Bradley Jay Willenberg, PhD

Assistant Professor of Medicine

**Education and Training:**

**Postdoctoral Training,** Departments of Pathology, Immunology and Laboratory Medicine, McKnight Brain Institute and Materials Science and Engineering, University of Florida, Gainesville, FL

*Sept. 2005*

*- Nov 2010*

Concentrations: Stem Cell Biology, Biomaterials, Tissue Engineering and Materials Science

Advisors: Professors Naohiro Terada, MD, PhD, Dennis Steindler, PhD and Luisa Amelia Dempere, PhD

**PhD in Biomedical Engineering,** Department of Biomedical Engineering- College of Engineering, University of Florida, Gainesville, FL

*August 1999*

*- August 2005*

Concentrations: Tissue Engineering & Biomaterials

Advisor: Professor Christopher Batich, PhD

**BS Interdisciplinary Studies,** College of Liberal Arts and Sciences, University of Florida, Gainesville, FL

*August 1993*

*- May 1998*

Concentrations: Biochemistry & Molecular Biology

Graduated Phi Beta Kappa, Highest Honors

Advisor: Steven Benner, PhD

# Positions, Honors and Memberships:

## Employment-

2016- Assistant Professor of Medicine, Department of Internal Medicine, University of Central Florida College of Medicine, Orlando, FL

2014-2016 Assistant Scientist, Department of Internal Medicine, University of Central Florida College of Medicine, Orlando, FL

2015- Courtesy Adjunct Assistant Scientist, Department of Materials Science and Engineering University of Florida, Gainesville, FL

2012-2015 Adjunct Assistant Scientist, Department of Materials Science and Engineering University of Florida, Gainesville, FL

2012-2014 Adjunct Assistant Scientist, Department of Materials Science and Engineering and Department of Medicine (2013-14, Division of Nephrology, Hypertension, & Renal Transplantation), University of Florida, Gainesville, FL

2012-2013 Adjunct Lecturer, Department of Materials Science and Engineering, University of Florida, Gainesville, FL

2010-2012 Research Assistant Scientist, Department of Materials Science and Engineering, University of Florida, Gainesville, FL

**Honors-**

2005 Postdoctoral Fellowship, NIH T32 Training Grant in Cancer Biology (T32 CA09126), University of Florida Shands Cancer Center

2000 Alumni Fellowship Recipient, Department of Biomedical Engineering- College of Engineering, University of Florida

1998 Elected to the Phi Beta Kappa Society

**Memberships-**

2019- Materials Research Society (MRS)

2018- Society for Biomaterials (SFB)

2016- American Mosquito Control Association (AMCA)

2016- Florida Mosquito Control Association (FMCA)

2015- Biomedical Engineering Society (BMES)

**RESEARCH:**

**Publications-**

* "Aptamer–gold nanoparticle conjugates for the colorimetric detection of arboviruses and vector mosquito species," Bosak, A., N. Saraf, A. Willenberg, M. W. C. Kwan, B. W. Alto, G. W. Jackson, R. H. Batchelor, T. D. Nguyen-Huu, V. Sankarapani, G. D. Parks, S. Seal and **B. J. Willenberg** (2019). *RSC Advances* 9(41): 23752-23763.
* “A Low-Cost, Passive Release Device for the Surveillance and Control of Mosquitoes,” Kwan MWC, Bosak A, Kline J, Pita MA, Giel N, Pereira RM, Koehler PG, Kline DL, Batich CD, **Willenberg BJ**, *Int J Environ Res Public Health*, 16(9): E1488-1494, April, 27, 2019.

* “Multiplex Viral Detection Platform Based on a Aptamers-Integrated Microfluidic Channel,” Saraf N, Villegas M, **Willenberg BJ**, Seal S*, ACS Omega*, 4(1): 2234-2240, Jan 31, 2019.

* “Bundling of axons through a capillary alginate gel enhances the detection of axonal action potentials using microelectrode arrays,” George DS, Anderson WA, Sommerhage F, Willenberg AR, Hines RB, Bosak AJ, **Willenberg BJ**,4, Lambert S, *J Tissue Eng Regen Med*, 13(3): 385-395, March 1, 2019.

