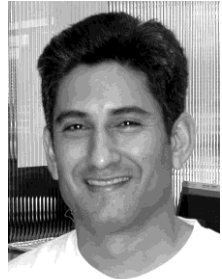


Oscar J. Aobilez

Address

Stanford University
Clark Center, E350
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Education

University of Texas, Austin, TX
B.S., Mechanical Engineering
Masters Graduate Work, Biomedical Engineering
Cornell University, New York, NY
M.D.
Stanford University, Stanford, CA
Ph.D., Bioengineering (beginning Fall 2007)

Residency

Stanford University, Stanford, CA, 2002-2004
Intern, General Surgery
Resident, General Surgery

Research Interests

Cardiovascular tissue engineering, stem cell biology, biodesign

Awards

University of Texas, Austin, TX
Honors Colloquium Scholarship
Texas Achievement Award
Dean's List
Engineering Honor Roll
Haggar Foundation Scholarship
General Motors Scholarship
Pi Tau Sigma Mechanical Engineering Honor Society
Biomedical Engineering Scholarship

Cornell University, New York, NY
NIH Molecular Mechanism of Neurological Disease Predoctoral Training Fellowship
Lucille P. Markey Foundation Predoctoral Research Training Fellowship
NIH-NHLBI Predoctoral Research Training Fellowship
American Austrian Foundation/Max Kade Foundation Fellowship
United States-European Medical Education Exchange (US-EUMEE) Fellowship
Student Leadership Award
Franklyn Ellenbogen Prize in Hematology/Oncology

Stanford University, Stanford, CA
Ethicon Endo-Surgery, Inc (Johnson and Johnson) Fellowship
Stanford Dean's Postdoctoral Fellowship
First Place, Laboratory Science, International Endovascular Fellows' Research Award Competition
Advanced Residency Training at Stanford (ARTS) Program Fellowship

Research Experience

University of Texas, Austin, TX

Biomedical Engineering Graduate Student

Advisor: Thomas Runge, M.D.

- Evaluated the rheology of blood mixed with a perfluorocarbon-based artificial blood substitute

Cornell University, New York, NY

Medical Student Research Fellow

Department of Neuroscience

Advisor: Robert Duvoisin, Ph.D.

- Designed a DNA construct that coded for a fusion protein consisting of a metabotropic glutamate receptor and green fluorescent protein (GFP)

Cornell University, New York, NY

Medical Student Research Fellow

Department of Medicine, Division of Hematology & Oncology

Advisor: Roy Silverstein, M.D.

- Helped characterize the role of scavenger receptor CD36 in the phagocytosis of apoptotic cells by dendritic cells derived from murine bone marrow stem cells
- Helped develop a monoclonal antibody to the scavenger receptor CD36 (Clone 63, Chemicon)

Stanford University, Stanford, CA

Postdoctoral Fellow

Department of Surgery, Division of Vascular Surgery, Zarins Vascular Research Lab

Advisor: Christopher Zarins, M.D.

- Using mouse and human embryonic stem cells to create cardiovascular tissue

Professional Experience

General Motors, Shreveport, LA

Engineering Co-op Student

Supervisor: Larry Johnson, P.E.

- Developed manufacturing processes at an assembly plant

General Motors, Mesa, AZ

Engineering Co-op Student

Supervisor: Karl Schmitz, P.E.

- Tested vehicles at Desert Proving Ground

CarboMedics, Inc., Austin, TX

Engineering Staff

Supervisor: Andy Campbell, P.E.

- Supported design and development of Pyrolytic® and tissue heart valve prostheses
- Developed manufacturing processes that utilized a CO2 laser

Technical Skills

Southern blotting, northern blotting, western blotting, flow cytometry/FACS, immunohistochemistry, recombinant DNA work, fusion protein creation, GFP work, monoclonal antibody construction, cell and tissue culture, light microscopy, confocal microscopy, fluorescence microscopy, video microscopy, digital image processing and analysis, computer-aided design (SolidWorks, AutoCAD), product prototyping, machining, soft-lithography techniques, product validation and testing, laboratory electrical circuit prototyping, data acquisition and control techniques (LabVIEW), murine husbandry, animal and human surgery

