene transfer of connexin43 into skeletal muscle. *Hum Gene Ther* 15:627-636, 2004.
52. Laflamme MA, Murry CE. Regenerating the heart. *Nat Biotechnol* 23:845-856, 2005.
53. *Laflamme MA, Gold J, Xu C, Hassanipour M, Rosler E, Police S, Muskheli V, Murry CE. Formation of human myocardium in the rat heart from human embryonic stem cells. *Am J Path* 167:663-671, 2005. (*Faculty of 1000 listing)
54. Murry CE, Field LJ, Menasché P. Cell-based cardiac repair: Reflections at the 10-year point. *Circulation* 112:3174-3183, 2005.
55. Minami E, Laflamme MA, Saffitz JE, Murry CE. Extracardiac progenitor cells repopulate most major cell types in the transplanted human heart. *Circulation* 112:2951-2958, 2005.
56. McDevitt TC, Laflamme MA, Murry CE. Proliferation of cardiomyocytes derived from human embryonic stem cells is mediated via the IGF/PI3-kinase/Akt signaling pathway. *J Mol Cell Cardiol* 39:865-873, 2005.

PUBLISHED PEER-REVIEWED JOURNAL ARTICLES (continued)

57. Murry CE, Reinecke H, Pabon LM. Regeneration Gaps: Observations on Stem Cells and Cardiac Repair. *J Am Cell Cardiol* 47:1777-1785, 2006.

58. Gregorevic P, Allen JM, Minami E, Blankinship MJ, Haraguchi M, Meuse L, Finn E, Adams ME, Froehner SC, Murry CE, Chamberlain JS. rAAV6-microdystrophin preserves muscle function and extends lifespan in severely dystrophic mice. *Nat Med*. Jul;12(7):787-9, 2006. [Epub 2006 Jul 2, 2006]

59. Laflamme MA, Zbinden S, Epstein SE, Murry CE. Cell-Based Cardiac Repair: Pathophysiological Mechanisms. *Ann Rev Pathol Mech Disease* 2: 307-339, 2007.

60. Nussbaum J, Minami E, Laflamme MA, Virag JA, Ware CB, Masino A, Muskheli V, Pabon L, Reinecke H, Murry CE. Transplantation of undifferentiated murine embryonic stem cells in the heart: teratoma formation and immune response. *FASEB J*. 2007 May;21(7):1345-57. [Epub Feb 7 2007]

61. Stevens K, Rolle M, Minami E, Ueno S, Nourse M, Virag JA, Reinecke H, Murry CE. Chemical dimerization of fibroblast growth factor receptor-1 induces myoblast proliferation, increases intracardiac graft size, and reduces ventricular dilation in infarcted hearts. *Human Gene Therapy* 2007 May;18(5):401-12. [Epub 2007 May 7]

62. Ueno S, Weidinger G, Osugi T, Kohn A, Golob J, Pabon L, Reinecke H, Moon RT, Murry CE. Biphasic role for Wnt/β-catenin signaling in cardiac specification in zebrafish and embryonic stem cells. *Proc Natl Acad Sci* 2007 Jun 5;104(23):9685-90. [Epub May 23, 2007]

63. Nourse MB, Rolle MW, Pabon LM, Murry CE. Selective Control of Endothelial Cell Proliferation with a Synthetic Dimerizer of FGF Receptor-1. *Lab Invest* 2007 Aug;87(8):828-35. [Epub 2007 Jun 18]

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PUBLISHED PEER-REVIEWED JOURNAL ARTICLES (continued)

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77. Stevens KR, Kreutziger K, Dupras S, Korte FS, Regnier MA, Muskheli V, Nourse M, Bendixen K, Reinecke H, Murry CE. Physiological Function and Transplantation of Scaffold-free and Vascularized Human Cardiac Muscle Tissue. *Proc Natl Acad Sci USA* 2009 Sep 29;106(39):16568-73. Epub 2009 Sep 17.

