

## Eric I. Chang

### Education:

Rutgers University/Rutgers College  
Major - Biological Sciences Minor - Psychology  
General Honors Program  
Graduated with Summa Cum Laude  
GPA - 3.873  
Graduation: May 1999

New Brunswick, NJ (08/1995-05/1999)

BA/MD Program with UMDNJ-Robert Wood Johnson Medical School  
Graduation: May 2002

Piscataway, NJ (08/1999-05/2002)

### Work Experience:

The Plastic Surgery Center  
*Associate*

Shrewsbury, NJ (08/2017-present)

- Performing complex reconstructive cases including microsurgery
- Performing cosmetic plastic surgery
- Performing plastic surgery outcomes and basic science research

Fox Chase Cancer Center  
*Associate Professor, Division of Plastic and Reconstructive Surgery*

Philadelphia, PA (07/2012-07/2017)

- Performing complex microsurgical reconstructions for cancer patients
- Teaching residents and fellows microsurgical techniques
- Preparing conferences and lectures for residents and fellows
- Performing plastic surgery outcomes and basic science research

University of Texas - MD Anderson Cancer Center  
*Clinical Specialist/Reconstructive Microvascular Surgery Fellow*

Houston, TX (07/2011-06/2012)

- Training to become a reconstructive microsurgeon
- Assisting and participating in the treatment of cancer patients requiring complex reconstruction
- Performing plastic surgery outcomes research

UCLA Medical Center  
*Plastic and Reconstructive Surgery Resident*

Los Angeles, CA (07/2009-06/2011)

- Training to become a plastic and reconstructive surgeon
- Assisting and participating in the management of patients requiring plastic and reconstructive surgery
- Performing plastic surgery outcomes and basic science research

UMDNJ-Robert Wood Johnson University Hospital  
*Categorical General Surgery Resident*

New Brunswick, NJ (07/2002-06/2009)

- Training to become a general surgeon
- Assisting and participating in the treatment of surgical patients
- Teaching medical students basic surgical knowledge and techniques

UMDNJ-Robert Wood Johnson Medical School  
*Teaching Assistant for Microbiology course*

Piscataway, NJ (06/1999-08/1999)

- Assisting professor in teaching undergraduate/pre-med students about concepts in Microbiology
- Giving lectures and writing and administering examinations
- Overseeing students performing laboratory experiments

Northwest Covenant Medical Center at the Denville Campus

Denville, NJ (06/1997-08/1999)

*Unit Secretary/Nursing Assistant*

- Assisting nurses in patient care
- Transcribing medication orders and doctors' instructions
- Performing clerical duties

**Research Experience:**

Division of Plastic Surgery at Stanford University

Stanford, CA (08/2005-06/2006)

*Post-doctorate Research Fellow*

- Performing basic molecular biology experiments including semi-quantitative PCR, RNA extraction, agarose gel electrophoresis, real time PCR, DNA purification, ELISA protein assays, and Western blots
- Obtaining and maintaining primary and immortalized cell lines through tissue culture techniques
- Performing immunohistochemistry including fluorescent in situ hybridization
- Performing surgical procedures as well as microsurgery on various animal models

*Major Projects*

- Studying the impairment of stem cell trafficking in hypoxic conditions leading to complications of aging using both *in vivo* and *in vitro* models
- Investigating the impairment of vasculogenesis and angiogenesis in diabetes due to an inability to upregulate cytokine mediators in response to an ischemic stimulus
- Using explanted microvascular beds as vascular scaffolds for complex organ fabrication which can substitute a functional or physiologic role for a failing organ
- Manipulating microvascular free flaps through *ex vivo* gene transduction for vascular tissue engineering
- Examining the effects of pulsed electromagnetic fields on stem cells which contributes to improved wound healing through the upregulation of FGF-2
- Researching the effects of mechanical strain on hypertrophic scar formation

Institute of Plastic Reconstructive Surgery at NYU School of Medicine New York, NY (07/2004-07/2005)

Laboratory for Microvascular Research and Vascular Tissue Engineering

*Post-doctorate Research Fellow*

- Same as above

*Major Projects*

- Examining the effects of mechanotransduction on human osteoblast function using the Flexcell strain system as an *in vitro* model for the molecular processes occurring during distraction osteogenesis
- Analyzing the effects of pulsed electromagnetic fields on tumor angiogenesis through the increased production of FGF-2
- Investigating the effects of super oxide dismutase mimetics on diabetic wound healing
- Studying the impairment of stem cell trafficking in hypoxic conditions leading to complications of aging using both *in vivo* and *in vitro* models
- Using explanted microvascular beds seeded with multipotent adult progenitor cells and/or hepatocytes for the generation of autologous, vascularized neo-organs

Division of Plastic Surgery at RWJUH

New Brunswick, NJ (08/1999-06/2002)

*Robert Wood Johnson Medical School Research*

- Reviewing the literature concerning the detection of breast carcinoma in bilateral reduction mammoplasty patients
- Formulating case reports of patients who were found to have breast carcinoma while undergoing bilateral reduction mammoplasty

McKim Laboratory at the Waksman Institute

Piscataway, NJ (09/1997-06/1998)

*Undergraduate Research*

- Locating the position of specific genes in the Drosophila genome
- Determining the spatial and temporal expression of specific genes through in situ hybridizations
- Performing agarose gel electrophoresis techniques
- Determining the effect of radiation on causing mutations through screens and complementation tests

**Volunteer Experience:**

Northwest Covenant Medical Center-Dover Campus

Dover, NJ (1992-2002)

*Volunteer*

- Assisting doctors and nurses in patient care
- Collecting and delivering specimens
- Transporting patients
- Performing clerical duties

Chinese Christian Church of New Jersey

Parsippany, NJ (1990-2009)

*Member*

- Organizing and participating in programs to feed the homeless in New York City
- Teaching Sunday School and Friday Night Bible Study classes
- Serving as Secretary of Youth Group Steering Committee

**Extracurricular Activities:**

Member of American Medical Students Association	(1995-2002)
Member of Multicultural Diversity Group	(1999-2002)
Member of HIPHOP	(1999-2002)
Course Representative for Epidemiology/Biostatistics	(1999)
Member of UMDNJ-RWJMS Peer Mentor Program	(2000-2002)
Member of Plastic Surgery Research Council Mentor Program	(2013-present)
Member of ASRM Young Microsurgery Group	(2014-present)