* “Capillary alginate gel (Capgel™) for the treatment of full-thickness dermal wounds in a hypoxic mouse model,” Alexander Bosak, Michael W. C. Kwan, Alicia Willenberg, Krista M. D. La Perle, David Weinstein, Robert B. Hines, Gregory S. Schultz, Edward A. Ross & **Bradley J. Willenberg***, International Journal of Polymeric Materials and Polymeric Biomaterials*, 68(18): 1108-1117, DOI: 10.1080/00914037.2018.1534112, Dec 10, 2018.
* “Detection and quantification of trace airborne transfluthrin concentrations via air sampling and thermal desorption gas chromatography-mass spectrometry,” Kwan MWC, Weisenseel JP, Giel N, Bosak A, Batich CD, **Willenberg BJ**, *J Chromatogr A*, 1573: 156-160, Oct 26, 2018.
* “Use of a Capillary Alginate Gel (Capgel™) to Study the Three-Dimensional Development of Sensory Nerves Reveals the Formation of A Rudimentary Perineurium,” Anderson WA, Willenberg AR, Bosak AJ, **Willenberg BJ**, Lambert S, *J Neurosci Methods*, 305: 46-53, Jul 15, 2018.
* “Colorimetric detection of epinephrine using an optimized paper-based aptasensor,” Saraf N, Bosak A, Willenberg A, Das S, **Willenberg BJ**, Seal S, *RSC ADVANCES,* 7(77): 49133-49143, Oct 20, 2017.
* “An injectable capillary-like microstructured alginate hydrogel improves left ventricular function after myocardial infarction in rats,” Rocca DG\*\*, **Willenberg BJ\*\***, Qi Y\*\*, Simmons CS, Rubiano A, Ferreira LF, Huo T, Petersen JW, Ruchaya PJ, Wate PS, Wise EA, Handberg EM, Cogle CR, Batich CD, Byrne BJ, Pepine CJ. *Int J Cardiol*.*,* 220: 149-54, Oct 1, 2016.
* “Evaluation of a bilayered, micropatterned hydrogel dressing for full-thickness wound healing,” Magin CM, Neale DB, Drinker MC, **Willenberg BJ**, Reddy ST, La Perle KM, Schultz GS, Brennan AB, *Exp. Biol. Med.,* 2016
* “Repurposed biological scaffolds: kidney to pancreas,” **Willenberg, B.J.**, Oca-Cossio, J., Cai, Y., Brown, A.R., Clapp, W.L., Abrahamson, D.R., Terada, N., Ellison, G.W., Mathews, C.E., Batich, C.D. & Ross, E.A., *Organogenesis,* 11(2), 47-57, Aug 2015.
* “Materials Characterization of Feraheme/Ferumoxytol and Preliminary Evaluation of Its Potential for Magnetic Fluid Hyperthermia,” John P. Bullivant, Shan Zhao, **Brad J. Willenberg**, Bettina Kozissnik, Christopher D. Batich and Jon Dobson, *Int. J. Mol. Sci.,* 14(9): 17501-17510, Aug 2013.
* “Detailed analysis of polymer response to delivery balloon expansion of drug-eluting stents versus bare metal stents,” Denardo SJ, Carpinone PL, Vock DM, Tcheng JE, Phillips HR 3rd, **Willenberg BJ**, Batich CD, Pepine CJ, *EuroIntervention*, 9(3): 389-97, Jul 2013.
* “A degradable, bioactive, gelatinized alginate hydrogel to improve stem cell/growth factor delivery and facilitate healing after myocardial infarction,” Della Rocca DG, **Willenberg BJ\***, Ferreira LF, Wate PS, Petersen JW, Handberg EM, Zheng T, Steindler DA, Terada N, Batich CD, Byrne BJ, Pepine CJ, *Medical Hypotheses*,79(5):673–7, Nov 2012.
* “Polymer-Coated Cannulas for the Reduction of Backflow During Intraparenchymal Infusions,” Louis C. Vazquez, Erik Hagel, **Bradley J. Willenberg**, Wei Dai, Fernando Casanova, Christopher D. Batich, Malisa Sarntinoranont, *Journal of Materials Science: Materials in Medicine*, 23(8): 2037–46 Aug 2012.
* “Gelatinized Copper–Capillary Alginate Gel Functions as an Injectable Tissue Scaffolding System for Stem Cell Transplants,” **BJ Willenberg**, T Zheng, Fan-Wei Meng, JC Meneses, C Rossignol, CD Batich, N Terada, DA Steindler and MD Weiss, *Journal of Biomaterials Science* 22: 1621–1637, 2011.
* “Method for the decellularization of intact rat liver,” Thomas Shupe, Matthew Williams, Alicia Brown, **Bradley Willenberg** and Bryon E. Petersen, *Organogenesis* 6(2): 134–136, 2010.
* “Self-assembled copper-capillary alginate gel scaffolds with oligochitosan support embryonic stem cell growth,” **Bradley Jay Willenberg**, Takashi Hamazaki, Fan-Wei Meng, Naohiro Terada, Chistopher Batich, *Journal of Biomedical Materials Research Part A* 79A(2): 440-450, Nov 2006.

