

**CRAIG L. DUVALL, Ph.D.**  
**Curriculum Vitae**  
**December 2017**

**EDUCATION AND TRAINING**

---

**Postdoctoral Fellow in Bioengineering (May 2007 - December 2009)**

University of Washington – Seattle, Washington

Mentors: Dr. Patrick S. Stayton and Dr. Allan S. Hoffman

Project: *Smart Polymers for Intracellular Delivery of Peptide Drugs, Protein Antigens, and Small Interfering RNA*

**Ph.D. in Biomedical Engineering (August 2001 - December 2006)**

Georgia Institute of Technology and Emory University - Atlanta, Georgia

Mentors: Dr. Robert E. Guldberg and Dr. W. Robert Taylor

Project: *The Role of Osteopontin in Postnatal Vascular Growth: Functional Effects in Ischemic Limb Collateral Vessel Formation and Long Bone Fracture Healing*

**B.S. in Biosystems and Agriculture Engineering (August 1997 - May 2001)**

University of Kentucky - Lexington, Kentucky

**EMPLOYMENT**

---

**1/2010-12/2015** Assistant Professor, Vanderbilt University, Biomedical Engineering

**1/2016-present** Associate Professor, Vanderbilt University, Biomedical Engineering

**OTHER AFFILIATIONS**

---

- Faculty Fellow, Vanderbilt Institute for Integrative Biosystems Research and Education (VIIBRE)
- Member, Vanderbilt Diabetes Research and Training Center (DRTC)
- Faculty, Vanderbilt Interdisciplinary Graduate Program of Material Science (IGPMS)
- Member, Vanderbilt Institute of Nanoscale Science and Engineering (VINSE)

**AWARDS and HONORS**

---

- Fellow of the American Institute for Medical and Biological Engineering (AIMBE) (to be inducted in 2018)
- NIH Gene and Drug Delivery Study Section Member (to start in 2018)
- Vanderbilt Chancellor Faculty Fellow (2018-2020)

- National Academy of Engineering (NAE) China-America Frontiers of Engineering (CAFOE) Symposium Invitee/Participant (2017)
- PECASE (Presidential Early Career Award for Scientists and Engineers) (2017)
- CMBE Young Innovator in Cellular and Molecular Bioengineering (2016)
- Society for Biomaterials Young Investigator Award (2015)
- NSF CAREER Award (2014)
- Eleven predoctoral students in my group have won NSF Graduate Research Fellowships (Evans, Poole, Beavers, Sarett, Werfel, Kilchrist, Jackson, Kavanaugh, Bedingfield, Hoogenboezem, Fletcher ; 2012-current)
- Predoctoral advisee received 2017 BMES Research and Design Award
- Predoctoral advisee received 2014 Controlled Release Society Alexander Florence Postdoctoral Fellowship based on doctoral work in my laboratory (Nelson)
- 2014 Controlled Release Society Preclinical Sciences and Animal Health Best Paper Award Best Paper Award
- Predoctoral advisee received 2014 P.E.O. Scholar Award
- Duvall Lab- 2014 Research Highlight on [NIH NIBIB Website](#)
- Predoctoral advisee received STAR Award for 2014 Society for Biomaterials Meeting
- Predoctoral advisee selected as 2013 Graduate Student Vanderbilt Diabetes Scholar
- Senior Author of 2012 Vanderbilt School of Engineering Best Graduate Student Paper Award
- Senior author of abstract that won 2012 Biomedical Engineering Society Medtronic Excellence in Biomaterials Award
- 2012 Controlled Release Society Consumer and Diversified Products Best Paper Award
- NIH Ruth L. Kirschstein National Research Service Award (2008-2011)
- NSF Graduate Research Fellowship (2003-2006)
- Honorable mention Ph.D. Student Paper Competition – Podium Presentation. ASME 2006 Summer Bioengineering Conference (June 2006)
- 1<sup>st</sup> Place Ph.D. Student Paper Competition – Podium Presentation. ASME 2005 Summer Bioengineering Conference (June 2005)
- Finalist Tissue Engr. Society International Ph.D. student oral pres. award (Dec 2003)
- Georgia Institute of Technology Peter Diaz Fellowship (2002)
- NSF Research Experience for Undergraduates Program Fellow (summer 2000)
- University of Kentucky Biosystems and Ag. Engr. Frank Woeste Award (2000)

## **PROFESSIONAL SOCIETY MEMBERSHIPS**

---

- American Society for Engineering Education
- American Society of Gene and Cell Therapy
- Society for Biomaterials
- Biomedical Engineering Society
- Controlled Release Society
- Tissue Engineering and Regenerative Medicine International Society

## **RESEARCH FUNDING (IN ORDER BY START DATE)**

---

### **EXPECTED**

**National Institutes of Health (NCI) (R01 CA224241).** *NextGen RNAi Delivery to Breast Tumors for Selective mTORC2 Blockade.* Role: Contact PI (MPI Cook and Brantley-Sieders), 7/1/2018-6/30/2023; \$2,758,825

\*Scored at 2 percentile so funding is anticipated

### **ACTIVE**

#### **As PI / Multi-PI:**

**National Science Foundation IIP 1622828.** *STTR Phase I: A Platform Reagent for the Intracellular Delivery of Positively Charged Peptide.* Role: PI, 7/01/2016-7/01/2018 (NCE); \$225,000

**National Institutes of Health (NIBIB) (R01 HL122347).** *MK2 Inhibitory Nanoplexes to Enhance Long-Term Vascular Graft Patency.* Role: PI, 4/01/2016-3/31/2020, \$1,890,798.

\*Diversity Supplement of \$206,802 awarded 8/22/2017-3/31/2020 (not included in total above)

**Department of Defense Breast Cancer Research Program Idea Award (BC141789).** *Targeted Drug Nanocarriers for Inhibiting Bone Metastatic Breast Cancer.* Role: Partnering PI (Initiating PI- Sterling), 9/30/2015-9/29/2018, \$1,068,965.

**Department of Defense CDMRP Peer Reviewed Orthopaedic Research Program**

**Idea Development Award (OR130302).** *Targeted Nanoparticles to Silence MMP-13 for Prevention of Post-Traumatic Osteoarthritis.* Role: PI, 9/30/2014–9/29/2018 (NCE), \$767,556.

**National Institutes of Health (NIBIB) (R01 EB019409).** *Substrate Mediated siRNA Delivery from Scaffolds to Promote Wound Repair.* Role: PI, 9/25/2014–6/30/2019, \$1,719,456.

\*5<sup>th</sup> year of grant awarded by NIBIB in recognition of PECASE Award

**National Science Foundation CAREER Award (DMR) (BMAT 1349604).** *CAREER: Polythioketal Hydrogel for siRNA-enhanced Regenerative Cell Therapies.* Role: PI, 7/1/2014-6/30/2019, \$500,000.

**As Co-I / Collaborator:**

**Department of Defense Peer Reviewed Medical Research Program (PRMRP) PR150172.** *Development of an Injectable, Settable, Resorbable Nanoceramic/Polymer Composite Bone Void Filler for Repair of Critical-Size Bony Defects.* Role: Co-I (PI-Guelcher), 9/30/2016-9/29/2019. \$838,059.

**U.S. Army Medical Research and Materiel Command (USAMRMC) Medical Technology Enterprise Consortium (MTEC) 16-01-REGEN.** *Manufacture of a Settable Nanocrystalline Hydroxyapatite/Polymer Composite Bone Graft.* Role: Co-I (PI-Guelcher), 9/30/2016-9/29/2019, \$1,793,171.

**Department of Defense Breast Cancer Research Program Idea Award (BC150791).** *Inside-Out Immunotherapy: Preventing Metastatic Breast Cancer Recurrence via Nanoparticle-Directed Modulation of the Tumor Microenvironment.* Role: Co-I (PI-Wilson), 05/15/2016– 5/14/2019. \$1,502,918.

**American Diabetes Association** Innovative Basic Science Award. *Using CTGF to Enhance Functional Beta Cell Mass,* Role: Collaborator (PI- Gannon), 1/01/2016–12/31/2019, \$345,000.

**National Institutes of Health (T32DK101003-A1).** *Integrated Training in Engineering and Diabetes.* Role: member of steering committee investigator (one Ph.D. student with a

funded position on the grant) (PI- Guelcher), 7/01/2014 - 6/30/2019, \$2,353,538.

**PREVIOUS:**

**As PI / Multi-PI:**

**National Science Foundation (DMR) (BMAT 1207019).** *Multifunctional Hybrid Porous Nanoparticles for Controlled Drug Release.* Role: Co-PI (PI- Weiss), 8/15/2012-8/14/2017 (NCE). \$420,000.

**National Institutes of Health (NHLBI) (1 R21 HL109748-01A1).** *Quantitative In Vivo Optical Imaging of Vascular Response to Hind Limb Ischemia.* Role: Contact PI (Co-PI- Skala), 8/1/12-7/31/16 (NCE), \$406,600.

**National Institutes of Health (1 R21 HL110056-01).** *Smart Polymer Based MK2 Inhibitor to Suppress Vascular Graft Intimal Hyperplasia.* Role: PI, 8/1/2011–7/31/2015, \$402,585.

**National Institutes of Health (1 R21 EB012750-01A1).** *Injectable Scaffold for Efficient, Tunable siRNA Delivery to Skin Wounds.* Role: PI, 8/1/2011–7/31/2015, \$417,632.

**Vanderbilt Diabetes Research and Training Center.** *siRNA Delivery Scaffold for Altering Cytokine Signaling in Diabetic Skin Wounds.* Role: PI, 7/1/2011-6/30/2013, \$80,000.

**American Heart Association Scientist Development Grant (11SDG4890030).** *Smart Polymer Intracellular Delivery of an MK2 Inhibitory Peptide to Suppress Vascular Graft Intimal Hyperplasia.* Role: PI, 1/1/2011–12/31/2015 (NCE), \$303,909.

**Department of Defense Breast Cancer Research Program Idea Award (BC098121).** *Surface Functionalized Nanoparticles for Proximity Activated Targeting of Dual-Mode Therapy for Multidrug Resistant Breast Cancer and Breast Cancer Metastases.* Role: Partnering PI (Initiating PI- Giorgio), 9/1/2010-8/31/2013, \$828,935.

**Vanderbilt University Discovery Grant Program.** *Development of an Injectable, Controlled Release Scaffold for siRNA Delivery to Skin Wounds.* Role: PI, 5/1/2010-

4/30/2015, \$95,000.

**As Co-I / Collaborator:**

**National Institutes of Health (R56 HL122735).** *Small Heat Shock Proteins in Human Airway Smooth Muscle Tone and Pathophysiology.* Role: co-I (PI- Komalavilas), 9/1/2014–8/31/2016 (NCE), \$292,507.

**American Heart Association Grant in Aid (AHA 12GRNT12060235).** *Multi-functional Optical Imaging of Hemodynamics in the Ischemic Mouse Hind Limb Model.* Role: Co-I (PI- Skala), 7/1/2012-6/30/2015 (NCE). \$165,000.

**Vanderbilt University Discovery Grant Program.** *Intravital Optical Imaging of Vascular Recovery in Hind Limb Ischemia.* Role: co-I (PI- Skala), 5/1/2012-4/30/2016 (NCE), \$100,000.

