**RESUME-**Charles Kenneth Webb

**PERSONAL DATA**

Associate Professor

301 Rhodes Hall

Department of Bioengineering

Clemson University

Clemson, SC 29634-0905

864/656-7603

[kwebb@clemson.edu](mailto:kwebb@clemson.edu)

**EDUCATION:**

Ph. D., University of Utah (1999), Bioengineering

B. S., Clemson University (1992), Agricultural and Biological Engineering

**PROFESSIONAL EXPERIENCE**

2012- Clemson University, Associate Chair and Director of Undergraduate Studies, Dept. of Bioengineering

2009-2012 Clemson University, Undergraduate Program Coordinator, Dept. of Bioengineering

2009- Clemson University, Associate Professor, Dept. of Bioengineering

2004- Medical University of South Carolina, Assistant Professor, College of Graduate Studies

2003-2009 Clemson University, Assistant Professor, Dept. of Bioengineering

2000-2003 University of Utah, Research Assistant Professor, Dept. of Bioengineering

1999-2000 University of Utah, Post-Doctoral Research Associate, Dept. of Bioengineering

**MEMBERSHIPS**

Member, Society for Biomaterials (2001-)

Member, Tissue Engineering Special Interest Group (2002-)

**PROFESSIONAL ACTIVITIES**

Organizer and Session Chair-Biomaterial-based bridges for neural regeneration Symposium for 2007 Society for Biomaterials meeting

Vice-Chair, Tissue Engineering Special Interest Group (2005-2006)

Abstract reviewer, Society for Biomaterials 2005, 2009 Annual Meeting

Ad-hoc reviewer, Acta Biomaterialia

Ad-hoc reviewer, Journal of Biomedical Materials Research

Ad-hoc reviewer, Journal of Biomaterials Science, Polymer Edition

Ad-hoc reviewer, Journal of Applied Polymer Science

Ad-hoc reviewer, Macromolecules

Ad-hoc reviewer, Biomacromolecules

Ad-hoc reviewer, Chemistry of Materials

Ad-hoc reviewer, Journal of Controlled Release

Ad-hoc reviewer, Transactions on Neural Systems and Rehabilitation Engineering

Ad-hoc reviewer, Biophysical Journal

Ad-hoc reviewer, American Association of Textile Chemists and Colorists (AATCC)

Ad-hoc reviewer, Reproductive Biomedicine Online

Stage One Panel Member-NIH Cardiovascular Sciences Study Section I (2008)

Reviewer, NIH/NIDCD P50 Clinical Research Center Grant Application (2009)

Member, Special Emphasis Panel/Scientific Review Group 2012/01 ZRG1 MOSS-S (10) B (2011-)

**PUBLICATIONS:**

**Refereed Journal Publications**

J. Zhang, A. Sen, E. Cho, J. S. Lee, and K. Webb. “Poloxamine/fibrin hybrid hydrogels for controlled release of nonviral vectors” submitted 12/2012 Journal of Tissue Engineering and Regenerative Medicine.

E. Cho, J. S. Lee, and K. Webb. “Formulation and characterization of poloxamine-based hydrogels as tissue sealants.” Acta Biomaterialia **8**:2223-2232 (2012).

K. D. Sinclair, K. Webb, and P. J. Brown. “The effect of various denier capillary channel polymer fibers on the alignment of NHDF cells and type I collagen.” *Journal of Biomedical Materials Research Part A* **95**(4): 1194-1202 (2010).

J. K. Kutty and K. Webb. “Vibration stimulates vocal mucosa-like matrix expression by hydrogel-encapsulated fibroblasts.” *Journal of Tissue Engineering and Regenerative Medicine* **4**(1): 62-72 (2010).

J. K. Kutty and Ken Webb. “Regenerative therapies for the vocal fold lamina propria.” *Tissue Engineering Part B: Reviews*, **15**(3): 249-62 (2009).

J. K. Kutty and K. Webb. “Mechanomimetic hydrogels for vocal fold lamina propria regeneration.” *Journal of Biomaterials Science: Polymer Edition*, **20** (5-6): 737-56 (2009).

E. Cho, J. Kutty, K. Datar, J. S. Lee, N. R. Vyavahare, and K. Webb. “A novel synthetic route for the preparation of hydrolytically degradable synthetic hydrogels.” *Journal of Biomedical Materials Research Part A* **90**(4):1073-82 (2009).

K. D. Sinclair, K. Webb, and P. J. Brown,. “Capillary channel polymer fibers as structural templates for ligament regeneration.” *AATCC Review***, 8**(12):36-40 (2008).