**Invited Talks-**

* “Update on Nanoceria-Based Pesticides”, Mona Mathew and **Bradley Jay Willenberg**- Invited talk given by MM at The 16th Arbovirus Surveillance and Mosquito Control Workshop in Conjunction with the NE 1443 Regional Projects 4th Annual Meeting and the FMCA’s NE Regional Meeting, St. Augustine, FL, March, 27, 2019
* “Passive Tools, Aptamer-Based Diagnostics and Nanoparticles for Vector Surveillance and Control: An Update,” **Bradley Jay Willenberg**- Invited talk given at The 15th Arbovirus Surveillance and Mosquito Control Workshop in Conjunction with the NE 1443 Regional Projects 4th Annual Meeting and the FMCA’s NE Regional Meeting, St. Augustine, FL, March 21, 2018.
* “Passive Tools, Aptamer-Based Diagnostics and Nanoparticles for Vector Surveillance and Control,” **Bradley Jay Willenberg**- Invited talk given at The 3rd Annual FMCA Entomologist/ Biologist Workshop Florida Mosquito Control Association, Palmetto, FL, May 3, 2017.
* “Passive Tools, Aptamer-Based Diagnostics and Nanoparticles for Vector Surveillance and Control,” **Bradley Jay Willenberg**- Invited talk given at The Jim Robinson Series: Food for thought Course K2 (Dodd Short Course) Florida Mosquito Control Association, Orlando, FL, Feb. 1, 2017.
* “Old Dogs and New Tricks: Adapting Existing Analytical E-Beam Equipment for Automated Large-Area Quantitative Elemental Mapping of Chlorine in Cement, Mortar and Concrete”, **B. Willenberg**, R. Deist, and L. Dempere, *Microscopy and Microanalysis*, 17 (Suppl S2): pp. 1476-1477, July 2011 -Invited talk given at the Microscopy & Microanalysis (M&M) 2011 Meeting, Nashville, TN, Aug. 7-11, 2011.
* “A New Family of Tissue Engineering Scaffolds Derived From Copper-Capillary Alginate Gels: Synthesis and Characterization,” **Bradley Jay Willenberg**- Invited talk given at the 2005 American Vacuum Society Florida Chapter (FLAVS) and Florida Society for Microscopy (FSM) Annual Joint Symposium & Exhibition, Orlando, FL, March 2005.

**Abstracts, Posters and Presentations-**

* “Self-assembled Capillary Alginate Hydrogel (Capgel™) Scaffolds Induce Preferential Cellular

Elongation and Distinct Morphological Orientations in Defined Directions of Cultured Cells,” Kwan MWC, Wheeless C and **Willenberg BJ**, *2019 Materials Research Society Spring Meeting & Exhibit*, April 24, 2019, Phoenix, AZ (**oral presentation by BJW**).

* “Multi-Layered Films of Self-Assembled Capillary Alginate Hydrogel (Capgel™) Induces Preferential Orientation of Human Foreskin Fibroblasts,” Kwan MWC, Wheeless C, Mathews M, Crawford K and **Willenberg BJ**, Society for *Biomaterials 2019 Annual Meeting & Exposition, April 4, 2019*, Seattle, WA.
* “Mosquito Surveillance Tools Based on Aptamer-Gold Nanoparticle Conjugates for

Colorimetric Detection of Arboviruses,” Alexander J. Bosak, Nileshi Saraf, Bradley Eastmond, Jebidiah Light, Keenan Wiggins, Alicia Willenberg, Michael Kwan, Matthew Longo, Griffith Parks, Sudipta Seal, Barry W. Alto, **Bradley Jay Willenberg**, *American Mosquito Control 85th Annual Meeting*, Feb 2, 2019, Orlando, FL (oral presentation by AJB).