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PUBLISHED PEER-REVIEWED JOURNAL ARTICLES (continued)

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NON-PEER-REVIEWED ARTICLES (continued)

2. Reimer KA, Murry CE, Jennings RB. Cardiac adaptation to ischemia: Ischemic preconditioning increases myocardial tolerance to subsequent ischemic episodes. (Editorial) *Circulation* 82:2266-2268, 1990.
3. Murry CE, Jennings RB, Reimer KA. New insights into potential mechanisms of ischemic preconditioning. (Editorial) *Circulation* 84:442-445, 1991.
4. Murry CE, Jennings RB, Reimer KA. The discovery of ischaemic preconditioning - Commentary. (Letter to the Editor). *Cardiovasc Res* 27:688-689, 1993.
5. Giachelli CM, Liaw L, Murry CE, Schwartz SM, Almeida M. Osteopontin expression in cardiovascular diseases. (Meeting proceedings) *Ann New York Acad Sci* 70:109-126, 1995.
6. Schwartz SM, Majesky MW, Murry CE. The intima: development and monoclonal responses to injury. (Meeting proceedings) Atherosclerosis 118 (Suppl):S125-S140, 1995.
7. Schwartz SM, Murry CE. Proliferation and the monoclonal origins of atherosclerotic lesions. *Ann Rev Med*, 49:437-460, 1998.
8. Reinecke H, Murry CE. Taking the death toll after cardiomyocyte grafting: A reminder of the importance of quantitative biology. *J Mol Cell Cardiol* 34:251-253, 2002.
9. Murry CE, Whitney ML, Laflamme MA, Reinecke H, Field LJ. Cellular therapies for myocardial infarct repair. *Cold Spring Harb Symp Quant Biol* 67:519-526, 2002.
10. Minami E, Reinecke H, Murry CE. Skeletal muscle meets cardiac muscle: Friends or Foes? *J Am Coll Cardiol* 41(7):1084-1086, 2003.
11. Murry CE: Cardiac aid for the injured but not the elderly? (News and Views piece) *Nature Medicine* 2007 Aug;13(8):901-2.
12. Murry CE, Kühn B. Taking a load off: nuclear remodeling after mechanically supporting the failing human heart. *Circulation.* 2010 Mar 2;121(8):957-9. Epub 2010 Feb 16
13. Murry CE, Pu WT. Reprogramming fibroblasts into cardiomyocytes. N Engl J Med. 2011 Jan 13;364(2):177-8.
14. Mignone JL, Murry CE. A repair "kit" for the infarcted heart. In press, Cell Stem Cell, 2011

SUBMITTED ARTICLES

1. Robey TE, Bornstein P, Murry CE. Lack of thrombospondin 2 reduces fibrosis and increases vascularity and survival of cardiomyocyte grafts.
2. Minami E, Perens G, Castellani C, Lai CK, Allada V, Murry CE. Chimerism in pediatric heart transplant recipients.

BOOK CHAPTERS

1. Murry CE, Jennings RB, Reimer KA. Preconditioning with ischemia: a means to delay cell death in ischemic myocardium. In Myocardial Ischemia, edited by NS Dhalla, IR Innes and RE Beamish. Martinus Njhoff Publishing Co, Boston, 1987, pp. 11-20.

BOOK CHAPTERS (continued)