**Leadership Positions:**

Operation Smile – Vice President	(1999)
UMDNJ-RWJMS Curriculum Committee – Third Year Student Representative	(2001)
UMDNJ-RWJMS Admissions Committee – Student Representative	(2001)
UMDNJ General Surgery Residency Curriculum Committee – Representative	(2002-2004)
Administrative Chief Resident of UMDNJ-RWJMS General Surgery Residency	(2008-2009)

**Honors and Awards:**

Phi Eta Sigma Honors Fraternity	(1996)
Phi Beta Kappa Honors Society	(1998)
Summa Cum Laude Graduate, Rutgers College	(1999)
John H. Landor Resident Teacher of the Year Award. UMDNJ-RWJMS	(2008)
Administrative Chief Resident of UMDNJ-RWJMS General Surgery Residency	(2008-2009)
Arnold P. Gold Humanism Honor Society	(2009)
Resident of the Year Award. UMDNJ-RWJMS General Surgery Residency	(2009)

**Professional Appointments:**

Fox Chase Cancer Center Philadelphia, PA (2015-2017)  
*Program Director, Reconstructive Microsurgery Fellowship*

Fox Chase Cancer Center Philadelphia, PA (2012-2016)  
*Assistant Professor, Division of Plastic and Reconstructive Surgery*

University of Pennsylvania Philadelphia, PA (2012-2015)  
*Clinical Assistant Professor Division of Plastic and Reconstructive Surgery*

Temple University School of Medicine Philadelphia, PA (2012-2017)  
*Clinical Assistant Professor Division of Plastic and Reconstructive Surgery*

Hackensack Meridian School of Medicine at Seton Hall University Nutley, NJ (2018-present)  
*Clinical Associate Professor, Division of Plastic and Reconstructive Surgery*

**Editorial Positions:**

Editorial Board Member (2016-present)  
*Clinics in Surgery – Plastic Surgery*

Associate Editor (2018-present)  
*Plastic and Reconstructive Surgery Global Open*

Associate Editor (2018-present)  
*Annals of Plastic Surgery*

Reviewer (2012-present)  
*Plastic and Reconstructive Surgery*

Reviewer (2014-present)  
*Head and Neck*

Reviewer (2015-present)  
*Annals of Plastic Surgery*

Reviewer (2015-present)  
*Plastic and Reconstructive Surgery Global Open*

Reviewer (2016-present)  
*Nature Scientific Reports*

Reviewer (2016-present)  
*Acta Biomaterialia*

Reviewer (2016-present)  
*Journal of Thoracic Disease*

Reviewer (2016-present)  
*Journal of Women's Health*

Reviewer <i>PLoS One</i>	(2017-present)
Reviewer <i>Journal of Reconstructive Microsurgery</i>	(2017-present)
<b>Invited National Meeting Appointments:</b>	
Plastic Surgery Research Council <i>Membership Committee</i>	(2013-2015)
American Society for Reconstructive Microsurgery Annual Meeting <i>Moderator Scientific Paper Session on Basic Science/CVA</i>	(2014)
Plastic Surgery Research Council 59 <sup>th</sup> Annual Meeting <i>Moderator Scientific Paper Session on Tissue Engineering</i>	(2014)
Plastic Surgery Research Council 59 <sup>th</sup> Annual Meeting <i>Moderator Scientific Paper Session on Microsurgery</i>	(2014)
American College of Surgeons 100 <sup>th</sup> Annual Clinical Congress <i>Discussant Surgical Forum on Plastic and Maxillofacial Surgery</i>	(2014)
Plastic Surgery Research Council 60 <sup>th</sup> Annual Meeting <i>Moderator Scientific Paper Session</i>	(2015)
American Council of Academic Plastic Surgeons <i>Issues Committee</i>	(2015)
American Council of Academic Plastic Surgeons <i>Global Health Committee</i>	(2015)
American Council of Academic Plastic Surgeons <i>Education Committee</i>	(2015)
American Council of Academic Plastic Surgeons <i>New Residency Committee</i>	(2015)
American Council of Academic Plastic Surgeons <i>Business of Plastic Surgery Committee</i>	(2015)
American Council of Academic Plastic Surgeons <i>Early Career Academic Plastic Surgeons Committee</i>	(2015)
16 <sup>th</sup> Biennial Congress of International Society of Craniofacial Surgery <i>Panel Discussant on Virtual Orthognathic Surgery</i>	(2015)
Plastic Surgery Research Council <i>Development Committee</i>	(2015)
Plastic Surgery Research Council <i>Education Committee</i>	(2015)

American Council of Academic Plastic Surgeons <i>Education Committee</i>	(2016)
Plastic Surgery Research Council <i>Education Committee</i>	(2016)
Plastics Surgery Research Council <i>Technology Committee</i>	(2016)
Plastic Surgery Research Council <i>Editor Newsletter</i>	(2016)
American Society for Reconstructive Microsurgery <i>Program Committee</i>	(2017)
Robert H. Ivy Pennsylvania Plastic Surgery Society <i>Moderator Journal Club</i>	(2017)
American Council of Academic Plastic Surgeons <i>Technology Committee</i>	(2017)
American Council of Academic Plastic Surgeons <i>Medical Student Outreach Committee</i>	(2017)
American Council of Academic Plastic Surgeons <i>Issues Committee</i>	(2017)
American Society for Reconstructive Microsurgery <i>Program Committee</i>	(2018)
American Society for Reconstructive Microsurgery <i>Future Growth Committee</i>	(2018)
American Council of Academic Plastic Surgeons <i>Medical Student Outreach Committee</i>	(2019)
American Council of Academic Plastic Surgeons <i>Resident Selection Committee</i>	(2019)
Plastic Surgery Research Council <i>Technology Committee</i>	(2019)
Plastic Surgery Research Council <i>By-Laws Committee</i>	(2019)
American Society for Reconstructive Microsurgery <i>Program Committee</i>	(2019)

