BIOGRAPHICAL SKETCH

Provide the following information for the key personnel and other significant contributors. Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME Feldman, Marc D	POSITION TITL	POSITION TITLE		
eRA COMMONS USER NAME	Professor o	Professor of Medicine & Engineering		
Feldman				
EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)				
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY	

	(ii applicable)		
Duke University	B.S.	1977	Zoology
University of Pennsylvania	M.D.	1981	Medicine
University of Chicago	Int. & Res.	1984	Internal Medicine
Harvard Medical School	Fellowship	1987	Cardiology

A. Positions and Honors.

Positions and Employment

1987-1993	Assistant Professor of Medicine, Cardiovascular Division, University of Virginia School of Medicine
1993-1994	Associate Professor of Medicine, Cardiovascular Division, University of Virginia School of Medicine
1994-1998	Associate Professor of Medicine, Division of Cardiology, University of Pittsburgh School of Medicine
1998-present	Professor of Medicine, Division of Cardiology, University of Texas HSC at San Antonio
1998-present	Staff Cardiologist, South Texas Veterans Health System
1998-present	Adjunct Professor, Biomedical Engineering, University of Texas at Austin
2003-present	Adjunct Professor, Biomedical Engineering, Combined University of Texas at San Antonio-University
	of Texas HSC at San Antonio
2006-present	Director, Cardiac Catheterization Laboratories, University of Texas HSC at San Antonio

2008-present Interim Joaquin G. Cigarroa, Jr. MD Distinguished Chair in Medicine

Other Experience and Professional Memberships

1990-1994 Director of Research, Cardiac Catheterization Laboratory, University of Virginia School of Medicine Head, Committee for Clinical Referrals, Department of Cardiology, University of Virginia 1990-1994 Director of In-Patient Cardiology, University of Virginia School of Medicine 1992-1994 1994-1998 Director, Cardiac Catheterization Laboratory, Presbyterian University Hospital, University of Pittsburgh Coordinator, Cardiac Catheterization Conference, Presbyterian University Hospital, UPMC 1994-1998 Coordinator, Cardiac Didactic and Research Conference, Presbyterian University Hospital, UPMC 1994-1998 Associate Director, Cardiac Catheterization Laboratories, University of Texas HSC at San Antonio 1998-2006 1998-present Director, Interventional Research, University of Texas Health Science Center at San Antonio 1998-present Coordinator, Cardiac Catheterization Conference, University of Texas HSC at San Antonio 1999-2005 Member, IIPAC Committee, University of Texas Health Science Center at San Antonio 1999-2001 Alternate Member, IRB, University of Texas Health Science Center at San Antonio 2000-2001 Vice Chairman, IIPAC Committee, University of Texas Health Science Center at San Antonio Member, Product Evaluation Committee, University of Texas Health Science Center San Antonio 2000-2002 2001-2005 Chairman, Patent Committee (IIPAC), University of Texas HSC at San Antonio

Academic and Professional Honors

- Mentor for Winner, Samuel A. Levine Clinical Investigator Award, AHA (Howard L. Haber). Why do patients with congestive heart failure tolerate the initiation of beta-blocker therapy?
 Winner, Young Investigator Award, American Heart Association Meeting on the Molecular Biology of
- 1993 Winner, Young Investigator Award, American Heart Association Meeting on the Molecular Biology of Congestive Heart Failure and Hypertrophy. Improved diastolic function during intracoronary enalaprilat in patients with hypertensive hypertrophy.
- 1993 Mentor of Regional Finalist, IEEE-Engineering in Medicine and Biology (Patrick Finnerty). Use of the conductance catheter to determine LV volume: current leakage beyond the left ventricular cavity.
- 1996 Co-mentor of National Finalist, Association for Advancement in Medical Instrumentation (Clarence Wu). Myocardial contrast echocardiography can be used to quantify intramyocardial blood volume: In vitro and in vivo validation.
- 2005 Mentor for winner, SCAI General Electric Research Award, (Mehmet Cilingiroglu), Use of OCT to measure vulnerable plaque in apoE-/- mice.