2. Jennings RB, Reimer KA, Steenbergen C, Murry CE. Energy metabolism in myocardial ischemia and reperfusion. In Myocardial Ischemia, edited by NS Dhalla, IR Innes and RE Beamish. Martinus Njhoff Publishing Co, Boston, 1987, pp. 185-198.
3. Jennings RB, Murry CE, Steenbergen C, Reimer KA. The acute phase of regional ischemia and reperfusion. In Acute Myocardial Infarction: Emerging Concepts of Pathogenesis and Treatment, edited by RH Cox. Praeger Scientific, New York, 1989, pp. 670-684.
4. Jennings RB, Murry CE, Reimer KA. Myocardial effects of brief periods of ischemia followed by reperfusion. In Silent Myocardial Ischemia: A Critical Appraisal, edited by JJ Kellerman and E. Braunwald. Karger, Basel, 1989, pp. 7-31.
5. Reimer KA, Richard VJ, Murry CE, Ideker RE. Myocardial ischemia and infarction: anatomic and biochemical substrates for ischemic cell death and ventricular arrhythmias. In Cardiovascular Pathology, edited by R Virmani, JJ Atkinson, and JJ Fenoglio. WB Saunders Book Co., 1991, pp. 61-85.
6. Jennings RB, Murry CE, Reimer KA. Preconditioning myocardium with ischemia. In Stunning, Hibernation, and Calcium in Myocardial Ischemia and Reperfusion, edited by LH Opie. Kluwer Academic Publishers, Boston, 1992, pp. 154-165.
7. Murry CE, Jennings RB, Reimer KA. What is ischemic preconditioning? In Ischemic Preconditioning: The Concept of Endogenous Cardioprotection, edited by K Przyklenk, RA Kloner, and DM Yellon. Kluwer Academic Publishers, Boston, 1994, pp. 3-17.
8. Reimer KA, VanderHeide RS, Murry CE, Jennings RB. Role of altered energy metabolism in ischemic preconditioning. In Ischemic Preconditioning: The Concept of Endogenous Cardioprotection, edited by K Przyklenk, RA Kloner, and DM Yellon. Kluwer Academic Publishers, Boston, 1994, pp. 75-104.
9. Schwartz SM, Murry CE. A developmental hypothesis for plaque monoclonality. In The Role of Herpes Viruses in Atherogenesis, edited by S.M. Schwartz and D. Hajjar. G+B Publishers, 1998.
10. Murry CE, Zhang M, Reinecke H. Myocardial infarction, infarct repair, and strategies for muscle regeneration. In Molecular Approaches to Heart Failure Therapy, edited by G. Hasenfuss and E. Marban. Steinkopff Verlag, Darmstadt, 2000, pp 298-315.
11. Reinecke H, MacDonald GH, Hauschka SD, Murry CE. Cardiomyocytes can induce rhythmic contraction of skeletal muscle cells. Potential use for infarct repair. In Molecular Approaches to Heart Failure Therapy, edited by G. Hasenfuss and E. Marban. Steinkopff Verlag, Darmstadt, 2000, pp 316-332.
12. Reineke H, Murry CE. Cell grafting for cardiac repair. In Cardiac Cell and Gene Transfer. Principles, Protocols and Applications, (Methods in Molecular Biology, volume 219), edited by J.M. Metzger. Humana Press, Totowa, 2003, pp 97-112.

INVITED SEMINARS

1. Myocardial ischemia, reperfusion, and reperfusion injury. Presented at the Rayne Institute, St. Thomas' Hospital, London. June 19, 1986.

INVITED SEMINARS (continued)

2. Ischemic preconditioning. Presented at the International Institute for Theoretical Cardiology, Bad Orb, Federal Republic of Germany, June 21, 1986.
3. Altering the myocardial response to ischemic injury by ischemic preconditioning. Presented at The Max Planck Institute for Cardiology, Bad Nauheim, Federal Republic of Germany. June 23, 1986.
4. Reperfusion of ischemic myocardium: infarct size limitation vs. "reperfusion injury". Presented to the Department of Pharmacology, University of Michigan School of Medicine, Ann Arbor, Michigan. December 15, 1987.
5. Ischemic preconditioning protects myocardium from subsequent ischemic injury. Presented at the Federation of American Societies for Experimental Biology, Las Vegas, Nevada. May 5, 1988.
6. Ischemic preconditioning: Effects on myocardial function, structure, metabolism and viability. Presented at the International Society for Heart Research, American Section meeting, Cincinnati, Ohio, June 1, 1991.
7. Clonal responses of the artery wall to injury. Presented at the European Society of Cardiology working group meeting on Healing Processes in the Heart, Mannheim, Germany, July 6, 1996.
8. The pathogenesis of clonality in human atherosclerosis. Presented at the International Vascular Biology Meeting, Seattle, WA, September 7, 1996.
9. Myocardial infarct repair. Presented at Scios, Inc, Mountain View, CA, February 6, 1997.
10. Gene therapy for cardiac regeneration. Presented at Collateral Therapeutics, Inc, San Diego, CA, February 13, 1997.
11. Myocardial regeneration. Presented at the Division of Cardiology Grand Rounds, University of Washington, Seattle, WA February 14, 1997.
12. The origins of monoclonality in human atherosclerosis. Presented at the Merck Research Forum on Acute Coronary Syndromes, Seattle, WA September 6, 1997.
13. Molecular strategies for myocardial infarct regeneration. Presented to the Maine Medical Research Center, Portland, Maine, October 8, 1997.
14. Molecular strategies for cardiac repair. Presented to the Division of Cardiology, Cambridge University School of Medicine, Cambridge, England, April 14, 1998.
15. Making scar contract: Prospects for myocardial regeneration. Presented at the British Society for Cardiovascular Research, Guy's Hospital, London, UK, April 16-17, 1998.
16. Skeletal and cardiac muscle grafting. Presented at the NIH NHLBI Workshop on "Cell Transplantation: Future Therapy for Cardiovascular Disease?", August 3, 1998.
17. Cell implant approaches to treat congestive heart failure. Presented at Transcatheter Cardiovascular Therapeutics 10th Conference, Washington DC, October 6, 1998.
18. Gene transfer for modulation of the cardiac phenotype. Presented at the American Heart Association 1998 Scientific Sessions, November 9, 1998.
19. New strategies for myocardial infarct repair. Presented at the Centre Hospitalier de L'Universite de Montreal, Montreal, Canada, January 19, 1999.