**Invited National Lectures:**

Temple University Hospital

Philadelphia, PA

Division of Otolaryngology Grand Rounds “Complex Head and Neck Reconstruction”	(01/2014)
Temple University Hospital Department of Surgery Grand Rounds “Advances in Surgical Treatment of Lymphedema”	Philadelphia, PA (03/2014)
University of Pennsylvania Division of Plastic Surgery Grand Rounds “Experience of a Young Microsurgeon”	Philadelphia, PA (05/2014)
11 <sup>th</sup> National Lymphedema Network International Conference Campaign for Lymphedema Care: Perspectives, Evidence, and Practice “Clinical Management of Lymphedema Complicated by Radiation Fibrosis and Chemotherapy-Induced Peripheral Neuropathy”	Washington DC (09/2014)
University of Kansas Department of Plastic Surgery “Novel Advancements in Reconstructive Microsurgery”	Kansas City, KS (03/2015)
Stockton University Department of Bioinformatics “Accurate Limb Volume Computation for Lymphedema: A Comparison of Mathematical Approaches”	Galloway, NJ (09/2015)
Rutgers University Department of Mathematical Biology “Calculating Limb Volume in Lymphedema Patients”	Camden, NJ (09/2016)
21 <sup>st</sup> Annual Sisters Surviving Breast Cancer Conference Women of Faith and Hope “Current Treatment Options in Breast Reconstruction”	Philadelphia, PA (10/2016)
New Jersey Medical School – University Hospital Division of Plastic and Reconstructive Surgery Grand Rounds “Advancements of the Surgical Management of Lymphedema”	Newark, NJ (11/2016)
Stockton University School of Natural and Mathematical Sciences “Math and Medicine: Accurately Calculating Limb Volume for Lymphedema Patients”	Galloway, NJ (12/2016)
University of Utah School of Medicine Division of Plastic Surgery Grand Rounds “Innovative Surgical Techniques for the Treatment of Lymphedema”	Salt Lake City, UT (03/2017)
American Society for Reconstructive Microsurgery Annual Meeting Management of the Patient with Locally Advanced Breast Cancer “Effects of Radiation on Free Flap Breast Reconstruction”	Palm Desert, CA (02/2019)
American Society for Reconstructive Microsurgery Annual Meeting	Palm Desert, CA

Young Microsurgeon's Group International Microsurgery: No Borders, No Limits  
"Microsurgery Mission Trip to Nepal" (02/2019)

**Invited International Lectures:**

Hospital Sirio – Libanes Sao Paolo, Brazil  
"Recent Advances in Breast Reconstruction and Lymphedema Treatment"  
Live surgery with free DIEP flap breast reconstruction (06/2014)

BP Koirala Memorial Cancer Hospital Bharatpur, Nepal  
"Microvascular Free Flap Breast Reconstruction"  
Live surgery with free flap breast and head and neck reconstruction (11/2014)

University of Tokyo Hospital Tokyo, Japan  
"Career of a Young Microsurgeon" (09/2015)

Hospital Sirio – Libanes Sao Paolo, Brazil  
"Autologous Tissue Breast Reconstruction: Pedicled vs. Free"  
Live surgery with vascularized lymph node transfer and lymphovenous bypass (08/2016)

Lebanese Plastic & Reconstructive Microsurgery Conference Beirut, Lebanon  
"Reconstruction for Peripheral Nerve Disorders from Brachial Plexus to  
Diaphragm Paralysis" (09/2018)

Lebanese Plastic & Reconstructive Microsurgery Conference Beirut, Lebanon  
"Lower Extremity Reconstruction and Salvage without Free Flaps" (09/2018)

V<sup>th</sup> World Congress of Plastic Surgeons of Lebanese Descent Beirut, Lebanon  
"Functional Recovery for Lower Limb Salvage after Microsurgical Reconstruction" (09/2019)

V<sup>th</sup> World Congress of Plastic Surgeons of Lebanese Descent Beirut, Lebanon  
"Botched: Microsurgical Salvage of Poor Cosmetic Outcomes after  
Breast Reconstruction" (09/2019)

**Professional Memberships:**

American College of Surgeons (2004-2009)  
American Society of Plastic Surgeons (2009-2011)  
Plastic Surgery Research Council (2013-present)  
American Society for Reconstructive Microsurgery (2014-present)  
Fellow of the American College of Surgeons (F.A.C.S.) (2015-present)  
American Council of Academic Plastic Surgeons (2015-present)

**Board Certification:**

American Board of Surgery (2010-present)  
American Board of Plastic Surgery (2013-present)

**State Licensures:**

New Jersey (2008-present)  
California (2009-present)  
Texas (2011-present)  
Pennsylvania (2012-present)



### Peer-Reviewed Publications:

“Reply: Submuscular implant based reconstruction with total coverage: Is it time to move on?” **EI Chang**. *Plastic and Reconstructive Surgery*. 2019. 144(5): 927e-928e.

“Surgical treatment of iatrogenic steroid injection-induced myelomalacia.” MR Kaufman, **EI Chang**, K Rossi, Z Ibrahim, AI Elkwood. *Plastic Reconstructive Surgery Global Open*. 2018. 6(12): e2026.

“Total muscle coverage vs. Alloderm human dermal matrix for implant-based breast reconstruction.” JS Ivey, H Abdollahi, FA Herrera, **EI Chang**. *Plastic and Reconstructive Surgery*. 2018. 143(1): 1-6.

“Microneurosurgical treatment options in peripheral nerve compression syndromes after chemotherapy and radiation treatment.” **EI Chang**, MI Rose, K Rossi, AI Elkwood. *Journal of Surgical Oncology*. 2018. 118(5): 793-799.

“Advancements in imaging technology for microvascular free tissue transfer.” **EI Chang**, CK Chu, EI Chang. *Journal of Surgical Oncology*. 2018. 118(5): 729-735.

“Internal mammary usability as recipient vessels in DIEP breast reconstruction in the setting of previous radiation.” W Leppard, T Pomposelli, **EI Chang**, A Suliman, F Herrera. *Journal of Plastic Reconstructive and Aesthetic Surgery*. 2018. 71(8): 1123-1128.

“Optimizing donor site closure following bilateral breast free flap reconstruction with abdominal based free flaps.” NM Messina, K Rossi, LM Wetherhold, MJ Wetherhold, S Litwin, NS Topham, **EI Chang**. *Journal of Plastic Reconstructive and Aesthetic Surgery*. 2018. 71(2): 269-271.

“Impact of venous outflow tract on survival of osteocutaneous free fibula flaps for mandibular reconstruction: A 14-year review.” **EI Chang**. *Head and Neck*. 2017. 39(7): 1454-1458.

“Reply: Additional insights regarding virtual surgical planning for osteocutaneous free flap mandible reconstruction.” **EI Chang**, JP Bradley. *Plastic and Reconstructive Surgery*. 2016. 138(4): 775e.

“Reply: Long-term operative outcomes of computed tomography-guided virtual surgical planning for osteocutaneous free flap mandible reconstruction.” **EI Chang**. *Plastic and Reconstructive Surgery*. 2016. 138(3): 559e-560e.