**Department of Defense Breast Cancer Research Program Idea Award (BC102696).** *Development and Testing of Therapeutic Potential of Nanobiotechnology-Targeted siRNA Designed to Inhibit NF- $\kappa$ B Classical & Alternative Signaling in Macrophages.* Role: Co-I (Initiating PI- Giorgio, Partnering PI- Yull), 7/1/2011–6/30/2014, \$844,574.

**PUBLICATIONS** (\*corresponding author; ‡postdoc or † student from Duvall lab)

**Google Scholar H-index = 26, Total citations = 2707**

**PEER-REVIEWED JOURNAL ARTICLES:**

1. AJ Mukalel<sup>†</sup>, BC Evans<sup>†</sup>, KV Kilchrist<sup>†</sup>, EA Dailing<sup>‡</sup>, J Cheung-Flynn, CM Brophy, **CL Duvall\***. Excipients for the Lyoprotection of MAPKAP Kinase 2 Inhibitory Peptide Nano-Polyplexes. Submitted.
2. KV Kilchrist<sup>†</sup>, SC Dimobi<sup>†</sup>, TA Werfel<sup>†</sup>, EA Dailing<sup>‡</sup>, MA Jackson<sup>†</sup>, IB Kelly<sup>†</sup>, **CL Duvall\***. Gal8 Tracking Enables Visualization of Carrier-mediated Endosome Disruption and Prediction of Biologic Cargo Intracellular Bioavailability. Submitted.
3. TA Werfel<sup>†</sup>, S Wang, MA Jackson<sup>†</sup>, TE Kavanaugh<sup>†</sup>, MM Joly, L Lee<sup>†</sup>, DJ Hicks, VM Sanchez, PI Gonzalez-Ericsson, KV Kilchrist<sup>†</sup>, SC Dimobi<sup>†</sup>, SM Sarett<sup>†</sup>, DM Brantley-Sieders, RS Cook, **CL Duvall\***. Selective mTORC2 inhibitor therapeutically blocks breast cancer cell growth and survival. Cancer Research. In Press.

4. MM Williams, L Lee<sup>†</sup>, TA Werfel<sup>†</sup>, MM Joly, DJ Hicks, B Rahman, D Elion, C McKernan, V Sanchez, V Estrada, S Massarweh, R Elledge, **CL Duvall**, RS Cook\*. Intrinsic Apoptotic Pathway Activation Increases Response to Anti-Estrogens in Luminal Breast Cancers. Cell Death and Disease. In Press.
5. MK Gupta<sup>‡</sup>, JR Martin<sup>†</sup>, BR Dollinger<sup>†</sup>, ME Hattaway<sup>†</sup>, **CL Duvall**\*. Thermogelling, ABC Triblock Copolymer Platform for Resorbable Hydrogels with Tunable, Degradation-Mediated Drug Release. Advanced Functional Materials. 2017 (Dec 15), 27, 1704107. <https://doi.org/10.1002/adfm.201704107>.
6. LP Fernando, JS Lewis, BC Evans<sup>‡</sup>, **CL Duvall**, BG Keselowsky. Formulation and characterization of poly(propylacrylic acid)/poly(lactic-co-glycolic acid) blend microparticles for pH-dependent membrane disruption and cytosolic delivery. Journal of Biomedical Research Materials, Part A. In press; published online Dec 2017.
7. SM Sarett<sup>†</sup>, TA Werfel<sup>†</sup>, KV Kilchrist<sup>†</sup>, DM Brantley-Sieders, **CL Duvall**\*. Lipophilic siRNA Targets Albumin in Situ and Promotes Bioavailability, Tumor Penetration, and Carrier-Free Gene Silencing. PNAS 2017 114 (32) E6490-E6497; published ahead of print July 24, 2017, doi:10.1073/pnas.1621240114.  
 \***Medical News Today highlight**: <http://www.medicalnewstoday.com/releases/318614.php>  
 \***EurekAlert! highlight**: [https://www.eurekalert.org/pub\\_releases/2017-07/vu-mho072117.php#.WXZIy-dcA9Q](https://www.eurekalert.org/pub_releases/2017-07/vu-mho072117.php#.WXZIy-dcA9Q)  
 \***Futurity highlight**: <http://www.futurity.org/ribonucleic-acid-tumor-silencing-1494872/>  
 \***Biocentury highlight**: <https://www.biocentury.com/bc-innovations/distillery-techniques/2017-08-09/drug-delivery-drug-platforms>  
 \***La Razon (Madrid newspaper) highlight**: <http://www.larazon.es/atusalud/moleculas-que-hacen-autostop-para-destruir-tumores-AE15664859>  
 \***Vanderbilt highlight**: <https://news.vanderbilt.edu/2017/07/24/hijacking-human-proteins-to-better-deliver-anti-cancer-drugs/>
8. P Patil<sup>†</sup>, JR Martin<sup>†</sup>, SM Sarett<sup>†</sup>, AC Po llins, NL Cardwell, JM Davidson, LB Nanney\*, **CL Duvall**\*. Porcine Ischemic Wound Healing Model for Preclinical Testing of Degradable Biomaterials. Tissue Engineering Part C: Methods. 2017 Aug 1. doi: 10.1089/ten.TEC.2017.0202. [Epub ahead of print].
9. L Yang, E Bracho-Sanchez, MR Carstens, LP Fernando, JS Lewis, **CL Duvall**, BG Keselowsky. Poly(2-propylacrylic acid) / poly(lactic-co-glycolic acid) blend microparticles as a targeted antigen delivery system to direct either CD4+ or CD8+ T cell activation. Bioengineering & Translational Medicine. 2017; 2: 202–211. doi:10.1002/btm2.10068.
10. MA Jackson<sup>†</sup>, TA Werfel<sup>†</sup>, E Curvino<sup>†</sup>, F Yu, TE Kavanaugh<sup>†</sup>, SM Sarett<sup>†</sup>, M Dockery, KV Kilchrist<sup>†</sup>, A Jackson<sup>†</sup>, TD Giorgio, **CL Duvall**\*. Zwitterionic

- Nanocarrier Surface Chemistry Improves siRNA Tumor Delivery and Silencing Activity Relative to Polyethylene Glycol. ACS Nano. 2017 Jun 27;11(6):5680-5696. doi: 10.1021/acsnano.7b01110.
11. KP O'Grady<sup>†</sup>, TE Kavanaugh<sup>†</sup>, H Cho, H Ye, MK Gupta<sup>‡</sup>, MC Madonna<sup>†</sup>, J Lee, CM O'Brien, MC Skala, KA Hasty, **CL Duvall\***. Drug Free ROS Sponge Polymeric Microspheres Reduce Tissue Damage from Ischemic and Mechanical Injury. ACS Biomaterials Science and Engineering. DOI: 10.1021/acsbomaterials.6b00804. Publication Date (Web): April 6, 2017. Invited for special issue on regenerative biomaterials.
  12. TA Werfel<sup>†</sup>, MA Jackson<sup>†</sup>, TE Kavanaugh<sup>†</sup>, KC Kirkbride<sup>‡</sup>, M Miteva<sup>†</sup>, TD Giorgio, **CL Duvall\***. Combinatorial Optimization of PEG Architecture and Hydrophobic Content Improves siRNA Polyplex Stability, Pharmacokinetics, and Potency In Vivo. Journal of Controlled Release. 2017 Jun 10;255:12-26. doi: 10.1016/j.jconrel.2017.03.389. Epub 2017 Mar 31.
  13. BR Dollinger<sup>†</sup>, MK Gupta<sup>‡</sup>, JR Martin<sup>†</sup>, **CL Duvall\***. ROS-shielding hydrogel for the delivery of adherent and non-adherent therapeutic cell types. Tissue Engineering Part A. 2017 Apr 7. doi: 10.1089/ten.tea.2016.0495. [Epub ahead of print]. Invited for special issue on biomaterials-based immune modulation and regeneration.
  14. ES Wise, KM Hocking, BC Evans, **CL Duvall**, J Cheung-Flynn, CM Brophy\*. Unregulated saphenous vein graft distension decreases tissue viscoelasticity. Perfusion. 2017. 1-6.
  15. JR Martin<sup>†</sup>, CE Nelson<sup>†</sup>, MK Gupta<sup>‡</sup>, F Yu, SM Sarett<sup>†</sup>, KM Hocking<sup>†</sup>, AC Pollins, LB Nanney, JM Davidson, SA Guelcher, **CL Duvall\***. Local delivery of PHD2 siRNA from ROS-degradable scaffolds to promote diabetic wound healing. Advanced Healthcare Materials. doi:10.1002/adhm.201600820. 2016 Nov;5(21):2751-2757. doi: 10.1002/adhm.201600820.
  16. MA McEnery, S Lu, MK Gupta<sup>‡</sup>, KJ Zienkiewicz, JC Wenke, KN Kalpakci, D Shimko, **CL Duvall**, SA Guelcher. Oxidatively Degradable Poly(thioketal urethane)/Ceramic Composite Bone Cements with Bone-Like Strength. RSC Adv. 2016;6(111):109414-109424. Epub 2016 Nov 8.
  17. W Luo, CM Guth, O Jolayemi, **CL Duvall**, CM Brophy, J Cheung-Flynn\*. Subfailure overstretch injury leads to reversible functional impairment and purinergic P2X7 receptor activation in intact vascular tissue. Frontiers in Bioengineering and Biotechnology. doi: 10.3389/fbioe.2016.00075. 2016 Sep 29;4:75.
  18. KR Beavers<sup>†</sup>, TA Werfel<sup>†</sup>, T Shen<sup>†</sup>, TE Kavanaugh<sup>†</sup>, KV Kilchrist<sup>†</sup>, JW Mares, JS Fain, CB Wiese, KC Vickers, SM Weiss, **CL Duvall\***. Porous Silicon and Polymer