S. Joshi and K. Webb. “Variation of Cyclic Strain Loading Regulates Development of Elastic Modulus in Fibroblast / Substrate Constructs” *Journal of Orthopaedics Research*, **26**(8):1105-1113 (2008).

R. C. Cribb, F. T. Haddadin, J. S. Lee, and K. Webb. “Baculovirus expression and bioactivity of a soluble 140 kDa extracellular cleavage fragment of L1 neural cell adhesion molecule”, *Protein Expression and Purification***, 57**:172-179 (2008).

J. K. Kutty, E. Cho, J. S. Lee, N. R. Vyavahare, and K. Webb. “The effect of hyaluronic acid incorporation on fibroblast spreading and proliferation within PEG-diacrylate based semi-interpenetrating networks.” *Biomaterials*, **28**:4928-38 (2007).

B. P. Harris, J. K. Kutty, E. W. Fritz, C. K. Webb, K. J. L. Burg, and A. T. Metters. “Photopatterned polymer brushes promoting cell adhesion gradients.” *Langmuir,* **22**(10):4467-71 (2006).

K. Webb, R. W. Hitchcock, R. M. Smeal, W. Li, S. D. Gray, and P. A. Tresco. “Cyclic strain increases fibroblast proliferation, matrix accumulation, and elastic modulus of fibroblast / material constructs, *Journal of Biomechanics***, 39**:1136-44 (2006).

Y. Liu, K. Webb, K. R. Kirker, N. J. Bernshaw, P. A. Tresco, S. D. Gray, and G. D. Prestwich. “Composite articular cartilage engineered on a chondrocyte-seeded aliphatic polyurethane sponge.” *Tissue Engineering,* **10**:1084 (2004).

I. R. Titze, R. W. Hitchcock, K. Broadhead, K. Webb, W. Li, S. D. Gray, and Patrick A. Tresco. “Design and validation of a bioreactor for engineering vocal fold tissues under combined tensile and vibrational stresses. *Journal of Biomechanics,* **37**:1521 (2004).

K. Webb, W. Li, R. W. Hitchcock, R. M. Smeal, S. D. Gray, and Patrick A. Tresco. “Comparison of human fibroblast ECM-related gene expression on elastic three-dimensional substrates relative to two-dimensional films of the same material.” *Biomaterials*, **24**:4681-90 (2003).

K. Webb, E. Budko, T. E. Neuberger, S. Chen, M. Schachner, and P. A. Tresco. “Substrate-bound human recombinant L1 selectively promotes neuronal attachment and outgrowth in the presence of astrocytes and fibroblasts.” *Biomaterials*, **22**:1017-1028 (2001).

M. J. Bridge, K. W. Broadhead, R. W. Hitchcock, K. Webb, and Patrick A. Tresco. “A novel instrument to characterize transport of a single hollow fiber of short length. *Journal of Membrane Science*, **183**:223-233 (2001).

K. Webb, K. D. Caldwell, and P.A. Tresco. “A novel surfactant based immobilization method for varying substrate bound fibronectin.” *Journal of Biomedical Materials Research*, **54**:509-518 (2001).

R. Biran, K. Webb, M. D. Noble, and P. A. Tresco. “Surfactant-immobilized fibronectin enhances bioactivity and regulates sensory neurite outgrowth.” *Journal of Biomedical Materials Research*, **55**:1-12 (2001).

K. Webb, V. Hlady, and P. A.Tresco. “Relationships among cell attachment, spreading, cytoskeletal organization, and migration rate for anchorage-dependent cells on model surfaces.” *Journal of Biomedical Materials Research*, **49**:362-368 (2000).

K. Webb, K. D. Caldwell, and P. A. Tresco. “Fibronectin immobilized by a novel surface treatment regulates fibroblast attachment and spreading.” *Critical Reviews in Biomedical Engineering*, **28**(1-2):203-208 (2000).

K. Webb, V. Hlady, and P.A. Tresco. “Relative importance of surface wettability and charged functional groups on NIH 3T3 fibroblast attachment, spreading, and cytoskeletal organization.” *Journal of Biomedical Materials Research*, **41:** 422-430 (1998).

**Book Chapters**

K. Webb and J. S. Lee. “Molecular analysis in mechanobiology.” In: J. Nagatomi, editor, Mechanobiology Handbook. Boca Raton: CRC Press, 2011, p. 45-72.

**Conference Proceedings (Invited Presentations)**

K. Webb. “Fiber-based scaffolds for tissue regeneration.” AATCC Advances in Multi-Functional Materials Symposium, September 12-14, 2010, Greenville, SC.

K. Webb. “Scaffolds and signaling for connective and neural tissue regeneration.” College of Pharmacy, Pusan National University, June 2010, Pusan, South Korea.