INVITED SEMINARS (continued)

20. Myocardial infarct repair: Molecular strategies. Presented at the University of Rouen, Rouen, France, June 15, 1999.
21. Cardiac regeneration. Presented at the Max Planck Institute for Experimental Cardiology, Bad Nauheim, Germany, June 16, 1999.
22. Cardiac myocyte grafting for myocardial repair. Presented at the International Symposium on Molecular Approaches to the Therapy of Hear t Failure, Göttingen, Germany, June 19, 1999.
23. Electromechanical coupling between skeletal and cardiac muscle: Implications for infarct repair. Presented at the American Heart Association's Scientific Conference on Molecular, Cellular, and Integrated Physiological Approaches to the Failing Heart, Snowbird, UT, August 18, 1999.
24. Cell and molecular approaches for cardiac repair and regeneration. Presented to Genzyme, Inc. Framingham, MA, October 14, 1999.
25. Myocardial infarct repair. Presented to Department of Pathology, Johns Hopkins University, Baltimore, MD, February 15, 2000.
26. Cellular approaches for cardiac regeneration. Presented to Osiris Therapeutics, Baltimore, MD, February 16, 2000.
27. Cell transplantation for cardiac repair. Presented to the Heart Failure Society of America, Boca Raton, FL, September 12, 2000.
28. Myocyte replacement. Remodeling and Progression of Heart Failure meeting, Minneapolis, MN, July 14, 2001.
29. Cellular approaches to myocardial infarct repair. Presented to Immunex, Seattle, WA, July 30, 2001.
30. Stem cell strategies for cardiac regeneration. Presented to Geron, Menlo Park, CA, August 2, 2001.
31. Cell transplantation. AHA Scientific Conference. Novel emerging treatments in heart failure (Cardiovascular Seminar). November 11, 2001.
32. Stem cells for repair if the infarcted heart. Presented to the Division of Cardiology, Washington University in St. Louis, January 31, 2002.
33. Stem cells and myocardial repair. Presented to NIH NHLBI Council session on "Cell-based therapy—research and discussion", Washington, DC, February 7, 2002.
34. Cellular therapy for cardiac injury. Keystone Conference, Molecular Biology of the Heart, Keystone, CO, February 15, 2002.
35. Myocardial tissue engineering. North American Vascular Biology Organization meeting, Salt Lake City, UT, April 5, 2002.
36. Cellular grafting for myocardial repair. Cardiovascular Cell and Gene Therapy Conference, Boston, MA, April 19, 2002.
37. Cellular approaches for myocardial infarct repair. Cold Spring Harbor 67th Scientific Symposium on Quantitative Biology, Cold Spring Harbor, NY, June 3, 2002.

INVITED SEMINARS (continued)