“Comprehensive evaluation of risk factors and management of impending flap loss in 2138 breast free flaps.” EI Chang, **EI Chang**, MA Soto, H Zhang, N Nosrati, MA Crosby, GP Reece, GL Robb, DW Chang. *Annals of Plastic Surgery*. 2016. 77(1): 67-71.

“Long term operative outcomes of preoperative CT-guided virtual surgical planning (VSP) for osteocutaneous free flap mandible reconstruction.” **EI Chang**, M Jenkins, SA Patel, NS Topham. *Plastic and Reconstructive Surgery*. 2016. 137(2): 619-623.

“Time to surgery and breast cancer survival in the United States.” RJ Bleicher, K Ruth, ER Sigurdson, JR Beck, E Ross, Y Wong, SA Patel, M Boraas, **EI Chang**, NS Topham, BL Egleston. *JAMA Oncology*. 2016. 2(3): 330-339.

“Asymptomatic deep peroneal vein thrombosis during free fibula flap harvest: A review of the literature, strategies for preoperative assessment, and an algorithm for reconstruction.” SA Patel, H Abdollahi, JA Ridge, **EI Chang**, MN Lango, NS Topham. *Annals of Plastic Surgery*. 2016. 76(4): 468-471.

“Improved operative efficiency of free fibula flap mandible reconstruction with patient-specific, computer-guided preoperative planning.” JM Toto<sup>1</sup>, **EI Chang**<sup>1</sup>, R Agag, K Devarajan, SA Patel, NS Topham. *Head and Neck*. 2015. 37(11): 1660-1664.

“Evolution of bilateral free flap breast reconstruction over 10 years: Optimizing outcomes and comparison to unilateral reconstruction.” EI Chang, **EI Chang**, MA Soto-Miranda, H Zhang, N Nosrati, S Ghali, DW Chang. *Plastic and Reconstructive Surgery*. 2015: 135(6); 946e-953e.

“Principles and practice of reconstructive surgery for head and neck cancer.” SA Patel, **EI Chang**. *Surgical Oncology Clinics of North America*. 2015: 24(3); 473-489.

“Challenging a traditional paradigm: 12-year experience with autologous free flap breast reconstruction in patients with inflammatory breast cancer.” EI Chang, **EI Chang**, R Ito, H Zhang, AT Nguyen, RJ Skoracki, MM Hanasono, MA Crosby, N Ueno, KK Hunt. *Plastic and Reconstructive Surgery*. 2015: 135(2): 262e-269e.

“Choosing the optimal timing for contralateral symmetry procedures after unilateral free flap breast reconstruction.” EI Chang, JC Selber, **EI Chang**, N Nosrati, H Zhang, GL Robb, DW Chang. *Annals of Plastic Surgery*. 2015: 74(1); 12-16.

“Chimeric pedicled latissimus dorsi flap with lateral thoracic lymph nodes for breast reconstruction and lymphedema treatment in hypercoagulable patient.” D Vibhakar, S Reddy, W Morgan-Hazelwood, **EI Chang**. *Plastic and Reconstructive Surgery*. 2014: 134(3); 494e-495e.

“Comprehensive analysis of donor site morbidity in abdominal-based free flap breast reconstruction.” EI Chang, **EI Chang**, MA Soto-Miranda, H Zhang, N Nosrati, GL Robb, DW Chang. *Plastic and Reconstructive Surgery*. 2013: 132(6); 1383-1391.

“Demystifying the use of internal mammary vessels as recipient vessels in free flap breast reconstruction.” **EI Chang**, EI Chang, MA Soto-Miranda, N Nosrati, GL Robb, DW Chang. *Plastic and Reconstructive Surgery*. 2013: 132(4); 763-768.

“Salvage rates of compromised free flap breast reconstruction after recurrent thrombosis.” **EI Chang**, BT Carlsen, JH Festekjian, AL Da Lio, CA Crisera. *Annals of Plastic Surgery*. 2013: 71(1); 68-71.

“Chest wall reconstruction for sternal dehiscence after open heart surgery.” **EI Chang**, JH Festekjian, TA Miller, A Ardehali, GH Rudkin. *Annals of Plastic Surgery*. 2013: 71(1); 84-87.

“Recent trends in career choices of residents following plastic surgery training.” FA Herrera, **EI Chang**, A Suliman, CY Tseng, JP Bradley. *Annals of Plastic Surgery*. 2013: 70(6); 694-697.

“Effects of adjuvant radiation therapy for breast cancer based on type of free flap reconstruction.” **EI Chang**, TS Liu, JH Festekjian, AL Da Lio, CA Crisera. *Plastic and Reconstructive Surgery*. 2013: 131(1); 1-8.

“Long term follow-up of patients after total abdominal wall reconstruction for Prune Belly Syndrome.” MA Lesavoy, **EI Chang**, AS Suliman, SE Kim, JR Taylor, RM Ehrlich. *Plastic and Reconstructive Surgery*. 2012: 129(1); 104-109.

“Vascular complications and microvascular free flap salvage: The role of thrombolytics.” **EI Chang**, BJ Mehrara, JH Festekjian, AL Da Lio, CA Crisera. *Microsurgery*. 2011: 31(7); 505-509.

"Assessment of advanced age as a risk factor for microvascular breast reconstruction." **EI Chang**, L Vaca, AL Da Lio, JH Festekjian, CA Crisera. *Annals of Plastic Surgery*. 2011: 67(3); 255-259.

“Immediate free flap reconstruction of advanced stage breast cancer: Is it safe?” CA Crisera, **EI Chang**, AL Da Lio, JH Festekjian, BJ Mehara. *Plastic and Reconstructive Surgery*. 2011: 128(1); 32-41.

“Zenker's diverticulum presenting as a thyroid nodule.” BA Shanker, T Davidov, J Young, **EI Chang**, SZ Trooskin. *Thyroid*. 2010: 20(4); 439-440.

“Mesenchymal stem cells can participate in ischemic neovascularization.” C Hamou, MJ Callaghan, H Thangarajah, E Chang, **EI Chang**, RH Grogan, J Paterno, IN Vial, L Jazayeri, GC Gurtner. *Plastic Reconstructive Surgery*. 2009: 123(2 Suppl); 45S-55S.

