

## VASCULAR SURGERY

### OVERVIEW

Vascular Surgery continues a vigorous relationship with Interventional Radiology to provide patients with advanced treatment options for vascular disease. **Dr. Sumpio** is co-director of the Endovascular Center along with Dr. Aruny of Interventional Radiology. Drs. Sumpio and Gusberg hold joint appointments in the Department of Radiology. **Dr. Gusberg** was appointed Chief of Vascular Surgery Services at the Connecticut Veterans Affairs Healthcare Center. **Dr. Alan Dardik** has focused his clinical activities at the VA this year. He continues to be the site Principal Investigator for the OVER trial and is actively engaged in streamlining the outpatient Peripheral Vascular clinic.

**Dr. Bauer Sumpio** has maintained continuous funding of his NIH and VA Merit Review Grants after a successful renewal process. His work on hemodynamic forces and vascular disease continues to be the main focus of his laboratory. However, new investigation of the mechanisms of nicotine induced atherogenesis as well as the protective effects of red wine and green tea polyphenol components is resulting in exciting discoveries. Dr. Sumpio is also now actively involved in understanding the mechanism of the prevention of restenosis after cryoplasty through studies on the cryobiology of vascular cells. He is also pursuing investigations into the mechanism of enhanced wound healing formation through the application of vacuum therapy. **Dr. Alan Dardik** completed the relocation of his laboratory to the Boyer Center for Molecular Medicine as part of his appointment as Junior Faculty Scholar in the section of Vascular Biology and Transplantation. Dr. Dardik's laboratory continues to focus on the response of smooth muscle cells to shear stress as well as the influence of aging on vascular responses.

### FACULTY

	<i>Academic Rank</i>	<i>Academic Interests</i>
Bauer E. Sumpio, M.D. Ph.D.	Professor and Chief	Basic Science of Vascular Disease, Cryoangioplasty, Diabetic Limb Disease
Richard J. Gusberg, M.D.	Professor	Aneurysmal Disease of the Aorta, Renovascular Disease, and Carotid Disease; Surgical Education for Medical Students
Vivian Gahtan, M.D.	Associate Professor	Vascular Disease and Conditions
Alan Dardik, M.D., Ph.D.	Assistant Professor	Basic Science of Vascular Disease
E. Lynne Kelley, M.D.	Assistant Professor	Endovascular therapy
John Aruny, M.D.	Assistant Professor of Radiology and Surgery	Endovascular therapy
Jeffrey Pollak, M.D.	Associate Professor of Radiology and Surgery	Endovascular therapy

### VOLUNTARY FACULTY

Ralph Denatale, M.D.	Assistant Clinical Professor	Vascular surgery
Thomas Sweeney, M.D.	Assistant Clinical Professor	Vascular surgery

## STAFF

	<i>Position</i>
Beatrice Guess	Administrative Assistant
Helen Keiser-Pedersen, R.N.	Vascular Nurse
Tami Migic, P.A.-C.	Physician Assistant
Melanie Perry	Administrative Assistant
Robin Wall, P.A.-C.	Physician Assistant

## POST-DOCTORAL FELLOWS AND RESEARCHERS

	<i>Position</i>	<i>Institution of Last Degree</i>
Wei Li, M.D.	Assistant Research Scientist	Tianjin, China
Alfredo Cordova, M.D.	Post-doctoral fellow	University of Peru
Yuji Hoshino, M.D.	Post-doctoral fellow	Fukushima Medical School, Japan
Takayuki Kadohama, M.D.	Post-doctoral fellow	Asahikawa Medical College, Japan
Fabio Kudomaro, M.D.	Post-doctoral fellow	University of Hokkaido, Japan
Kengo Nishimura, M.D.	Post-doctoral fellow	Totori Medical School, Japan
Wai Ki Yu, M.D.	Post-doctoral fellow	University of Hong Kong