K. Webb. “Capllilary channel polymer fibers as structural templates for organized tissue regeneration.” Medical Textiles Conferences, March 21-22, 2007, Greenville, SC.

K. Webb. “Applications of capillary channel polymer fibers in regenerative medicine.” Medical Textiles Conferences March 21-22, 2006, Greenville, SC.

K. Webb. “Deep groove fiber applications in axonal regeneration.” 56th Southeastern Regional Meeting of the American Chemical Society.

**Conference Proceedings (Reviewed)**

H. Lee, A. Sen, J. S. Lee, K. Webb. “Effect of network composition on cellular remodeling of PEG diacrylate / hyaluronic acid semi-IPNs.” Biomedical Engineering Society Meeting, Atlanta, GA (2012) (accepted)

J. Zhang, A. Walker, J. S. Lee, K. Webb. “Tetronic® T904 increases transfection efficiency of polyplex nonviral vectors” Biomedical Engineering Society Meeting, Atlanta, GA (2012) (accepted)

J. Zhang, A. Sen, E. Cho, J. S. Lee, K. Webb. “Hybrid T904/fibrin hydrogels for sustained gene delivery.” Biomedical Engineering Society Meeting, Atlanta, GA (2012) (accepted)

S. E. Bae, J. S. Lee, J. L. Barth, K. Webb. “The Effect of Variable Vibratory Stimulation on Fibroblast Matrix-related Gene Expression.” Biomedical Engineering Society Meeting, Atlanta, GA (2012) (accepted)

J. Zhang, A. Sen, E. Cho, J. S. Lee, and K. Webb. “Biosynthetic hydrogels for gene delivery.” Southeastern Regional IdEA Meeting, New Orleans, LA (2011).

A. Sen, R. C. Cribb, J. S. Lee, and K. Webb. “Covalent immobilization and bioactivity of fibronectin in Tetronic hydrogels.” Southeastern Regional IdEA Meeting, New Orleans, LA (2011).

B. Fleishman, J. Nagatomi, and K. Webb. “Development of a compliant hydrogel-based surgical adhesive for urological applications”. Submitted Biomedical Engineering Society, April 2011.

B. E. Fleishman, C. K. Webb, and J. Nagatomi. “Evaluating Mechanical performance of Hydrogel Based Adhesives for Soft Tissue Applications” Society for Biomaterials, Orlando, FL (2011).

J. S. Lee, J. Zhang, and K. Webb. “Neuron-specific polymeric micelle as a siRNA delivery carrier for CNS regeneration.” Society for Biomaterials, Orlando, FL (2011).

J. Zhang, A. Sen, E. Cho, J. S. Lee, and K. Webb. “Nonviral vector delivery from T904/fibrinogen hydrogels.” Society for Biomaterials, Orlando, FL (2011).

H-J. Lee, E. Cho, C. Sander, D. Burgin, E. Steele, A. Sen, J. S. Lee, K. Webb. “Fabrication and characterization of synthetic hydrogel fibers.” Society for Biomaterials, Orlando, FL (2011).

A. Sen, R. C. Cribb, J. S. Lee, and K. Webb. “Bulk and surface covalent immobilization of ECM molecules on hydrogels formed by Michael type Addition.” Society for Biomaterials, Orlando, FL (2011).

K. D. Sinclair, K. Webb, and P. J. Brown. “A novel approach to ligament engineering using capillary channel polymer fibers and uniaxial cyclic strain”. Transactions of the Orthopaedic Research Society Volume 36: 1890 , Long Beach, CA (2011).

J. S. Lee, J. Zhang, and K. Webb. “Neuron-specific polymeric micelle nanotherapeutics for CNS regeneration.” Society for Biomaterials, Seattle WA (2010).

N. Shah, A. T. Metters, and K. Webb. “Protein conjugated patterned polymer surfaces for neural regeneration” Society for Biomaterials, San Antonio, TX (2009).

E. Cho, J. Nagatomi, J. S. Lee, and K. Webb. “Bioactive bladder tissue adhesive.” Society for Biomaterials, San Antonio, TX (2009).

J. Nagatomi, E. Cho, and K. Webb. “Development of smart tissue adhesive for treatment of intra-operative bladder injury.” Transactions of the 33rd Annual Meeting of the Society for Biomaterials, page 110 (2008).

E. Cho, E. Steele, and K. Webb. “Formulation and Characterization of Tetronic-based Hydrogels as Bioactive Tissue Adhesives” 12th Annual Hilton Head Workshop: Regenerative Medicine: Advancing to Next Generation of Therapies, Hilton Head, SC (2008).

