

Marc C. Moore, Ph.D.

Stephenson School of Biomedical Engineering
Gallogly College of Engineering
The University of Oklahoma

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EDUCATION

- 2014-2016** **University of Florida**, Gainesville, FL
Postdoctoral Fellowship (Industrially Sponsored Position), Biomedical Engineering
- 2013** **University of Florida**, Gainesville, FL
PhD, Biomedical Engineering
- 2008** **Vanderbilt University**, Nashville, TN
Bachelor of Engineering, Biomedical Engineering

PROFESSIONAL EXPERIENCES

ASSISTANT PROFESSOR OF BIOMEDICAL ENGINEERING PRACTICE, 2016-Present

University of Oklahoma, Stephenson School of Biomedical Engineering

Overview: Directs SBME Makerspace, Studiospace, and Senior Capstone Curriculum. Engages regional biotech industry.

POSTDOCTORAL RESEARCH FELLOW, 2014-2016

Industrial Postdoc Sponsored by BioD Logics, LLC. and State of Florida HighTech Corridor

University of Florida, Biomedical Engineering

Overview: Optimized human placental matrix biomaterial to induce angiogenesis while inhibiting fibrosis via immunomodulation. Completed compositional and micromechanical analysis of proprietary biomaterials to address FDA concerns.

SENIOR SCIENTIST, 2013-2014

BioD Logics, LLC. (Gainesville, FL)

Overview: Effects of proprietary materials on stem cells.

GRADUATE RESEARCH ASSOCIATE, 2009-2013

University of Florida; Biomedical Engineering; Biomaterials Engineering Lab

Overview: Developed cell-seeded cardiovascular biomaterial using the human umbilical vein. Invented a human placental matrix (hPM) biomaterial to induce capillary formation and to provide a long-term nutrient delivery solution.

GRADUATE RESEARCH ASSOCIATE, 2008-2009

University of Oklahoma; Chemical, Biological, and Materials Engineering; Biomaterials Engineering Lab

Overview: Moved with PI (Peter McFetridge) after 2 semesters to University of Florida to continue same project and research goals.

UNDERGRADUATE RESEARCH SCIENTIST, 2006-2008

Vanderbilt University; Biomedical Engineering, Biomaterials, Tissue Engineering, and Drug Delivery Lab

Overview: Developed and synthesized an osteogenic biomaterial (PMMA) capable of stimulating bone formation and transforming from putty to solid upon UV light exposure.

PUBLICATIONS

Tonello, S., **Moore. M.**, Sharma. B., Dobson, J., and P. McFetridge. *Controlled release of a heterogeneous human placental matrix from PLGA microparticles to modulate angiogenesis.* **Drug Delivery and Translational Research**, 2016. 6(2): 174-183.

Moore MC, Pandolfi V, McFetridge PS. Novel human-derived extracellular matrix induces in vitro and in vivo vascularization and inhibits fibrosis. **Biomaterials**. 2015;49:37-46

Moore, M., R. Moore, and P. McFetridge. *Directed Oxygen Gradients Initiate a Robust Early Remodeling Response in Engineered Vascular Constructs.* **Tissue Engineering: Part A**, 2013.

Moore, M., M. Sarntinoranont, and P. McFetridge. *Mass transfer trends occurring in engineered ex vivo tissue scaffolds.* **Journal of Biomedical Materials Research A**, 2012. 100(8): p. 2194-203

Weiner AA, **Moore MC**, Walker AH, Shastri VP. *Modulation of protein release from photocrosslinked networks by gelatin microparticles.* **International Journal of Pharmaceutics**, 2008. 360(1): p. 107-1

White Papers for Industry:

Moore. M., and P., McFetridge. *Comparative analysis of morcelized amniotic membrane implants: Effect of particle size on biological and mechanical functionality.* For BioD Logics, LLC. (Memphis, TN). 2016

Moore. M., and P., McFetridge. *Biochemical Characterization of BioDFactor®.* For BioD Logics, LLC. (Memphis, TN). 2016

Moore. M., and P., McFetridge. *Biochemical Characterization of BioDRestore®.* For BioD Logics, LLC. (Memphis, TN). 2016