## CURRENT GRANT SUPPORT

	<i>Title</i>	<i>Funding Agency</i>	<i>Dates</i>
Bauer Sumpio, M.D., Ph.D.	Mechanisms by which endothelial cells sense changes in hemodynamics	National Institutes of Health (R01 HL 47345-08)	2003-2008
Bauer Sumpio, M.D., Ph.D.	Regulation of growth factor production by stretched endothelial cells	Veterans Administration Merit Review	2003-2008
Alan Dardik, M.D., Ph.D.	Regulation of Smooth Muscle Cells by Shear Stress	Pacific Vascular Research Foundation	2002-2005

## HONORS AND AWARDS

Bauer E. Sumpio, M.D., Ph.D.	Chair, Research Council, Society for Vascular Surgery
	Executive Council, American Vascular Association
	Secretary, Association of Program Directors of Vascular Surgery
	Councilor-at-Large, New England Society for Vascular Surgery
Richard Gusberg, M.D.	Society of Distinguished Teachers, Yale University School of Medicine
	Working Group on Systems-Based Practice, American College of Surgeons
	Subcommittee on Mentoring, American College of Surgeons

Membership Committee, New England Society for Vascular Surgery

Alan Dardik, M.D., Ph.D.

Wylie Scholar in Academic Vascular Surgery Award, Pacific Vascular Research Foundation, 2002-2005

The William J. von Liebig Vascular Academic Award, Peripheral Vascular Surgery Society, 2004-2005

Faculty Teaching Award, Surgical Residents of St. Mary's Hospital, Waterbury, CT, 2004

## **MAJOR INVITED LECTURES**

Bauer Sumpio, M.D., Ph.D.

"The need for basic science plus non-surgical training", Invited Speaker, UEMS Symposium, European Society for Vascular Surgery, Dublin, Ireland, September 2003

"Red wine and its cardioprotective effect", Invited Speaker, Minnesota Surgical Society, Minneapolis, MN, October 2003

"Future directions for surgical innovations in vascular surgery", Visiting Professor, University of Minnesota, October 2003

"Regulation of vascular wall biology by hemodynamic forces", Distinguished Professor, University of South Alabama, Mobile, AL, November 2003

"Future innovations for blood vessel reconstruction", Shumacker Distinguished Lecture, Uniformed Services United Health System, Bethesda, MD December 2003

"Multidisciplinary approach can save more diabetic feet-the Yale Experience", Invited Faculty, Controversies and Updates in Endovascular and Cardiac Surgery, Paris, France, January 2004

"Hemodynamic forces and coronary artery disease: The molecular basis", Invited Speaker, Japan Society for Cardiovascular Surgery, Fukuoka, Japan, February 2004

"Improving outcomes for diabetic feet", Invited Speaker, Wound Healing and Diabetic Foot Symposium, University of West Indies, Barbados, March 2004

"Hemodynamic forces and atherogenesis: the molecular basis", Visiting Professor, University of California Torrance, Long Beach, CA, April 2004

"Management of the diabetic foot", Invited Speaker, Kansas City Surgical Society, Kansas, MO, April 2004

"Clinical and biologic Relevance of a Cuffed Prosthetic Graft", Invited Speaker, Japan Society for Vascular Surgery, Tokyo, Japan, May 2004

Alan Dardik, M.D., Ph.D.

"Effects of aging on endothelial cell responses to hemodynamic forces,"

American Geriatrics Society, Las Vegas, Nevada

“Molecular mechanisms for Vascular Surgery,” Basic Science lecture, Department of Surgery, Englewood Hospital and Medical Center, Englewood, New Jersey

“Vascular Trauma,” Grand Rounds, Department of Surgery, Englewood Hospital and Medical Center, Englewood, New Jersey

## MAJOR YALE LECTURES

Bauer Sumpio, M.D., Ph.D.

“It takes a village to save feet” Surgery Grand Rounds, Yale University School of Medicine

Alan Dardik, M.D., Ph.D.

