Tatiana Boyko MD EMBA FACS

Profile

Hand surgeon and founding partner at Texas Orthopedic and Spine Associates PLLC., Fellow of the American College of Surgeons and graduate of an ACGME accredited fellowship in Hand Surgery at the University at Buffalo. EMBA graduate with experience in basic science, translational research as well as biomedical innovation.

Education & Training

University at Buffalo / Hand Surgery Fellowship
JAN 2021- DEC 2021

Quantic School of Business and Technology / EMBA
JULY 2020- SEPT 2021

University at Buffalo / Postdoctoral Research Fellowship
JULY 2020 - DEC 2020

Performed basic science and translational research in burn surgery with Dr. James Lukan in collaboration with Rensselaer Polytechnic Institute.

University at Buffalo / General Surgery Residency
JULY 2013 - JUNE 2020

Stanford University / Postdoctoral Research Fellowship
JULY 2015 - JUNE 2017

Performed basic science and translational research in skeletal stem cell and wound healing at Dr. Michael Longaker's Hagey Laboratory for Pediatric Regenerative Medicine.

Weill Cornell Medical College / Postdoctoral Research Fellowship
JULY 2012 - JUNE 2013

Performed basic science and translational research in plastic surgery and tissue engineering at Dr. Jason Spector's Laboratory of Bioregenerative Medicine and Surgery.

Ross University School of Medicine / MD with Honors
JULY 2008- JUNE 2012

UCLA / BS
SEPT 2004- JUNE 2008

Major in Physiologic Sciences, minor in Biomedical Research.

Licenses & Certifications

American Board of Surgery

Texas Medical License

Advanced Cardiac Life Support

Professional Positions

Texas Orthopedic and Spine Associates, PLLC / Hand Surgeon, Founding Partner and Board President
JANUARY 2022- PRESENT

TrueLearn Smartbanks for Medical Exams / Question Writer
JANUARY 2018- JANUARY 2021

UCSF / General Surgery Moonlighter
JULY 2016- JUNE 2017, SAN FRANCISCO, CA

Wound Care Surgeons / Wound Care Surgeon
JULY 2016- JUNE 2017, SARATOGA, CA

Professional Memberships

American Society for Surgery of the Hand

Fellow of the American College of Surgeons

Texas Medical Association

Tarrant County Medical Society

American Medical Association

Entrepreneurship

Provisional Patent 62801466 / Fascial Tensiometer
FEBRUARY 2019

National Science Foundation Innovation I-CORPS / Regional
JULY 2019, BUFFALO NY

National Science Foundation Innovation I-CORPS / Supraregional
OCT 2019, HOUSTON TX

Publications

1) Sexually dimorphic estrogen sensing in skeletal stem cells controls skeletal regeneration. *Nature Communications*. Andrew, Koepke, Wang, Lopez, Steininger, Struck, **Boyko**, Ambrosi, Tong, Sun, Gulati, Murphy, Marecic, Telvin, Schallmoser, Strunk, Seita, Goodman, Yang, Longaker, Yang, Chan. 2022.

2) A deep learning model for burn depth classification using ultrasound imaging. *Journal of Mechanical Behavior of Biomedical Materials*. Lee, Rahul, Lukan, **Boyko**, Zelenova, Makled, Parsey, Norfleet, De. 2021.

3) Safety profile of atorvastatin in the role of burn wound injury conversion. *The American Journal of Surgery*. **Boyko**, Marin, Furnari, Flynn, Lukan. 2020.

4) Real-time burn classification using ultrasound imaging. *Scientific Reports*. Lee, Ye, Chittajallu, Kruger, **Boyko**, Lukan, Enquobahrie, De. 2020.

5) Ultrasound imaging-based machine learned approach to identify altered characteristics of burned tissue. Real-time burn classification using ultrasound imaging. *IEEE Biomedical Engineering*. Lee, Lukan, **Boyko**, De. 2019.

6) Current practices in peri-operative free flap anticoagulation and post-operative monitoring in USA. *Journal of Plastic, Reconstructive & Aesthetic Surgery*. **Boyko**, Fontenot, Manisundaram, Burke. 2019.