- Nanocomposites for Delivery of Peptide Nucleic Acids as anti-microRNA Therapies. Advanced Materials. 2016 Sep;28(36):7984-7992. doi: 10.1002/adma.201601646.
19. RC Pasek, TE Kavanaugh<sup>†</sup>, **CL Duvall**, MA Gannon\*. Sustained Administration of  $\beta$ -cell Mitogens to Intact Mouse Islets *Ex Vivo* using Biodegradable Poly(Lactic-Co-Glycolic Acid) Microspheres. J. Vis. Exp. (), e54664, doi:10.3791/54664. (2016).
  20. KV Kilchrist<sup>†</sup>, BC Evans<sup>‡</sup>, CM Brophy, **CL Duvall**\*. Mechanism of Enhanced Cellular Uptake and Cytosolic Retention of MK2 Inhibitory Peptide Nano-polyplexes. Cellular and Molecular Bioengineering. 9: 368. doi:10.1007/s12195-016-0446-7. (2016).  
\*Component of BMES Young Innovator Award.
  21. SM Sarett<sup>†</sup>, TA Werfel<sup>†</sup>, I Chandra<sup>†</sup>, MA Jackson<sup>†</sup>, TE Kavanaugh<sup>†</sup>, ME Hattaway<sup>†</sup>, TD Giorgio, **CL Duvall**\*. Hydrophobic Interactions between Polymeric Carrier and Palmitic Acid-Conjugated siRNA Improve PEGylated Polyplex Stability and Enhance In Vivo Pharmacokinetics and Tumor Gene Silencing. Biomaterials. Volume 97, August 2016, Pages 122–132.
  22. MJ Uddin<sup>1</sup>, TA Werfel<sup>1,†</sup>, BC Crews, MK Gupta<sup>‡</sup>, TE Kavanaugh<sup>†</sup>, PJ Kingsley, K Boyd, LJ Marnett\*, **CL Duvall**\*. Fluorocoxib A Loaded Nanoparticles Enable Targeted Visualization of Cyclooxygenase-2 in Inflammation and Cancer. Biomaterials. Volume 92, June 2016, Pages 71–80. 1. Equally contributing first authors.
  23. TA Werfel<sup>†</sup>, C Swain<sup>†</sup>, CE Nelson<sup>†</sup>, KV Kilchrist<sup>†</sup>, BC Evans<sup>†</sup>, M Miteva<sup>†</sup>, **CL Duvall**\*. Hydrolytic Charge-reversal of PEGylated Polyplexes Enhances Intracellular Un-packaging and Activity of siRNA. Journal of Biomedical Materials Research: Part A. 2016 Apr;104(4):917-27.
  24. SA Canonico-May, KR Beavers<sup>†</sup>, MJ Melvin, AM Alkilany, **CL Duvall**, JW Stone\*. High conversion of HAuCl<sub>4</sub> into gold nanorods: A re-seeding approach, Journal of Colloid and Interface Science. 463 (1): 229-232. (2016).
  25. TE Kavanaugh<sup>†</sup>, TA Werfel<sup>†</sup>, H Cho, KA Hasty, **CL Duvall**\*. Particle-based Technologies for Osteoarthritis Detection and Therapy. Drug Delivery and Translational Research, 2016 Apr;6(2):132-47. doi: 10.1007/s13346-015-0234-2.
  26. SM Sarett<sup>†</sup>, CE Nelson<sup>†</sup>, **CL Duvall**\*. Technologies for Controlled, Local Delivery of siRNA. Journal of Controlled Release. 2015 Nov 28;218:94-113.
  27. M Yuasa, NA Mignemi, JS Nyman, **CL Duvall**, HS Schwartz, A Okawa, T Yoshii, G Bhattacharjee, C Zhao, JE Bible, WT Obrebsky, MJ Flick, JL Degen, JV Barnett, JM Cates, JG Schoenecker\*. (2015). Fibrinolysis is essential for fracture repair and

- prevention of heterotopic ossification. The Journal of Clinical Investigation. 125(8): 0-0. Epub July 27, 2015.
28. MK Gupta<sup>‡</sup>, S Lee, SW Crowder, X Wang, LH Hofmeister, CE Nelson<sup>†</sup>, LM Bellan, **CL Duvall**, HJ Sung<sup>\*</sup>. Oligoproline-derived nanocarrier for dual stimuli-responsive gene delivery. Journal of Materials Chemistry B. 2015, 3 (36), 7271-7280.
29. BC Evans<sup>†</sup>, KM Hocking<sup>†</sup>, MJ Osgood, I Voskresensky, J Dmowska<sup>†</sup>, KV Kilchrist<sup>†</sup>, CM Brophy, **CL Duvall**<sup>\*</sup>. Nano-polyplex MK2 Inhibitory Peptide Delivery Inhibits Vascular Graft Intimal Hyperplasia. Science Translational Medicine. 2015 Jun 10;7(291):291ra95.
- \*Highlighted as Editor's choice, Science Signaling. 16 Jun 2015: Vol. 8, Issue 381, pp. ec160.
- \*Research Highlight, Nanoparticle enhances drug delivery to veins during bypass surgery. Molecular Therapy (2015); 23 7, 1133. doi:10.1038/mt.2015.96
30. BC Evans<sup>†</sup>, KM Hocking<sup>†</sup>, KV Kilchrist<sup>†</sup>, ES Wise, CM Brophy, **CL Duvall**<sup>\*</sup>. Endosomolytic Nano-Polyplex Platform Technology for Cytosolic Peptide Delivery to Inhibit Pathological Vasoconstriction. ACS Nano. 2015 Jun 23;9(6):5893-907.
31. R Guo, CL Ward, JM Davidson, **CL Duvall**, JC Wenke, SA Guelcher<sup>\*</sup>. A Transient Cell-Shielding Method for Viable MSC Delivery within Hydrophobic Scaffolds Polymerized In Situ. Biomaterials, Volume 54, June 2015, Pages 21–33.
32. SM Sarett<sup>†</sup>, KV Kilchrist<sup>†</sup>, M Miteva<sup>†</sup>, **CL Duvall**<sup>\*</sup>. Conjugation of Palmitic Acid Improves Potency and Longevity of siRNA Delivered via Endosomolytic Nanoparticles. Journal of Biomedical Materials Research A, 2015 Jan 31. [Epub ahead of print].
33. KR Beavers<sup>†</sup>, CE Nelson<sup>†</sup>, **CL Duvall**<sup>\*</sup>. miRNA Inhibition in Tissue Engineering and Regenerative Medicine. Advanced Drug Delivery Reviews, Volume 88, 1 July 2015, Pages 123–137.
34. JW Mares, JS Fain, KR Beavers<sup>†</sup>, **CL Duvall**, SM Weiss<sup>\*</sup>. Shape-engineered multifunctional porous silicon nanoparticles by direct imprinting. Nanotechnology, 2015 Jul 10;26(27):271001.
35. H Li<sup>‡</sup>, M Miteva<sup>†</sup>, KC Kirkbride<sup>‡</sup>, M Cheng<sup>†</sup>, CE Nelson<sup>†</sup>, EM Simpson, **CL Duvall**<sup>\*</sup> and TD Giorgio<sup>\*</sup>. Dual MMP7-Proximity-Activated and Folate-Targeted Nanoparticles for siRNA Delivery. Biomacromolecules, 2015, 16 (1), pp 192–201.
- \*Co-corresponding**
36. KM Poole<sup>†</sup> CE Nelson<sup>†</sup>, RV Joshi<sup>†</sup>, JR Martin<sup>†</sup>, MK Gupta<sup>‡</sup>, SC Haws<sup>†</sup>, MC Skala, **CL Duvall**<sup>\*</sup>. ROS-Responsive Microspheres for On Demand Antioxidant Therapy in

- a Model of Diabetic Peripheral Arterial Disease. Biomaterials, Volume 41, February 2015, Pages 166-175.
37. M Miteva<sup>†</sup>, KC Kirkbride<sup>‡</sup>, KV Kilchrist<sup>†</sup>, H Li<sup>‡</sup>, CE Nelson<sup>†</sup>, MK Gupta<sup>‡</sup>, TD Giorgio, **CL Duvall**<sup>\*</sup>. Tuning PEGylation of Mixed Micelles to Overcome Intracellular and Systemic siRNA Delivery Barriers. Biomaterials. Volume 38, January 2015, Pages 97–107.
38. KM Poole<sup>†</sup>, DR McCormack, CA Patil, **CL Duvall**, MC Skala<sup>\*</sup>. Monitoring the Vascular Response to Ischemia with Quantitative Speckle Variance Optical Coherence Tomography. Biomedical Optics Express, Vol. 5, Issue 12, pp. 4118-4130 (2014).
39. MK Gupta<sup>‡</sup>, JR Martin<sup>†</sup>, TA Werfel<sup>†</sup>, T Shen<sup>†</sup>, JM Page, **CL Duvall**<sup>\*</sup>. Cell Protective, ABC Triblock Polymer-Based Thermoresponsive Hydrogels with ROS-Triggered Degradation and Drug Release. Journal of the American Chemical Society, 2014, 136 (42), pp 14896–14902.
40. EJ Adolph, CE Nelson<sup>†</sup>, TA Werfel<sup>†</sup>, R Guo, JM Davidson, SA Guelcher<sup>\*</sup>, **CL Duvall**. Enhanced Performance of Plasmid DNA Polyplexes Stabilized by a Combination of Core Hydrophobicity and Surface PEGylation. Journal of Materials Chemistry B, 2014, 2, 8154-8164.
41. KR Beavers<sup>†</sup>, JW Mares, CM Swartz, Y Zhao, SM Weiss, **CL Duvall**<sup>\*</sup>. In Situ Synthesis of Peptide Nucleic Acids in Porous Silicon for Drug Delivery and Biosensing. Bioconjugate Chemistry 25 (7), pp 1192–1197 (2014).
42. LR Eichaker, H Cho, **CL Duvall**, TA Werfel<sup>†</sup>, KA Hasty<sup>\*</sup>. Future nanomedicine for the diagnosis and treatment of osteoarthritis. Nanomedicine (Lond). 9(14):2203-15. (2014).
43. JM Tucker-Schwartz, KR Beavers<sup>†</sup>, WW Sit, AT Shah, **CL Duvall**, and MC Skala<sup>\*</sup>. In vivo imaging of nanoparticle delivery and tumor microvasculature with multimodal optical coherence tomography. Biomedical Optics Express. 2014 Vol. 5, Iss. 6, pp. 1731–1743.
44. JR Martin<sup>†</sup>, MK Gupta<sup>‡</sup>, JM Page, F Yu, JM Davidson, SA Guelcher, **CL Duvall**<sup>\*</sup>. A Porous Tissue Engineering Scaffold Selectively Degraded by Cell-Generated Reactive Oxygen Species. Biomaterials. 2014 Apr; 35(12):3766-76.
45. CE Nelson<sup>†</sup>, AJ Kim, EJ Adolph, MK Gupta<sup>‡</sup>, F Yu, KM Hocking<sup>†</sup>, JM Davidson, SA Guelcher, **CL Duvall**<sup>\*</sup>. Tunable Delivery of siRNA from a Biodegradable Scaffold to Promote Angiogenesis *In Vivo*. Advanced Materials. 2014 Jan;26(4):607-14. (Highlighted on inside cover of journal and by several media outlets including [NIH NIBIB](#) and [FierceDrugDelivery](#))

