

## Peter J. Fitzgerald, MD, Ph D

### Degrees and Training:

1974 - 1978	B.S. (EE) Computer Sciences, Santa Clara University
1978 - 1980	M.S. (EE) Electrical System Engineering, Rensselaer Polytechnic Institute
1980 - 1982	Research Assistant, Physiology, Engineering, Stanford University
1982 - 1987	Ph.D. Biomedical Engineering, Dartmouth College, Thayer School Engineering
1982 - 1987	M.D. Medicine, Dartmouth Medical School
1987 - 1989	Resident in Medicine, University of California, San Francisco
1989 - 1993	Cardiology Fellow, University of California, San Francisco

### Positions:

1999 - Present	Associate Professor of Medicine (Cardiology), Stanford University School of Medicine
1994 - 1998	Assistant Professor of Medicine (Cardiology), Stanford University School of Medicine
1994 - Present	Associate Professor of Electrical Engineering (by courtesy), Stanford University School of Medicine
1994 - Present	<u>Co-Director</u> , Center for Research in Cardiovascular Interventions, Stanford University School of Medicine. <u>Director</u> , Core Cardiovascular Analysis Lab.

### Specialty Certification:

1990	Diplomate, American Board of Internal Medicine
1994	Cardiovascular Medicine (Interventional)

### Honors, Grants and Awards:

1976-78	Tau Beta Pi, Academic Engineering Honors Society
1978-79	Rensselaer Polytechnic Institute: Graduate Teaching Fellowship
1979-80	Eta Kappa Nu Academic Engineering Honors Society
1982-85	Mather Foundation Research Fellowship Award: "Quantitative Two-Dimensional Ultrasound Cardiac Tissue Characterization"
1985-87	Charles F. Goodrich Engineering Award for Outstanding Academic Achievement (Dartmouth)
1986-87	Fletcher Research Award (Dartmouth Medical School)
1989-91	American Heart Association Fellowship: "Intravascular Ultrasonic Imaging"
1991-92	ACC Affiliate in Training Award
1991-92	Hewlett-Packard Fellowship: "Intravascular Tissue Characterization"
1992-93	Devices for Vascular Interventions: "Plaque characterization with validation from DCA specimens"
1995-96	Device Development: Hewlett-Packard Research Grant
1998-Present	Baxter Foundation Award-"Tissue Characterization of Vulnerable Plaque"

### Societies and Affiliations:

Fellow, American College of Cardiology  
Member, American Medical Association  
Member, American Society of Echocardiography  
Member, American Federation of Clinical Research

## Medical Advisory Boards

Boston Scientific Corporation

AVE/Medtronics

Pharmasonics Inc.  
Endosonics Corporation  
Exponent Systems  
Rubicore Medical  
Mill Valley Medical Devices  
Pathway Medical Technology  
SmithKline Beecham Corporation  
MicroHelix Systems  
Transvascular Inc.  
MediVasc Inc.  
EndoTex Systems  
TIMI 3 Systems  
IMETR<sub>x</sub>  
LibraMed  
Planet-well.com  
Ecliniq.com  
Mitralife

A-Med Systems  
Embolx Systems  
IRL/Jomed (Europe)  
Point Biomedical Systems  
Odessey Systems  
Fox Hollow Technology  
Lumed Technologies  
Advanced Stent Technologies  
Indec Systems  
AngioSense Inc.  
Medical Technology Group  
PharmaSpec. Inc  
Phamacyclics  
Cytograph Engineering  
CardioNow.com  
InVivoData.com  
Novasonics

## Core Lab Trials (Principal Investigator):

1995-97	<b>ABACAS:</b> Bros. Adjunctive Balloon Angioplasty following Coronary Atherectomy Study	Getz
1997-	<b>APRAISE:</b> A Dose Response Study to Evaluate the Efficacy and Safety of Three Doses of the Antisense Oligonucleotide LR-3200 versus Placebo in the Prevention of Restenosis in Patients Undergoing PTCA and Stent Implantation.	Schwarz Pharma
1996-97	<b>ASSURE:</b> A Stent vs Stent Ultrasound Remodeling Evaluation (substudy of SCORES Trial)	SCIMED Life
1996-	<b>AVID:</b> Angiography Versus Intravascular Ultrasound-Directed Coronary Stent Placement	SCIMED Life
1996-97	<b>CRUISE:</b> Can Routine Ultrasound Influence Stent Expansion (substudy of STARS trial)	Johnson & Johnson
1997-	<b>DESIRE:</b> DEbulking and Stenting In Restenosis Elimination	Guidant Corporation
1998-	<b>FORECAST:</b> FFR or RFVR Evaluation of Coronary Artery Stenosis vs Thallium Scan	RADI Medical