- 2006 Elected Fellow to the Cardiovascular section of the American Physiology Society.
- 2006 Teacher of the Year UTHSCSA, Fellowship Program Cardiology
- 2007 Chancellor's Entrepreneurship and Innovation Award by the University of Texas at Austin
- 2007 Co-Mentor for winner, Carlos Andres Aguilar, Co-Op/George H. Mitchell award for excellence in graduate research, University of Texas at Austin.
- 2007 Co-Mentor for winner, Carlos Andres Aguilar, University Continuing Fellowship, University of Texas at Austin.
- 2007 Co-Mentor for winner, Jake Mancuso, 1st place in the Research Podium Competition at the South Texas ACP.
- 2008 Co-Mentor for winner, Karthik Raghavan, Best Poster Presentation Runner Up, Louis C. Sheppard Award. 25th Annual Houston Conference on Biomedical Engineering Research.
- 1998-2000/ The Best Doctors in America: Listed as one of the top 65 physicians performing cardiac

2003-2010 catheterizations nationally.

Patents

- 1. Feldman MD, Skalak T, Beradinelli L. Metabolic catheter. U.S. Patent # 5,009,634
- 2. Feldman MD, Wu CC, Mahler CM. Multi-frequency conductance system. U.S. Patent # 6,112,115
- 3. Reed ML, Weiss L, Wu CC, Feldman MD. Method for intravascular drug and gene delivery. U.S. Patent # 6,197,013
- Feldman MD, Agrawal CM, Athanasiou K, Bailey SB, Method and apparatus for stent deployment with enhanced delivery of bio-active agents. Provisional-60/273,592; PCT/US2002/05782; US 10/469,632 filed 08/29/03
- Villard JW, Feldman MD, Milner TE, Kim JH, Freeman GL. Methods and compositions to reduce scattering of light during therapeutic and diagnostic imaging procedures. Provisional-60/348,604; PCT/US2003/01135; US10/500,577 filed 6/25/04
- 6. **Feldman MD**, Milner TE, Chen S, et al. Method and apparatus for the rotary motion of optical coherence tomography. Filed US Patent Office 4/03
- 7. Pearce JA, Valvano JW, **Feldman MD**. Method and apparatus for determining cardiac performance in a patient with a Conductance catheter. Provisional-60/501, 749; PCT/US2004/028573 filed 9/03/04
- Agrawal CM, Johnson DM, Mani G, Mahapatro A, Feldman MD, Patel D. Drug delivery from implants using self assembled monolayers – Therapeutic SAMs. Provisional 60/706, 266; PCT/US2006/030818 filed 08/08/06
- 9. Feldman MD, Milner TE, Oh JH, Kim E, Kumar K, Condit C, Grant R, Kemp N, Kim J. OCT using spectrally resolved bandwidth. Provisional 60/687, 930; PCT/US/US2006/021629; US 11/446, 683 filed 06/05//06
- 10. **Feldman MD,** Milner TE, Oh JH, Cilingiroglu M. Optical coherence tomography imaging using nanoparticles. Provisional 60/685, 559; PCT/US2006/020903; US 11/441, 824 filed 05/26/06
- 11. **Feldman MD**, Valvano JW, Pearce JA. Method and apparatus for determining cardiac performance in a patient. Provisional 60/753, 105 filed 12/22/05
- 12. Milner TE, **Feldman MD**, Jung-Hwan Oh, Shaochen Chen. Rotating optical coherence tip for optical coherence tomography. US 11/551, 684; PCT/US2006/04115 filed 10/20/06
- 13. Feldman MD, Milner TE, Shaochen C, Kim JY, Han L, Oh JH, Huerta CB. Catheter imaging probe and method. Provisional 60/466, 215; PCT/US2004/12773; 10/548, 982 filed 5/2/06
- 14. **Feldman MD**, Milner TE, Kim J, Oh H, Sanghi P, Mancuso J. Pulsed laser to both identify and kill macrophages causing tissue pathology including vulnerable plaque. Provisional 60/790, 248 filed 4/7/06
- Feldman MD, Chen Sc, Han LH, Aguilar CA, Ayon A, Agrawal C, Johnson D, Patel D, Bailey S. Cardiovascular power source for automatic implantable cardiac defibrillators. Provisional 60/883, 497 filed 01/04/07.
- 16. Kottam A, **Feldman MD**, Pearce J, Valvano J, Porterfield J. Method and apparatus for identifying the viability of ischemic myocardium of a patient. U.S. Patent # 61/070,931 filed 11/2/2008
- 17. **Feldman MD**, Johnston KP, Ma Li, Milner TE, Sokolov K. Rose shaped gold and iron oxide nano-structures and their applications: tissue imaging contrast enhancement, medical diagnostics and photo-thermal therapy. 2008. 035HSCS
- B. Selected peer-reviewed publications (in chronological order). (Selected from 85 peer-reviewed publications)
- 1. Villard JW, **Feldman MD**, Kim J, Milner TE, Freeman GL. Use of a blood substitute to determine instantaneous murine RV thickening with optical coherence tomography. Circulation 2002; (105): 1843 1849.
- Reyes M, Escobedo D, Lee S, Steinhelper M, Freeman GL, Feldman MD. Enhancement of contractility with sustained afterload in the intact murine heart: blunting of length dependent activation. Circulation 2003; (107): 2962–2968.
- 3. Alvarez JA, Reyes M, Escobedo D, Freeman GL, Steinhelper ME, **Feldman MD**. Enhanced left ventricular systolic function early in type 2 diabetic mice: clinical implications. Diabetes and Vascular Research 2004; 1: 89-94