“Tissue engineering using autologous microcirculatory beds as vascularized bioscaffolds.” EI Chang<sup>1</sup>, RG Bonillas<sup>1</sup>, S El-Ftesi, **EI Chang**, DJ Ceradini, IN Vial, DA Chan, J Michaels 5th, GC Gurtner. *FASEB Journal*. 2009: 23(3); 906-915.

“Hypoxia, hormones, and endothelial progenitor cells in hemangioma.” EI Chang, **EI Chang**, H Thangarajah, C Hamou, GC Gurtner. *Lymphatic Research and Biology*. 2007: 5(4); 237-243.

“Age decreases endothelial progenitor cell recruitment through decreases in HIF-1 $\alpha$  stabilization during ischemia.” **EI Chang**, S Loh, DJ Ceradini, EI Chang, S Lin, N Bastidas, S Aarabi, DA Chan, ML Freedman, AJ Giaccia, GC Gurtner. *Circulation*. 2007: 116(24); 2818-2829.

“Uniaxial mechanical strain: An in vitro correlate to distraction osteogenesis.” KA Bhatt<sup>1</sup>, **EI Chang**<sup>1</sup>, SM Warren, S Lin, N Bastidas, S Ghali, A Thibbonier, JM Capla, JG McCarthy, GC Gurtner. *Journal of Surgical Research*. 2007: 143(2); 329-336.

“Hypoxia induced mediators of stem/progenitor cell trafficking are increased in children with hemangioma.” ME Kleinman, M Grieves, SS Churgin, KM Blechman, **EI Chang**, DJ Ceradini, OM Tepper, GC Gurtner. *Arteriosclerosis, Thrombosis, and Vascular Biology*. 2007: 27(12); 2664-2670.

“Aesthetic breast reconstruction after radiation therapy.” **EI Chang**, DP Ly, PD Wey. *Annals of Plastic Surgery*. 2007: 59(1); 78-81.

#### **Book Chapters:**

“Advances in basic science research.” DC Wan, MD Kwan, **EI Chang**, GC Gurtner, MT Longaker. *Plastic Surgery Secrets Plus*. New York: Elsevier; 2010.

“Effects of radiation therapy for breast cancer based on type of flap reconstruction.” **EI Chang**. *Breast Reconstruction: Art, Science, and New Clinical Techniques*. New York: Springer; 2015.

“Supraclavicular cutaneous pedicled flap.” **EI Chang**. *Handbook of Reconstructive Flaps*. Boca Raton: CRC Press; 2017.

“Soleus flap.” **EI Chang**. *Handbook of Reconstructive Flaps*. Boca Raton: CRC Press; 2017.

“Lower Extremity.” **EI Chang**. *Introductory Atlas to Reconstructive Plastic Surgery: A Procedural Manual*. New York: Thieme Publishers; 2017.

#### **Online Publications:**

“Zenker’s diverticulum: Case reports and review of the literature: Two large Zenker’s at a single institution.” NM Salehomoum, **EI Chang**, SP Kahn. *Internet Journal of Surgery*. 2009; 25(1).

“Is HIDA scan necessary for sonographically suspicious cholecystitis?” I Bernescu, OS Eng, L Potdevin, R Monteiro, J Mino, **EI Chang**, T Davidov. *Journal of Current Surgery*. 2013; 3(2): 62-65.

#### **Abstracts/Presentations:**

“Electrical Fields Enhance Tumor Growth by Promoting New Blood Vessel Growth.” **EI Chang**, MJ Callaghan, GC Gurtner. 50<sup>th</sup> Annual Plastic Surgery Research Council Meeting. May 18-21, 2005.

“Impaired Progenitor Cell Trafficking with Advanced Age Results in Increased Vascular Complications.” **EI Chang**, S Lin, N Bastidas, S Aarabi, G Tabbal, DJ Ceradini, GC Gurtner. American College of Surgeons 91<sup>st</sup> Annual Clinical Congress. October 16-20, 2005.

“Ex-vivo Gene Transduction of Microvascular Free Flaps to Deliver the Human Antimicrobial Peptide LL37.” S Ghali, KA Bhatt, **EI Chang**, S Lin, LB Draper, N Bastidas, JP Levine, GC Gurtner. American College of Surgeons 91<sup>st</sup> Annual Clinical Congress. October 16-20, 2005.

“Aging Impairs Progenitor Cell Trafficking Through Downregulation of HIF-1 Induced SDF-1 Expression.” **EI Chang**, S Lin, N Bastidas, G Tabbal, DJ Ceradini, GC Gurtner. 22<sup>nd</sup> Annual Meeting of the Northeastern Society of Plastic Surgeons. November 3-5, 2005.

“Impaired HIF-1 Induced SDF-1 Expression Results in Decreased Neovascularization with Aging.” **EI Chang**, S Lin, N Bastidas, G Tabbal, DJ Ceradini, GC Gurtner. Keystone Symposia on Hypoxia and Development, Physiology and Disease. January 16-21, 2006.

“Aging Impairs Progenitor Cell Trafficking Through Downregulation of HIF-1 Induced SDF-1 Expression.” **EI Chang**, S Lin, N Bastidas, G Tabbal, S Aarabi, DJ Ceradini, GC Gurtner. 51<sup>st</sup> Annual Plastic Surgery Research Council Meeting. May 17-20, 2006.

“A New In Vitro Model for Investigating the Biomolecular Mechanisms of Distraction Osteogenesis.” S Lin, **EI Chang**, KA Bhatt, SM Warren, GC Gurtner, JP Levine, JG McCarthy. 51<sup>st</sup> Annual Plastic Surgery Research Council Meeting. May 17-20, 2006.

“Vascular Stem Cell Activity and Function Is Preserved with Advanced Age.” S Aarabi, **EI Chang**, S Lin, N Bastidas, MJ Callaghan, DJ Ceradini, GC Gurtner. 51<sup>st</sup> Annual Plastic Surgery Research Council Meeting. May 17-20, 2006.

“The Iron Chelator Deferoxamine Improves Neovascularization in Diabetes by Inhibiting ROS Production via Fenton Reaction Blockade.” RH Grogan, S Aarabi, **EI Chang**, DJ Ceradini, GC Gurtner. 51<sup>st</sup> Annual Plastic Surgery Research Council Meeting. May 17-20, 2006.

“Inside-Out Tissue Engineering for Complex Organ Replacement.” RG Bonillas, DJ Ceradini, S Aarabi, **EI Chang**, KM Blechman, GC Gurtner. 51<sup>st</sup> Annual Plastic Surgery Research Council Meeting. May 17-20, 2006.