1998-	<b>GIPSI:</b> Gradual Inflation at Optimum Pressure Versus Stent Implantation Trial	Guidant Corporation
1994-96	<b>GUIDE:</b> Guidance by Ultrasound Imaging for Decision Endpoints	Boston Scientific
1999-	<b>Infiltrator:</b> Ethyl Alcohol to Reduce Coronary Intimal Hyperplasia after Stenting using the Infiltrator Intramural Drug Delivery Catheter	Interventional Technologies
1995-97	<b>OARS:</b> Optimal Stent Implantation Study	Guidant Corporation
1995-96	<b>OSTI I:</b> Dynamics Optimal Stent Implantation Study	CardioVascular
1995-	<b>OSTI II:</b> Dynamics The second Optimal Stent Implantation Study	CardioVascular
1998-	<b>PRESTO:</b> Prevention of REStenosis with Tranilast and Its Outcomes: A Double Blind Placebo Controlled Trial	SmithKline Beecham
1997-	<b>PREVENT:</b> Phase I Study of the NeoCardia Intravascular Brachytherapy System.	Guidant Corporation
1997-	<b>REDUCE:</b> Ltd Restenosis Reduction by Cutting Balloon Evaluation	Goodman Co,
1998-	<b>START:</b> Corp. STents And Radiation Therapy Trial	Novoste
1998-	<b>ULTRA:</b> UtiLizing The GFX 2.5 stent in small diameter Arteries	AVE, Inc.
1998-	<b>WRIST:</b> Center Washington Radiation for In-stent ReStenosis Trial	Washington Hospital

**Recent Lectures (Selected):**

July 1999	Cardiovascular Interventions, Technology at the Summit, Aspen, CO
Jan 2000	Transcatheter Cardiovascular Interventions, New Delhi, India <i>Intravascular Ultrasound: Present Status and Future Applications in Percutaneous Interventions, Mechanism: Lessons Learned from IVUS and Doppler Flowwire</i>
Jan 2000	First European Cardiovascular Summit, Netherlands <i>IVUS, A Necessary Tool in Brachytherapy</i>
Feb 2000	Spanish Society Cardiology, Andorra, Spain

Mar 2000 VIII Curso de Cardiologia Intervencionista, Mexico  
*The Practical Uses of IVUS, Therapeutic Ultrasound for Instant Restenosis*  
Apr 2000 Vascular Brachytherapy 2000, Italy  
Apr 2000 Cardiology Fiesta in San Antonio: Update on Cardiac, Diagnostic and  
Therapeutic Techniques, San Antonio, Texas

**Recent Courses Chaired:**

Mar 1999 American College of Cardiology, Fireside Panel, "Intravascular Ultrasound:  
Present and Future Applications", New Orleans, LA

**Recent Grand Rounds (Selected):**

July 1998 Albert Einstein College of Medicine  
Aug 1998 Baylor College of Medicine  
Nov 1998 Texas Heart Institute

**Selected University Appointments and Committees:**

Admissions Committee: Medical School  
Admissions Committee: Residency Program  
Co-Director, Center for Research in Cardiovascular Interventions  
Search Committee: Interventional Cath Lab position

**National, State, Governmental Committees:**

- Federal Drug Administration, Consultant to the Radiological Devices Panel, other panels of the Medical Devices Advisory Committee and Center for Devices and Radiological Health (June 1998-June 2002)
- Consultant, American College of Cardiology  
ACC-DICOM  
IVUS Expert, Consensus Writing Group