Moore. M., and P., McFetridge. *Assessment of Total Collagen Content in BioDRestore® and BioDFactor® Tissue Matrix.* For BioD Logics, LLC. (Memphis, TN). 2016

Moore. M., and P., McFetridge. *Scientific Rationale for use of morcelized amnion as wound covers for the treatment of ulcers.* For BioD Logics, LLC. (Memphis, TN). 2015

Moore. M., and P., McFetridge. *Human amnion derived viable tissue matrix leads to robust integration and regeneration of implanted tissue scaffolds.* For Derma Sciences (Princeton, NJ, NASDAQ: DSCI). 2015

Moore. M., and P., McFetridge. *Comparison of dehydrated human amnion grafts and composite amnion/chorion grafts: Biochemical Analysis and Cell Migration Response.* For BioD Logics, LLC. (Memphis, TN). 2015

Moore. M., and P., McFetridge. *Stability profile of variably cross-linked amniotic tissue Analysis of Hydroxyproline Content: Glutaraldehyde treated hAM digested with Type-I Collagenase.* For BioD Logics, LLC. (Memphis, TN). 2014

Under Review:

Van de Walle A, **Moore M.**, McFetridge PS. *Reengineering complex tissues: the need for a sequential culture approach to improve cellular repopulation and mechanical development.* 2016

Moore, M., Van de Walle, A., Tonello, S., Buran, J., and P. McFetridge. *Review: Clinical Applications of Human Placenta-derived Biotechnologies.* 2016

Juran, C., **Moore. M.**, and P. McFetridge. *Lyophilized Decellularized Human Umbilical Vein as a scaffold to support vascular tissue engineering.* 2016

Dissertation:

Moore, M., *Modulation of Nutrient Deficiencies occurring in Engineered Ex Vivo Tissue Scaffolds.* 2013

PATENTS

Peter S McFetridge and **Marc C Moore**, “*Compositions and Materials for Induction and Modulation of Angiogenesis and Methods and Assays for Identifying Angiogenesis Modulators*,” US Patent Application originally filed 04/2/2013.

Peter S McFetridge and **Marc C Moore**, “*Sustained Release Angiogenesis Modulating Compositions and Methods for Induction and Modulation of Angiogenesis*,” US Patent Application filed 05/7/2015. Serial No. PCT/US15/29666.

PRESENTATIONS (ORAL PRESENTATIONS AND CONFERENCE PAPERS UNDERLINED)

McCullough D., Cowsage C., **Moore MC**. *A BioManufacturing Maker Lab: The Future of the Academic Maker Lat at the University of Oklahoma, Stephenson School of Biomedical Engineering.(Conference Paper)*. ISAM. Boston, MA. Nov 2016.

Moore MC, Pandolfi V, McFetridge PS: *Induction of in vitro and in vivo Vascularization using a Novel Human-derived Extracellular Matrix*. BMES (Biomedical Engineering Society) Ann. Conf. Tampa, FL, Oct 2015.

Moore MC, Tonello, McFetridge PS: “*Heterogeneous Human Placenta Matrix Release from PLGA Microparticles to Modulate Angiogenesis*.” BMES (Biomedical Engineering Society) Ann. Conf. Tampa, FL, Oct 2015.

Moore MC, Moore RJ, McFetridge PS: “*Modulating Early Remodeling of Decellularized ex vivo Constructs using an Oxygen Gradient*.” Pruitt Research Conference. Gainesville, FL, Dec 2012.

Moore MC, Moore RJ, McFetridge PS: “*Effect of an Oxygen Gradient on Early Vascular Graft Maturation*.” BMES (Biomedical Engineering Society) Ann. Conference. Atlanta, GA, Sept 2012.

Moore MC, McFetridge PS: “*Use of a Lyophilized Human Umbilical Vein as a Cell-seeded Vascular Graft Created in a Perfusion Bioreactor*” TERMIS (Tissue Engineering and Regenerative Medicine International Society) Ann. Conference. Houston, TX, Dec 2011.

Moore MC, McFetridge PS: “*Mass Transfer Trends Occurring in Decellularized Engineering Tissue Scaffolds*.” TERMIS (Tissue Engineering and Regenerative Medicine International Society) Ann. Conference. Orlando, FL, Dec 2010.