* “Mosquito Surveillance Tools Based on Aptamer-Gold Nanoparticle Conjugates for Colorimetric Detection of Vector Species,” Alexander Bosak, Nileshi Saraf, Alicia Willenberg, Michael W.C. Kwan, Sudipta Seal, and **Bradley J. Willenberg**, *90th Annual Meeting Florida Mosquito Control Association*, Nov 7, 2018, St. Petersburg, FL (oral presentation by AJB).
* “New Nanoceria-Based Mosquito Pesticides,” Alexander Bosak, Nileshi Saraf, Alicia Willenberg, Michael W.C. Kwan, Gary Scheiffele, Sudipta Seal, and **Bradley J. Willenberg**, *90th Annual Meeting Florida Mosquito Control Association*, Nov 7, 2018, St. Petersburg, FL (**oral presentation by BJW**).
* “Supporting Rehabilitation Prescription Compliance with an IoT-Augmented Four-Legged Walker,” S. Zehtabian, S. Khodadadeh, R. Pearlman, **B. Willenberg**, B. Kim, D. Turgut, L. Bölöni and E. A. Ross, *2nd Workshop on AI for Aging, Rehabilitation and Independent Assisted Living (ARIAL 2018) Workshop of the IJCAI-ECAI-AAMAS joint AI Conference*, July 2018, Stockholm, Sweden (oral presentation).
* “Capillary Alginate Gel for the Support of Mesenchymal Stem Cells,” Michael Kwan, Alexander Bosak and **Bradley Jay Willenberg**, *Society for Biomaterials 2018 Annual Meeting*, April 10-14, Atlanta, GA.
* “Functional characterization of an in vitro generated 3-D nerve bundle using capillary alginate on a microelectrode array,” Dale S. George, Wesley A. Anderson, Alexander J. Bosak, Alicia R. Willenberg, Frank Sommerhage, **Bradley J. Willenberg** and Stephen Lambert, American *Society for Cell Biology (ASCB)/European Molecular Biology Organization (EMBO) 2017 Meeting*, Dec 2-6, 2017, Philadelphia, PA.
* “Morphology modifications of AuNPs to enhance the performance of Aptasensor,” Nileshi Saraf, Sushant Singh, Alicia Brown, **Bradley Willenberg**, Sudipta Seal, *MS&T, Material Science and Technology (MS&T)*, Oct 8-12, 2017, Pittsburgh, PA.
* “Exploiting Physical Morphology of Gold Nanoparticles for Aptasensor Development,” Nileshi Saraf, Soumen Das, Alicia R. Brown, Alexander Bosak, Sushant Singh, **Bradley J. Willenberg**, Sudipta Seal, *American Vacuum Society Florida Chapter (FLAVS) and Florida Society for Microscopy (FSM) 2017 Annual Joint Symposium & Exhibition*, March 6, 2017, Orlando, FL.
* “Neuromodulation of mosquito feeding behavior for in vivo colorimetric detection of arboviral envelope proteins with aptamer-gold nanoparticle conjugates,” Alexander Bosak, Alicia R. Brown, Nileshi Saraf, Soumen Das, Jedidiah D. Kline, Edward A. Ross, Daniel L. Kline, Barry W. Alto, Sudipta Seal, **Bradley J. Willenberg**, *American Mosquito Control Association (AMCA) 83rd Annual Meeting*, Feb 13-17, 2017, San Diego, CA (oral presentation by AB).
* “Paper-Based Optical Detection System for Small Molecules,” Nileshi Saraf, Soumen Das, Alicia R. Brown, **Bradley J. Willenberg**, Sudipta Seal, *Mayo Clinic Angiogenesis and Tumor Microenvironment Symposium: From Translational Research to Precision Clinical Practice 2016*, Nov 18-20, 2016, Amelia Island, FL.
* “Cell Proliferation on Crosslinked Perfusion-Decellularized Kidney Organ Scaffolds”, Edward A. Ross, Alexey Y. Goloubev, Andrés Rubiano, Alicia R. Brown, Chelsey S. Simmons, **Bradley J. Willenberg**, *American Society of Nephrology (ASN) 2016 Annual Meeting*, Nov 15-20, 2016, Chicago, IL.
* “New Colorimetric Field Surveillance Tools for Detection of Vector Mosquitoes and Emerging Arboviral Pathogens,” Alicia R. Brown, Nileshi Saraf, Alexander Bosak, Soumen Das, Jedidiah D. Kline, Edward A. Ross, Barry W. Alto, Daniel L. Kline, Sudipta Seal, **Bradley J. Willenberg**, *Florida Mosquito Control Association (FMCA) 88th Annual Meeting*, Nov 13-16, 2016, Miramar Beach, FL (**oral presentation by BJW**).
* “Paper-based Optical Detection System for Small Molecules,” Nileshi Saraf, Soumen Das, Alexander Bosak , Alicia Brown , **Bradley Willenberg**, and Sudipta Seal, *Sustainable Nanotechnology Organization,* Nov 10-12, 2016, Orlando, FL.