**Editorial Boards:**

Editorial Board, "Endovascular Radiation Therapy Digest"  
Editorial Board, "International Journal of Cardiovascular Interventions"  
Editorial Board, "Heart"

**Specialized Clinical Techniques:**

Coronary angioplasty, atherectomy, stenting  
Valvuloplasty  
Intravascular ultrasound  
Coronary arteriography  
Endomyocardial biopsy  
Two-dimensional echocardiography  
Doppler echocardiography  
Color flow echocardiography

**Patents:**

1. **Fitzgerald PJ**, Hassen A. Hemostatic Valve Assembly with Telescopic Part. 98/51364. AT/97/835, Austrian patent #405.908
2. **Fitzgerald PJ**, Hassen A. Catheter Fitting. AT/97/1224.

3. **Fitzgerald PJ**, Hassan A. Ultrasound Catheter with Capability of Side-Irradiation. WO 00/11325. AT/97/1462.
4. Kolz M., **Fitzgerald PJ**, Kino G. Method and Apparatus for Curvature Detection in Vessels. Filed 9/21/98. US patent no. 5,916,170.

#### Refereed Journal Articles:

1. Pollick C, Pittman M, Filly K, **Fitzgerald PJ**, Popp RL. Mitral and aortic valve orifice area in normal subjects and in patients with congestive cardiomyopathy: determination by two dimensional echocardiography. *Am J Cardiol.* 1982;49:1191-6.
2. Schnittger I, **Fitzgerald PJ**, Daughters GT, Ingels NB, Kantrowitz NE, Schwarzkopf A, Mead CW, Popp RL. Limitations of comparing left ventricular volumes by two dimensional echocardiography, myocardial markers and cineangiography. *Am J Cardiol.* 1982;50:512-9.
3. Gordon EP, Schnittger I, **Fitzgerald PJ**, Williams P, Popp RL. Reproducibility of left ventricular volumes by two-dimensional echocardiography. *J Am Coll Cardiol.* 1983;2:506-13.
4. Green SE, Joynt LF, **Fitzgerald PJ**, Rubenson DS, Popp RL. In vivo ultrasonic tissue characterization of human intracardiac masses. *Am J Cardiol.* 1983;51:231-6.
5. Kantrowitz NE, Schnittger I, Schwarzkopf A, **Fitzgerald PJ**, Popp RL. Rapid, semiautomated technique for estimating left ventricular volume. *Am Heart J.* 1983;106:521-7.
6. Pollick C, **Fitzgerald PJ**, Popp RL. Variability of digitized echocardiography: size, source, and means of reduction. *Am J Cardiol.* 1983;51:576-82.
7. Schnittger I, Gordon EP, **Fitzgerald PJ**, Popp RL. Standardized intracardiac measurements of two-dimensional echocardiography. *J Am Coll Cardiol.* 1983;2:934-8.
8. Schnittger I, **Fitzgerald PJ**, Gordon EP, Alderman EL, Popp RL. Computerized quantitative analysis of left ventricular wall motion by two-dimensional echocardiography. *Circulation.* 1984;70:242-54.
9. **Fitzgerald PJ**, McDaniel MM, Rolett EL, James DH, Strohbahn JW. Two-dimensional ultrasonic variation in myocardium throughout the cardiac cycle. *Ultrason Imaging.* 1986;8:241-51.
10. **Fitzgerald PJ**, McDaniel MD, Rolett EL, Strohbahn JW, James DH. Two-dimensional ultrasonic tissue characterization: backscatter power, endocardial wall motion, and their phase relationship for normal, ischemic, and infarcted myocardium. *Circulation.* 1987;76:850-9.
11. St Goar FG, Pinto FJ, Alderman EL, **Fitzgerald PJ**, Stadius ML, Popp RL. Intravascular ultrasound imaging of angiographically normal coronary arteries: an in vivo comparison with quantitative angiography. *J Am Coll Cardiol.* 1991;18:952-8.
12. Sudhir K, **Fitzgerald PJ**, MacGregor JS, DeMarco T, Ports TA, Chatterjee K, Yock PG. Transvenous coronary ultrasound imaging. A novel approach to visualization of the coronary arteries. *Circulation.* 1991;84:1957-61.