“Deferoxamine Corrects Diabetic Neovascularization Defects by Reactive Oxygen Species Blockade.” RH Grogan, S Aarabi, **EI Chang**, DJ Ceradini, GC Gurtner. American Society of Plastic Surgeons Annual Meeting. October 6-11, 2006.

“Diabetes Impairs New Blood Vessel Formation by Inhibiting the Ability of HIF-1 $\alpha$  to Act as a Transcriptional Regulator.” RH Grogan, **EI Chang**, MJ Callaghan, RD Galiano, Y Shi, GC Gurtner. American Society of Plastic Surgeons Annual Meeting. October 6-11, 2006.

“Vascular Stem Cell Activity and Function Is Preserved with Advanced Age.” S Aarabi, **EI Chang**, S Lin, N Bastidas, DJ Ceradini, GC Gurtner. American Society of Plastic Surgeons Annual Meeting. October 6-11, 2006.

“The Role of Mesenchymal Stem Cells (MSCs) in EPC-Mediated Ischemic Vasculogenesis in Diabetes.” MJ Callaghan, RH Grogan, **EI Chang**, E Chang, GC Gurtner. American Society of Plastic Surgeons Annual Meeting. October 6-11, 2006.

“The Material Properties of Skin Determine Scar Phenotype.” MJ Callaghan, A Thiebonnier, S Aarabi, **EI Chang**, GC Gurtner. American Society of Plastic Surgeons Annual Meeting. October 6-11, 2006.

“Ex-Vivo Gene Transduction of Microvascular Free Flaps with Antimicrobial Peptides to Treat Chronic Infections.” S Ghali, MP Dempsey, KA Bhatt, **EI Chang**, S Singh, GC Gurtner. American Society of Plastic Surgeons Annual Meeting. October 6-11, 2006.

“Pulsed Electromagnetic Fields Enhance Wound Healing by Augmenting Endothelial Progenitor Cell Function and FGF-2 Expression.” **EI Chang**, EI Chang, S Aarabi, GC Gurtner. 52<sup>nd</sup> Annual Plastic Surgery Research Council. June 20-23, 2007.

“The Role of Mesenchymal Stem Cells (MSCs) in EPC-Mediated Ischemic Vasculogenesis in Diabetes.” MJ Callaghan, RH Grogan, **EI Chang**, GC Gurtner. 52<sup>nd</sup> Annual Plastic Surgery Research Council. June 20-23, 2007.

“Age-Related Changes in the Mobilization of Endothelial Precursor Cells in Humans - Effect of Disease Complications.” E Chang, J Paterno, S Sabor, **EI Chang**, M Kelantan, JP Cooke, K Birke, GC Gurtner. 52<sup>nd</sup> Annual Plastic Surgery Research Council. June 20-23, 2007.

“Ex-Vivo Gene Transduction of Microvascular Free Flaps with Antimicrobial Peptides to Treat Chronic Infections.” S Ghali, KA Bhatt, MP Dempsey, C Hamou, DM Jones, **EI Chang**, S Singh, Y Shi, GC Gurtner. 52<sup>nd</sup> Annual Plastic Surgery Research Council. June 20-23, 2007.

“Examining the Biomolecular Mechanisms of In Vivo Distraction Osteogenesis using a Novel In Vitro Model.” **EI Chang**, KA Bhatt, S Lin, SM Warren, GC Gurtner, JG McCarthy. International Society of Craniofacial Surgery XII<sup>th</sup> Biennial Congress. August 23-25, 2007.

“Oxidative Stress and Hypoxia Inducible Factor-1 Alpha Regulation.” EI Chang, **EI Chang**, SA Loh, MG Galvez, GC Gurtner. American College of Surgeons 93<sup>rd</sup> Annual Clinical Congress. October 7-11, 2007.

“Aging Impairs Neovascularization through Increased HIF-1 $\alpha$  Degradation.” EI Chang, **EI Chang**, SA Loh, MG Galvez, GC Gurtner. Keystone Symposia on Molecular, Cellular, Physiological, and Pathogenic Responses to Hypoxia. January 15-20, 2008.

“Novel Therapy for Age-Associated Defects in Neovascularization and Wound Healing Through Augmentation of Hypoxia-Inducible Factor-1 Stabilization with Dimethyloxalylglycine and Deferoxamine.” EI Chang, MG Galvez, S El-Ftesi, **EI Chang**, SA Loh, GC Gurtner. American College of Surgeons 94<sup>th</sup> Annual Clinical Congress. October 12-16, 2008.

“Risk Factors for Microvascular Free Tissue Transfer Breast Reconstruction.” **EI Chang**, L Vaca, AL Da Lio, JH Festekjian, CA Crisera. California Society of Plastic Surgeons 60<sup>th</sup> Annual Meeting. May 27-31, 2010.

“30 Year Follow-Up on The First North American Lower Extremity Replant.” AS Suliman, F Herrera, **EI Chang**, MA Lesavoy. American Society for Reconstructive Microsurgery Annual Meeting. January 15-18, 2011.

“Evolution of Chest Wall Reconstruction for Sternal Dehiscence after Open Heart Surgery.” **EI Chang**, EA Kruger, JH Festekjian, TA Miller, GH Rudkin. Southern California Chapter of the American College of Surgeons Annual Meeting. January 20-22, 2011.

“The Role of Thrombolytic Agents for Vascular Complications in Microvascular Free Flap Salvage.” **EI Chang**, BJ Mehrara, JH Festekjian, AL Da Lio, CA Crisera. 56<sup>th</sup> Annual Plastic Surgery Research Council. April 27-May 1, 2011.

“The Role of Thrombolytic Agents for Microvascular Free Flap Salvage.” **EI Chang**, BJ Mehrara, JH Festekjian, AL Da Lio, CA Crisera. American Society of Plastic Surgeons Annual Meeting. September 23-27, 2011.

“Perforator Patterns of the Ulnar Artery Perforator Flap.” P Yu, EI Chang, **EI Chang**, JC Selber, MM Hanasono. American Society for Reconstructive Microsurgery Annual Meeting. January 11-17, 2012.

“Design of a Reliable Skin Paddle for the Fibula Osteocutaneous Flap: Perforator Anatomy Revisited.” P Yu, EI Chang, **EI Chang**, MM Hanasono. American Society for Reconstructive Microsurgery Annual Meeting. January 11-17, 2012.