38. Stem cells in myocardial infarct repair: the hope and the hype. Joint meeting of the Japan Society of Histochemistry and the Histochemical Society, Seattle, WA, July 19, 2002.
39. Cell therapy for myocardial infarction. International Society for Heart Research, American Section meeting, Madison, WI, July 27, 2002.
40. Stem cells for cardiac repair: Hope or hype? Presented at the American Heart Association's conference on "Advances in the Molecular and Cellular Mechanisms of Heart Failure", Snowbird, UT, August 24, 2002.
41. Cell therapies for heart failure. Plenary lecture presented at the Heart Failure Society of America's 6th annual scientific meeting, Boca Raton, FL, September 23, 2002.
42. Stem cells and myocardial infarct repair. Presented at the Japanese Carioprotection Society meeting, Tokyo, Japan, October 26, 2002.
43. Stem cells and myocardial repair: What we know and what we don't. Presented at the Sunday morning Circulation Research Symposium, American Heart Association Scientific Sessions, Chicago, Ill, November 17, 2002.
44. Stem cells for myocardial infarct repair: Hope, hype, or both? Presented at the University of Minnesota, Laboratory Medicine and Pathology Grand Rounds, December 11, 2002.
45. Genetic manipulations at the limits. The importance of stem cell research. Presented at Cardiology at the Limits VI, Cape Town, South Africa, April 12, 2003.
46. Stem cells in cardiac repair. Presented at the Burnham Institute's 25th Annual Symposium on Stem Cell Potency, Differentiation and Regeneration, La Jolla, CA June 6, 2003.
47. Exogenous and endogenous stem cells in myocardial repair. Presented at the American Heart Association's conference on "Mechanisms of Growth, Death and Regeneration in the Myocardium", Snowbird, UT August 16, 2003.
48. Stem cells for myocardial repair: fact, fiction or (con)fusion? Presented at the Rayne Institute, St. Thomas' Hospital, London, August 29, 2003.
49. Stem cells for myocardial repair: help from without or from within? Presented at the European Muscle Conference, Montpellier, France September 10, 2003.
50. Embryonic stem cells for repair of myocardial infarcts. Presented at the American Heart Scientific Sessions, Orlando, FL November 9, 2003.
51. Cell and Gene Therapy Lecture Series, Stanford University School of Medicine, Palo Alto, CA, January 8, 2004.
52. Cell Biology Lecture Series, Cleveland Clinic, Cleveland, OH, January 30, 2004.
53. Pathology Grand Rounds, UT Southwestern School of Medicine, Dallas, TX, February 10, 2004.
54. Society for Cardiovascular Pathology Annual Meeting, Vancouver, BC, March 7, 2004.
55. ICOS Pharmaceuticals, Bothell, WA, March 10, 2004.
56. Whitaker Cardiovascular Research Institute Lecture Series, Boston University, Boston, MA, April 6, 2004.

INVITED SEMINARS (continued)

57. Cardiovascular Cell and Gene Therapy meeting, Boston, MA, April 14, 2004.
58. Cardiology Grand Rounds, University of Pennsylvania, May 13, 2004.
59. International Vascular Biology Meeting, Toronto, Ontario, June 4, 2004.
60. Cardiovascular Research Institute, University of South Dakota, Sioux Falls, June 30, 2004.
61. NIH/NHLBI Cardiovascular Cell Therapy Working Group, invited speaker, Bethesda, MD, August 8, 2004.
62. Human and mouse stem cells in repair of the injured heart: functional aspects. First Biannual Meeting of the Association for European Cardiovascular Pathology, Padua, Italy, October 23, 2004.
63. 2nd Annual Pan-Guidant Biologics Meeting, New Orleans, LA, November 6, 2004.
64. MAGIC Investigators Meeting (sponsored by Medtronic-Genzyme Therapeutics), Lausanne, Switzerland, November 29, 2004.
65. University of Geneva, Special Lecture Series, Geneva, Switzerland, November 30, 2004.
66. University of Wisconsin, Lecture series for Stem Cell Research Program, February 3, 2005.
67. Stem cells: Differentiation and involvement in tissue remodeling. Presidential Symposium at the 2005 meeting of the American Society for Investigative Pathology, San Diego, CA, April 4, 2005.
68. Stem cell transplantation in myocardial infarction. Keystone Symposia, Steamboat Springs, CO, April 5, 2005.
69. NIH/NIGMS Invited Grantee workshop on stem cell research. Bethesda, MD, April 17-19, 2005.
70. Regenerate 2005, Cardiovascular tissue engineering session, Atlanta, GA, June 5, 2005.
71. International Society for Experimental Hematology annual meeting, Glasgow, Scotland, July 30, 2005.
72. Roslin Institute, Edinburgh, Scotland, Stem Cell Biology seminar series, August 9, 2005.
73. UCLA Division of Cardiology, Borun Visiting Professor, Los Angeles, CA, September 15, 2005.
74. Heart Failure Society of America annual meeting, Invited Speaker, Boca Raton, FL, September 20, 2005.
75. American Society of Nuclear Cardiology 10th Annual Scientific Session, Seattle, WA, September 30, 2005.
76. University of Cincinnati, Pharmacology & Cell Biophysics Seminar Series, Cincinnati, OH, October 6, 2005.
77. University of British Columbia iCAPTURE Seminar Series, James Hogg iCAPTURE Centre for Cardiovascular and Pulmonary Research, Vancouver, BC, October 28, 2005.
78. American Heart Association Scientific Sessions 2005, Cardiovascular Seminar, Dallas, TX, November 14, 2005.
79. University of Toronto, Heart and Stroke/Richard Lewar Centre of Excellence Distinguished Visiting Professor, February 27, 2006.