13. Yock PG, **Fitzgerald PJ**, Sudhir K, Linker DT, White W, Ports A. Intravascular ultrasound imaging for guidance of atherectomy and other plaque removal techniques. *Int J Card Imaging*. 1991;6:179-89.
14. **Fitzgerald PJ**, Ports TA, Yock PG. Contribution of localized calcium deposits to dissection after angioplasty. An observational study using intravascular ultrasound. *Circulation*. 1992;86:64-70.
15. **Fitzgerald PJ**, St Goar FG, Connolly AJ, Pinto FJ, Billingham ME, Popp RL, Yock PG. Intravascular ultrasound imaging of coronary arteries. Is three layers the norm? *Circulation*. 1992;86:154-8.
16. Kimura BJ, **Fitzgerald PJ**, Sudhir K, Amidon TM, Strunk BL, Yock PG. Guidance of directed coronary atherectomy by intracoronary ultrasound imaging. *Am Heart J*. 1992;124:1365-9.
17. St Goar FG, Pinto FJ, Alderman EL, **Fitzgerald PJ**, Stinson EB, Billingham ME, Popp RL. Detection of coronary atherosclerosis in young adult hearts using intravascular ultrasound. *Circulation*. 1992;86:756-63.
18. Yamada EG, **Fitzgerald PJ**, Sudhir K, Hargrave VK, Yock PG. Intravascular ultrasound imaging of blood: the effect of hematocrit and flow on backscatter. *J Am Soc Echocardiogr*. 1992;5:385-92.
19. Clifford L, **Fitzgerald P**, James D. Non-Rayleigh first-order statistics of ultrasonic backscatter from normal myocardium. *Ultrasound Med Biol*. 1993;19:487-95.
20. Cushing GL, **Fitzgerald PJ**, Bommer WJ, Andrews MW, Cronan MS, Martinez-Torres GG, Jang YT, Belef WM, Prindiville TP. Intraluminal ultrasonography during ERCP with high-frequency ultrasound catheters. *Gastrointest Endosc*. 1993;39:432-5.
21. **Fitzgerald PJ**, Kaplan JD, Smedira N, Struck A, Schiller NB, Redberg RF. Unusual case of total pulsus alternans that resulted from varying afterload caused by a subclavian artery rupture. *Am Heart J*. 1993;126:1000-2.
22. **Fitzgerald PJ**, Yock PG. Mechanisms and outcomes of angioplasty and atherectomy assessed by intravascular ultrasound imaging. *J Clin Ultrasound*. 1993;21:579-88.
23. Sudhir K, MacGregor JS, Barbant SD, Foster E, **Fitzgerald PJ**, Chatterjee K, Yock PG. Assessment of coronary conductance and resistance vessel reactivity in response to nitroglycerin, ergonovine and adenosine: in vivo studies with simultaneous intravascular two-dimensional and Doppler ultrasound. *J Am Coll Cardiol*. 1993;21:1261-8.
24. Chu E, Kalman JM, Kwasman MA, Jue JC, **Fitzgerald PJ**, Epstein LM, Schiller NB, Yock PG, Lesh MD. Intracardiac echocardiography during radiofrequency catheter ablation of cardiac arrhythmias in humans. *J Am Coll Cardiol*. 1994;24:1351-7.
25. Denardo SJ, Talbot L, Hargrave VK, **Fitzgerald PJ**, Selfridge AR, Yock PG. Analysis of pulsed wave Doppler ultrasound spectra obtained from a model intracoronary catheter. *IEEE Trans Biomed Eng*. 1994;41:635-48.
26. Friedrich GJ, Moes NY, Muhlberger VA, Gabl C, Mikuz G, Hausmann D, **Fitzgerald PJ**, Yock PG. Detection of intralumenal calcium by intracoronary ultrasound depends on the histologic pattern. *Am Heart J*. 1994;128:435-41.
27. Hausmann D, Lundkvist AJ, Friedrich G, Sudhir K, **Fitzgerald PJ**, Yock PG. Lumen and plaque shape in atherosclerotic coronary arteries assessed by in vivo intracoronary ultrasound. *Am J Cardiol*. 1994;74:857-63.