7) Del1 protects against chondrocyte apoptosis through Integrin binding. *Journal of Surgical Research*. Wang, **Boyko**, Tran, Larussa, Barbhaiya, Rashidi, Choo, Longaker, Yang. 2018.

8) Inhibition of IRE1 results in decreased scar formation. *Wound Repair and Regeneration*. **Boyko**, Bam, Jiang, Wang, Bhatia, Tran, Longaker,

Koong, Yang. 2018.

9) Laboratory models for the study of normal and pathological wound healing. *Plastic and Reconstructive Surgery*. **Boyko**, Longaker, Yang. 2017.

10) Rescue of Del1 knock out phenotype in bone fracture healing in mice. *Journal of the American College of Surgeons.* **Boyko**, Marecic, Lopez, Seo, Tong, Chan, Longaker, Yang. 2017.

11) Inhibition of unfolded protein response decreases scar formation. *Journal of the American College of Surgeons.* **Boyko**, Jiang, Cao, Koong, Longaker, Yang. 2016.

12) Review of current management of pressure ulcers. *Advances in Wound Care*. **Boyko**, Longaker, Yang. 2016.

13) A novel 3D platform to investigate neoangiogenesis, transendothelial migration and metastasis of MDAMB231 breast cancer cells. *Plastic and Reconstructive Surgery.* Hooper, Hernandez, Asanbe, **Boyko**, Joyce, Osoria, Jacoby, Spector. 2016.

14) Perioperative antibiotics in the setting of oropharyngeal reconstruction: less is more. *Annals of Plastic Surgery*. Cohen, Finnery, Golas, Ketner, Weinstein, **Boyko**, Rohde, Kutler, Spector. 2016.

15) Reduction of suture associated inflammation after 28 days using novel biocompatible pseudo protein poly(ester amide) biomaterials. *Journal of Biomedical Materials Research: Part B- Applied Biomaterials.* Hernandez, **Boyko**, Hooper, Reiffel, Joyce, Harper, Spector. 2015.

16) Prophylactic plastic surgery closure of neurosurgical scalp incisions reduces the incidence of wound complications in previously-operated patients treated with bevacizumab (Avastin ®) and radiation. *Journal of Neurooncology.* Golas, **Boyko**, Schwartz, Stieg, Boockvar, Spector. 2014.

17) Fabrication and in vivo microanastomosis of vascularized tissue-engineered constructs. *Tissue Engineering Part A.* Hooper, Hernandez, **Boyko**, Harper, Joyce, Golas, Spector. 2014.

18) Dispelling the myth: perceptions of skin cancer susceptibility in Fitzpatrick skin types IV-VI. *Journal of American Academy of Dermatology.* Okereke, Henry, Clark, **Boyko**, Marmur, Alexis. 2013.

19) Genetic manipulation of AML1- ETO- induced expansion of hematopoietic precursors in a Drosophila model. *Blood*. Sinenko et al. 2010.

20) Genome-wide clonal analysis of lethal mutations in the Drosophila melanogaster eye: comparison of the X-chromosome and autosomes. *Genetics*. Banerjee et al. 2007.

Presentations/Lectures

1) "Selling your product: how to pitch your company to a business competition". *SAGES Conference*. **Boyko**. Las Vegas NV, 2021.

2) Safety profile of HMG-CoA reductase inhibitors in the role of burn wound injury conversion. *Association of VA Surgeons Conference*. **Boyko**, Marin, Furnari, Flynn, Lukan. Pittsburgh PA, 2020. (Conference cancelled).

3) "Hand surgery for the general surgeon". Grand rounds lecture at University at Buffalo, Department of Surgery, Buffalo NY, 2020. **Boyko**

4) Safety profile of HMG-CoA Reductase Inhibitors in the role of prevention of burn wound injury conversion. *NYC Committee of Trauma Resident Paper Competition*. **Boyko**, Marin, Furnari, Flynn, Lukan. Rochester NY, 2019.

5) Periosteal cells are skeletal progenitor cells. *Society of Asian Academic Surgeons.* **Boyko**, Marecic, Lopez, Seo, Tong, Chan, Longaker, Yang. Milwaukee IL, 2018.