46. CE Nelson<sup>†</sup>, JR Kintzing<sup>†</sup>, A Hanna, JM Shannon<sup>†</sup>, MK Gupta<sup>‡</sup>, **CL Duvall\***. Balancing Cationic and Hydrophobic Content of PEGylated siRNA Polyplexes Enhances Endosome Escape, Stability, Blood Circulation Time, and Bioactivity *in Vivo*. ACS Nano. 2013 Oct 22, 7 (10), pp 8870–8880.
47. KM Poole<sup>†</sup>, JM Tucker-Schwartz, WW Sit, AJ Walsh, **CL Duvall\***, MC Skala\*. Quantitative Optical Imaging of Vascular Response *In Vivo* in a Preclinical Model of Peripheral Arterial Disease. American Journal of Physiology: Heart and Circulatory Physiology. 2013 Oct 15; Vol. 305 no. H1168-H1180. \*Co-corresponding authors.
48. H Li<sup>‡</sup>, SS Yu, M Miteva<sup>†</sup>, CE Nelson<sup>†</sup>, T Werfel<sup>†</sup>, TD Giorgio\*, **CL Duvall\***. Matrix Metalloproteinase Responsive, Proximity-activated Targeting Polymeric Nanoparticles for siRNA Delivery. Advanced Functional Materials. 2013 June 25; 23: 3040–3052.
49. RV Joshi<sup>†</sup>, CE Nelson<sup>†</sup>, KM Poole<sup>†</sup>, MC Skala, **CL Duvall\***. Dual pH- and Temperature-responsive Microparticles for Protein Delivery to Ischemic Tissues. Acta Biomaterialia. 2013 May;9(5):6526-34.
50. SS Yu, CM Lau, WJ Barham, HM Onishko, CE Nelson<sup>†</sup>, H Li<sup>‡</sup>, FE Yull, **CL Duvall**, TD Giorgio\*. Macrophage-Specific RNAi Targeting via ‘Click’ Mannosylated Polymeric Micelles. Molecular Pharmaceutics. 2013 Mar 4;10(3):975-87.
51. CE Nelson<sup>†</sup>, MK Gupta<sup>‡</sup>, EJ Adolph, SA Guelcher, **CL Duvall\***. siRNA Delivery from an Injectable Scaffold for Wound Therapy. Advances in Wound Care. April 2013, 2(3): 93-99.
52. BC Evans<sup>†</sup>, CE Nelson<sup>†</sup>, SS Yu, AJ Kim, H Li<sup>‡</sup>, TD Giorgio, **CL Duvall\***. Ex Vivo Red Blood Cell Hemolysis Assay for the Evaluation of pH-responsive Endosomolytic Agents for Cytosolic Delivery of Biomacromolecular Drugs. Journal of Visualized Experiments. 2013 Mar 9;(73):e50166. doi: 10.3791/50166.
53. JM Tucker-Schwartz, TA Meyer<sup>†</sup>, CA Patil, **CL Duvall**, MC Skala\*. *In vivo* photothermal optical coherence tomography of gold nanorod contrast agents. Biomedical Optics Express. 2012 Nov1;3(11):2881-95.  
\*featured by OCT News (<http://www.octnews.org/articles/4923939/feature-of-the-week-10-06-13-vanderbilt-university/>)
54. AJ Walsh, KM Poole<sup>†</sup>, **CL Duvall**, MC Skala\*. Ex vivo optical metabolic measurements from cultured tissue reflect in vivo tissue status. Journal of Biomedical Optics. 2012 Nov 1;17(11):116015.
55. GY Berguig, AJ Convertine, J Shi, MC Palanca-Wessels, **CL Duvall**, SH Pun, OW Press, and PS Stayton\*. Intracellular delivery and trafficking dynamics of a

- lymphoma-targeting antibody-polymer conjugate. Molecular Pharmaceutics. 2012 Nov;9(12):3506-3514.
56. H Tai\*, **CL Duvall**, AS Hoffman, PS Stayton, W Wang. pH-Responsive Hyperbranched Copolymers from One-pot Reversible Addition-Fragmentation Chain Transfer Copolymerization. Macromolecular Materials and Engineering. 2012 Sept;77:333-342.
57. MK Gupta<sup>‡</sup>, TA Meyer<sup>†</sup>, CE Nelson<sup>†</sup>, **CL Duvall**\*. Poly(PS-b-DMA) Micelles for Reactive Oxygen Species Triggered Drug Release. Journal of Controlled Release. 2012 Sep 28;162(3):591-8.
58. CE Nelson<sup>†</sup>, MK Gupta<sup>‡</sup>, EJ Adolph, JM Shannon<sup>†</sup>, SA Guelcher, **CL Duvall**\*. Sustained local delivery of siRNA from an injectable scaffold. Biomaterials. 2012 Feb;33(4):1154-61.
59. EF Crownover<sup>#</sup>, **CL Duvall**<sup>#</sup>, AJ Convertine, AS Hoffman, PS Stayton\*. RAFT-synthesized Graft Copolymers that Enhance pH-dependent Membrane Destabilization and Protein Circulation Times. Journal of Controlled Release. 2011 Oct 30;155(2):167-74. <sup>#</sup>Equally contributing co-first authors.
60. H Li<sup>‡</sup>, CE Nelson<sup>†</sup>, BC Evans<sup>†</sup>, **CL Duvall**\*. Delivery of Intracellular-acting Biologics in Pro-Apoptotic Therapies. Current Pharmaceutical Design. 2011;17(3):293-319.
61. SF Foster<sup>#</sup>, **CL Duvall**<sup>#</sup>, E Crownover, AS Hoffman, PS Stayton\*. Intracellular Delivery of a Protein Antigen with an Endosomal-Releasing Polymer Enhances CTL Production and Prophylactic Vaccine Efficacy. Bioconjugate Chemistry, 2010, 21 (12), pp 2205–2212. <sup>#</sup>Equally contributing co-first authors.
62. JS Golub, Y Kim, **CL Duvall**, RV Bellamkonda, D Gupta, AS Lin, D Weiss, WR Taylor, RE Gulberg\*. Sustained VEGF Delivery Via PLGA Nanoparticles Promotes Vascular Growth. AJP- Heart and Circulatory Physiology. 2010 Jun; 298(6):H1959-65.
63. **CL Duvall**, AJ Convertine, DSW Benoit, AS Hoffman, PS Stayton\*. Effective Intracellular Delivery of an Anti-Cancer Peptide via a RAFT-Synthesized Polymer Conjugate. Molecular Pharmaceutics. 2010 Apr 5;7(2):468-76.
64. X. Shen, G Ramawamy, C Wan, **CL Duvall**, L Deng, Y Wang, R Gulberg, TL Clemens, SR Gilbert\*. Prolyl Hydroxylase Inhibitors Increase Angiogenesis and Callus Formation Following Femur Fracture in Mice. Journal of Orthopaedic Research. 2009 Oct;27(10):1298-305.
65. AJ Convertine, DSW Benoit, **CL Duvall**, AS Hoffman, and PS Stayton\*. Development of a novel endosomolytic diblock copolymer for siRNA delivery.

- Journal of Controlled Release. 2008 Oct 17.
66. RE Guldberg\*, **CL Duvall**, A Peister, ME Oest, AS Lin, AW Palmer, ME Levenston. 3D imaging of tissue integration with porous biomaterials. Biomaterials. 2008 Oct;29(28):3757-61.
  67. **CL Duvall**, RE Guldberg, D Weiss, WR Taylor\*. The Role of Osteopontin in Recovery from Hind Limb Ischemia. Arteriosclerosis, Thrombosis, and Vascular Biology. 2008 Feb;28(2):290-5.
  68. RR Chen, JK Snow, JP Palmer, AS Lin, **CL Duvall**, RE Guldberg, DJ Mooney\*. Host immune competence and local ischemia affects the functionality of engineered vasculature. Microcirculation. 2007 Feb;14(2):77-88.
  69. **CL Duvall**, WR Taylor, D Weiss, RE Guldberg\*. Impaired Angiogenesis, Early Callus Formation, and Late Stage Remodeling in Fracture Healing of Osteopontin Deficient Mice. Journal of Bone and Mineral Research. 2007 Feb; 22(2):286-97.
  70. RE Guldberg\*, AS Lin, R Coleman, G Robertson, **C Duvall**. Microcomputed tomography imaging of skeletal development and growth. Birth Defects Research Part C: Embryo Today: Reviews. 2004 Sep;72(3):250-9.
  71. **CL Duvall**, WR Taylor, D Weiss, RE Guldberg\*. Quantitative Microcomputed Tomography Analysis of Collateral Vessel Development Following Ischemic Injury. AJP- Heart and Circulatory Physiology. 2004 July; 287:302-310.
  72. RE Guldberg\*, RT Ballock, BD Boyan, **CL Duvall**, ASP Lin, S Nagaraja, M Oest, J Phillips, BD Porter, G Robertson, WR Taylor. Microcomputed Tomography Imaging and Analysis of Bone, Blood Vessels, and Biomaterials. IEEE Engineering in Medicine and Biology Magazine. 2003 Sep-Oct; 22(5):77-83.

#### **BOOK CHAPTERS:**

1. JR Martin<sup>†</sup>, **CL Duvall**\*. "Oxidation State as a Bioresponsive Trigger". Oxidative Stress and Biomaterials: The Science, Challenges, and Opportunities. Eds. Dziubla TD, Butterfield DA. Elsevier. June 1, 2016.
2. TA Werfel<sup>†</sup>, **CL Duvall**\*. "Polymer Nanoparticles for Gene Therapy." Polymers and Nanomaterials for Gene Therapy. Ed. Ravin Narain. Woodhead Publishing, UK. January 9, 2016.
3. **CL Duvall**, A Prokop, CA Gersbach, JM Davidson. "Gene Delivery into Cells and Tissues". Principles of Tissue Engineering, 4th Edition. Ed Lanza, Langer, and Vacanti. Elsevier. 2014.
4. D.S.W. Benoit, W. Gray, N. Murthy, H. Li<sup>‡</sup>, **CL Duvall**\*. "Bioinspired pH-Responsive Polymers for the Intracellular Delivery of Biomolecular Drugs."

- Comprehensive Biomaterials. Ed. Paul Ducheyne, Kevin E. Healy, Dietmar E. Hutmacher, David E. Grainger and C. James Kirkpatrick. Elsevier. 2011.
5. ASP Lin, AW Palmer, **CL Duvall**, GC Robertson, ME Oest, B Rai, ME Levenston, RE Guldberg\*. "Contrast Enhanced Micro-CT Imaging of Soft Tissues." Advanced Bioimaging Technologies in Assessment of the Quality of Bone and Scaffold Biomaterials. Ed. L Qin, HK Genant, J Griffith, KS Leung. Springer-Verlag Publishers, 2007.
  6. HST Barnabas\*, DW Hutmacher, RE Guldberg, and **CL Duvall**. "Micro Computed Tomography in Biomedical Sciences." Techniques in Microscopy for Biomedical Applications. Ed. T Dokland, DW Hutmacher, NG MML, and JT Schantz. World Scientific, 2006.