J. K. Kutty and K. Webb. “Vibration Promotes Vocal Fold-like Matrix Expression by Encapsulated Fibroblasts” 12th Annual Hilton Head Workshop: Regenerative Medicine: Advancing to Next Generation of Therapies, Hilton Head, SC (2008).

J. K. Kutty, E. H. Cho, J. S. Lee, and K. Webb. “Polyethylene glycol diacrylate / hyaluronic acid semi-IPNs support increased cell spreading and proliferation.” Transactions of the 32nd Annual Meeting of the Society for Biomaterials, page 652 (2007).

J. S. Lee, R. Cribb, E. H. Cho, J. K. Kutty, and K. Webb. “Synthesis and characterization of di-functional PEG-based crosslnkers for L1 immobilization.” Transactions of the 32nd Annual Meeting of the Society for Biomaterials, page 322 (2007).

K. D. Sinclair, P. J. Brown, and K. Webb. “Novel fibers as structural templates for ligament regeneration.” Transactions of the 32nd Annual Meeting of the Society for Biomaterials, page 720 (2007).

P. J. Brown, K.R. Marcus, C.K. Webb, K. Sinclair, K. Stevens, L. Fuller, D.M. Neson, R.D. Stanelle. "Capillary channeled polymer (C-CP) fiber based devices." Spring National ACS Meeting, Atlanta, GA (2006).

K. D. Sinclair, K. Webb, P. J. Brown. “Capillary channel polymer fibers as structural templates for ligament regeneration” American Association of Textile Chemists and Colorists, Atlanta, GA (2006).

K. Jaishankar, N. R. Vyavahare, and K. Webb. “Simulation of vocal fold stress-strain in a bioreactor with cell encapsulated 3D hydrogel scaffolds.” Conference Proceedings-Regenerate World Congress on Tissue Engineering and Regenerative Medicine, Pittsburgh, PA (2006).

S. D. Joshi and K. Webb. “Variation of cyclic strain loading regulates development of elastic modulus in fibroblast / substrate constructs.” Conference Proceedings-Regenerate World Congress on Tissue Engineering and Regenerative Medicine, Pittsburgh, PA (2006).

K. D. Sinclair, P. J. Brown, and K. Webb. “Capillary channel polymer fibers as structural templates for ligament regeneration.” Conference Proceedings-Regenerate World Congress on Tissue Engineering and Regenerative Medicine, Pittsburgh, PA (2006).

R. C. Cribb, JeoungSoo Lee, and K. Webb. “Cloning and expression of bioactive recombinant L1 neural cell adhesion molecule.” Regenerate World Congress on Tissue Engineering and Regenerative Medicine, Pittsburgh, PA (2006).

P. J. Bown, K. D. Sinclair, L. Fuller, K. Marcus, N. Mignanelli, and K. Webb. Production of capillary channeled polymer (C-CP) fibers. The Fiber Society-Fiber Science the Next Generation, New Jersey Institute of Technology, NY (2005).

J. K. Kutty, C. Reifsnider, Q. Lu, N. R. Vyavahare, and K. Webb. “Synthesis and characterization of composite hydrogels for vocal fold applications.” Society for Biomaterials, Memphis, TN (2005).

K. Datar, J. S. Lee, N. R. Vyavahare, and K. Webb. “Controlled release hydrogel coatings on deep groove polymer fibers for spinal cord regeneration.” Transactions of the 30th Annual Meeting of the Society for Biomaterials, page 22 (2005).

S. D. Joshi and K. Webb. “Optimization of bioreactor culture conditions for mechanical strengthening of fibroblast / substrate constructs.” Transactions of the 30th Annual Meeting of the Society for Biomaterials, page 151 (2005).

N. M. Cavin, S. Ellis, K. Webb, and K. J. L. Burg. “Adipocyte response to injectable breast tissue engineering scaffolds.” Transactions of the 30th Annual Meeting of the Society for Biomaterials, page 45 (2005).

M. C. Roberts, R. Biran, K. Webb, and P. A. Tresco. “A novel approach to engineering a bridge for spinal cord repair.” Society for Neuroscience, Program No. 790.15 (2003).

K. Webb, K. W. Broadhead, S. D. Gray, and Patrick A. Tresco. “Engineering the biomechanical properties of connective tissue matrix in porous, elastomeric biomaterials.” Transactions of the Society for Biomaterials, Society for Biomaterials, Reno, NV (May, 2003).

M. C. Roberts, R. Biran, K. Webb, K. W. Broadhead, and Patrick A. Tresco. “Three-dimensional astrocyte cultures for use as bridging substrates for regenerating axons.” Transactions of the Society for Biomaterials, Society for Biomaterials, Reno, NV (May, 2003).