“Umbilical vein bypass grafts: Do we still use these?” Surgery Grand Rounds, Yale University School of Medicine

“Shear stress and smooth muscle cells,” Vascular Biology and Transplantation Program, Yale University School of Medicine

## ORIGINAL PUBLICATIONS

### ORIGINAL ARTICLES

Luo W, Liu A, Chen Y, Lim HM, Marshall-Neff J, Black JH, Baldwin III W, Hruban RH, Stevenson SC, Mouton P, **Dardik A**, Ballermann BJ. Inhibition of accelerated graft arteriosclerosis by gene transfer of soluble fibroblast growth factor receptor-1 in rat aortic transplants. *Arteriosclerosis Thrombosis and Vascular Biology* 24:1081-1086 (2004).

Teso D, Edwards RE, Antezana JN, Dudrick SJ, **Dardik A**. Do vascular surgeons improve the outcome of carotid endarterectomy? An analysis of 12,618 elective cases in the state of Connecticut. *Vascular* 12(3):155-165 (2004).

Rabbi JF, Kiran RP, Gersten G, Dudrick SJ, **Dardik A**. Early results with infrainguinal cutting balloon angioplasty indicates limitation of distal dissection. *Ann Vasc Surg*, 18(6):640-643 (2004).

Abir F, Kakisis Y, **Sumpio BE**. Do Vascular Surgery Patients Need a Cardiology Work-up? A review of Pre-operative cardiac clearance guidelines in vascular surgery. *Eur J Vasc Endovasc Surg* 2003; 25:110-117.

Chen QH, Li W, Quan Z, **Sumpio BE**. Modulation of vascular smooth muscle cell alignment by cyclic strain is dependent on reactive oxygen species and p38 MAPK. *J Vasc Surg* 37:660-668, 2003.

Lee T, Kim SJ, **Sumpio BE**. The role of PP2A in the regulation of p38 MAPK activation in bovine aortic endothelial cells exposed to cyclic strain. *J Cell Physiol* 194 (3): 349-355, 2003.

Lee T, Seo JW, **Sumpio BE**, Kim SJ. Immunobiologic analysis of arterial tissue in Buerger's disease. *Eur J Vasc Endovasc Surg* 2003 May;25(5):451-7.

Li W, Chen Q, Mills I, **Sumpio BE**. Involvement of S6 Kinase and p38 Mitogen Activated Protein Kinase Pathways in Strain-Induced Alignment and Proliferation of Bovine Aortic Smooth Muscle Cells *J Cell Physiol* 195:202-209,2003

Kakisis J, Abir F, Liapis C, **Sumpio BE**: An Appraisal of different Cardiac Risk Reduction Strategies In Vascular Surgery Patients. *Eur J Vasc Endovasc Surg* 2003 Jun;25(6):493-504

Lee TS, Esemuede N, **Sumpio BE, Gahtan V**. Thrombospondin-1 Induces Matrix Metalloproteinase 2 Activation In Vascular Smooth Muscle Cells. *J Vasc Surg* 38: 147-154, 2003.

Lee L, Blume P, **Sumpio BE**. Charcot joint disease in diabetes mellitus. *Ann Vasc Surg* 17 (5): 571-80, 2003

Yamashita A, Hanna AK, Hirata S, **Dardik A, Sumpio BE**. Antisense basic fibroblast growth factor alters the time course of mitogen-activated protein kinase in arterialized vein graft remodeling. *J Vasc Surg* 37: 866-873, 2003.

Zhang J, Li W, Sanders MA, **Sumpio BE, Panja A, Basson MD**. Regulation of the intestinal epithelial response to cyclic strain by extracellular matrix proteins. *FASEB J* 2003 May;17(8):926-8.

Haga M, Chen A, Gortler D, **Dardik A, Sumpio BE**. Shear stress and cyclic strain may suppress apoptosis in endothelial cells by different pathways. *Endothelium* 10:149-157, 2003.

Zhang J, Li W, **Sumpio BE, Basson MD**. Fibronectin blocks p38 and jnk activation by cyclic strain in Caco-2 cells. *Biochem Biophys Res Commun* 2003 Jul 4;306(3):746-749.