- 4. Raghavan K, Wei CL, Kottman A, Altman DG, Fernandez DJ, Reyes M, Valvano JW, **Feldman MD**, Pearce JL. Design and instrumentation and data acquisition system for complex admittance measurement. Biomedical Sciences Instrumentation 2004; 40: 453-457.
- 5. Wei CL, Valvano JW, **Feldman MD**, Pearce JA. Nonlinear conductance-volume relationship for murine conductance catheter measurement system. IEEE Transactions on Biomedical Engineering 2005; 52(10): 1654-1661
- Bennett CL, Nebeker JR, Lyons EA, Samore MH, Feldman MD, McKoy JM, Carson KR, Belknap SM, Trifilio SM, Schumock GT, Yarnold PR, Davidson CJ, Evens AM, Morse RE, Kuzel TM, Parada JP, Cournoyer D, West DP, Sartor O, Tallman MS, Raisch DW. Introducing RADAR: The research on adverse drug events, and reports (RADAR) project. JAMA 2005; 293: 2131-2140.
- 7. Nebeker JR, Virmani R, Bennett CL, Hoffman JM, Samore MH, Alvarez J, Davidson CJ, McKoy JM, Raisch DW, Whisenant BK, Yarnold PR, Belknap SM, West DP, Gage JE, Morse RE, Gligoric G, Davidson L, **Feldman MD**. Hypersensitivity cases associated with drug-eluting coronary stents. JACC 2006; 47 (1): 175-181.
- 8. Mahapatro A, Johnson DM, Patel DN, Feldman MD, Ayon AA, Agrawal CM. Surface modification of functional self assembled monolayers (SAMs) on 316L stainless steel via lipase catalysis. Langmuir 2006; 22 (3): 901-905.
- Cilingiroglu M, Oh J-H, Sugunan B, Kemp NJ, Kim J, Lee S, Zaatari HN, Escobedo D, Thomsen S, Milner TE, Feldman MD. Detection of vulnerable plaque in a murine model of atherosclerosis with optical coherence tomography. Catheterization Cardiovascular Interventions 2006; 67(6): 915-923.
- Reyes M, Steinhelper ME, Alvarez JA, Escobedo D, Pearce J, Valvano JW, Pollock BH, Wei CL, Kottam A, Altman D, Bailey S, Thomsen S, Colston JT, Oh JH, Freeman GL, Feldman MD. Impact of physiologic variables and genetic background on myocardial frequency-resistivity relations in the intact beating murine heart. AJP: Heart and Circulatory Physiology 2006; 291 (4): 1659 -1669.
- 11. Oh J, Feldman MD, Kim J, Condit C, Emelianov S, Milner TE. Detection of magnetic nanoparticles in tissue using magneto-motive ultrasound. Nanotechnology 2006; 17 (16): 4183 4190.
- 12. Mahapatro A, Johnson DA, Patel DN, **Feldman MD**, Ayon AA, Agrawal CM. The use of alkanethiol self-assembled monolayers (SAMs) on 316L stainless steel for coronary artery stent nanomedicine applications: an oxidative and in vitro stability study. Journal of Nanomedicine, Nanotechnology, Biology and Medicine 2006; 2 (3): 182-190.
- 13. Ayon A, Cantu M, Chava K, Agrawal CM, Feldman, MD, Johnson D, Patel D, Marton D, Shi E. Drug loading of nanoporous TiO2 Films. Journal of Biomedical Materials 2006; (4): L11-L15.
- 14. Oh J, **Feldman MD**, Kim J, Sanghi P, Kang HW, Milner TE. Magneto-motive detection of tissue-based macrophages by differential phase optical coherence tomography. Lasers in Surgery and Medicine 2007; 39 (3) 266-272.