K. Webb, W. Li, R. W. Hitchcock, S. D. Gray, and P. A. Tresco. “Three-dimensional culture of human laryngeal fibroblasts changes the expression profile of ECM-related gene products.” Transactions of the Society for Biomaterials, Society for Biomaterials, Tampa, FL (April, 2002).

K. Webb, R. S. Smeal, R. W. Hitchcock, S. D. Gray, and P. A. Tresco. “The development of soft and flexible substrates for tissue engineering.” Transactions of the Society for Biomaterials, Society for Biomaterials, Tampa, FL (April, 2002).

R. W. Hitchcock, S. Thomas, K. Webb, S. D. Gray, I. Titze, and P. A. Tresco. “Applying controlled vibration and tension to tissue engineered constructs.” Transactions of the Society for Biomaterials, Society for Biomaterials, Tampa, FL (April, 2002).

K. Webb, R. Biran, J. J. Hurrera, E. Budko, and Patrick A. Tresco. “Comparison of neurite outgrowth on astrocyte monolayers cultured on materials with varying topography and adsorbed proteins.” Transactions of the Society for Biomaterials, Society for Biomaterials, St. Paul, MN (April, 2001).

X. Wen, K. Webb, and Patrick A. Tresco. “Multi-filament entubulation bridging device for axonal guidance and regeneration.” Transactions of the Society for Biomaterials, Society for Biomaterials, St. Paul, MN (April, 2001).

R. Biran, K. Webb, E. Budko, and Patrick A. Tresco. “PEO-immobilized fibronectin enhances motility and alters the morphology of sensory growth cones.” Transactions of the Society for Biomaterials, Society for Biomaterials, St. Paul, MN (April, 2001).

M. J. Bridge, K. W. Broadhead, R. W. Hitchcock, K. Webb, and Patrick A. Tresco. “A novel instrument for transport characterization of cell encapsulation membranes.” Transactions of the Society for Biomaterials, Society for Biomaterials, St. Paul, MN (April, 2001).

K. Webb, E. Budko, and P. A. Tresco. “Neuron selective growth substrate by immobilization of cell adhesion molecules.” Transactions of the 6th World Biomaterials Congress, Society for Biomaterials, Kamuela, HI (May, 2000).

R. Biran, K. Webb, M. D. Noble, and P. A. Tresco. “The use of a low protein binding bioactive surface coating to control neurite outgrowth.” Transactions of the Society for Biomaterials, Society for Biomaterials, Providence, RI (April, 1999).

K. Webb, S-C. Huang, K. D. Caldwell, and P. A. Tresco. “Low protein binding coating for covalent immobilization of extracellular matrix proteins on Hydrophobic Materials.” Transactions of the Society for Biomaterials, Society for Biomaterials, San Diego, CA (April 1998).

K. Webb, V. Hlady, and P. A. Tresco. "Different surface functional groups on glass substrates regulate adhesion, proliferation and migratory activity of anchorage-dependent cells." Transactions of the American Chemical Society, Annual Meeting of the American Chemical Society, San Francisco, CA (April 1997).

J. A. Neff, K. Webb, R. Aslami, P.A. Tresco, and K. D. Caldwell. "A novel method for studying cell behavior on biologically relevant surfaces." Transactions of the American Chemical Society, Annual Meeting of the American Chemical Society, San Francisco, CA (April 1997).

M. M. Mulder, K. Webb, P. A. Tresco. "ECM proteins preabsorbed on polyurethane thin films regulate myoblast attachment, cytoskeletal Structure, proliferation and migratory activity." Transactions of the American Chemical Society, Annual Meeting of the American Chemical Society, San Francisco, CA (April 1997).

K. Webb, V. Hlady, P.A. Tresco "Cell attachment to protein-treated glass surfaces with terminal thiol and sulfonate groups." Transactions of the 5th World Biomaterials Congress, Society for Biomaterials, Toronta, Canada (April 1996).

**PATENTS**

“Cyanoacrylate tissue adhesives” US provisional patent application filed 2006, with JeoungSoo Lee and Robert Zimmerman.

“Micro-grooved fibers as scaffold in tissue engineering.” US patent application filed 2005, (Serial # 11/170,890), with Naren R. Vyavahare and Quijin Lu.

“Hydrogels with variable degradation rates” US patent application filed 2005 (Serial # 11/271,405), with Naren R. Vyavahare.

**INVENTION DISCLOSURES**

“Synthetic hydrogel fibers” submitted to Clemson University Intellectual Property Committee (2007).