6) Postoperative free flap monitoring practices of microsurgeons in USA. *European Plastic Surgery Research Council.* **Boyko**, Burke. Hamburg Germany, 2018.

7) Del1 affects bone healing through skeletal stem cells in mice and men. *University at Buffalo General Surgery Department Research Day.* **Boyko**, Marecic, Lopez, Seo, Tong, Chan, Longaker, Yang.. Buffalo NY, 2018.

8) Inhibition of IRE1 results in decreased scar formation. *University at Buffalo General Surgery Department Research Day.* **Boyko**, Jiang, Longaker, Koong, Yang. Buffalo NY, 2018.

9) Use of perioperative anticoagulation by microsurgeons in USA. *University at Buffalo General Surgery Department Research Day.* **Boyko**, Burke. Buffalo NY, 2018.

10) Postoperative free flap monitoring practices of microsurgeons in USA. *University at Buffalo General Surgery Department Research Day.* **Boyko**, Burke. Buffalo NY, 2018.

11) Effects of exogenous Del1 protein on human skeletal stem cell

proliferation. *Academic Surgical Congress*. **Boyko**, Marecic, Lopez, Seo, Tong, Chan, Longaker, Yang. Jacksonville FL, 2018.

12) Rescue of Del1 knock out phenotype in bone fracture in mice. *American College of Surgeons*. **Boyko**, Marecic, Lopez, Seo, Tong, Chan, Longaker, Yang. San Diego CA, 2017.

13) Del1 protects against chondrocyte apoptosis through Integrin binding. *Society of Asian Academic Surgeons.* Wang, **Boyko**, Tran, Larussa, Barbhaiya, Rashidi, Choo, Longaker, Yang. Birmingham AL, 2017.

14) Effects of exogenous Del1 protein on human skeletal stem cells. *Stanford General Surgery Annual Research Day.* **Boyko**, Marecic, Lopez, Chan, Longaker, Yang. Stanford CA, 2017.

15) Rescue of Del1 knock out phenotype in bone fracture healing in mice. *Stanford Plastic Surgery Annual Research Symposium.* **Boyko**, Marecic, Seo, Tong, Chan, Longaker, Yang. Stanford CA, 2017.

16) Del1 knockout affects bone cartilage stroma progenitor cells following femur fracture in mice. *Association of Surgical Congress*. **Boyko**, Marecic, Seo, Chan, Longaker, Yang. 2017.

17) Periosteal cells are skeletal progenitors. *Association of Surgical Congress*. **Boyko**, Longaker, Yang. 2017.

18) Del1 knockout affects bone cartilage stroma progenitor cells following femur fracture in mice. *Stanford Department of General Surgery Grand Rounds*. **Boyko**, Marecic, Seo, Chan, Longaker, Yang. Stanford CA, 2017.

19) Inhibition of unfolded protein response decreases scar formation. *American College of Surgeons*. **Boyko**, Jiang, Longaker, Koong, Yang. Washington DC, 2016.

20) Del1 knockout affects bone cartilage stroma progenitor cells following femur fracture in mice. *Stanford General Surgery Annual Research Day*. **Boyko**, Marecic, Seo, Chan, Leavitt, Longaker, Yang. Stanford CA, 2016.

21) Inhibition of unfolded protein response decreases scar formation. *Stanford Plastic Surgery Annual Research Symposium.* **Boyko**, Jiang, Longaker, Koong, Yang. Stanford CA, 2016.

22) Dispelling the myth: perceptions of skin cancer susceptibility in Fitzpatrick skin types IV- VI. *Skin of Color Society.* Okereke, Henry, Clark, **Boyko**, Marmur, Alexis. Denver CL, 2014.

23) Multiple amino acid biodegradable poly ester-amide (PEA) polymer coating significantly reduces inflammation associated with suture implantation. *American Society of Plastic Surgeons*. **Boyko**, Hernandez, Campbell, Weinstein, Harper, Wu, Chu, Spector. San Diego CA, 2013.

24) Vascularized tissue-engineered constructs for in vivo microanastomosis. *American Society of Plastic Surgeons.* Campbell, Hernandez, **Boyko**, Joyce, Reiffel, Spector. San Diego CA, 2013.