- Colston JT, Boylston WH, Feldman MD, Jenkinson CP, De La Rosa S, Barton A, Trevino RJ, Freeman GL, Chandrasekar B. Interleukin-18 knockout mice display maladaptive cardiac hypertrophy in response to pressure overload. Biochemical Biophysical Research Communications 2007; 354 (2); 552-558.
- 16. Mani G, Feldman MD, Patel D, Agrawal CM. Coronary stents: A materials prospective. Journal Biomaterials Research 2007; 28 (9): 1689-1710.
- 17. Wei CL, Valvano JW, **Feldman MD**, Nahrendorf M, Peshock R, Pearce JA. Volume catheter parallel conductance varies between end-systole and end-diastole. IEEE Transactions on Biomedical Engineering 2007; 54; 1480-1489.
- Cortez MD, Feldman MD, Mummidi S, Valente AJ, Steffensen B, Vicenti M, Barnes JL, Chandreasekar B. The Novel Cytokine IL-17stimulates MMP-1 expression in primary human cardiac fibroblasts via p38 MAPK and ERK-dependent C/EBP-beta, NF-kappa-B, and AP-1 activation. Am J Physiol, Heart and Circulatory Physiology 2007; 293; H3356-H3365.
- 19. Cilingiroglu M, Oh J-H, Sanghi PK, Kemp NJ, Thomsen S, Milner TE, **Feldman MD**. Clinical lessons from Optical Coherence Tomography imaging of Apo E knockout mice. Handbook of Optical Coherence Tomography in Cardiovascular Research. Edited by E. Regar, TG van Leeuwen and P Serruys. Informa Healthcare, London, 2007.
- Johnson DM, Mahapatro A, Patel DN, Feldman MD, Ayon AA, Agrawal CM. Drug delivery from therapeutic selfassembled monolayers (T-SAMs) on 316 L stainless steel. Current Topics in Medicinal Chemistry 2008; 8 (4):281-289.
- 21. Mani G, Johnson DM, Marton, D, **Feldman, MD**, Patel D, Ayon, A, Agrawal, CM. Drug delivery from gold and titanium surfaces using self-assembled monolayers, Biomaterials 2008; 29 (34): 4561-73.
- 22. Mani G, Johnson DM, Marton D, Dougherty V, Feldman, MD, Patel D, Ayon A, Agrawal CM. Stability of selfassembled monolayers on titanium and gold. Langmuir 2008; 24: 6774 - 6784.
- Oh J, Feldman MD, Kim J, Sanghi P, Do D, Mancuso JJ, Kemp N, Cilingiroglu M, Milner TE. Detection of macrophages in atherosclerotic tissue using magnetic nanoparticles and differential phase optical coherence tomography. J Biologic Optics 2008; 13 (5): 054006.
- 24. Kim J, Oh J, Wook KH, Feldman MD, Milner TE. Photothermal response of superparamagnetic iron oxide nanoparticles. Lasers in Surgery and Medicine 2008; 40: 415-421.
- 25. Mani G, Feldman MD, Oh S, Agrawal CM. Surface modification of Cobalt-chromium-tungsten-nickel alloy surfaces using octadecyl-trichloro-silanes. Applied Surface Science 2009; 255 (11): 5961-5970.
- 26. Villard JW, Cheruku KK, **Feldman MD**. Applications of optical coherence tomography in cardiovascular medicine, part 1. Journal of Nuclear Cardiology 2009; 16 (2): 287-303.
- 27. Raghavan K, Porterfield JE, Kottam TG, **Feldman MD**, Escobedo D, Valvano JW, Pearce JA. Electrical conductivity and permittivity of murine myocardium. IEEE Transactions on Biomedical Engineering 2009; 56 (8): 2044-2053.