INVITED SEMINARS (continued)

80. Harvard Medical School, Brigham and Women's Hospital, Invited Speaker, April 21, 2006.
81. Massachusetts General Hospital, Cardiovascular Cell and Gene Therapy Conference II, Invited Speaker and Session Chair, Boston, MA, April 26, 2006.
82. Ottawa Heart Institute, University of Ottawa, Frontiers in Heart Failure Research, Distinguished Visitor Presentation, Ottawa, Ontario, June 5, 2006.
83. Roger Williams Medical Center, Department of Research and the Center for Stem Cell Biology, Visiting Professor, Providence, RI, June 6, 2006.
84. Turkish Academy of Sciences, Current Perspectives on Stem Cell Biology and Challenges in Clinical Implementation Symposium, Istanbul, Turkey, September 7, 2006.
85. Johns Hopkins School of Medicine, Department of Pathology Grand Rounds, Visiting Professor, September 18, 2006.
86. Albert Einstein College of Medicine, Department of Medicine/Cardiology, Visiting Professor, September 19, 2006.
87. Stem Cells and Cardiovascular Disease, Third International Conference. New York, NY, January 18, 2007.
88. Cardiovascular Revascularization and Molecular Strategies Conference, Geneva, Switzerland. February 1, 2007.
89. CRT Conference on Angiomyogenesis, Washington DC, March 7, 2007.
90. NAVBO Conference on Vascular Matrix Biology and Tissue Engineering, Whistler, BC, March 17, 2007.
91. Duke University, Department of Cell Biology, March 23, 2007.
92. Medical Genetics Markey Lecture Series, University of Washington, Seattle, WA, March 30, 2007.
93. Keystone Conference on Development and Tissue Engineering, Snowbird, UT, April 16, 2007.
94. American Society for Gene Therapy, annual scientific sessions, Seattle WA, May 30, 2007.
95. American Aging Association, annual scientific sessions, San Antonio, TX, June 4, 2007.
96. Massachusetts General Hospital/Harvard Stem Cell Institute, Boston, MA, June 5, 2007.
97. Heart Failure Society of America, Scientific Sessions, Washington DC, September 18, 2007.
98. Worcester Polytechnic Institute Symposium on Regenerative Medicine, Worcester MA, September 20, 2007.
99. National Heart, Lung and Blood Institute Symposium on Regenerative Cardiovascular Medicine, October 3, 2007.
100. Symposium on Stem Cell Reprogramming for Cardiovascular Disorders, Dusseldorf, Germany, October 10, 2007.
101. Technische Universitat Dresden, Regenerative Medicine Lecture Series, Dresden, Germany, October 12, 2007.

INVITED SEMINARS (continued)