**SPONSORED RESEARCH**

**Funded Research Grants**

“Vibratory mechanotransduction”

NIH/NIBIB R21

Principle Investigator

$411,663 ($278,811)

4/09-4/12

“Biomaterials for guided neural regeneration.”

NIH COBRE (P20RR021949)

Project Principle Investigator (Vyavahare PI)

($447,576)

9/09-5/12

“Development of scar-inhibiting compliant tissue adhesive”

NIH/NIBIB R21

Co-Principle Investigator (Nagatomi PI)

$392,775 ($157,110)

3/10-2/12

**Completed Funded Research Grants**

“Drug delivery from cyanoacrylate tissue adhesives.”

Spartan Medical Products, LLC

Principle Investigator

$70,000 ($35,000)

3/07-12/07

“Engineering regeneration through the bridge / host distal interface.”

South Carolina Spinal Cord Research Foundation

Principle Investigator

$120,000 ($90,000)

(6/2006-12/2008)

“BBSI in biomaterials science and engineering at Clemson University”

National Science Foundation

Co-Principle Investigator (Boland, PI)

$450,000 ($45,000)

9/06-8/09

“Target-specific polymeric nanoparticle delivery system for nucleic acid therapeutics”

Clemson University Research Investment Fund Program

Co-Principle Investigator (Lee PI)

$10,850 ($3255)

3/07-1/08

“Biocompatibility of textile fabrics.”

Milliken and Company

Principle Investigator

$7183.89 ($7183.89)

4/07-7/07

“Cyanoacrylates as Internal Adhesives.”

Spartan Medical Products, LLC

Principle Investigator

$149,352 ($149,352)

9/05-2/07

“Biomaterial-based gene delivery for spinal cord regeneration.”

South Carolina Spinal Cord Research Foundation

Principle Investigator

$150,000 ($135,000)

6/04-12/06

“Engineering regeneration through the bridge / host distal interface.”

South Carolina Spinal Cord Research Foundation

Co-Principle Investigator (Metters PI)

$25,000 ($6,250)

8/05-12/05

**Pending Research Proposals**

**GRADUATE STUDENT ADVISING**

**Graduates (Major Adviser)**

Datar, Kedar. (M.S.) “Controlled release hydrogel coatings on deep groove polymer fibers for spinal cord regeneration,” (2005)

Joshi, Sagar. (M.S.) “Optimization of Cyclic Strain Variables and Bioreactor Culture Conditions to Study the Effect of Cyclic Strain on Fibroblast Mechanics,” (2005).

Pooput, Kannaporn. (M. S.) non-thesis (2007).

Kutty, Jaishankar (Ph. D.) “Viscoelastic Biomaterials and Bioreactor Culture for Vocal fold Repair” (2008).

Cho, Eunhee (Ph. D.) “Hydrogel Compositions for Nonviral Gene Delivery” (2009).

Shah, Nihar (Ph. D.) “Creation of Bioactive Surfaces to Modulate Cell Behavior using Surface-Initiated Photoiniferter-Mediated Graft Photopolymerization.” (2009).

Cribb, Rebecca (Ph. D.) “Covalent Immobilization of L1 Neural Cell Adhesion Molecule to Acrylated Tetronic Hydrogels for Neural Regeneration” (2009).

Lee, Ho-Joon (M. S.) non-thesis (2010).

Looper, Jayme (M. S.) non-thesis (2012).

**Graduates (Committee Member)**

Destrube, Nathalie (M. S.) “Effects of supercritical carbon dioxide sterilization on properties of clinically relevant polymers (2004).

Cavin, Nicole (M. S.) “Adipocyte response to injectable breast tissue engineering scaffolds (2004).

Lu, Qijin (Ph. D.) “Evaluation of arterial elastin and collagen scaffolds for cardiovascular tissue engineering (2005).

Gurjarpadhys, Abhijit (M. S.) “High-speed optimal mapping shows role of neural crest in cardiac conduction system development (2005).

Bakken, Daniel (M. S.) “Axon guidance along the nerve growth factor gradient created by a single polylactide-co-glycolide microsphere (2005).

Gomillion, Cheryl (M. S.) “Evaluation of tissue engineered injectable devices for breast tissue reconstruction (2005).

McAfee, Thomas (M. S.) “Current strategies and novel ideas for creating the first mass-produced small-diameter vessel substitute” (2006).

Mashack, Mark (M. S.) “In vitro testing of the inflammatory potential of unmodified and ultraviolet modified hyaluronan biomaterials (2006).

Joddar, Binata (Ph. D.) “Elucidating hyaluronan (HA) fragment size-specific responses of smooth muscle cells towards guided design of scaffolds for vascular elastin regeneration.” (2006)

Rosenbalm, Tabitha (M. S.) “Functionality, viability, and assessment of cells after laser guidance.” (2006).