Inventions

1. *Abilez O*, Stanford University. "Systems, Methods, and Apparatus Configurations Using Genetic Algorithms to Design Cells, Tissues, and Tissue Systems." USA. 2004. (Disclosed to Stanford Office of Technology Licensing, Docket S04-293).
2. *Abilez O*, Stanford University. "Tools and Instruments with Locking Mechanism that Allows Both Left and Right Handed Use." USA. 2004. (Disclosed to Stanford Office of Technology Licensing, Docket S04-303).
3. *Abilez O, Zarins C*, Stanford University. "Methods and Techniques for Creating *in situ* Biological Structures by Using Autologous Biological Materials in Combination with Intra- or Extra-Corporeal Bio-Mechanical, Bio-Chemical, Bio-Electric, and Bio-Thermal Conditioning." USA. 2005. (Disclosed to Stanford Office of Technology Licensing, Docket S05-067).
4. *Abilez O, Hochberg L, Vase A, Velan A*, Stanford University. "Systems and Methods for Temporally Regulating Agent Delivery to the Central Nervous System." USA. 2005. (Disclosed to Stanford Office of Technology Licensing, Docket S05-105).
5. *Abilez O, Benharash P, Zarins C*, Stanford University. "Liquid Phase Real-time Magnetic Cell Sorter." USA. 2005. (Disclosed to Stanford Office of Technology Licensing, Docket S05-377, Patent Pending 60/791,026 USPTO, Filed 4/05/2007, US11/732,911).
6. *Abilez O, Benharash P, Zarins C*, Stanford University. "Magnetic Drug Delivery System." USA. 2006. (Disclosed to Stanford Office of Technology Licensing, Docket S06-044).
7. *Abilez O, Benharash P, Zarins C*, Stanford University. "Computer-Controlled Physiologic Pump." USA. 2006. (Disclosed to Stanford Office of Technology Licensing, Docket S06-097, Patent Pending USPTO).
8. *Zarins C, Benharash P, Abilez O*, Stanford University. "Mechanism to Prevent Lateral Displacement of Stent-Grafts within Aneurysms." USA. 2006. (Disclosed to Stanford Office of Technology Licensing, S06-208, USPTO Provisional Patent filed April 30, 2007).

Publications

1. *Picquet J, Pénard J, Abilez O, Jousse Y, Enon B*: Superficial Femoral Artery Transposition Repair for Isolated Superior Mesenteric Artery Dissection. *J Vasc Surg*. 2005 Oct;42(4):788-91.
2. *Abilez O, Benharash P, Mehrotra M, Miyamoto E, Piquet J, Xu C, Zarins C*. A Novel Culture System Shows that Stem Cells Can be Grown in 3D and Under Physiologic Pulsatile Conditions for Tissue Engineering of Vascular Grafts. *J Surg Res*. 2006 May 15;132(2):170-8. Epub 2006 Mar 20.
3. *Abilez O, Benharash P, Miyamoto E, Gale A, Xu C, Zarins C*. P19 Progenitor Cells Progress to Organized Contracting Myocytes after Chemical and Electrical Stimulation: Implications for Vascular Tissue Engineering. *J Endovasc Ther*. 2006 Jun;13(3):377-88.
4. *Picquet J, Thouveny F, Abilez O, Pégis JD, Blin V, Enon B*. First Report of an Ilio-Popliteal Bypass through the Greater Sciatic Foramen. accepted to *J Cardiovascular Surg*.
5. *Benharash P, Lee JT, Abilez O, Crabtree T, Bloch DA, Zarins CK*. Iliac Fixation Inhibits Migration of Both Suprarenal and Infrarenal Aortic Endografts. *J Vasc Surg*. 2007 Feb;45(2):250-7.
6. *Cao F, Sadrzadeh A, Abilez O, Wang H, Pruitt B, Zarins C, Wu J*. Evaluation of Biomatrices for Improvement of Stem Cell Engraftment In Vivo. *J Tissue Engineering and Regenerative Medicine*. 2007. (accepted).
7. *Abilez O, Alsac JM, Heikkinen MA, Zvaigzne A, Xu C, Nezhat C, Zarins CK*: Physiologic Adaptive Arterial Remodeling Gives Insight Into Aneurysm Formation. (in preparation).
8. *Abilez O, Benharash P, Miyamoto E, Gale A, Xu C, Zarins C*. A Novel Bioreactor for Cardiovascular Cell and Tissue Engineering. (in preparation).