28. Hausmann D, Lundkvist AJ, Friedrich GJ, Mullen WL, **Fitzgerald PJ**, Yock PG. Intracoronary ultrasound imaging: intraobserver and interobserver variability of morphometric measurements. *Am Heart J*. 1994;128:674-80.
29. Hausmann D, Sudhir K, Mullen WL, **Fitzgerald PJ**, Ports TA, Daniel WG, Yock PG. Contrast-enhanced intravascular ultrasound: validation of a new technique for delineation of the vessel wall boundary. *J Am Coll Cardiol*. 1994;23:981-7.
30. **Fitzgerald PJ**, Belef M, Connolly AJ, Sudhir K, Yock PG. Design and initial testing of an ultrasound-guided directional atherectomy device. *Am Heart J*. 1995;129:593-8.
31. **Fitzgerald PJ**, Ports TA, Cheitlin MD, Magilligan DJ, Tyrrell JB. Intracardiac pheochromocytoma with dual coronary blood supply: case report and literature review. *Cardiovasc Surg*. 1995;3:557-61.
32. Hausmann D, Erbel R, Alibelli-Chemarin M-J, Bokscho W, Caracciolo E, Cohn JM, Culp SC, Daniel WG, Scheerder ID, DiMario C, James J. Ferguson I, **Fitzgerald PJ**, Guy Friedrich M, Ge J, Gorge Gt, Hanrath P, Hodgson JM, Isner JM, Jain S, Maier-Rudolph W, Mooney M, Moses JW, Mudra H, Pinto FJ, Smalling RW, Talley JD, Tobis JM, Walter PD, Weidinger F, Werner GS, Yeung AC, Yock PG. The safety of intracoronary ultrasound. A multicenter survey of 2207 examinations. *Circulation*. 1995;91:623-30.
33. Stertz SH, Pomerantsev EV, **Fitzgerald PJ**, Shaw RE, Walton AS, Singer AH, Yeung A, Yock PG, Oesterle SN. Effects of technique modification on immediate results of high speed rotational atherectomy in 710 procedures on 656 patients. *Cathet Cardiovasc Diagn*. 1995;36:304-10.
34. Sudhir K, Mullen WL, Hausmann D, **Fitzgerald PJ**, Chou TM, Yock PG, Chatterjee K. Contribution of endothelium-derived nitric oxide to coronary arterial distensibility: an in vivo two-dimensional intravascular ultrasound study. *Am Heart J*. 1995;129:726-32.
35. Hausmann D, Friedrich G, Soni B, Daniel WG, **Fitzgerald PJ**, Yock PG. Validation of automated border detection in intravascular ultrasound images. *Echocardiography*. 1996;13:599-608.
36. Hausmann D, Johnson JA, Sudhir K, Mullen WL, Friedrich G, **Fitzgerald PJ**, Chou TM, Ports TA, Kane JP, Malloy MJ, Yock PG. Angiographically silent atherosclerosis detected by intravascular ultrasound in patients with familial hypercholesterolemia and familial combined hyperlipidemia: correlation with high density lipoproteins. *J Am Coll Cardiol*. 1996;27:1562-70.
37. Hayase M, Yock PG, **Fitzgerald PJ**. Intravascular Ultrasound. *Jpn J Med Ultrasonics*. 1996;23:709-722.
38. Kalman JM, Jue J, Sudhir K, **Fitzgerald P**, Yock P, Lesh MD. In vitro quantification of radiofrequency ablation lesion size using intracardiac echocardiography in dogs. *Am J Cardiol*. 1996;77:217-9.
39. Schwarzacher SP, Yock PG, **Fitzgerald PJ**. Emerging role of intravascular ultrasound. *Cardiology in Review*. 1996;4:70-79.
40. Stertz SH, Pomerantsev EV, **Fitzgerald PJ**, Yock PG, Yeung AC, Shaw RE, Walton AS, Singer AH, Sanders WJ, Oesterle SN. High-speed rotational atherectomy: six-month serial quantitative coronary angiographic follow-up. *Am Heart J*. 1996;131:639-48.
41. Pomerantsev EV, Kim C, Kernoff RS, Oesterle SN, Yeung A, **Fitzgerald PJ**, Virmani R, Yock PG, Stertz SH. Coronary AVE micro stents: serial quantitative angiography and histology in a canine model. *Cathet Cardiovasc Diagn*. 1997;41:213-24.