Lin, Chien-Chi (Ph. D.) “In situ photopolymerized hydrogels for enhancing protein delivery” (2007).

Arnold, Stephanie (M. S.) “An in vitro evaluation of DBM as a tissue engineered scaffold” (2007).

Chaubey, Aditya. (Ph. D.) “Differentiation modulation of adult stem cells in an adipose system” (2007).

Yang, Chi-Chao (Ph. D.) “Development of an In Vitro Test System for Breast Cancer Research” (2007).

Taylor, Scott (Ph. D.) “Study of electrospinning of property-modulated biomedical microfibers” (2008).

Zhao, Jing (M. S.) “Tendon and ligament repair: regeneration and maturation” (2008).

Bandstra, Eric (Ph. D.) “The spaceflight environment and the skeletal system” (2008).

Qiu, Yongzhi (Ph. D.) “Chitosan derivatives for tissue engineering”(2008).

Roby, Tiffany (M. S.) “Effect of sustained tension on bladder smooth muscle cells in three dimensional culture” (2008).

Zhang, Changhong (Ph. D.) “Synthesis and characterization of biodegradable polyurethanes for biomedical application.” (2008).

Rasal, Rahul (Ph. D.) “Surface and bulk modification of poly (lactic acid). (2009).

Pirlo, Kirk (Ph. D.) “Creation of defined, single cell resolution neuronal circuits on microelectrode arrays” (2009).

Sinclair, Kris (Ph. D.) “A tissue engineering approach to anterior cruciate ligament regeneration using novel shaped capillary channel polymer fibers.” (2009).

McRae, Drew (M. S.) “Cardiac cell mechanics at the single cell level” (2009).

Mitchell, Pontheta (M. S.) non-thesis

Zhong, Frank (M. S.) non-thesis

Zinkovich, Joseph (M. S.) non-thesis

Penniston, Shawn (Ph. D.) “Modulated properties of fully absorbable bicomponent meshes.” (2010).

Gomillion, Cheryl (Ph. D.) “Evaluation of factors that modulate cellular adipogenesis for breast tissue engineering strategies.” (2010).

Cheluvaraju, Chaitra (Ph. D.) “Characterization of anti-proteolytic and anti-proliferative activities of pentagalloylglucose: its potential application as a therapeutic agent in vascular diseases.” (2010).

Sankar, Sriram (M. S.) “Exploring the possibility of using novel antibacterial peptides and copper nanoparticles as viable alternatives in treating surgical site wound infections.” (2011).

Seshadri, Vidya (M. S.) “ Exploring the potential of inkjet printing for the fabrication of tissue test systems.” (2011).

Nag, Subra (M. S.) non-thesis (2012).

Kirn, Adam (M. S.) non-thesis (2012).

Kuo, Jonathan (Ph. D.) “Bionengineering approach to understanding TMJ pathobiology.” (2012).

Kumar, Rohan (Ph. D.) “Application of nanotechnology for targeted delivery of antibacterial enzymes and for enzyme-based coatings on medical devices and implants.” (2012).

Shufford, Stephen (M. S.) “Internatlization of F-actin monomers into 3T3 fibroblasts via thermal inkjet printing for investigation of cytoskeletal incorporation and mechanics. (2012).

Bland, Erik (Ph. D.) “Quantitative, spatial imaging based measurements to assess cellular health and oxygenation in a tissue engineered system.” (2012).

Wright, Cassandra (Ph. D). “Evaluation of a bisphosphonate enriched ultra-high molecular weight polyethylene for enhanced total joint replacement bearing surface functionality (2012).

Gangadharan, Rajan (Ph. D.) “Nanopillar based electrochemical biosensor for monitoring microfluidic based cell culture.” (2012).

Olsen, Shawn (Ph. D.) “Investigating the role of mechanosensitive ion channels in urothelial cell pressure mechanotransduction.”

**Current Graduate Advising (Major Advisor)**

Sen, Atanu (Ph. D.) Title undetermined. Expected graduation date: May 2013.

Zhang, Jeremy (Ph. D.) Title undetermined. Expected graduation date: May 2013.

Lee, Ho Joon (Ph. D.) Title undetermined. Expected graduation date: May 2014.

Bae, Sooneon (Ph. D.) Title undetermined. Expected graduation date: May 2015.