#### **PATENT APPLICATIONS:**

1. **CL Duvall**, Taylor Kavanaugh, Eric Dailing. DMA-Co-Tempo Polymer for Therapeutic ROS Scavenging. U.S. Provisional Patent Application US 62/565,921, filed 9/29/2017.
2. **CL Duvall**, MA Jackson. Long-circulating Zwitterionic Polyplexes for siRNA Delivery. U.S. Provisional Patent Application US 62/506,440, filed 5/15/2017.
3. **CL Duvall**, Samantha Sarett, Thomas Werfel. Conjugation of Lipophilic Albumin-binding Moiety to siRNA for Improved Carrier-Free In Vivo Pharmacokinetics and Gene Silencing. U.S. Provisional Patent Application US 62/371,619, filed 8/7/2016. Utility patent application filed 8/7/2017.
4. **CL Duvall**, RS Cook, DM Brantley-Sieders, TA Werfel. RNAi Technology to Selectively Inhibit mTORC2 in Breast Cancer. US Provisional Patent Application 62/234,603 filed 9/27/2017.
5. **CL Duvall**, BC Evans. AJ Mukalel. Excipients for the Lyoprotection and Long-term Storage of Peptide Polyplexes. US Provisional Patent Application 62/399,966 filed 9/27/2017.
6. Keselowsky BG, **Duvall CL**, Lewis J, Fernando LP, Evans BC, Yang Lirong. Polymeric Particle Blends for Cytosolic Delivery of Cargo, Methods of Making the Particles. US Provisional Patent Application Serial No. 62/248,452 filed October 30, 2015. US Utility application filed 10/25/2016.
7. **CL Duvall**, LJ Marnett, J Uddin, TA Werfel, M Gupta, BC Crews. Flourocoxib A Loading into ROS-responsive Nanoparticles. US Provisional Patent Application Serial No. 62/172,666 filed 2015-07-11. Utility application filed 7-11-2016.
8. **CL Duvall**, P Kendall, CE Nelson, LE Nyoff, T Werfel. Targeting siRNA to Antigen-

- specific Cells to Modulate Immune Disease. US Provisional Patent Application Serial No. 62/172,666 filed 2015-06-18.
9. **CL Duvall**, KM Poole, CE Nelson, JR Martin. *Reactive Oxygen Species (ROS)-Responsive Compositions and Methods Thereof*. US Provisional Patent Application Serial No. 62/081,999 filed 2014-11-19 (VU1507P1). Utility patent 14/946,732 filed 2015-11-19.
  10. **CL Duvall**, MK Gupta, JM Martin. *ROS-Degradable Hydrogels*. US Provisional Patent Application Serial No. 61/981,104 filed 2014-04-17 (VU14141P1). Utility patent 62/149,294 filed 2015-4-17.
  11. **CL Duvall**, BC Evans, CM Brophy, KM Hocking. *Polyplexes*. US Provisional Patent Application Serial No. 61/811,078 filed 2013-04-11 (VU13109P). Utility patent filed 2014-04-11. PCT/US2014/033873.  
\*Exclusive License Agreement with Moerae Matrix Inc.
  12. **CL Duvall**, CE Nelson, JR Kintzing, JM Shannon, MK. Gupta. *Polymeric Nanoparticles*. US Provisional Patent Application Serial No. 61/719,276 filed 2012-26-10 (VU13051P1). Utility patent filed 2013-10-29. Published as US-2015-0283254-A1 10/8/15.
  13. **CL Duvall**, SA Guelcher, CE Nelson, MK Gupta, EJ Adolph, JM Shannon. Delivery of siRNA from Polyurethane Scaffold. US Provisional Patent Application Serial No. 61/553,115 filed 2011-10-28 (VU7115P). US Utility patent application Serial No. 13/663,390 filed 2012-10-29 (VU12109US1).
  14. **CL Duvall**, SA Guelcher, MK Gupta, JM Martin, EJ Adolph. Poly(thioketal-urethane) Scaffolds and Methods of Use. US Provisional Patent Application Serial No. 61/704,351 filed 2012-21-9 (VU12125P1). US Utility patent application filed 2013-09-21. PCT/US2013/061064; claims published Oct 11, 2016.
  15. SS Yu, TD Giorgio, CM Lau, **CL Duvall**. Targeting Compositions And Methods Thereof. US Provisional Patent Application Serial No. 61/597,280 filed 2012-02-10 (VU12059P1). US Utility patent application Serial No. 14/178077 filed 2014-02-11 (VU12109US1).
  16. PS Stayton, AS Hoffman, AJ Convertine, **CL Duvall**, P Johnson. Bispecific Intracellular Delivery Vehicles. PCT/US2009/043852. Published 05/14/2010.
  17. PS Stayton, AS Hoffman, AJ Convertine, D. Benoit, **CL Duvall**, P Johnson, A Gall. Diblock Copolymers and Polynucleotide Complexes Thereof for Delivery into Cells. U.S. Patent Number 9,476,063 issued October 25, 2016.



18. P Johnson, PS Stayton, AS Hoffman, AJ Convertine, **CL Duvall**, D Benoit, C Lee, R Overell, A Gall, M Prieve, A Paschal, C Diab, P De. Targeted Polymer Bioconjugates. PCT/US2009/043839. Published 11/19/2009.
19. PS Stayton, AS Hoffman, AJ Convertine, **CL Duvall**, D Benoit, R Overell, P Johnson, A Gall, M Prieve, A Paschal, C Diab, P De. Micellar Assemblies. PCT/US2009/043849. Published 11/19/2009.
20. PS Stayton, AS Hoffman, AJ Convertine, **CL Duvall**, D Benoit, R Overell, P Johnson, A Gall, M Prieve, A Paschal, C Diab, P De. Polymeric Carrier. PCT/US2009/043837. Published 11/19/2009.

## **INVITED PRESENTATIONS**

1. "Smart, pH-Responsive Polymers for Biomacromolecular Drug Delivery". Vanderbilt Department of Biomedical Engineering, Nashville, TN (April 2009).
2. "Engineering of Smart Biomacromolecular Therapeutics". Vanderbilt Institute for Nanoscale Science and Engineering 11th Annual Nanoscience and Nanotechnology Forum, Nashville, TN (October 2010).
3. "Engineering of Smart Biomacromolecular Therapeutics". University of Kentucky Biosystems Engineering, Lexington, KY (October 2010).
4. "Engineering of Smart Therapeutics". Vanderbilt Center for Stem Cell Biology, Nashville, TN (April 2011).
5. "My Journey from Muhlenberg to Vanderbilt and Why YOU Should Pursue STEM". Inaugural address at the induction ceremony of the STEM (Science, Technology, Engineering, and Math) Academy at Muhlenberg County High School, Greenville, KY (September 2011).
6. Advanced Therapeutics for Regenerative Medicine. Hilton Head Regenerative Medicine Workshop, Hilton Head, SC, Apr 2012.
7. Local and Targeted siRNA Delivery Technologies. 2012 Annual Meeting of the Biomedical Engineering Society, Atlanta, GA, Oct 2012.
8. Delivery Technologies for Local and Targeted siRNA Delivery. Zing Polymer Chemistry Meeting. Xcaret, Mexico, Nov 2012.
9. Local and Targeted Delivery Technologies. University of Florida Department of Biomedical Engineering, Gainesville, Florida, December 2012.
10. Local Delivery of siRNA containing nanoparticles increases blood vessel production in mice. Vanderbilt Institute for Nanoscale Science and Engineering (VINSE) NanoSeminar Series, May 2013. (given by graduate student Christopher Nelson)

11. Tissue Regenerative Nanotechnologies for Efficient Intracellular Delivery of Biological Drugs. University of Tennessee Health Sciences School of Pharmacy, Knoxville, Tennessee, May 2013.
12. *In Situ* Synthesis of Peptide Nucleic Acid Therapeutics from Porous Silicon Nanoparticles. Vanderbilt Institute for Nanoscale Science and Engineering (VINSE) NanoSeminar Series, June 2013. (given by graduate student Kelsey Beavers)
13. Local and Targeted Delivery Technologies. Vanderbilt University Bone Center, Nashville, Tennessee, August 2013.
14. Injectable Hydrogel for On Demand Delivery of Curcumin to Reduce Oxidative Stress on Transplanted Islets. Dr. Alvin Powers Research Group within Vanderbilt Diabetes Research and Training Center, October 2013.
15. Stimulus Responsive Nanotechnologies for Cardiovascular Regeneration. International Symposium on Stimuli-Responsive Materials. Santa Rosa, California, October 2013.
16. Nanotechnologies for Intracellular Delivery of Regenerative Biotherapeutics. University of Pennsylvania Center for Targeted Therapeutics & Translational Nanomedicine. Philadelphia, Pennsylvania, December 2013.
17. The Future of Wound Healing Therapies. Vanderbilt Internal Medicine Fox and Hedgehog Conference, January 2014.
18. Nanotechnologies for Intracellular Delivery Cardiovascular Biotherapies. University of Maryland Bioengineering Department. College Park, Maryland, March 2014.
19. Local Delivery of siRNA from Synthetic Matrices to Promote Tissue Regeneration. Vanderbilt Center for Matrix Biology. April 2014.
20. Nanotechnologies for Intracellular Delivery Cardiovascular Biotherapies. University of Memphis Biomedical Engineering Department. Memphis, Tennessee, April 2014.
21. Local Gene Silencing to Promote Skin Wound Vascularization and Repair. Vanderbilt Diabetes Research and Training Center, April 2014.
22. Application of Smart Polymers in Drug Targeting and Controlled Release. University of Florida. Gainesville, FL, June 2014.
23. Nano-polyplex MK2 Inhibitory Peptide Delivery Inhibits Vascular Graft Intimal Hyperplasia. Gordon Research Conference: Drug Carriers in Medicine and Biology. Young Investigator and Late Breaking Science Session. Waterville Valley, New Hampshire, August 2014.
24. Environmentally Responsive Polymers for Drug Targeting and Controlled Release. Duke University. Durham, NC, October 2014.
25. Smarter Therapies for Cardiovascular Pathologies. Tennessee Tech Department of

- Chemical Engineering. Cookeville, TN, November 2014.
26. Local Gene Silencing to Promote Skin Wound Vascularization and Repair. Innovations in Wound Healing Symposium. Hawks Cay, Florida, December 2014.
  27. Nano-polyplexes for Therapeutic Peptide Delivery to Human Saphenous Vein Bypass Grafts. TERMIS-AM invited speaker for session on Biomimetic, Instructive, and Tunable Biomaterials to Regulate Cell Function. Washington D.C., December 2014.
  28. Next Generation Biomaterials for 'On Demand' Drug Release. Society for Biomaterials Young Investigator Award Plenary Session Talk. Charlotte, NC, April 2015.
  29. Polymeric Carriers for "On Demand" Delivery. Invited talk, Fusion Drug Delivery Conference. Tucson, AZ, September 2015.
  30. Polymeric Carriers for "On Demand" Therapies and Conquering the "Undruggable". Keynote for Symposium on Bio-Related Polymers, American Chemical Society Combined Southwest Region Meeting and the Southeastern Regional Meeting (SWRM/SERMACs). Memphis, TN, November 2015.
  31. Leveraging Environmentally-Responsive Polymers to Expand the Concept of Druggability. Invited Seminar University of Utah Pharmaceutics and Pharmaceutical Chemistry. Salt Lake City, UT, November 2015.
  32. Polymeric Carriers for Improved Delivery and Outcomes in Regenerative Medicine. Invited Lecturer at the Wake Forest Institute for Regenerative Medicine (WFIRM). Salem, NC, February 2016.
  33. Smarter Therapies to Improve Transplant Performance and Promote In Situ Tissue Repair. Invited Lecture, Vanderbilt Department of Pathology, Microbiology, and Immunology Program in Regenerative Medicine, March 2016.
  34. Polymeric Nanotechnologies for Modulation of 'Undruggable' Targets. Invited Lecture. Vanderbilt Center for Cancer Targeted Therapies, May 2016.
  35. Advanced Therapeutic Biomaterials: Nanomaterials and Biologic Delivery. Invited Lecture at Wake Forest Institute for Regenerative Medicine 'Regenerative Medicine Essentials' Workshop. July 2016.
  36. Invited lecturer for Symposium on "Soft Material Surface Modification to Control Cell/Surface Interactions" at the Fall 2016 American Chemical Society Meeting.
  37. Invited lecturer "Smarter Therapies for Cardiovascular Disease", October 2016, Emory University Vascular Biology seminar series.
  38. Optimization of Molecularly Targeted RNAi Therapies Against Undruggable Targets; A Missed Opportunity in Renal Diseases? Invited Lecture, Vanderbilt Renal Division Research Conference, Oct 2016.