42. Schwarzacher SP, Honda Y, Metz JA, Asvar CA, **Fitzgerald PJ**, Yock PG. Impact of curve distortion errors on intravascular ultrasound measurements and three-dimensional reconstructions. *Am J Cardiol.* 1997;79:384-7.
43. Schwarzacher SP, Metz JA, Yock PG, **Fitzgerald PJ**. Vessel tearing at the edge of intracoronary stents detected with intravascular ultrasound imaging. *Cathet Cardiovasc Diagn.* 1997;40:152-5.
44. **Fitzgerald PJ**, Yock C, Yock PG. Orientation of intracoronary ultrasonography: looking beyond the artery. *J Am Soc Echocardiogr.* 1998;11:13-9.
45. Gummert JF, Ikonen T, Briffa N, Honda Y, Hayase M, Perlroth J, Kobayashi Y, Hausen B, Barlow C, Billingham ME, **Fitzgerald P**, Yock PG, Robbins RC, Morris RE. A new large-animal model for research of graft vascular disease. *Transplant Proc.* 1998;30:4023.
46. Lansky AJ, Mintz GS, Popma JJ, Pichard AD, Kent KM, Satler LF, Baim DS, Kuntz RE, Simonton C, Bersin RM, Hinohara T, **Fitzgerald PJ**, Leon MB. Remodeling after directional coronary atherectomy (with and without adjunct percutaneous transluminal coronary angioplasty): a serial angiographic and intravascular ultrasound analysis from the Optimal Atherectomy Restenosis Study. *J Am Coll Cardiol.* 1998;32:329-37.
47. Moore MP, Spencer T, Salter DM, Kearney PP, Shaw TR, Starkey IR, **Fitzgerald PJ**, Erbel R, Lange A, McDicken NW, Sutherland GR, Fox KA. Characterisation of coronary atherosclerotic morphology by spectral analysis of radiofrequency signal: in vitro intravascular ultrasound study with histological and radiological validation. *Heart.* 1998;79:459-67.
48. Oesterle SN, Whitbourn R, **Fitzgerald PJ**, Yeung AC, Stertz SH, Dake MD, Yock PG, Virmani R. The stent decade: 1987 to 1997. Stanford Stent Summit faculty. *Am Heart J.* 1998;136:578-99.
49. Oshima A, Itchhaporia D, **Fitzgerald PJ**. New developments in intravascular ultrasound. *Vascular Medicine.* 1998;3:281-290.
50. Pomerantsev EV, Kobayashi Y, **Fitzgerald PJ**, Grube E, Sanders WJ, Alderman EL, Oesterle SN, Yock PG, Stertz SH. Coronary stents: In vitro aspects of an angiographic and ultrasound quantification with in vivo correlation. *Circulation.* 1998;98:1495-503.
51. Schwarzacher SP, **Fitzgerald PJ**, Metz JA, Yeung AC, Oesterle SN, Belef M, Kernoff RS, Yock PG. Enhancement of spatial orientation of intravascular ultrasound images with side holes in guiding catheters. *Am Heart J.* 1998;135:1063-6.
52. Simonton CA, Leon MB, Baim DS, Hinohara T, Kent KM, Bersin RM, Wilson BH, Mintz GS, **Fitzgerald PJ**, Yock PG, Popma JJ, Ho KK, Cutlip DE, Senerchia C, Kuntz RE. 'Optimal' directional coronary atherectomy: final results of the Optimal Atherectomy Restenosis Study (OARS). *Circulation.* 1998;97:332-9.
53. Bersin RM, Cedarholm JC, Kowalchuk GJ, **Fitzgerald PJ**. Long-term clinical follow-up of patients treated with the coronary rotablator: a single-center experience. *Catheter Cardiovasc Interv.* 1999;46:399-405.
54. Honda Y, Yock PG, **Fitzgerald PJ**. Impact of residual plaque burden on clinical outcomes of coronary interventions. *Catheter Cardiovasc Interv.* 1999;46:265-76.
55. Ikonen TS, Gummert JF, Honda Y, Hayase M, Perlroth J, Hausen B, Barlow C, **Fitzgerald P**, Yock PG, Morris RE. Development of models of graft vascular disease in nonhuman