Abstracts

1. *Abilez O, Berger D, Febbraio M, Silverstein R*: Bone Marrow-Derived Cells from CD36 Null Mice are Less Efficient than Those Derived from Wild-Type Mice in the Phagocytosis of Apoptotic Cells. *Molecular Biology of the Cell*, Nov 1999, 10S:189a.
2. *Abilez O, Benharash P, Mehrotra M, Miyamoto E, Piquet J, Xu C, Zarins C*. The Creation of a New Culture Chamber System for Growing Stem Cells in 3-D and Under Physiologic Pulsatile Conditions for Vascular Tissue Engineering Applications. Oral Presentation, 4th Annual California Tissue Engineering Meeting (CalTEM), Irvine, CA, Sept 16-17, 2005.
3. *Abilez O, Alsac JM, Heikkinen MA, Zvaigzne A, Xu C, Nezhat C, Zarins CK*: Physiologic Adaptive Arterial Remodeling Gives Insight Into Aneurysm Formation. Oral Presentation, 12th Annual Western Vascular Society Resident Forum, Park City, UT, Sept 24, 2005.
4. *Abilez O, Alsac J, Heikkinen M, Nezhat CH, Zarins C, Nezhat C*: Adaptive Media Remodeling of the Uterine Artery During Pregnancy. Poster Presentation, American Society of Reproductive Medicine, Montreal, Quebec, Canada, Oct 15-19, 2005.
5. *Abilez O, Alsac J, Nezhat CH, Heikkinen M, Zarins C, Nezhat C*: Adaptive Media Remodeling of the Uterine Artery During Pregnancy. Poster Presentation, AAGL, Global Congress of Minimally Invasive Gynecology, Chicago, IL, Nov 11, 2005.
6. *Abilez O, Benharash P, Mehrotra M, Miyamoto E, Piquet J, Xu C, Zarins C*. A New Culture System Shows that Stem Cells can be Grown in 3-D and Under Physiologic Pulsatile Conditions for Tissue Engineering of Vascular Grafts. Poster Presentation, Society of University Surgeons-Association for Academic Surgeons (SUS-AAS) Joint Meeting, San Diego, CA, Feb 7-11, 2006.
7. *Abilez O, Benharash P, Miyamoto E, Gale A, Xu C, Zarins C*. P19 Progenitor Cells Progress to Organized Contracting Myocytes after Chemical and Electrical Stimulation: Implications for Vascular Tissue

Engineering. Oral Presentation, International Society of Endovascular Specialists (ISES) XIX Meeting, Scottsdale, AZ, Feb 12-16, 2006.

