

Curriculum Vitae

Name George C. Cheng, M.D., Ph.D.
Office Address Cancer Center of Santa Barbara
300 West Pueblo Street
Santa Barbara, CA 93105

Education:

1984-1988 A.B., Engineering Sciences, Harvard College, Cambridge, MA
1989-1998 M.D.-Ph.D. Program, Harvard Medical School, Boston, MA
1991-1993 M.S., Mechanical Engineering, Massachusetts Institute of
Technology, Cambridge, MA
1992-1996 Ph.D. Medical Engineering and Medical Physics
Division of Health Sciences and Technology
Massachusetts Institute of Technology, Cambridge, MA
1989-1998 M.D., Harvard Medical School, Boston, MA

Postdoctoral Training:

1998-1999 Intern in Internal Medicine
Brigham and Women's Hospital, Harvard Medical School, Boston,
MA
1999-2000 Research Fellow
Joint Center for Radiation Therapy, Harvard Medical School,
Boston, MA
2000-2004 Resident in Radiation Oncology, Joint Center for Radiation
Therapy, Harvard Medical School, Boston, MA

Licensure: Massachusetts registration #214214
California Medical License #G87213

Professional Memberships:

American Society for Therapeutic Radiology and Oncology
American College of Radiology
Association of Residents in Radiation Oncology
Massachusetts Medical Society
American Medical Association

Honors and Awards

1988 Summa cum laude, Harvard College
1988 Phi Beta Kappa
1989 National Institutes of Health Medical Scientist Training
Program (M.S.T.P.) Fellowship for M.D.-Ph.D.
1993 Sigma Xi, national scientific honor society
1996 New Clinical Investigator Award, Society for Physical
Regulation in Biology and Medicine

Research Experience

- 1987-1989 Harvard University, Cambridge, MA. Laboratory of Thomas McMahon, Ph.D., Professor of Biomechanics. Studied the biomechanics of animal locomotion.
- 1991-1992 Massachusetts Institute of Technology, Cambridge, MA. Laboratory of Roger Kamm, Ph.D., Professor of Mechanical Engineering. M.S. Thesis: *2D Circumferential Tensile Stress in Ruptured and Unruptured Human Coronary Artery Lesions*. Supervisor: Richard T. Lee, M.D., Assistant Professor of Medicine, Harvard Medical School, Brigham and Women's Hospital, Boston, MA.
- 1992-1996 Massachusetts Institute of Technology, Cambridge, MA. Laboratory of Alan Grodzinsky, Ph.D., Professor of Mechanical, Electrical, and Biomedical Engineering. Ph.D. Thesis: *Regulation of Human Vascular Smooth Muscle Cell Function by Mechanical Strain*. Supervisor: Richard T. Lee, M.D., Assistant Professor of Medicine, Harvard Medical School, Brigham and Women's Hospital, Boston, MA.
- 1999-2000 Children's Hospital, Boston, MA. Laboratory of Donald Ingber, M.D., Ph.D., Professor of Pathology, Harvard Medical School. Studied NF-kappa B activation in endothelial cells by matrix-integrin interactions.
- 2001-2002 Dana-Farber Cancer Institute, Boston, MA. Anthony D'Amico, M.D., Ph.D., Associate Professor of Radiation Oncology, Harvard Medical School. Performed a retrospective analysis of the clinical utility of endorectal MRI in determining PSA outcome for patients with biopsy Gleason score 7, PSA \leq 10, and clinically localized prostate cancer.
- 2002 Dana-Farber Cancer Institute, Boston, MA. Laboratory of Charles Stiles, Ph.D., Professor of Microbiology and Molecular Genetics, Harvard Medical School. Studied small molecule inhibition of growth factor receptor signal transduction for treatment of high grade glioma. Supervisor: Naren Ramakrishna, Instructor of Radiation Oncology.
- 2002-2003 Brigham and Women's Hospital, Boston, MA. Initiated a research program on the mechanisms of tumor cell intravasation in metastasis. In collaboration with the laboratory of Richard T. Lee, M.D., Associate Professor of Medicine, Harvard Medical School.