- primates: evaluation of GVD by intravascular ultrasound in a new cynomolgus model with arterial allograft exchange. *Transplant Proc.* 1999;31:687.
56. Jeremias A, Kolz ML, Ikonen TS, Gummert JF, Oshima A, Hayase M, Honda Y, Komiyama N, Berry GJ, Morris RE, Yock PG, **Fitzgerald PJ**. Feasibility of in vivo intravascular ultrasound tissue characterization in the detection of early vascular transplant rejection. *Circulation.* 1999;100:2127-30.
  57. Kobayashi Y, Amaro M, **Fitzgerald PJ**. Acute coronary closure after stenting: a lesson from intravascular ultrasound. *Int J Cardiovasc Interventions.* 1999;2:51-54.
  58. Komiyama N, Chronos NA, Uren NG, Moore MP, Kelly AB, Harker LA, Hanson SR, Metz JA, Yock PG, **Fitzgerald PJ**. The progression of thrombus in an ex-vivo shunt model evaluated by intravascular ultrasound radiofrequency analysis. *Ultrasound Med Biol.* 1999;25:561-6.
  59. Lee FH, Yeung AC, Fowler MB, **Fitzgerald PJ**. Spontaneous postpartum coronary dissection. *Circulation.* 1999;99:721.
  60. Limpijankit T, Waksman R, Yock PG, **Fitzgerald PJ**. Intravascular ultrasound volumetric assessment of intimal hyperplasia in stents treated with intracoronary radiation. *Am J Cardiol.* 1999;84:850-4, A8.
  61. Oesterle SN, Limpijankit T, Yeung AC, Stertz S, Pomerantsev E, Yock PG, **Fitzgerald PJ**. Ultrasound logic: the value of intracoronary imaging for the interventionist. *Catheter Cardiovasc Interv.* 1999;47:475-90.
  62. Stone GW, St. Goar FG, Hodgson JM, **Fitzgerald PJ**, Alderman EL, Yock PG, Coverdale J, Sheehan H, Linnemeier TJ. Analysis of the relation between stent implantation pressure and expansion. Optimal Stent Implantation (OSTI) Investigators. *Am J Cardiol.* 1999;83:1397-400, A8.
  63. Suzuki T, Hosokawa H, Katoh O, Fujita T, Ueno K, Takase S, Fujii K, Tamai H, Aizawa T, Yamaguchi T, Kurogane H, Kijima M, Oda H, Tsuchikane E, Hinohara T, **Fitzgerald PJ**. Effects of adjunctive balloon angioplasty after intravascular ultrasound-guided optimal directional coronary atherectomy: the result of Adjunctive Balloon Angioplasty After Coronary Atherectomy Study (ABACAS). *J Am Coll Cardiol.* 1999;34:1028-35.
  64. Filardo SD, Schwarzacher SP, Lo ST, Herity NA, Lee DP, Huegel H, Mullen WL, **Fitzgerald PJ**, Ward MR, Yeung AC. Acute myocardial infarction and vascular remodeling. *Am J Cardiol.* 2000;85:760-762.
  65. **Fitzgerald PJ**, Oshima A, Hayase M, Metz JA, Bailey SR, Baim DS, Cleman MW, Deutsch E, Diver DJ, Leon MB, Moses JW, Oesterle SN, Overlie PA, Pepine CJ, Safian RD, Shani J, Simonton CA, Smalling RW, Teirstein PS, Zidar JP, Yeung AC, Kuntz RE, Yock PG. Final results of the Can Routine Ultrasound Influence Stent Expansion (CRUISE) study. *Circulation.* 2000;102:523-30.
  66. Gilutz H, Russo RJ, Tsameret I, **Fitzgerald PJ**, Yock PG. Comparison of coronary stent expansion by intravascular ultrasonic imaging in younger versus older patients with diabetes mellitus. *Am J Cardiol.* 2000;85:559-62.
  67. Herity NA, Lo ST, Oei F, Lee DP, Ward MR, Filardo SD, Hassan A, Suzuki T, Rezaee M, Carter AJ, Yock PG, Yeung AC, **Fitzgerald PJ**. Selective regional myocardial infiltration by the percutaneous coronary venous route: A novel technique for local drug delivery. *Catheter Cardiovasc Interv.* 2000;51:358-63.