* “Surveilling for Disease-Vectoring Mosquitoes with Colorimetric Sensors,” Nileshi Saraf, Alexander Bosak, Soumen Das, Alicia R. Brown, Edward A. Ross, Daniel L. Kline, Sudipta Seal, **Bradley J. Willenberg**, *Lake Nona Medical City Research Day*, Oct, 14, 2016, Orlando, FL.
* “A Smart-Walker System for Fall Prevention and Rehabilitation,” **Bradley J. Willenberg**, Sudeshna Pal, Lina Khan, Christopher Cepeda, Ross Pearlman, Wilson Perez, T’Jean Tomlinson, Mario A. Pita, Patrick S. Pabian, Adam G. Golden, Edward A. Ross, *Biomedical Engineering Society (BMES) 2016 Annual Meeting*, Oct 5-8, Minneapolis, MN.
* “Functional 3D Nerve Model Generates Signals from Fascicles Detectable with a Microelectrode Array,” Wesley A. Anderson, Dale S. George, Alicia R. Brown, Alexander J. Bosak, **Bradley J. Willenberg**, Stephen Lambert, *Biomedical Engineering Society (BMES) 2016 Annual Meeting*, Oct 5-8, Minneapolis, MN.
* “Increasing Modulus of Perfusion-Decellularized Kidney Organ Scaffolds to Enhance Recellularization,” Alexey Y. Goloubev, Andrés Rubiano, Alicia R. Brown, Edward A. Ross, Chelsey S. Simmons, **Bradley J. Willenberg**, *Biomedical Engineering Society (BMES) 2016 Annual Meeting*, Oct 5-8, Minneapolis, MN.
* “Capillary Alginate Gel (Capgel) Biomaterials for Injectable T-Cell Immunotherapies,” Alexey Y. Goloubev, Kunal S. Dhume, Alicia R. Brown, Edward A. Ross, K. Kai McKinstry, **Bradley J. Willenberg**, *Biomedical Engineering Society (BMES) 2016 Annual Meeting*, Oct 5-8, Minneapolis, MN.
* “Evaluation of a Bilayered, Micropatterned Hydrogel Dressing for Full-Thickness Wound Healing,” Chelsea M. Magin, Dylan B. Neale, Michael C. Drinker, **Bradley J. Willenberg**, Shravanthi T. Reddy, Krista M.D. La Perle, Gregory S. Schultz and Anthony B. Brennan, *8th Annual Symposium on Advanced Wound Care Fall (SAWC Fall) meeting*, October 7-9, 2016, Las Vegas, NV.
* Role of Gold Nanoparticle Size and Shape on the Sensitivity of Aptasensor Development, Nileshi Saraf, Soumen Das, **Bradley Jay Willenberg**, Sudipta Seal, *American Vacuum Society Florida Chapter (FLAVS) and Florida Society for Microscopy (FSM) 2016 Annual Joint Symposium & Exhibition*, March 2-3, 2016, Orlando, FL.
* “3D Printed Sharkskin for Enhanced Interstellar Wound Healing,” Chelsea M. Magin, Michael C. Drinker, MiKayla M. Henry, Dylan B. Neale, **Bradley J. Willenberg**, Shravanthi T. Reddy, Gregory S. Schultz and Anthony B. Brennan, *2015 100 Year Star Ship Public Symposium*, Oct 29 – Nov 1, Santa Clara, CA, (oral presentation by CMM).
* “Novel Methods for Producing Crosslinked, Bio-absorbable, Micropatterned Gelatin Films,” Dylan B. Neale, **Bradley J. Willenberg**, Chelsea M. Magin, Anthony B. Brennan, and Gregory S. Schultz. *Biomedical Engineering Society (BMES) 2015 Annual Meeting*, Oct 7-10, Tampa, FL.
* “Capillary Alginate Gel (Capgel) Biomaterials Enhance Wound Healing,” **Bradley J. Willenberg**, Alexey Y. Goloubev, Alicia R. Brown, Gregory S. Schultz, Edward A. Ross, *Biomedical Engineering Society (BMES) 2015 Annual Meeting*, Oct 7-10, Tampa, FL, (**oral presentation by BJW**).
* “Capillary Alginate Gel (Capgel) With Laminin Promotes 3D Schwann Cell Myelination Of DRG Axons,” Wesley A. Anderson, Alexey Y. Goloubev, Alicia R. Brown, Stephen Lambert, **Bradley J. Willenberg**, *Biomedical Engineering Society (BMES) Annual 2015 Meeting*, Oct 7-10, Tampa, FL, (oral presentation by WAA).
* “Micropatterns Promote Cell Migration for Enhanced Epithelialization,” Chelsea M. Magin, Michael C. Drinker, Dylan B. Neale, **Bradley J. Willenberg**, Shravanthi T. Reddy, Gregory S. Schultz, Anthony B. Brennan, *Biomedical Engineering Society (BMES) 2015 Annual Meeting*, Oct 7-10, Tampa, FL, (oral presentation by CMM).
* “Micropatterns Promote Cell Migration for Enhanced Epithelialization,” Chelsea M. Magin, Michael C. Drinker, Dylan B. Neale, **Bradley J. Willenberg**, Shravanthi T. Reddy, Gregory S. Schultz, and Anthony B. Brennan. *BioInterface Workshop & Symposium*, Scottsdale, AZ,