- 28. Mani G, Chandrasekar B, **Feldman MD**, Patel D, Agrawal CM. Interaction of endothelial cells with self-assembled monolayers for potential use in drug-eluting coronary stents. Journal of Biomedical Materials Research: Part B Applied Biomaterials 2009; 90 (2): 789-801.
- 29. Villard JW, Paranjape AS, Victor DA, **Feldman MD.** Applications of optical coherence tomography in cardiovascular medicine, part 2. Journal of Nuclear Cardiology 2009; 16 (4): 620-639.
- 30. Ma LL, **Feldman MD**, Tam JM, Paranjape AS, Cheruku KK, Larson TA, Tam JO, Ingram DR, Paramita V, Villard JW, Clarke GD, Jenkins JT, Asmis R, Sokolov K, Chandrasekar B, Milner TE, Johnston KP. Small multifunctional nanoclusters (Nanoroses) for targeted cellular imaging and therapy. ACS Nano 2009; 3 (9): 2686-2696.
- 31. Fan W, Johnson DM, **Feldman MD**. Metallic stents coated with bio-absorbable polymers. Cardiac Interventions Today 2009; 3 (4):42-49.
- Porterfield J, Kottam A, Raghavan K, Escobedo D, Jenkins JT, Larson E, Trevino RJ, Valvano JW, Pearce JA, Feldman MD. Dynamic correction for parallel conductance, Gp, and gain factor alpha, in invasive murine left ventricular volume measurements. Journal Applied Physiology 2009; 107: 1693-1703.
- 33. Rastogi A, Bose T, Feldman MD, Patel D, Stavchansky S. Characterization of nanoporous surfaces as templates for drug delivery devices. American Association Pharmaceutical Scientists 2009; Oct. 30 [Epub ahead of print]
- 34. Trevino RJ, Jones DL, Escobedo D, Porterfield J, Larson E, Chisholm GB, Barton A, **Feldman MD**. Validation of a new micro-manometer pressure sensor for cardiovascular measurements in mice. Biomedical Instrumentation and Technology. In press, 2010.

C. Research Support

Feldman (Collaborator)

Ongoing Research Support

AHA Grant-in-Aid Using nanowires to convert cardiac motion into electrical energy for medical implants There is no overlap with the current AHA grant application.

Pending Research Support

Feldman (PI)

VA Merit – Priority Score 154, Percentile 4.4

Identification of vulnerable plaque with optical coherence tomography (OCT)

The VA Merit grant is funding the use of light (Optical Coherence Tomography) to image macrophages in plaque. There is no overlap with the current AHA grant application.

04/1/2010 - 03/31/2014

07/01/2008 - 06/30/2010