Haga M, Yamashita A, Paszkowiak J, **Sumpio BE, Dardik A**. Oscillatory shear stress increases smooth muscle cell proliferation and Akt phosphorylation. *J Vasc Surg* 2003 Jun;37(6):1277-84.

AI Willis, D Pierre-Paul, **BE Sumpio, V Gahtan**. Vascular Smooth Muscle Cell Migration: Current Research and Clinical Implications. *Vascular and Endovascular Surgery* 38 (1):11-23, 2004

Renzulli J, Borromeo JR, Barkhordarian S, **Sumpio BE**. Abdominal aortic aneurysm in association with a congenital pelvic horseshoe kidney: sentinel report and technical consideraton. *Vascular Medicine* 8:197-200, 2004.

Lee T, **Sumpio BE**. Cell signaling in vascular cells exposed to cyclic strain: The emerging role of protein phosphatases. *Biotech Appl Biol* 39:129-139, 2004.

Knox R, Chen E, Wang X, Jeffries B, Yamaguchi M, Kim SK, **Sumpio BE**. 17 $\beta$ -Estradiol exposure leads to activation of ERK and p38 but not JNK in Vascular Endothelial Cells Endothelium. *Int J Angiology* 13:67-70, 2004

Kakisis J, Liapis C, **Sumpio BE**. Effects of cyclic strain on vascular cells. *Endothelium* 11(1): 17-28, 2004

**Sumpio B, Aruny JA, Blume PA**. The multidisciplinary approach to limb salvage. *Acta Chirurgica Belgica* 104 (6): 282-288, 2004.

Abir F, Barkhordarian S, **Sumpio BE** Effects of Dextran Solutions in Vascular Surgery. *Vascular and Endovascular Surgery* 38 (6):483-491, 2004

Jackson L, Dudrick S, **Sumpio BE**. John Harvey Kellogg: Surgeon, Inventor, Nutritionist (1852-1943). *J Am Col Surg* 199: 817-821, 2004.

Esemuede N, Lee, T, Pierre-Paul D, **Sumpio BE**, **Gahtan V**. The role of thrombospondin-1 in human disease. *J Surg Res* 122: 135-142, 2004

## REVIEWS AND CHAPTERS

Barkhordarian S, **Dardik A**. Preoperative assessment and management to prevent complications during high-risk vascular surgery. *Critical Care Medicine* 32(Suppl 4):S174-S185 (2004).

**Dardik A**, Perler BA. Combined carotid and coronary disease. In: Yang SC, Cameron DE. Current Therapy in Thoracic and Cardiovascular Surgery. Mosby, Philadelphia. p. 682-685 (2004).

Teso D, Frattini JC, **Dardik A**. Improved outcomes of carotid endarterectomy: The critical role of vascular surgeons. *Seminars in Vascular Surgery*, 17:214-218 (2004).

Barkhordarian S, **Gusberg RJ** Mesenteric Ischemia: Identification and Treatment. *American College of Cardiology Current Journal Review* 2003;12:19-21

Abir F, Barkhordarian S, **Sumpio BE** Atherosclerotic Aortic Occlusion and Tertiary Syphilis: Case Report and Review of the Literature *Angiology* 12:257-259, 2004

Pradhan S, **Sumpio BE** Do the Estrogen Effects on Blood Vessels Translate into Clinically Significant Atheroprotection? *J Am Col Surg* 198(3) 462-474, 2004.

Abir F, Barkhordarian S, **Sumpio BE** Noncardiac vascular complications of coronary bypass procedure: A Review. *Int J Angiology* 13:1-6, 2004

**Sumpio BE**, Pradhan S. Artherosclerosis: Biological and Surgical Considerations. In: Ascher E, Hollier L, Strandness DE, eds. Haimovici's Vascular Surgery, 5e. Malden, MA: Blackwell Science, Inc.; 2004. pp 137-163