102. Canadian Society for Arteriosclerosis, Thrombosis and Vascular Biology, annual scientific sessions, Quebec City, Canada, October 22, 2007.
103. Roland Pinkham Basic Science Symposium. Swedish Hospital Medical Center, Seattle WA. November 16, 2007.
104. Medicine Grand Rounds, University of Washington, Seattle. December 6, 2007.
105. Cardiovascular Revascularization and Molecular Strategies Conference, Geneva, Switzerland. February 7, 2008.
106. CRT Conference on Angiomyogenesis. Washington DC. February 12, 2008.
107. Cardiovascular Cell and Gene Therapy Conference, New York City. April 12, 2008.
108. Pathology Grand Rounds, Thomas Jefferson University, Philadelphia, PA. April 23, 2008.
109. McEwen Center for Regenerative Medicine Seminar Series, University of Toronto, April 24, 2008.
110. National Chen Kung University, Tainan, Taiwan, June 4, 2008.
111. Academica Sinica, Taipei, Taiwan, June 5, 2008.
112. International Society for Heart Research, American Section annual meeting, Cincinnati OH, June 24, 2008.
113. Gordon Research Conference, Cardiac Regulatory Mechanisms, New London NH, July 24, 2008.
114. Medical College of Wisconsin, Department of Cell Biology, Neurobiology & Anatomy, Milwaukee, WI, September 25, 2008.
115. Gunnar Lecture keynote speaker, Center for Cardiovascular Research, University of Illinois College of Medicine, Chicago, IL, October 2, 2008.
116. Cornell Stem Cell Symposium, Cornell University, Ithaca, NY, November 8, 2008.
117. Innovations in Cardiovascular Interventions, Tel Aviv, Israel, December 8, 2008.
118. CRT Conference on Angiomyogenesis. Washington DC. March 5, 2009.
119. University of Washington, Laboratory Medicine Grand Rounds, April 1, 2009.
120. University of California at Los Angeles, Stem Cell Institute, June 4, 2009.
121. University of California at San Francisco, Cell and Developmental Biology Training Program Annual Symposium, June 5, 2009.
122. Washington State University, Center for Reproductive Biology, Pullman, WA, August 26, 2009.
123. National Heart, Lung and Blood Institute Symposium on Cardiovascular Regenerative Medicine, Bethesda, MD, October 14, 2009.
124. Pathology Grand Rounds, Beth Israel-Deaconess Medical Center/Brigham and Woman's Medical Center Departments of Pathology, Boston, MA, November 9, 2009.
125. Cardiovascular Seminar, Medtronic, Santa Rosa, CA, January 20, 2010.

INVITED SEMINARS (continued)

126. Penn Institute for Regenerative Medicine Research Symposium, University of Pennsylvania, Philadelphia, January 27, 2010.
127. Yale University, Vascular Biology and Therapeutics Department Cardiology Seminar Series, New Haven, CT, February 8, 2010.
128. Japanese Circulation Society Annual Scientific Meeting, Kyoto, Japan, March 5, 2010.
129. Centre for Stem Cell Research, Cambridge University, Cambridge, UK, March 10, 2010
130. Society for Biomaterials Annual Meeting, Seattle, WA, April 23, 2010
131. International Conference on Stem Cell Engineering, Boston, MA, May 4, 2010
132. Cardiology Grand Rounds, New York University School of Medicine, New York, NY, May 7, 2010
133. International Society for Heart Research World Congress, Kyoto, Japan, May 13, 2010
134. Riley Heart Center Symposium on Cardiac Development, Indianapolis, IN September 13, 2010.
135. Carlyle Fraser Lecture Series, Emory University, Atlanta, GA, September 23, 2010.
136. Beth Israel Deaconess Medical Center, Cardiology Grand Rounds, Boston, MA, October 1, 2010
137. American Heart Association, Special session on pluripotent stem cell biology, Chicago, IL, November 15, 2010.
138. Massachussets General Hospital, Cardiology Grand Rounds, Boston, MA, December 1, 2010.
139. Overlake Hospital Medical Center Grand Rounds, Bellevue, WA, January 6, 2011.
140. Cedars-Sinai Medical Center, Heart Institute, Frontiers in the Heart seminar series, Los Angeles, CA, February 15, 2011.
141. Keystone Conference on Mechanisms of Cardiac Growth, Death and Regeneration, Keystone, CO, February 26, 2011.
142. University of Chicago, Cardiology Grand Rounds, March 25, 2011.
143. Vanderbilt University, Center for Stem Cell Biology, Nashville, TN, April 4, 2011.
144. University of Florida, Center for Cellular Reprogramming, Gainesville, FL, April 6, 2011.
145. University of California at San Diego, Cardiovascular Research Conference, May 20, 2011.
146. International Society for Heart Research, Keith A. Reimer Memorial Lecture, Philadelphia, PA, May 25, 2011.
147. University of Minnesota, Lillihei Heart Institute Seminar Series, June 1, 2011, Minneapolis, MN.
148. Harvard Stem Cell Institute Annual Retreat, Cambridge, MA, June 3, 2011.
149. Abcam Symposium on Cardiomyocyte Regeneration and Protection, La Jolla, CA, June 21, 2011.
150. National Heart, Lung and Blood Institute Symposium on Cardiovascular Regenerative Medicine, Bethesda, MD, October 4, 2011.

151. North American Vascular Biology Organization Biannual Meeting on Matrix Biology, Hyannis, MA, October 18, 2011.

Consulting

None at present