September 2015.

* “Bioengineered Pancreas: Human Insulin-Secreting Islet Cells In Vascularized Pig Kidney Scaffolds,” Edward A. Ross, **Bradley J. Willenberg**, Jose Oca-Cossio, William L. Clapp, Dale R. Abrahamson, Naohiro Terada, Gary W. Ellison, Clayton E. Mathews, Christopher D. Batich, *Annual meeting of the European Renal Association (ERA) and the European Dialysis & Transplantation Association (EDTA)*, June 26, 2014, Munich, Germany.
* “Inexpensive & Non-Disruptive Retrofitting of a PDP-11 Based Microprobe System with Modern Automation Software,” R.A. Deist, **B.J. Willenberg** and L.A. Dempere, *Microscopy and Microanalysis,* 19 (Suppl. 2): 810-811, 2013 (oral presentation by RAD).
* “An Injectable Acellular Capillary Hydrogel Improves Left Ventricular Function After Myocardial Infarction,” Domenico G. Della Rocca, **Bradley J. Willenberg**, Leonardo F. Ferreira, Stacy L. Porvasnik, John W. Petersen, Prateek S. Wate, Eileen M. Handberg, Gregory Schultz, Francesco Romeo, Christopher D. Batich, Barry J. Byrne, and Carl J. Pepine, *J Am Coll Cardiol,* 59: 856, 2012 (oral presentation by DGDR)*.*
* “Intramyocardial Injection of Gelatinized Capillary-Alginate Hydrogel Enhances Recovery of LV Function Post-MI,” **Bradley J. Willenberg**, Domenico G. Della Rocca, Leonardo F. Ferreira, Stacy L. Porvasnik, John W. Petersen, Prateek S. Wate, Eileen M. Handberg, Gregory Schultz, Christopher D. Batich, Barry J. Byrne, Carl J. Pepine, *Circulation,* A17004: 126, 2012.
* “Incorporation of Gelatin into Self-Assembled Copper-Capillary Alginate Gel Scaffolds Enables Stem Cell Adhesion,” **BJ Willenberg**, FW Meng, T Zheng, MD Weiss, DA Steindler, C Batich and N Terada, *Society for Biomaterials Annual Meeting*, Apr 2007.
* “Fabrication of Coated Polycaprolactone Scaffolds and Their Effects on Murine Embryonic Stem Cells,” Michael H. Tollon, Takashi Hamazaki, PhD, **Bradley J. Willenberg**, Christopher Batich, PhD, Naohiro Terada, MD, PhD, in Biological and Bio-Inspired Materials and Devices, edited by K.H. Sandhage, S. Yang, T. Douglas, A.R. Parker, and E. DiMasi (*Mater. Res. Soc. Symp. Proc.* 873E, Warrendale, PA, 2005), K9.14.