39. Polymeric siRNA Nanocarriers for Breast Cancer Therapy. Invited lecture, Vanderbilt NanoDay! Symposium. October 2016.
40. Elucidation of the Delivery Mechanism of MK2 Inhibitory Peptide Nano-polyplexes for Improving Long-term Vascular Graft Patency. 2016 Biomedical Engineering Society Annual Meeting, Invited talk as part of Cellular and Molecular Bioengineering Young Innovator Award. October 2016.
41. Optimization of RNAi Nanomedicines for Breast Tumor Therapy. 2016 Biomedical Engineering Society Annual Meeting. Invited session keynote. October 2016.
42. Precision Polymer and Nanoparticle Architectures for Molecularly-Targeted and Cell-based Therapies. Invited lecturer, November 2016, University of North Carolina , Chapel Hill, Division of Molecular Pharmaceutics at the UNC Eshelman School of Pharmacy
43. Precision Polymer and Nanoparticle Architectures for Molecularly-Targeted and Cell-based Therapies. Invited lecturer, November 2016, University of Nebraska Department of Pharmaceutical Sciences.
44. Precision Polymer Architectures and Conjugates to Enable Molecularly-Targeted and Cell-based Therapies. Invited lecturer, June 19, 2017, Zhejiang University Departments of Polymer Science and Engineering and Pharmaceutical Sciences.
45. Precision Polymer Architectures and Conjugates to Enable Molecularly-Targeted and Cell-based Therapies. Invited lecturer, June 20, 2017, Shanghai Jiao Tong University School of Biomedical Engineering.
46. Precision Polymer Architectures and Conjugates to Enable Molecularly-Targeted and Cell-based Therapies. Invited lecturer, June 21, 2017, Chinese Academy of Sciences, Shanghai Institute of Materia Medica (CAS-SIMM).
47. Precision Polymer Architectures and Molecular Conjugates to Enable Therapeutics Against Undruggable Targets. July 2017 Gordon Research Conference on Biomaterials.
48. ROS Responsive Biomaterials to Promote Tissue Regeneration. Sept 21, 2017. University of Michigan Department of Orthopaedic Surgery.
49. Precision Polymer Architectures and Molecular Conjugates to Enable Therapeutics Against Undruggable Targets. NanoDDS 15<sup>th</sup> International Nanomedicine and Drug Delivery Symposium. September 2017. University of Michigan.
50. Nano-polyplexes for Therapeutic Peptide Delivery to Inhibit Vascular Graft Failure. 2017 Biomedical Engineering Society Annual Meeting. Invited special session speaker. October 2017.
51. Precision Polymer Architectures and Conjugates to Enable Molecularly-Targeted and

## **COURSES TAUGHT**

<b>Semester</b>	<b>Course Number</b>	<b>Title</b>	<b>Enrollment (credit hours)</b>	<b>Student Level</b>	<b>Type</b>
Spring 2010	BME 303B	Biomedical Materials	14 (1 hr)	Graduate	Required
Spring 2010	BME 103	Biomedical Materials	32 (3 hrs)	Sophomore	Required
Spring 2011	BME 103	Biomedical Materials	36 (3 hrs)	Sophomore	Required
Fall 2011	BME 290B	Sp. Topics in Drug Delivery	29 (3 hrs)	Junior, Senior	Elective
Spring 2012	BME 103	Biomedical Materials	18 (3 hrs)	Sophomore	Required
Spring 2013	BME 103	Biomedical Materials	39 (3 hrs)	Sophomore	Required
Fall 2013	BME 290B	Sp. Topics in Drug Delivery	17 (3 hrs)	Junior, Senior, Graduate	Elective
Spring 2014	BME 103	Biomedical Materials	35 (3 hrs)	Sophomore	Required
Fall 2014	BME 290B	Sp. Topics in Drug Delivery	18 (3 hrs)	Junior, Senior, Graduate	Elective
Spring 2015	BME 103	Biomedical Materials	22 (3 hrs)	Sophomore	Required
Fall 2015	BME 290B	Sp. Topics in Drug Delivery	21 (3 hrs)	Junior, Senior	Elective
Spring 2016	BME 2200	Biomedical Materials	32 (3 hrs)	Sophomore	Required
Spring 2017	BME 2200	Biomedical Materials	32 (3 hrs)	Sophomore	Required
Fall 2017	BME 3890	Sp. Topics in Drug Delivery	20 (3 hrs)	Senior	Elective

## **SERVICE**

- **Service to the Profession**

- **Biomedical Engineering Society**

Abstract Reviewer: Molecular and Cellular Engineering Track (2010), Drug Delivery Track (2010), Drug Delivery Systems Track (2011), Biomaterials Track (2012), Nano and Micro Technologies Track (2012), Biomaterials Track (2013),

Drug Delivery Track (2013), Tissue Engineering Track (2014), Drug Delivery Track (2014), Biomaterials Track (2014), Drug Delivery Track (2015), Biomaterials Track (2015), Drug Delivery Track (2016), Biomaterials Track (2016), Cellular and Molecular Bioengineering (2017), Drug Delivery (2017)

Session Chair: Nucleic Acids I (2010), Nucleic Acids II (2010), Molecular Engineering (2010), Nucleic Acids I (2011), Novel Materials and Self-Assembling Systems: Cancer Applications (2011), Targeting Strategies in Drug Delivery (2012), Drug Delivery Technologies I (2012), Therapeutic Biomaterials I (2013), Scaffolds and surfaces for tissue engineering session I (2014), Nanotechnologies for Cancer I (2014), Nano/Micro Drug Delivery (2014), Intelligent/Multifunctional Biomaterials (2014), Therapeutic/Theranostic Biomaterials session (2015), Responsive Delivery Systems Session (2015), Nucleic Acid Delivery (2016), Targeted and Responsive Delivery (2016), Drug Delivering Biomaterials (2017)

- **Society for Biomaterials**

Member: Drug Delivery and Nanomaterials Special Interest Groups

Leadership: Program Chair, Drug Delivery Special Interest Group

Abstract Reviewer: Dynamically Responsive Biomaterials Track (2011), Dynamically Responsive Biomaterials Track (2012), Theranostics Track (2012); Cardiovascular Drug Delivery Track (2014); Targeting to Cellular and Pathological Microenvironments Track (2014); Next Generation Biomaterial and Drug Delivery Technologies for Wound Healing (2015), Delivery of Nucleic Acids and Other Molecules that Modulate Gene Expression (2015), Nucleic Acid Delivery (2017), Local Drug Delivery to Cardiovascular Targets (2017), Drug Delivery (2017), Drug Delivery Track (2018)

Session Organizer and Chair: Cardiovascular Drug Delivery (2014 meeting), Targeting to Cellular and Pathological Microenvironments (2014 meeting), Delivery of Nucleic Acids and Other Molecules that Modulate Gene Expression (2015 meeting), Next Generation Biomaterial and Drug Delivery Technologies for Wound Healing (2015 meeting), Macromolecular Drug Delivery (2015 meeting), Nucleic Acid Delivery (2017 meeting), Local Drug Delivery to Cardiovascular

Targets (2017 meeting), Drug Delivery (2017 meeting), Local Drug Delivery to Cardiovascular Targets (2018 meeting)

Organize and Host SFB “Biomaterials Day” Conference- I am the faculty advisor for the Vanderbilt Society for Biomaterials Student Chapter. In 2012, we won a \$5,000 grant (largely written and organized by our students) from SFB to sponsor a “Biomaterials Day” meeting at Vanderbilt. The theme for this event was “Biomaterials for Therapeutic Delivery and Tissue Regeneration”, and it occurred in March 2013. Many of our colleagues from the University of Memphis, University of Alabama, University of Kentucky, Clemson, and Georgia Tech attended. I coordinated Dr. Jason Burdick (Penn University) to be the keynote speaker for this event.

We were granted funds from SFB to host another “Biomaterials Day” event in spring 2015 at Vanderbilt (with co-hosts University of Kentucky and Memphis). This event was titled "Synthetic Biology: the Next Horizon in Biomaterials Research?" and was a big success with several attendees from Memphis, U of Kentucky, U of Tennessee Health Sciences Center, and University of Tennessee. I organized (excellent) keynote speakers working in synthetic biology, Josh Leonard from Northwestern University and Junghae Suh from Rice University.

We recently held the fall 2017 Biomaterials Day Event held at Vanderbilt with Georgia Tech and Clemson University as co-hosts. Jennifer Elisseff (Johns Hopkins) and James Moon (U of Michigan) were the keynote speakers for the event themed “Biomaterials for Immunoengineering”

- **Controlled Release Society**

Abstract Reviewer: RNAi and DNA Delivery, Peptide and Protein Delivery, Imaging and Characterization Techniques for Drug Delivery: Systems and Targeted Drug Delivery sessions (2013); Advances in RNA and DNA Delivery and Nanoparticles in Tumor Treatment sessions (2014); Parenteral Controlled Release, Microparticle and Nanoparticle Delivery, and RNA and DNA Delivery sessions (2015), Oligonucleotide Delivery and Overcoming Biological Barriers in Drug Delivery sessions (2016), New Directions for Polymers in Drug Delivery and Overcoming Biological Barriers in Drug Deliver (2017).

- **American Society of Gene and Cell Therapy**

Session Chair: Physical Methods of Delivery and Chemical/Molecular Conjugates (2015)

- **Tissue Engineering and Regenerative Medicine International Society (TERMIS)**

Abstract Reviewer: Imaging (cell transplantation, tissue function, regeneration) (2013)

Session Chair: Imaging (cell transplantation, tissue function, regeneration) (2013), Biomimetic, Instructive, and Tunable Biomaterials to Regulate Cell Function (2014)

Session Organizer: Imaging (cell transplantation, tissue function, regeneration) (2013)

**Hilton Head Regenerative Medicine Workshop**– Session chair 2012 and 2014.

**Fusion Drug Delivery Conference**– Chair New Protein Therapeutics Session

- **Wound Healing Society**- Section Co-Editor “Gene and Protein Delivery to Wounds” Annual Digest (2011).

- **Proceeding of the National Academy of Sciences (PNAS)**- Guest handling editor of submitted manuscript (2016)

- **Grant Reviewer**

2011:

-NSF Chemical, Bioengineering, Environmental, and Transport Systems (CBET) Biotech, Biochemical, & Biomass Engineering (BBBE) November Grant Review Panel on Stem Cell, Drug Delivery and Tissue Engineering

-Reviewer for nanomedicine applications to the American Association for the Advancement of Science (AAAS) and India Science and Technology Partnership (INSTP) co-sponsored Indo-US Science & Technology Forum (IUSSTF)

2012:



- American Heart Association Spring Bioengineering BSc3 Peer Review Committee
- NSF Engineering SBIR/STTR Phase I Drug Delivery August Panel
- American Heart Association Fall Bioengineering BSc1 Peer Review Committee
- Reviewer for the North Carolina Biotechnology Center Multidisciplinary Research Grant Program.

2013:

- NSF Division of Materials Research Biomaterials Panel February
- NSF Engineering SBIR/STTR Phase I Materials for Biomedical Applications Panel March
- NSF Engineering SBIR/STTR Phase I Biomaterials Panel August
- Reviewer for the North Carolina Biotechnology Center Multidisciplinary Research Grant Program.