Moore MC, MU Nollert, McFetridge PS: “*Regional mass transfer through engineered cardiovascular tissue scaffolds derived from human umbilical vein*.” BMES (Biomedical Engineering Society) Ann. Conf. Pittsburgh, PA, Sept 2009.

TEACHING

University of Florida

Introduction to Biomedical Engineering Lab Class (Undergraduate Level Class), Spring 2012

Cardiovascular Biomaterials (Graduate Level Class), Spring 2011

Introduction to Biomedical Engineering, Guest Lecturer, 2012 and 2013

BME Seminar Series, Guest Lecturer, 2013

Elementary School Teaching

Eakin Elementary School (Nashville, TN), Taught Chemistry Classes as part of Vanderbilt VSVS, 2006-2008

RESEARCHING TRAINING ADVISED

Sarah Tonello, Nov 2013-Nov 2014, Controlled release of angiogenic compounds from alginate matrices

Alice Cambiagli, Sept 2012-Aug 2013, Controlled release of angiogenic compounds from collagen-I hydrogel
Vittoria Pandolfi, Sept 2011-Sept 2012, Development of a novel angiogenesis assay
Benjamin Goldberg, Aug 2014-Present, Induction of stem cells to osteoclasts using placental matrix
Brandon Reso, Aug 2014-Present, Implementation of immunodepletion techniques on placental matrix
Ruben Moore, Feb 2011-Feb 2012, Vascular graft culture in oxygen gradient bioreactor
Taylor Zak, Jan 2012-June 2013, Laser drilled vascular graft development
Jimmy Murray, Oct 2009-Jan 2010, Mass transfer calculations and modeling in vascular biomaterials

GRANTS AND FUNDING

Florida HighTech Corridor Council

Title: Comparative analysis of morcelized human amniotic membrane
Start Date: October 1st 2014 – Sept 30th 2016
Received with Peter McFetridge to Fund 2 year Postdoc Position
Award Total \$236,000 (2 years grant)

BioD Logics, LLC/Derma Sciences

Title: Comparative analysis of morcelized human amniotic membrane
Start Date: June 1st 2014 – May 31st 2016
Received with Peter McFetridge to Analysis of Proprietary Products
Award Total \$35,523 (1 year grant)

AFFILIATIONS

Member of Tau Beta Pi (Florida Alpha) Engineering Honor Society, Jan 2011 to 2016

Member of Order of the Engineer Society

Member of the National Biomedical Engineering Society (BMES), Jan 2007 to Present

Member of the American Society of Engineering Education

SKILLS

Wet Laboratory and Metrological Instrument skills: Cell Isolation and Culture · ELISA · GC and LC MS/MS · Genetic Analysis (rt-PCR) · Histology (including IHC) · HPLC · Immunological Response Analysis · *In Vivo* Assay Development · Microscopy (including Laser Micro Dissection, AFM, and SEM) · Polymer Synthesis · Protein Extraction, Isolation, and Purification · Spectroscopy (UV, IR, Microraman)

Engineering skills: Aseptic Manufacturing · Autoclaving · Biomaterials · Bioreactors · Drug Delivery · cGMPs and cGTPs · ISO and FDA Standards (for Biologics and Biomedical Devices) · Mass Transfer Calculations and Modeling · Mechanics (including tensile, compressive, shear, and AFM-based nanomechanics analysis) · Process Optimization · Quality Control Assessment (associated with FDA 361 guidelines) · Regenerative Medicine Approaches · Statistics · Stem Cell Engineering · Tissue Engineering

Computer skills: Adobe InDesign · Adobe Framemaker · Adobe Photoshop · Controls software (PLC) · C++ · Endnote · LabView · MATLAB · Minitab · MS Office Suite (Expert using Excel, Word, PowerPoint, Visio) · SolidWorks · SPSS · VBA

Managerial skills: Facilities Management · Lean Six Sigma · Management of Technology · Project Management · Team Development

Foreign language skills: French (Fluent) · Spanish (Elementary)

SERVICE WORK

Vanderbilt Alumni Mentoring Program, 2014-2016

Vanderbilt Emergency Room Volunteer, assisted MD's, 2005-2007