25) Fabrication of perfusable microvessels within tissue engineered constructs. *American College of Surgeons.* Campbell, Hernandez, Joyce, Garcia, **Boyko**, Derrick, Reiffel, Spector. Washington DC, 2013.

26) Fabrication and in vivo perfusion of vascularized tissue engineered constructs. *American College of Surgeons.* Campbell, Hernandez, **Boyko**, Delnero, Garcia, Reiffel, Spector. Washington DC, 2013.

27) Peri-operative antibiotics in the setting of oral cavity reconstruction: how much is too much? *American College of Surgeons*. Cohen, Reiffel, Ketner, **Boyko**, Weinstein, Spector. Washington DC, 2013.

28) In vivo microanastomosis of microvessel containing tissue-engineered constructs: the final frontier. *Northeastern Society of Plastic Surgeons*. Campbell, Hernandez, **Boyko**, Joyce, Jacoby, Spector. Washington DC, 2013.

29) Multiple amino acid poly ester-amide (PEA- AA) polymer coating significantly reduces suture associated inflammation. *Northeastern Society of Plastic Surgeons.* Hernandez, **Boyko**, Campbell, Weinstein, Harper, Chu, Spector. Washington DC, 2013.

30) Novel biodegradable poly ester-amide (PEA) polymer coating significantly reduces suture associated inflammatory response. *Plastic Surgery Research Council.* **Boyko**, Hernandez, Van Harten, Reiffel, Moody, Van Koot, Chu, Harper, Spector. Santa Monica CA, 2013.

31) Fabrication of prevascularized type I collagen tissue engineered constructs for in vivo microanastomosis. *Plastic Surgery Research Council.* Campbell, Reiffel, Hernandez, Garcia, Delnero, **Boyko**, Spector. Santa Monica CA, 2013.

32) Microstructured collagen scaffolds facilitate deterministic guidance of cells during wound repair. *Plastic Surgery Research Council.* Campbell, Hernandez, Reiffel, Delnero, **Boyko**, Spector. Santa Monica CA, 2013.

33) Fabrication of prevascularized type I collagen tissue engineered constructs for in vivo microanastomosis. *New York Regional Society of*

Plastic Surgeons Annual Resident's Night. Campbell, Hernandez, Reiffel, Delnero, **Boyko**, Spector. New York NY, 2013.

34) Reduction of suture associated inflammation using the novel biocompatible pseudo-protein poly ester amide (PEA). *American Society of Plastic Surgeons*. Van Harten, Reiffel, Van Koot, Rezaie, **Boyko**, Chu, Spector. New Orleans LA, 2012.

35) Reduction of suture associated inflammation using the novel biocompatible pseudo-protein poly ester amide (PEA). *American College of Surgeons*. Van Harten, Reiffel, Van Koot, Rezaie, **Boyko**, Chu, Spector. Chicago IL, 2012.

Posters

1) Safety profile of HMG-CoA reductase inhibitors in the role of burn wound injury conversion. *University at Buffalo General Surgery Research Day*. **Boyko**, Marin, Furnari, Flynn, Lukan. Buffalo, NY, 2020.

2) Effects of Del1 protein on skeletal stem cell proliferation in mice and men. *Rochester General Surgery Department Research Day*. **Boyko**, Marecic, Lopez, Chan, Longaker, Yang. Rochester NY, 2018.

3) A novel device for treating chronic wound infections. *Spectrum Innovation & Research Symposium*. Andreasson, Raymond, Saiki, **Boyko**, Hu, Perl, Bernardo, Cannistraro, Jacobson, Pannier, Laux, Rivas-Davila, Lorenz. Stanford CA, 2017.

4) Optimization of functional, perfusable vascular networks within tissue engineered hydrogels. *Plastic Surgery Research Council*. Hooper, Hernandez, **Boyko**, Joyce, Jacoby, Spector. New York NY, 2014.

5) In vivo microanastomosis of microvessels containing tissue engineered constructs: the final frontier. *TERMIS*. Hooper, Hernandez, Joyce, **Boyko**, Spector. Atlanta GA, 2013.