2014:

- Grant Reviewer: Kentucky Science and Engineering Foundation
- Grant Reviewer: United States-Israel Binational Science Foundation
- Panelist NSF SBIR/STTR Phase II: Drug Delivery & Development I (April)
- Panelist NSF SBIR/STTR Phase II: Drug Delivery & Development II (April)
- Panelist NSF Designing Materials to Revolutionize and Engineer our Future (DMREF) Particulate and Multiphase Processes Program
- Panelist NSF SBIR/STTR Phase I: Drug Delivery & Development (September)
- Reviewer for NSF Graduate Research Fellowship Program

2015:

- NIH Gene and Drug Delivery Study Section (Feb)
- Panelist NSF SBIR/STTR Phase II: Drug Delivery & Development I (April)
- Vanderbilt Discovery Grant Program

2016:

- NIH Nanotechnology Study Section (Feb)
- NIH NCI Exploratory/Developmental Research Grant Program (April)
- NIH Bioengineering Sciences and Technologies (BST) Study Section (June)
- European Union M-ER.NET Grants on Materials Research and Innovation (Sept)
- NIH F30/31/32 Cell / Dev. Bio and Bioengineering Study Section (Oct)

2017:

-NIH Nanotechnology Study Section (Feb)

-NIH SBIR and STTR Applications to NCATS on Platform Delivery Technologies for Nucleic Acid Therapeutics (March)

-NIH Bioengineering Science and Technologies Member Conflict Special Emphasis Panel (SEP) (March)

-NIH SBIR and STTR Applications to NCATS on Platform Delivery Technologies for Nucleic Acid Therapeutics (July)

-California Innovative Genomics Institute (Aug)

-NIH Gene and Drug Delivery (Oct)

-NIH SBIR and STTR Applications to NCATS on Platform Delivery Technologies for Nucleic Acid Therapeutics (Nov)

- **Manuscript Reviewer**

2011: Biomaterials, Molecular Pharmaceutics (2 times), Nature Communications, Journal of Controlled Release, Wound Repair and Regeneration, Recent Patents on Nanomedicine, and Recent Patents on Anti-Cancer Drug Discovery

2012: Acta Biomaterialia, American Journal of Physiology: Regulatory Integrative and Comparative Physiology, Biomacromolecules (4 times), Biomaterials, Bone, Current Applied Physics, Current Cancer Drug Targets, Journal of Biomedical Materials Research Part A, Journal of Controlled Release (2 times), Molecular Pharmaceutics, Polymer Chemistry, Sensors, Wound Repair and Regeneration

2013:ACS Nano (2 times), Acta Biomaterialia (2 times), Biomacromolecules (2 times), Biomaterials Science, Journal of Biomedical Materials Research A, Journal of Controlled Release, Macromolecular Bioscience, Polymer Chemistry

2014: ACS Macro Letters, ACS Nano (8 times), Acta Biomaterialia (2 times), Advanced Healthcare Materials (3 times), Biomacromolecules, Biomaterials, Biomaterials Science, Journal of Controlled Release, Journal of Materials Chemistry B, Molecular Pharmaceutics (2 times), Nanoscale (2 times), Polymer Chemistry (2 times), RSC Advances, Science Translational Medicine, Scientific Reports

2015: ACS Macro Letters, ACS Nano (6 times), Acta Biomaterialia (2 times), Advanced Healthcare Materials (2 times), Advanced Materials, Biomacromolecules, Biomaterials Science (2 times), ChemComm (2 times), Chemical Science, Expert Opinion on Drug Delivery, JACS (2 times), Journal of Biomedical Materials Research A (2 times), Journal of Materials Chemistry B, Molecular Pharmaceutics (2 times), Nanoscale (2 times), PNAS, Science Translational Medicine, Wound Repair and Regeneration (2 times)

2016: ACS Applied Materials and Interfaces, ACS Biomaterials Science and Engineering, ACS Nano, Acta Biomaterialia, Advanced Healthcare Materials (3 times), Angewandte Chemie, Bioengineering and Translational Medicine, Biomacromolecules (2 times), Biomaterials (5 times), Cellular and Molecular Bioengineering, Chemical Science, Journal of Materials Chemistry B, Journal of Nanobiotechnology, JACS, Journal of Thoracic Disease, Macromolecular Rapid Communications, Molecular Pharmaceutics (3 times), Nanomedicine (3 times), PNAS (guest editor), Science Translational Medicine, Theranostics

2017: ACS Applied Materials and Interfaces, ACS Biomaterials Science and Engineering, ACS Nano (4), ACS Sensors, Acta Biomaterialia, Advanced Biosystems, Advanced Healthcare Materials, Advanced Materials, Bioengineering and Translational Medicine, Biomacromolecules (4), Biomaterials (3), Chemistry of Materials, Cellular and Molecular Bioengineering, JACS, Nanomedicine, Science Advances, Scientific Reports, Wound Repair and Regeneration

- **Textbook Reviewer**

2013: “Biomaterials: A Basic Introduction”, CRC Press/Taylor & Francis Group; reviewed “Chapter 1 - Biomaterials science and engineering” and “Chapter 8 - Biodegradable polymers”

- **External Advisory**

-Member of the 2013-2019 (2 3-yr terms) Advisory Board for the University of Kentucky Biosystems and Agricultural Engineering Department.

-Tenure Letter Writer: SUNY Upstate MC, U of Nebraska Pharmacy, Vanderbilt Cell and Developmental Biology (2017)

-External evaluator for faculty candidates at the Shanghai Jiao Tong University School of Pharmacy (2017)

- **STEM Outreach**

-Primary (only) Faculty mentor for STEM Center for Girls at Harpeth Hall STEM Summer Institute (*SSI*) in 2012, 2013, 2014, 2015, 2016, and 2017. Over these years, SSI has hosted approximately 100 diverse participants about half of which are African American or Hispanic. The PI and his PhD students have provided hands-on instruction on engineering design, and Dr. Duvall served as an “advisor” during the girls’ daily time dedicated to design and protocol building / testing. Judged girls posters and prototypes at conclusion of 2-week program each year.

-SSI Program Event at Vanderbilt- My lab planned and hosted an on campus event March 28, 2016 and Oct. 13, 2014 where attendees from previous summers’ SSI programs were invited to Vanderbilt’s campus for research demos, campus/lab tours, and counseling from a representative from the Vanderbilt admissions/scholarship office.

-Hosted 7 REU students as summer researchers, 6 from the Vanderbilt Institute of Nanoscale Science and Engineering and 1 from the Bioengineering Education Research REU

-Laboratory Biomaterials Demos Hosted for Middle and High School Groups: *Nanotechnology and Engineering* Vanderbilt Summer Academy Program for Talented Youth Course, Boy Scout’s *Research Explorers*, Muhlenberg Co. H.S. *Project Lead the Way*, Junior Engineering Technological Society (JETS), Vanderbilt School for Science and Math Outreach Program, and Aspironauts Program

-Faculty member for 2010 and 2011 Program for Talented Youth Engineering 101 Program. Designed research challenge, provided in-class instruction, and donated extensive man-hours of student help.

▪ **Service to VU / VU School of Engineering**

- Member Strategic Planning Working Groups on Regenerative Medicine Neighborhood and Graduate and Professional Program Organization (2017)
- Member, Graduate Faculty Council (2015-18)
- Vanderbilt Institute for Nanoscale Science and Engineering (VINSE) Advisory Board
- Steering Committee Member for Integrated Training in Engineering and Diabetes T32 training grant (2014-2019)
- CBIO 310 Graduate Cell Biology Course guest lecture on intracellular delivery methods (fall 2014, 2015, 2016, 2017)
- Guest Lecture to Freshman seminar on Nanotechnology (2017)
- Lecturer for Medical Students Participating in Summer Research Program in Diabetes (SRTP) “Using Drug Delivery Technologies to Reduce Morbidity from Diabetes” (summer 2015 and 2016)
- VINSE REU Program Admissions Committee (2014-2017)
- 2016- Grant review mock panel member for junior faculty in Vanderbilt Institute for Clinical and Translational Research Grant Review Studio
- 2015 Vanderbilt Discovery Grant Program Reviewer
- Present to VUSE Board of Visitors on Regenerative Medicine Initiative
- VUSE strategic planning Nano-engineered Materials Committee Chair
- Lead author, along with Scott Guelcher, of a 2013 white paper proposing the organization of a “Vanderbilt Initiative in Regenerative Medicine *and Engineering*” (ViRME)
- “Donate IP” and provide scientific mentoring to a group of graduate students participating in the 2014 and 2015 Tech Venture Challenge Business Plan Competitions. The 2015 Competition winning group was based on IP generated from a collaborative project between my lab and the lab of Dr. Larry Marnett.
- Organizer of the 2013-2014 Vanderbilt Institute of Nanoscale Science and Engineering (VINSE) colloquium series
- Member of Chemical and Biomolecular Engineering Department 2013 Faculty Search Committee
- Member of VUSE Space Committee (2014-15)
- BME Department representative to the VUSE Library Committee (2011-15)
- Hosting prospective VUSE undergraduate students and their families during a Saturday laboratory open house. Answering student/parent questions. Organization of graduate and undergraduate students from my lab to be on hand to run laboratory demos and tours.

▪ **Service to the BME department**

- Department Director of Graduate Recruiting (2015-2018)
- Faculty hiring committee chair (2017-18 hiring cycle)
- Ad hoc organizer of BME Department recruiting “sell sheet” (2017)
- Ad hoc organizer of BME research website update (2017)
- Senior faculty search committee member (2016)
- Develop and sponsor a BME 255W lab (2010, 11, 12, 13, and 14)
- Project sponsor 2012/2013 senior design team “A Polymer Nanofilm for the Delivery of a YARA-MK2i Therapeutic to Combat Intimal Hyperplasia”
- Undergraduate student advisor (~15-40 students at a time)
- Graduate student admissions scoring
- Preliminary exam question development and grading
- Handling ABET Performance Criterion F.2 and I.3

**STUDENTS/TRAINEES MENTORED**

---

**Past graduate students under my primary direction:**

1. Taylor Kavanaugh (B.S., Georgia Tech)  
Earned BME M.S. May 2017  
Thesis Title: “ROS Scavenging Microparticles as Drug Delivery Vehicles for the Prevention of Post-traumatic Osteoarthritis”  
Currently: Clinical Studies Engineer, BIOTRONIK  
\*NSF Graduate Research Fellowship Awardee
2. Samantha Sarett (B.S., Case Western Reserve University)  
Earned BME Ph.D. May 2017  
Dissertation Title: “Hydrophobic Modification of siRNA to Improve Delivery and Efficacy of RNAi Therapeutics”  
Currently: Abbvie Pharmaceuticals  
\*NSF Graduate Research Fellowship Awardee
3. Thomas Werfel (B.S., Murray State University)  
Earned BME Ph.D. May 2017  
Dissertation Title: “Strategies to Hydrophobize Systemic siRNA Vectors and Selectively Inhibit mTORC2 in Breast Tumors Through RNA Interference”  
Currently: Postdoc in Cancer Biology at Vanderbilt  
\*NSF Graduate Research Fellowship Awardee