8. *Abilez O, Benharash P, Miyamoto E, Gale A, Xu C, Zarins C.* Electrical and Chemical Stimulation Promote P19 Progenitor Cell Progression to Organized Contracting Myocytes: Implications for Cardiovascular Tissue Engineering. Poster Presentation, International Society for Applied Cardiovascular Biology (ISACB), San Diego, CA March 8-11, 2006.
9. *Abilez O, Benharash P, Miyamoto E, Gale A, Xu C, Zarins C.* Manipulation of Contractility in P19 Stem Cell Derived Myocytes for Incorporation into Tissue-Engineered Vascular Grafts. Poster Presentation, Society for Vascular Surgery (SVS) Research Initiatives Conference, Washington, DC, March 30-31, 2006.
10. *Benharash P, Xu C, Picquet J, Abilez O, Divakaruni M, Tsao P, Zarins C.* Differential Gene Expression in Outward vs. Inward Arterial Remodeling. Poster Presentation, Society for Vascular Surgery (SVS) Research Initiatives Conference, Washington, DC, March 30-31, 2006.
11. *Abilez O, Benharash P, Miyamoto E, Gale A, Xu C, Zarins C.* A Novel Bioreactor for Vascular Tissue Engineering. Poster Presentation, World Congress on Tissue Engineering, Pittsburgh, PA, April 25-27, 2006.
12. *Benharash P, Lee J, Abilez O, Zarins C.* Iliac Fixation is Crucial in Preventing Migration of Both Suprarenal and Infraarenal Aortic Endografts. Oral Presentation, Society for Vascular Surgery (SVS) Conference, Philadelphia, PA, June 4, 2006.
13. *Blundo J, Abilez O, Zarins C, Wu JC, Pruitt BL.* Design of BioMEMS Device for Electromechanical Stimulation of hESC. Gordon Research Conference in MEMS Technology and Biomedical Applications, New London, CT, June 26, 2006.
14. *Blundo J, Chua G, Park Y, Rastegar A, Abilez O, Cao F, Wu J, Zarins C, Pruitt B.* BioMEMS Platform for Stem Cell Differentiation. Stanford Bio-X Interdisciplinary Initiatives Symposium, Stanford, CA, Aug 31, 2006.
15. *Abilez O, Cao F, Blundo J, Wu J, Pruitt B, Zarins C.* Development of an Imaging System for On-Line Assessment of Human Embryonic Stem-Cell Derived Cardiomyocytes. Oral Presentation, 5th Annual California Tissue Engineering Meeting (CalTEM), Davis, CA, Sept 15-16, 2006.
16. *Picquet J, Abilez O, et al.* Complications During the Learning Curve of Laparoscopic Aortic Surgery. XX Annual Meeting of the European Society for Vascular Surgery (ESVS), Prague, Czech Republic, Sept 22, 2006.
17. *Chen S, Abilez O, Cao F, Blundo J, Wu J, Pruitt B, Xu C, Zarins C.* Development of an Imaging System for Non-destructively Assessing Characteristics of Human Embryonic Stem-Cell Derived Cardiomyocytes. Stanford Regenerating Life Symposium, Stanford, CA, Nov 10-11, 2006.
18. *Abilez O, Benharash P, Xu C, Zarins C.* An *In Vitro* Pulsatile Culture System Allows for Quantification of Vessel Dynamics under Pulsatile, Steady, and Static Conditions. Society for Vascular Surgery (SVS) Research Initiatives Conference, Washington, DC, March 29-30, 2007.
19. *Taylor R, Abilez O, Cao F, Wu J, Xu C, Zarins C, Pruitt B.* Pulsatile Pressure System for Cellular Mechanical Stimulation. ASME Summer Bioengineering Conference, Keystone, CO, Jun 20-24, 2007.
20. *Blundo J, Chua G, Abilez O, Park Y, Rastegar A, Cao F, Zarins C, Wu J, Pruitt B.* BIOMEMS Platform for Electromechanical Stimulation of Cell Culture. ASME Summer Bioengineering Conference, Keystone, CO, Jun 20-24, 2007.
21. *Blundo J, Abilez O, Straley K, Doll J, Cao F, Wu J, Zarins C, Heilshorn S, Pruitt B.* Molecular Engineering of Smart Protein Scaffolds for Cardiac Stem Cell Differentiation. 2007 Materials Research Society (MRS) Fall Meeting, Boston, MA, Nov 26-30, 2007. (to be presented)