**Patents-**

* "Compositions for Neuromodulation of Mosquito Feeding Behavior and Uses Thereof,” Willenberg, Bradley, Willenberg, Alicia, Bosak, Alexander, US National Stage Patent Application #20190076556, Sep 11, 2018.
* "Passive Insect Surveillance Sensor Device,” Willenberg, Bradley, Seal, Sudipta, US National Stage Patent Application #20180231550, Aug 16, 2018.
* “Colorimetric Sensor Devices Using Aptamer-Gold Nanoparticle Conjugates for Field Surveillance of Mosquito-Borne Diseases,” Willenberg, Bradley, Seal, Sudipta, Provisional Patent Application # 62/556,643, Sept 11, 2017.
* “Apparatus and Methods for Blocking Needle and Cannula Tracts”, Malisa Sarntinoranont, Christopher Batich, **Bradley Jay Willenberg**, Erik Hagel, Louis C. Vazquez, United States Patent #9,629,943, April 2017.
* “Apparatus and Methods for Blocking Needle and Cannula Tracts”, Malisa Sarntinoranont, Chris Batich, **Brad Willenberg**, Erik Hagel, Louis C. Vazquez, United States Patent #9,370,626, June 2016.
* “Methods and Devices for Sustained Release of Substances”, **BJ Willenberg**, PG Koehler, CD Batich, GC Georgiades, Patent #9,258,988, Feb 2016.
* “Alginate gel scaffold having a plurality of continuous parallel microtubular copper capillaries” CD Batich, **BJ Willenberg**, T Hamazaki, N Terada, United States Patent #7,601,525, Oct 2009.

**Funded Grants-**

*Current:*

* Florida Department of Agriculture and Consumer Services (FDACS) 09/18/2019 – 08/15/2020

Quantifying Threshold Airborne Concentrations of Transfluthrin for Mosquito Control Applications (PI: Willenberg)

Role: PI

* Cell-Safe Life Sciences, LLC [Prime: National Institutes of Health (NIH), R42DK109853]

06/01/2016 – 08/31/2020

An Ultrafiltrate Perfusion Bioartificial Pancreas for High-density Islet Replacement without Immunosuppression (PI: Dalton)

Role: Co-I/PI UCF Subcontract

*Completed:*

* Florida Department of Agriculture and Consumer Services (FDACS, Contract No. 25381)

08/10/2018 – 08/15/2019

New Nanoceria-Based Mosquito Pesticides (PI: Willenberg)

Role: PI

* University of Minnesota [Prime: Juvenile Diabetes Research Foundation (JDRF), 2-SRA-2016-260-S-B]

07/01/2016 – 07/31/2019

Targeted Engineering of the Perihepatic Surface Using Injectable Hydrogel Scaffolds for High-Density Therapeutic Beta Cell Replacement and Retrieval (PI: Graham)

Role: Co-I/PI UCF Subcontract

* University of Florida (Prime: US Army, Contract No. W911QY-15-1-0003)

05/05/2015 – 12/31/2018

A Spatial Repellent System for Long-Term, Passive Release, for the Deployed Warfighter Protection (PI: Batich)

Role: Co-I/PI UCF Subcontract

* Florida Department of Agriculture and Consumer Services (FDACS, Contact No. 023593)

10/19/2016 – 09/15/2018

Colorimetric Field Surveillance Sensors for Detection of Zika Virus and Vector Mosquitoes

(PI: Willenberg)

Role: PI

* Florida Department of Health 03/01/2017 – 03/31/2019 (Terminated without cause effective 06/30/2018 due to lack of funding in 2018 FL state budget)

Zika Virus Activation and Inhibition of Human Complement Immunity (PI: Parks)

Role: Co-I

* Bill & Melinda Gates Foundation Grand Challenges Explorations Grant, Investment ID OPP1138590

11/01/2015 – 10/31/2017

New Unpowered Attract-Diagnose-Kill Surveillance Traps (PI: Willenberg)

Role: PI

* Florida Department of Agriculture and Consumer Services (FDACS, Contract No. 022392)

8/26/2015 – 8/15/2016

Colorimetric Sensor Devices Using Aptamer-Gold Nanoparticle Conjugates for Field Surveillance of Mosquito-Borne Diseases (PI: Willenberg)