“Comprehensive Analysis of Revisional Surgery and Contralateral Symmetry Procedures Following Unilateral Free Flap Breast Reconstruction: A 10-Year Experience.” **EI Chang**, EI Chang, JC Selber, MM Hanasono, RJ Skoracki, CE Butler, SJ Kronowitz, EK Beahm, GL Robb, DW Chang. 57<sup>th</sup> Annual Plastic Surgery Research Council. June 14-17, 2012.

“Effects of Adjuvant Radiation Therapy for Breast Cancer Based on Type of Free Flap Reconstruction.” **EI Chang**, JH Festekjian, AL Da Lio, CA Crisera. American College of Surgeons 98<sup>th</sup> Annual Clinical Congress 2012. September 30-October 4, 2012.

“Impact of Size on Internal Mammary Vessels in Left and Right Free Flap Breast Reconstruction.” **EI Chang**, EI Chang, JA Butterworth, DW Chang. 17<sup>th</sup> Annual IPRAS World Congress. February 24-March 1, 2013.

“Contralateral Symmetry Procedures following Unilateral Free Flap Breast Reconstruction over 10 Years.” EI Chang, **EI Chang**, JC Selber, GL Robb, DW Chang. 17<sup>th</sup> Annual IPRAS World Congress. February 24-March 1, 2013.

“Demystifying the Internal Mammary Vessels as Recipient Sites in Free Flap Breast Reconstruction.” **EI Chang**, EI Chang, GL Robb, DW Chang. American Association of Plastic Surgeons 92<sup>nd</sup> Annual Meeting. April 20-23, 2013.

“Timing of Contralateral Procedures after Unilateral Free Flap Breast Reconstruction.” **EI Chang**, EI Chang, JC Selber, GL Robb, DW Chang. American Association of Plastic Surgeons 92<sup>nd</sup> Annual Meeting. April 20-23, 2013.

“Autologous Free Flap Reconstruction for Inflammatory Breast Cancer: 10-Year Experience.” EI Chang, **EI Chang**, GV Babiera, A Lucci, TA Buchholz, NT Ueno, KK Hunt, GL Robb, DW Chang. American Association of Plastic Surgeons 92<sup>nd</sup> Annual Meeting. April 20-23, 2013.

“Comprehensive Analysis of Donor Site Morbidity in Abdominal Free Flaps for Breast Reconstruction.” EI Chang, **EI Chang**, MA Soto, H Zhang, N Nosrati, DW Chang. American Association of Plastic Surgeons 92<sup>nd</sup> Annual Meeting. April 20-23, 2013.

“Choosing the Optimal Timing for Contralateral Symmetry Procedures following Unilateral Free Flap Breast Reconstruction.” **EI Chang**, EI Chang, JC Selber, N Nosrati, H Zhang, GL Robb, DW Chang. 58<sup>th</sup> Annual Plastic Surgery Research Council. May 2-4, 2013.

“Comprehensive Analysis and Strategies to Minimize Donor Site Morbidity in Abdominal Free Flap Breast Reconstruction.” EI Chang, **EI Chang**, MA Soto, H Zhang, N Nosrati, SJ Kronowitz, CE Butler, DW Chang. 58<sup>th</sup> Annual Plastic Surgery Research Council. May 2-4, 2013.

“Risk Factors and Management of Impending Flap Loss in Autologous Free Flap Breast Reconstruction.” EI Chang, **EI Chang**, MA Soto, H Zhang, GP Reece, GL Robb, DW Chang. American Society of Plastic Surgeons Annual Meeting. October 11-15, 2013.

“Ten-Year Evolution in Bilateral Free Flap Breast Reconstruction: Differences in Delayed vs. Immediate Reconstruction.” EI Chang, **EI Chang**, MA Soto, H Zhang, N Nosrati, S Ghali, DW Chang. American Society for Reconstructive Microsurgery Annual Meeting. January 11-14, 2014.

“Comprehensive Analysis of Microvascular Complications in Free Flap Breast Reconstruction.” EI Chang, **EI Chang**, MA Soto, H Zhang, GP Reece, GL Robb, DW Chang. American Society for Reconstructive Microsurgery Annual Meeting. January 11-14, 2014.

“Immediate versus Delayed Reconstruction after Mastectomy in the United States Medicare Breast Cancer Patient.” A Aggon, K Ruth, ER Sigurdson, **EI Chang**, BL Egleston, SA Patel, M Boraas, NS Topham, RJ Bleicher. American Radium Society 96<sup>th</sup> Annual Meeting. April 26-29, 2014.

“Robotic Assisted Laparoscopic Total Pelvic Exenteration.” S Reddy, CA Bergeman, A Kutikov, **EI Chang**, JM Farma. Society for Surgery of the Alimentary Tract 55<sup>th</sup> Annual Meeting. May 2-6, 2014.

“A 10-year Review of Acellular Dermal Matrix vs. Total Muscle Coverage for Implant-Based Breast Reconstruction.” JS Ivey, E Mairino, H Abdollahi, **EI Chang**. 2014 Chang Gung Mayo Clinic Symposium in Reconstructive Surgery. May 7-10, 2014.

“Microvascular Complications of Breast Free Flap Reconstruction.” EI Chang, **EI Chang**, MA Soto, H Zhang, N Nosrati, MA Crosby, GP Reece, GL Robb, DW Chang. 2014 Chang Gung Mayo Clinic Symposium in Reconstructive Surgery. May 7-10, 2014.

“A 10-Year Review of Racial Disparities in 1387 Breast Reconstruction Patients.” D Vibhakar, H Abdollahi, S Boukovalas, RJ Bleicher, **EI Chang**. 31<sup>st</sup> Annual Meeting of the Northeastern Society of Plastic Surgeons. September 12-14, 2014.

“A 10-Year Review of Acellular Dermal Matrix vs. Total Muscle Coverage for Implant-Based Breast Reconstruction.” E Maiorino, JS Ivey, H Abdollahi, SA Patel, NS Topham, **EI Chang**. 31<sup>st</sup> Annual Meeting of the Northeastern Society of Plastic Surgeons. September 12-14, 2014.

“Optimization of Breast Cancer Treatment from Mastectomy to Reconstruction.” S Boukovalas, E Maiorino, RJ Bleicher, **EI Chang**. 31<sup>st</sup> Annual Meeting of the Northeastern Society of Plastic Surgeons. September 12-14, 2014.

“Analysis of Lower Back Pain after Autologous Breast Reconstruction Using the TRAM Flap.” D Vibhakar, M Jenkins, D Hindin, **EI Chang**, NS Topham, SA Patel. American College of Surgeons 100<sup>th</sup> Annual Clinical Congress. October 26-30, 2014.