**Current Graduate Advising (Committee Member)**

Balakrishnan, Nitin (M. S.) Major Advisor: Jiro Nagatomi

Barry, John (Ph. D.) Major Advisor: Alexey Vertegel

Clinkscales, Kenneth (M. S.) Major Advisor: Karen Burg

Erdman, Nick (Ph. D.) Major Advisor: Zhi Gao

Garcia, Kyle (Ph. D.) Major Advisor: Karen Burg

Gilmore, Jordan (Ph. D.) Major Advisor: Karen Burg

Harris, Brad (Ph. D.) Major Advisor: Sarah Harcum

Hilas, Georgios (Ph. D.) Major Advisor: Karen Burg

Ingram, David (Ph. D.) Major Advisor: Karen Burg

Innskeep, Beau (Ph. D.) Major Advisor: Karen Burg

Kirn, Adam (Ph. D.) Major Advisor: Karen Burg

Kuang, Yan (Ph. D.) Major Advisor: Zhi Gao

Liu, Xiaoyan (Ph. D.) Major Advisor: Wen

McCave, Eric (Ph. D.) Major Advisor: Karen Burg

McGowan, Britany (Ph. D.) Major Advisor: Jiro Nagatomi

Olbrich, Jason (Ph. D.) Major Advisor: Karen Burg

Pace, Richard (Ph. D.) Major Advisor: Karen Burg

Sierad, Leslie (Ph. D.) Major Advisor: Dan Simionescu

Sinha, Aditi (Ph. D.) Major Advisor: Naren Vyavahare

Sivaraman, Srikanth (Ph. D.) Major Advisor: Jiro Nagatomi

Turner, James (Ph. D.) Major Advisor: Jiro Nagatomi

Xiang, Yun (Ph. D.) Major Advisor: Alexey Vertegel

Yang, Huaxiao (Ph. D.) Major Advisor: Zhi Gao

**Post Doctoral Research Advisees**

Haddadin, Fuad, “Cloning and expression of recombinant proteins in baculovirus / insect cell expression system (2004).

Lee, Jeoung Soo, “Development of novel cyanoacrylate / PEG dimethacrylate co-polymerizing internal tissue adhesives.” (2005-2007)

**Undergraduate Research Advisees**

Reifsnider, Clark (2004-5) Senior research project in MS&E (BIOE 450)

Dickinson, Renee (2004) BBSI

Brannan, Amber (2004) Bioengineering REU

Annie Burns (2005) BBSI

Sabrina Lau (2005-6) BBSI Summer and Semester Project

Gabrielle Farrar (2005-6) BBSI Summer and Semester Project

Pete Guteriez (2005-6) BioCh 491 Senior Research Project

Mike Caldwell (2005-6) BioCh 491 Senior Research Project

Elizabeth Steele (2007) Summer Research Project

Lauren Miller (2007) EUREKA Program

Logan Johnson (2007) BIOE 450

Elizabeth Steele (2009) BioE 450

Derick Burgin (2009/2010) BioE H450

Jayme Looper (2010/2011) BioE H491

Aaron Lilley (2010/2011) BioE 491

Alanna Walker (2011/12) BioE H491

Cody Aaron Gathers (2011) BioE H491

Evan McConnell (2012) BioE 491

**Other Research Advisees**

Reid, June (2008) CAEFF Research Experience for Teachers (RET)

**TEACHING**

**Courses Taught**

BioE 101, Biology for Bioengineers, S09

BioE 201, Introduction to Biomedical Engineering, F04, F05, F06, F07, F08, F09, S10, F10, S11, F11

BioE 849, Tissue Engineering, S05, S06

BioE 824, Cellular and Molecular Analysis for Tissue Engineering, F04, F05, S07, S08, S09

**New Course Development**

BioE 101, Biology for Bioengineers

BioE 824, Cellular and Molecular Analysis for Tissue Engineering.

**Extracurricular Teaching Service**

Osher Lifelong Learning Institute, Bioengineering course, Participating Instructor (F07, S08)

Bioengineering BABY-summer research program, Participating Instructor (Summer 06, 07, 08, 09, 10, 11)

**UNIVERSITY AND PUBLIC SERVICE**

**Committees**

Department: Chair, Undergraduate Program Committee (2009-)

Member, Tenure, Promotion, and Review Committee (2010-2012)

Member, Hunter Endowed Chair Evaluation Committee (2010)

Member, ABET accreditation task force (2006-)

Member, departmental assessment committee (2005-)

Chair, curriculum committee (2004-2008)

Member, undergraduate curriculum committee (2006-2008)

Member, compliance and safety committee (2004-2007)

Member, faculty search committee (2005-2006)

Member, student evaluation task force (2005-2006)

Member, qualifier exam revision task force (2005-2006)

College: Member, College of Engineering and Science Curriculum Committee (2004-)

Co-Chair (2007-2008)

Chair (2008-2009)

*8/29/11*