68. Hibi K, Takagi A, Zhang X, Teo TJ, Bonneau HN, Yock PG, **Fitzgerald PJ**. Feasibility of a novel blood noise reduction algorithm to enhance reproducibility of ultra-high-frequency intravascular ultrasound images. *Circulation*. 2000;102:1657-63.
69. Holmes D, **Fitzgerald P**, Goldberg S, LaBlanche J, Lincoff AM, Savage M, Serruys PW, Willerson J, Granett JR, Chan R, Shusterman NH, Poland M. The PRESTO (Prevention of restenosis with tranilast and its outcomes) protocol: a double-blind, placebo-controlled trial. *Am Heart J*. 2000;139:23-31.
70. Jeremias A, Filardo SD, Whitbourn RJ, Kernoff RS, Yeung AC, **Fitzgerald PJ**, Yock PG. Effects of intravenous and intracoronary adenosine 5'-triphosphate as compared with adenosine on coronary flow and pressure dynamics. *Circulation*. 2000;101:318-23.
71. Jeremias A, Huegel H, Lee DP, Hassan A, Wolf A, Yeung AC, Yock PG, **Fitzgerald PJ**. Spatial orientation of atherosclerotic plaque in non-branching coronary artery segments. *Atherosclerosis*. 2000;152:209-15.
72. Jeremias A, Spies C, Herity NA, Pomerantsev E, Yock PG, **Fitzgerald PJ**, Yeung AC. Coronary artery compliance and adaptive vessel remodelling in patients with stable and unstable coronary artery disease. *Heart*. 2000;84:314-9.
73. Jeremias A, Whitbourn RJ, Filardo SD, **Fitzgerald PJ**, Cohen DJ, Tuzcu EM, Anderson WD, Abizaid AA, Mintz GS, Yeung AC, Kern MJ, Yock PG. Adequacy of intracoronary versus intravenous adenosine-induced maximal coronary hyperemia for fractional flow reserve measurements. *Am Heart J*. 2000;140:651-7.
74. Komiyama N, Berry GJ, Kolz ML, Oshima A, Metz JA, Preuss P, Brisken AF, Pauliina Moore M, Yock PG, **Fitzgerald PJ**. Tissue characterization of atherosclerotic plaques by intravascular ultrasound radiofrequency signal analysis: An in vitro study of human coronary arteries. *Am Heart J*. 2000;140:565-74.
75. Maehara A, **Fitzgerald PJ**. Coronary calcification: assessment by intravascular ultrasound imaging. *Z Kardiol*. 2000;89:112-6.
76. Maehara A, Takagi A, Okura H, Hassan AH, Bonneau HN, Honda Y, Yock PG, **Fitzgerald PJ**. Longitudinal plaque redistribution during stent expansion. *Am J Cardiol*. 2000;86:1069-72.
77. Raizner AE, Oesterle SN, Waksman R, Serruys PW, Colombo A, Lim YL, Yeung AC, van der Giessen WJ, Vandertie L, Chiu JK, White LR, **Fitzgerald PJ**, Kaluza GL, Ali NM. Inhibition of restenosis with beta-emitting radiotherapy: Report of the Proliferation Reduction with Vascular Energy Trial (PREVENT). *Circulation*. 2000;102:951-8.
78. Rockson SG, Kramer P, Razavi M, Szuba A, Filardo S, **Fitzgerald P**, Cooke JP, Yousuf S, DeVault AR, Renschler MF, Adelman DC. Photoangioplasty for human peripheral atherosclerosis : results of a phase I trial of photodynamic therapy with motexafin lutetium (Antrin). *Circulation*. 2000;102:2322-2324.
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