Publications:

Original Articles:

1. McMahon TA, **Cheng GC**. The mechanics of running: how does stiffness couple with speed? *Journal of Biomechanics* 23 Suppl 1:65-78, 1990.
2. Lee RT, Loree HM, **Cheng GC**, Lieberman EH, Jaramillo N, Schoen FJ. Computational structural analysis based on intravascular ultrasound imaging before in vitro angioplasty: prediction of plaque fracture locations. *Journal of the American College of Cardiology* 21:777-82, 1993.
3. **Cheng GC**, Loree HM, Kamm RD, Fishbein MC, Lee RT. Distribution of circumferential stress in ruptured and stable atherosclerotic lesions. A structural analysis with histopathological correlation. *Circulation* 87:1179-87, 1993.

4. Lee RT, Berditchevski F, **Cheng GC**, Hemler ME. Integrin-mediated collagen matrix reorganization by cultured human vascular smooth muscle cells. *Circulation Research* 76:209-214, 1995.
5. **Cheng GC**, Libby P, Grodzinsky AJ, Lee RT. Induction of DNA synthesis by a single transient mechanical stimulus of human vascular smooth muscle cells: role of fibroblast growth factor-2. *Circulation* 93: 99-104, 1996.
6. **Cheng GC**, Briggs WH, Gerson D, Libby P, Grodzinsky AJ, Gray ML, Lee RT. Mechanical strain tightly controls FGF-2 release from cultured human vascular smooth muscle cells. *Circulation Research*, 80:28-36, 1997.
7. Lee RT, Briggs WH, **Cheng GC**, Rossiter HB, Libby P, Kupper T. Mechanical deformation promotes secretion of interleukin-1 alpha and interleukin receptor-1 antagonist. *Journal of Immunology*, 159: 5084-5088, 1997
8. Rohde LE, Aikawa M, **Cheng GC**, Sukhova G, Solomon S, Libby P, Pfeffer J, Pfeffer M, Lee RT. Echocardiography-derived left ventricular end-systolic regional wall stress and matrix remodeling after experimental myocardial infarction. *Journal of the American College of Cardiology*, 33:835-42, 1999.
9. **Cheng GC**, Chen M, Whittington R, Malkowicz SB, Schnall MD, Tomaszewski JE, D'Amico AV. The clinical utility of endorectal MRI in determining PSA outcome for patients with biopsy Gleason score 7, PSA \leq 10, and clinically localized prostate cancer. *International Journal of Radiation Oncology-Biology- Physics*; 55/1 64-70, 2003.
10. **Cheng GC**, Schulze PC, Huang H, Sylvan JD, Zetter BR, Lee RT. Induction of oxidative stress by thioredoxin interacting protein promotes intravasation of melanoma cells. *Experimental Cell Research* 300: 297-307, 2004.
11. **Cheng GC**, Schulze PC, Sylvan JD, Lee RT, Zetter BR, Huang H. Vascular endothelial growth factor facilitates the reverse transendothelial migration of melanoma cells through increased endothelial permeability. Manuscript in preparation.

Abstracts

1. **Cheng GC**, Loree HM, Kamm RD, Fishbein MC, Lee RT. Increased circumferential stress in ruptured atherosclerotic lesions: implications for the mechanism of plaque rupture. Presented at American College of Cardiology 42nd Scientific Session, Anaheim, CA, March 1993.
2. **Cheng GC**, Lee E, Libby P, Grodzinsky AJ, Lee RT. Mitogenic response of human vascular smooth muscle cells to a single transient mechanical stimulus: role of basic fibroblast growth factor. Presented at American Heart Association 68th Scientific Sessions, Anaheim, CA, November 1995.
3. **Cheng GC**, Briggs WB, Gerson D, Libby P, Grodzinsky AJ, Lee RT. Mechanical strain tightly controls FGF-2 release from cultured vascular smooth muscle cells. Presented at American Heart Association 69th Scientific Sessions, New Orleans, November 1996.

4. **Cheng GC**, Lee RT. Mechanical strain tightly controls FGF-2 release from cultured vascular smooth muscle cells. Presented at the 16th Annual Meeting of the Society for Physical Regulation in Biology and Medicine, Chicago, October 1996.