Research Support

1. Stanford Cardiovascular Institute (CVI): Seed Grant Program
Abilez O, Benharash P, Zarins C, Quake S, Pruitt B
“Development of Microfabricated Systems to Investigate the Effects of Electrical and Mechanical Stimulation on Driving Stem Cell Differentiation into Organized Contracting Myocytes for Cardiovascular Tissue Engineering Applications”
Honorable Mention Mar 2006-Feb 2007 Total: \$50,000
2. Stanford Cardiovascular Institute (CVI): Seed Grant Program
Zarins C, Benharash P, Abilez O, Xu C, Tsao P, Taylor C
“Genomic, Morphometric, Hemodynamic and Mechanical Investigation of Rat Arteries in a Pulsatile Organ-Culture System”
Funded Mar 2006-Feb 2007 Total: \$50,000
3. NIH: 1R21HL089027-01, Innovative Application of Nanotechnology to Heart, Lung, Blood, and Sleep Disorders (R21/33 PAR-06-287)
Wu J-PI, Pruitt B-CoPI, Zarins C-CoPI
“Nanostructuring and Molecular Imaging of Engineered Cardiovascular Tissues”
Funded Jun 2007-May 2012 Total: \$2,000,000
4. NSF: 0735551, Emerging Frontiers In Research and Innovation (EFRI), Cellular and Biomolecular Engineering (CBE) (Program Solicitation 06-596)
Pruitt B-PI, Zarins C-CoPI, Wu J-CoPI, Heilshorn S-CoPI, Kuhl E-CoPI
“Engineering of Cardiovascular Cellular Interfaces and Tissue Constructs”
Funded Sep 2007-Aug 2011 Total: \$2,000,000
5. California Institute for Regenerative Medicine (CIRM): RC1-00151-1, Comprehensive Research Grant (RFA 06-02)
Zarins C-PI, Wu J-CoPI, Pruitt B-CoPI
“Engineering a Cardiovascular Tissue Graft from Human Embryonic Stem Cells”
Funded Jun 2007-May 2011 Total: \$1,600,000

Books

1. Practical Guide to the Care of the Surgical Patient. 1st ed., *Nguyen T, Abilez O, (Editors)*. Elsevier, Philadelphia, PA; 2008 (in preparation).

Handbooks

1. Pocket Scalpel (Stanford Surgery Resident Handbook). 1st ed., *Nguyen T, (Editor), Abilez O, et al.*, Palo Alto, CA; 2003.
2. Pocket Scalpel (Stanford Surgery Resident Handbook). 2nd ed., *Nguyen T, Abilez O, (Editors)*. Palo Alto, CA; 2004.
3. Pocket Scalpel (Stanford Surgery Resident Handbook). 3rd ed., *Nguyen T, Abilez O, (Editors)*. Palo Alto, CA; 2005.
4. Pocket Scalpel (Stanford Surgery Resident Handbook). 4th ed., *Nguyen T, Abilez O, (Editors)*. Palo Alto, CA; 2006.
5. Pocket Scalpel (Stanford Surgery Resident Handbook). 5th ed., *Nguyen T, Abilez O, (Editors)*. Palo Alto, CA; 2007.

Book Chapters

1. *Picquet J, Abilez O, Cau J, Goeau-Brissonnière O, Zarins CK: Laparoscopic Vascular Surgery*. In *Nezhat's Operative Gynecologic Laparoscopy with Hysteroscopy: Principles and Techniques*. Camran Nezhat, Farr Nezhat, Ceana Nezhat, (Editors), Cambridge University Press, 3rd ed., Dec 2007.
2. *Abilez O, Picquet J, Zarins CK: Laparoscopic Major Vascular Injury*. In *Nezhat's Operative Gynecologic Laparoscopy with Hysteroscopy: Principles and Techniques*. Camran Nezhat, Farr Nezhat, Ceana Nezhat, (Editors), Cambridge University Press, 3rd ed., Dec 2007.

Other

1. *Ad hoc* Reviewer, Tissue Engineering

Professional Organizations

Tissue Engineering Society International (TESI), 2005-2007
Biomedical Engineering Society (BMES), 1994-2000, 2006-2007
International Society for Stem Cell Research (ISSCR), 2007
International Society for Applied Cardiovascular Biology (ISACB), 2007
American College of Surgery (ACS), 2005-2006
American Society of Artificial Internal Organs (ASAIO), 1995-2000
American Medical Association (AMA), 1996-2000
American Society for Cell Biology (ASCB), 1999

Medical School Service

Class President, 1996-1998
Stimson Surgical Society President, 2000-2002
Stimson Surgical Society Treasurer, 1997-1999

Activities

New York City Marathon, 1998, 1999, 2001, 2005
San Diego Marathon, 1999
Boston Marathon, 2000
San Francisco Half Marathon, 2004
U.S. Open Golf Championship Volunteer, Bethpage Black, NY, 2002
U.S. Open Golf Championship Volunteer, Winged Foot, NY, 2006
U.S. Open Golf Championship Volunteer (accepted), Torrey Pines, CA, 2008