6) Fabrication of surgically perfusable microchannel-containing tissue-engineered scaffolds. *TERMIS*. Hooper, Hernandez, **Boyko**, Joyce, Derrick, Spector. Atlanta GA, 2013.

7) Plastic surgery closure of craniotomy incision reduces the incidence of wound complications in patients with previous neoadjuvant bevacizumab (Avastin ®) and radiation. *Northeastern Society of Plastic Surgeons*. Reiffel, **Boyko**, Boockvar, Schwartz, Steig, Spector. Washington DC, 2013.

8) In vivo microanastomosis of tissue engineered type I collagen scaffolds. *American Association of Plastic Surgeons*. Campbell, Reiffel,

Hernandez, Garcia, Delnero, **Boyko**, Spector. New Orleans LA, 2013.

9) Dispelling the myth: perceptions of skin cancer susceptibility in Fitzpatrick skin types IV-VI. *American Academy of Dermatology*. Okereke, Henry, Clark, **Boyko**, Marmur, Alexis. Miami Beach FL, 2013.

10) Reduction of suture associated inflammation using the novel biocompatible pseudo-protein poly ester amide (PEA). *Northeastern Society of Plastic Surgeons*. Van Harten, Reiffel, Van Koot, Rezaie, **Boyko**, Chu, Spector. Boston MA, 2012.

11) Genetic manipulation of AML1- ETO- induced expansion of hematopoietic precursors in a Drosophila model. *UCLA Undergraduate Research Science Poster Day*. **Moroz**, Hung, Tran, Sidhu, Bowman, Sinenko, Banerjee. Los Angeles CA, 2008.

12) Genome-wide clonal analysis of lethal mutations in the Drosophila melanogaster eye: comparison of the X-chromosome and autosomes. *UCLA Undergraduate Research Science Poster Day*. Hung, Tran, **Moroz**, Sinenko, Banerjee. Los Angeles CA, 2008.

Awards & Honors

New York City Launchpad Propel Pitch Competition / Finalist
NOVEMBER 2019

New York State Business Plan Competition / 3rd Place in Medtech/Health Category
MAY 2019

Western New York Student 2 Biz Challenge / 1st Place
APRIL 2019

Henry A. Panasci Jr. Technology Entrepreneurship Competition / Finalist
APRIL 2019

University at Buffalo General Surgery Research Day / Best Quickshot Oral Presentation
MAY 2018

Stanford General Surgery Research Day / Best Basic/Translational Science Poster
JUNE 2017

Howard Hughes Medical Institute Professor's Program Undergraduate Research Fellowship / Fellowship Recipient
UCLA, MAY- AUGUST 2006

Howard Hughes Medical Institute Professor's Program Undergraduate Research Fellowship / Fellowship Recipient
UCLA, MAY- AUGUST 2005

Service to the Profession

Texas Medical Association / Tarrant County Delegate
2023- PRESENT

Hand / Independent Reviewer
2023- PRESENT

Journal of Biomedical Materials Research Part B: Applied Biomaterials / Independent Reviewer
2020-2022

Advances in Wound Care Journal / Independent Reviewer
2017-2022

Tissue Engineering Journal / Independent Reviewer
2016-2018

UB Ortho Summer Research Program / Research Mentor
2021, BUFFALO NY

Business Law and Surgical Technology Challenge / Surgical Mentor
AUGUST 2019, BUFFALO NY

Service to the Public

Walk With A Doc/ TCMS Recurring Public Event
FORT WORTH TX, 2023-2024

Association of Women Surgeons/ Outreach to Local High Schools
BUFFALO NY, 2019

“Going the Extra Mile” Marathon Fundraiser/ Organizer
DOMINICA, 2009

Global Medical Brigades UCLA Chapter/ Mission Trip
HONDURAS, 2007

Measure to Achieve Patient Safety/ Volunteer
LOS ANGELES CA, 2007-2008

Press

UB musician, surgeons launch startups to solve problems in their industries.
http://www.buffalo.edu/ubnow/stories/2019/06/surgino-case-in-point.html

Residents launch startup to solve surgical obstacles.

http://ubmd.com/about-ubmd/news.host.html/content/shared/smbs/news/2019/06/surgino-startup-company-9979.detail.html