Role: PI

**TEACHING:**

**Courses-**

* Fall 2019, **PCB4521**, *Tissue Engineering*, 90 undergraduate students enrolled
* Fall 2018/Spring 2019, **BMS6910**, FIRE M1, **BMS6911**, FIRE M2, Reviewer and Grader for ~6 projects and ~6 posters.
* Fall 2018, **BSC5418**, *Tissue Engineering*, 19 graduate students enrolled, team taught, 1/3 of class taught by Willenberg.
* Fall 2018, **PCB4521**, *Tissue Engineering*, 66 undergraduate students enrolled, team taught, 1/3 of the class taught by Willenberg
* Fall 2017, **PCB4521**, *Tissue Engineering*, 38 undergraduate students enrolled, team taught, 1/3 of the class taught by Willenberg.
* Fall 2017, **BSC5418**, *Tissue Engineering*, 21 graduate students enrolled, team taught, 1/3 of class taught by Willenberg.
* Fall 2017/Spring 2018, **BMS6910**, FIRE M1, **BMS6911**, FIRE M2, Reviewer and Grader for ~6 projects and ~10 posters.
* Fall 2016/Spring 2017, **BMS6910**, *FIRE M1*, **BMS6911**, *FIRE M2*, Reviewer and Grader for ~6 projects and ~10 posters.
* Fall 2013, EMA6510, *Survey of Materials Analysis Techniques*, ~50 graduate students enrolled (graduate-level course taught at the University of Florida for the Department of Materials Science and Engineering).
* Fall 2012, EMA6510, *Survey of Materials Analysis Techniques*, ~50 graduate students enrolled (graduate-level course taught at the University of Florida for the Department of Materials Science and Engineering).
* Fall 2012, EMA4161C, *Physical Properties of Polymers Laboratory*, ~25 undergraduate students enrolled (undergraduate-level laboratory course taught at the University of Florida for the Department of Materials Science and Engineering).

**Mentoring-**

*Postdoctoral Scholars:*

* Mona Mathew (2018- )
* Michael Kwan (2017- )

*Undergraduate Students:*

* Catherine Wheeless (UCF Biomedical Sciences Undergraduate)
* Nour Isis (UCF Biomedical Sciences Undergraduate, graduated Spring 2019)
* Peter Kyesmu (UCF Biomedical Sciences Undergraduate and UCF 2018 T-LEARN Student mentee)
* Ntami Echeng (UCF Biomedical Sciences Undergraduate and UCF 2017 SURF Student mentee, Graduated Fall 2018)
* Austinah Pedian (UCF Biomedical Sciences Undergraduate, Graduate Spring 2017)
* Nicholas Giel (UCF Biomedical Sciences Undergraduate, Graduated Spring 2017)

*Thesis/Dissertation Committees:*

* Kritika Kedarinath (UCF Biomedical Sciences PhD student—Immunology and Infectious Disease Track, Advisor: Griffith Parks, PhD)
* Wesley Anderson (UCF Biomedical Sciences PhD student—Neuroscience Track—, Advisor: Stephen Lambert, PhD) *–Graduated Summer 2018–*
* Md. Mydul Islam (Miku) (UCF Department of Mechanical & Aerospace Engineering PhD student, Advisor: Robert Steward, PhD)
* Pooya Abolghasemi (UCF Department of Computer Science PhD student, Advisor: Lotzi Bölöni, PhD)

**Service:**

**Professional-**

*Ad hoc journal review:*

* Analytical Biochemistry (2018)
* Tissue Engineering (A: 2016, C: 2017 and 2019)
* Life Sciences (2016)
* Scientifica (2016)

**University Service-**

* UCF Institutional Policy on Blood Draw and Other Minimally Invasive Practices in Nonclinical Settings (2019)
* Institutional Animal Care and Use Committee (IACUC) Alternate-Voting Member (2017- )
* UCF T-LEARN Mentor (2018)
* UCF SURF Mentor (2017)
* Keck Foundation- internal competition reviewer (2016)

**College/School/Department Serivice-**

*Faculty Search Committees:*

* Infectious Disease Center Director (2018)
* Biionix Cluster (formerly Prosthetics Interfaces Cluster second round, 2018-2019)
* Nutrition Researcher (2017-2018)
* Genomics & Bioinformatics Cluster ( ad hoc, 2016-2017)
* Prosthetics Interfaces Cluster (round one, 2016-2018)

*Other:*

* Interviewer for Burnett School of Biomedical Sciences graduate school applicants (2019)
* Junior faculty representative for Liaison Committee on Medical Education (LCME) site visit (2017)
* Faculty Judge for the 2017 Annual UCF Burnett School of Biomedical Sciences Graduate Student Research Symposium (2017).
* Founding member of the Prosthetics Interfaces Cluster 2016

**Professional Society Service-**

* Poster Judge for SM04.06: Smart Implants/Prosthetics/Scaffolds at 2019 Spring MRS
* SIG Poster Session Judge at SFB 2019
* Vice Chair for Protein and Cells at Interfaces Special Interest Group (SIG) within the Society for Biomaterials (SFB, 2019- )

**Community Service-**

* Panelist on the *Zika and Other Infectious Diseases Roundtable* held by US Congress member Stephanie Murphy, Representative, 7th District, Florida (2017).