“Outcomes and Cost Analysis of Preoperative CT-Guided Virtual Surgical Planning for Free Fibula Mandible Reconstruction.” **EI Chang**, SA Patel, NS Topham. American Society for Reconstructive Microsurgery Annual Meeting. January 24-27, 2015.

“Implementation of Service Line System Optimizes Comprehensive Breast Cancer Care and Increases Rates of Breast Reconstruction: An 11-year Review.” **EI Chang**, S Boukovalas, RJ Bleicher, DW Chang. American Association of Plastic Surgeons 94<sup>th</sup> Annual Meeting. April 11-14, 2015.

“Operative Outcomes with CT-Guided Virtual Surgical Modeling for Mandibular Reconstruction with Osteocutaneous Free Flaps.” **EI Chang**, NS Topham. 60<sup>th</sup> Annual Plastic Surgery Research Council Meeting. May 14-16, 2015.

“Time to Treatment (TTT) and Breast Cancer Survival in the United States.” RJ Bleicher, K Ruth, ER Sigurdson, JR Beck, EA Ross, Y Wong, SA Patel, M Boraas, **EI Chang**, NS Topham, BL Egleston. 2015 American Society of Clinical Oncology Annual Meeting. May 29-June 2, 2015.

“Virtual Surgical Planning Optimizes Surgical Outcomes in Osteocutaneous Free Flap Mandible Reconstruction.” **EI Chang**. International Society of Craniofacial Surgery 16<sup>th</sup> Biennial Congress. September 14-18, 2015.

“Breast Reconstruction Optimizes Comprehensive Cancer Treatment without Increasing Delays: A 12-Year Process Outcomes Review.” **EI Chang**. American Society of Plastic Surgeons Annual Meeting. October 16-20, 2015.



“Randomized Controlled Trial of Donor Site Closure following Abdominal-Based Free Flap Breast Reconstruction.” K Basaran, S Litwin, NS Topham, **EI Chang**. American Society for Reconstructive Microsurgery Annual Meeting. January 14-16, 2016.

“Optimization of Breast Cancer Treatment from Mastectomy to Reconstruction.” S Boukovalas, E Maiorino, RJ Bleicher, **EI Chang**. 11<sup>th</sup> Annual Academic Surgical Congress. February 2-4, 2016.

“Operative Outcomes after Surgical Management of Secondary Lymphedema.” **EI Chang**, WT Morgan, J Balaicuis, JM Farma. 12<sup>th</sup> National Lymphedema Network Conference. August 31-September 4, 2016.

“Paradox of Free Fibula Flap Thrombosis for Mandibular Reconstruction and Vein Size: Bigger May Not Be Better.” **EI Chang**, SA Patel, NS Topham, P Yu. American Society for Reconstructive Microsurgery Annual Meeting. January 14-17, 2017.

“Early Postoperative Outcomes after Lymphovenous Bypass and Vascularized Lymph Node Transfer for Secondary Lymphedema.” **EI Chang**, WT Morgan, J Balaicuis, J Buhler, JM Farma. 12<sup>th</sup> Annual Academic Surgical Congress. February 7-9, 2017.

“Comprehensive 13-Year Review of Implant-Based Breast Reconstruction: Is Total Muscle Coverage or Alloderm Human Dermal Matrix Better?” JS Ivey, H Abdollahi, FA Herrera, **EI Chang**. American Association of Plastic Surgeons 96<sup>th</sup> Annual Meeting. March 25-28, 2017.

“Decreasing Donor Site Morbidity after Abdominal-Based Free Flap Breast Reconstruction: Long Term Results of a Randomized, Controlled Trial.” M Ng, NS Topham, LM Wetherhold, MJ Wetherhold, S Litwin, **EI Chang**. 62<sup>nd</sup> Annual Plastic Surgery Research Council Meeting. May 4-6, 2017.

“Increased Complications in Prosthetic-Based Breast Reconstruction with Alloderm Compared to Total Muscle Coverage.” M Ng and **EI Chang**. 62<sup>nd</sup> Annual Plastic Surgery Research Council Meeting. May 4-6, 2017.

“Increased Risk of Flap Complications in Patients with Prior Gynecologic Surgeries.” **EI Chang**. American Society for Reconstructive Microsurgery Annual Meeting. January 13-16, 2018.

“Surgical Treatment of Lymphedema with Lymphovenous Bypass and Vascularized Lymph Node Transfer.” **EI Chang**. American Society for Reconstructive Microsurgery Annual Meeting. January 13-16, 2018.

“Defining the Protocol for Treatment of Patients with Radiation-Induced Brachial Plexopathy.” **EI Chang** and AI Elkwood. American Society for Reconstructive Microsurgery Annual Meeting. February 1-5, 2019.

#### **Research Grants/Awards:**

“Impaired Stem Cell Trafficking in Complications of Aging.” National Institutes of Health/National Institute on Aging. Grant amount: \$1.5 million. PI: Geoffrey C. Gurtner.

“Effects of electromagnetic stimulation on tumor angiogenesis.” American Medical Association National Seed Grant. Grant amount: \$2500. PI: Geoffrey C. Gurtner.

American College of Surgeons' Forum on Fundamental Surgical Problems Resident/Fellow Excellence in Research Award for Progenitor Cells and Cell-Based Therapies. "Impaired Progenitor Cell Trafficking with Advanced Age Results in Increased Vascular Complications." October 18, 2005.

American College of Surgeons' Forum on Fundamental Surgical Problems Resident/Fellow Excellence in Research Award for Plastic Surgery. "Ex-vivo Gene Transduction of Microvascular Free Flaps to Deliver the Human Antimicrobial Peptide LL37." October 18, 2005.

Northeastern Society of Plastic Surgeons Resident and Fellows Award. "Aging Impairs Progenitor Cell Trafficking Through Downregulation of HIF-1 Induced SDF-1 Expression." November 4, 2005.

Susan B. Deak Excellence in Research Award. UMDNJ-Robert Wood Johnson Medical School. June 9, 2007.

Longmire Surgical Society Outstanding Resident Research Award. UCLA-David Geffen School of Medicine. April 8, 2011.

**Skills:**

Fluency in Chinese (Mandarin)  
Working knowledge of Spanish  
ACLS certification  
ATLS certification

**Hobbies:**

Tennis, volleyball, soccer, golf, karate, painting, drawing