4. John Martin (B.S., University of Kentucky)  
Earned BME Ph.D. May 2017 (defended Dec 2016)  
Dissertation Title: “Poly(thioketal) Polymers and Their Use in the Formation of Hydrophobic and Hydrophilic Cell-Degradable Tissue Engineering Materials”  
Currently: postdoc in Chemical Engineering at MIT  
\*Integrated Training in Engineering and Diabetes Training Grant Awardee
5. Kelsey Beavers, co-advised with Sharon Weiss (B.S., Georgia Tech)  
Earned IGP Material Science PhD August 2016  
Dissertation Title “Engineering Porous Silicon Nanoparticles for Delivery of Peptide Nucleic Acid Therapeutics”  
Currently: Program Manager in Precision Medicine at Vanderbilt Institute for Clinical and Translation Research (VICTR)  
\*NSF Graduate Research Fellowship Awardee
6. Kristin Poole, co-advised with Melissa Skala (B.S., Trinity University)  
Earned BME Ph.D. December 2015  
Dissertation Title: “Development of Optical Imaging Methods for Evaluating the Vascular Response to Hind Limb Ischemia”  
Currently: Postdoc in Vanderbilt University Institute of Imaging Sciences (VUIIS)  
\*NSF Graduate Research Fellowship Awardee
7. Brian Evans (B.S., Case Western Reserve University)  
Earned BME Ph.D. May 2015  
Dissertation Title: “Development of pH-responsive Nano-polyplexes for Intracellular Delivery of Therapeutic Biomacromolecules”  
Currently: Research Assistant Professor, Vanderbilt Dept. of Biomedical Engineering; Entrepreneur / Leading STTR Project in partnership with Moerae Matrix, Inc.  
\*NSF Graduate Research Fellowship Awardee
8. Kyle Hocking (B.S., Vanderbilt University)  
\*Thesis Co-Advisor ; committee chair; primary advisor: Dr. Colleen Brophy, M.D.  
Earned BME Ph.D. August 2014  
Dissertation Title: “Uncoupling force and calcium flux to develop novel therapeutics for subarachnoid hemorrhage-induced vasospasm”  
Currently: Research Assistant Professor, Vanderbilt Dept of Surgery; Co-founder and CEO VoluMetrix LLC; running STTR project
9. Christopher E. Nelson (B.S., University of Arkansas)  
Earned BME Ph.D. May 2014  
Dissertation Title: “Sustained Local Delivery of siRNA for Tissue Regeneration”

- Currently: Postdoctoral Fellow in BME at Duke University soon to be Assistant Professor in BME at University of Arkansas
10. Martina Miteva (B.S., University of Washington)  
Earned BME M.S. December 2013  
Dissertation Title: “Optimizing PEG Molecular Weight and Molar Composition for Enhanced *In Vivo* Pharmacokinetics of a Mixed Micellar siRNA Carrier”  
Currently: Life Sciences Consulting, Ernst and Young
11. Rucha Joshi (B. of Engineering, Shivaji University, India)  
Earned BME M.S. in Dec. 2011  
Thesis Title: “Smart microspheres for stimuli responsive drug delivery”  
Currently: Postdoc in BME at Purdue University

**Current graduate students under my primary direction:**

12. Kameron Kilchrist (B.S., Louisiana State University)  
BME Graduate Program, Vanderbilt University (8/2013-present)  
Tentative Dissertation Title: “Elucidation of the Mechanism of Uptake and Intracellular Trafficking of a Smart Nanoplex for Delivery of Cationic Cell Penetrating Peptides”  
Expected Graduation Date: Dec 2018  
\*NSF Graduate Research Fellowship Awardee
13. Meredith Jackson (B.S., Rice University)  
BME Graduate Program, Vanderbilt University (8/2014-present)  
Tentative Dissertation Title: “Elucidation of structure-function properties for optimized nanoparticle pharmacokinetics for siRNA tumor therapy”  
Expected Graduation Date: May 2019  
\*NSF Graduate Research Fellowship Awardee
14. Bryan Dollinger (B.S., University of Florida)  
BME Graduate Program, Vanderbilt University (8/2015-present)  
Tentative Dissertation Title: “Development of ROS Sponge Hydrogels for Improved Survival and Function of Transplanted Cells”  
Expected Graduation Date: May 2020  
\*Integrated Training in Engineering and Diabetes Training Grant Awardee
15. Sean Bedingfield (B.S., Utah State)  
BME Graduate Program, Vanderbilt University (8/2015-present)  
Tentative Dissertation Title: “Environmentally Demanded siRNA Delivery to Inhibit Post-traumatic Osteoarthritic Cartilage Degeneration”



- Expected Graduation Date: May 2020  
\*NSF Graduate Research Fellowship Awardee
16. Prarthana Patil (M.S. Carnegie Mellon)  
BME Graduate Program, Vanderbilt University (8/2016-present)  
Tentative Dissertation Title: “Development of PTK scaffolds to Promote Ischemic Wound Healing”  
Expected Graduation Date: May 2021
  17. Isom Kelly (M.S. Fisk University, Fisk-Vanderbilt Bridge Program)  
BME Graduate Program, Vanderbilt University (8/2016-present)  
Tentative Dissertation Title: “Stable Functionalization of Porous Silicon Nanoparticles for In vivo Pharmacokinetics and delivery of Micro-RNA Inhibitors”  
Expected Graduation Date: May 2021
  18. Brock Fletcher (B.S. University of South Carolina)  
BME Graduate Program, Vanderbilt University (8/2017-present)  
Tentative Dissertation Title: “Porous Silicon and Polymer Nano-hybrids for Efficient Genome Editing”  
Expected Graduation Date: May 2022  
\*NSF Graduate Research Fellowship Awardee
  19. Ella Hoogenboezem (B.S. University of Florida)  
BME Graduate Program, Vanderbilt University (8/2017-present)  
Tentative Dissertation Title: “Albumin Binding siRNA for Development of Molecularly Targeted Therapeutics”  
Expected Graduation Date: May 2022  
\*NSF Graduate Research Fellowship Awardee

**Postgraduate trainees under my primary direction:**

1. Mukesh Gupta, (Ph.D. earned from Pune University, India)  
Postdoctoral Associate, BME, Vanderbilt University (2/2010-2015)  
Research Assistant Professor, Vanderbilt BME (2016-present)
2. Eric Dialing (Ph.D. earned in Chemical and Biological Engineering at University of Colorado Boulder)  
Postdoctoral Associate, BME, Vanderbilt University (5/2015-present)
3. Brian Evans (Ph.D. earned in BME, Vanderbilt University)  
Research Assistant Professor, leading STTR effort on technology from his Ph.D. worked that has been licensed by Moerae Matrix, Inc. (6/2015-present)
4. Hongmei Li, co-advised Todd Giorgio (Ph.D. earned from Southern Methodist

University)

Postdoctoral Associate, BME, Vanderbilt University (9/2010-9/2013)

Currently employed as Scientist at Nektar Therapeutics

**Graduate students under my secondary direction (Thesis committee member):**

Completed:

1. Jared Weiss (Thesis Adviser: Michael Miga, Ph.D.)  
Ph.D. in Biomedical Engineering defended 7/2011  
Dissertation Title: A Novel Finite Inverse Analysis to Assess Bone Fracture Healing
2. Joshua Hutcheson (Thesis Advisor: Dr. David Merryman, Ph.D.)  
Ph.D. in Biomedical Engineering defended 10/2012  
Dissertation title: TGF- $\beta$ 1-Induced Calcification of Valvular Myofibroblasts: Mechanisms and Therapeutic Strategies
3. Shann Yu (Thesis Advisor: Dr. Todd D. Giorgio, Ph.D.)  
Ph.D. in Biomedical Engineering defended 10/2012  
Dissertation title: Biofunctional Materials for the Modulation of Macrophage Phenotype and Polarization
4. Joshua Trantum (Thesis Advisor: Dr. Rick Haselton, Ph.D.)  
Ph.D. in Biomedical Engineering defended 7/2013  
Dissertation title: A Point-of-Care Diagnostic Assay Utilizing the Hydrodynamics of an Evaporating Drop
5. Spencer Crowder (Thesis Advisor: Dr. Hak-Joon Sung, Ph.D.)  
Ph.D. in Biomedical Engineering defended 3/2014  
Dissertation title: Multiplex Biomaterial Matrix Cues Regulate Redox Status and Stemness in Human Mesenchymal Stem Cells
6. Angela Zachman (Thesis Advisor: Dr. Hak-Joon Sung, Ph.D.)  
Ph.D. in Biomedical Engineering defended 3/2014  
Dissertation title: Engineering Therapeutic Scaffolds for Peripheral Artery Disease: Emphasis on Pro-Angiogenic and Anti-Inflammatory Regulation
7. Mary-Kathryn Sewell (Thesis Advisor: Dr. W. David Merryman, Ph.D.)  
Ph.D. in Biomedical Engineering defended 3/2014  
Dissertation title: Mechanoregulation of Endocardial to Mesenchymal Transformation and Subsequent Remodeling during Heart Valve Development
8. Hali Bordelon (Thesis Advisor: Dr. Rick Haselton, Ph.D.)  
Ph.D. in Biomedical Engineering defended 3/2014  
Dissertation title: Development of a Self-Contained Nucleic Acid Extraction

- Device for Preparing Patient Samples for Diagnostic Testing in Resource-Limited Settings
9. Devin McCormack (Thesis Advisor: Dr. Melissa Skala, Ph.D.)  
Terminal M.S. in Biomedical Engineering defended 6/2014  
Dissertation title: In vivo Hyperspectral Imaging of Microvessel Response to Trastuzumab Treatment in Breast Cancer Xenografts
  10. Ian McFadden (Thesis Advisor: Dr. Todd Giorgio, Ph.D.)  
Ph.D. in Biomedical Engineering defended 11/2014  
Dissertation title: Folate-Targeted Proteolytic Nanobeacons: Towards Selective, Imaged Delivery in Solid Tumors
  11. Ryan Ortega (Thesis Advisor: Dr. Todd Giorgio, Ph.D.)  
Ph.D. in Biomedical Engineering defended 12/2014  
Dissertation title: Immunomodulation of Tumor Associated Macrophages by Targeted, siRNA-Delivering Nanoparticles
  12. Lucas Hofmeister (Thesis Advisor: Dr. Hak-Joon Sung, Ph.D.)  
Ph.D. in Biomedical Engineering defended 3/2015  
Dissertation title: Development of Hemodynamic Targeted Theranostic Nanoparticles for the Prevention of Atherosclerosis in a Murine Model
  13. Richard Boyer (Thesis Advisor: Dr. Wesley Thayer)  
Ph.D. in Biomedical Engineering defended 3/2015  
Dissertation title: Neurotrophic Factor Eluting Nerve Allografts for Peripheral Nerve Repair
  14. Jason Tucker-Schwartz (Thesis Advisor: Dr. Melissa Skala, Ph.D.)  
Ph.D. in Biomedical Engineering defended 7/2015  
Dissertation title: Development of Photothermal Optical Coherence Tomography for *In Vivo* Imaging of Contrast Agents for Cancer Applications
  15. Jun Li (Thesis Advisor: Charles Manning, Ph.D.)  
Ph.D. in Materials Science defended 6/2016  
Dissertation title: Novel TSPO Ligands to Facilitate Rapid Tracer Discovery and as Precision Imaging Diagnostics of Cancer
  16. Lauren Gibson (Thesis Advisor: David Wright)  
Ph.D. in Chemistry defended 3/2017  
Dissertation title: Development of Sensitive Biomolecule Detection Strategies for Low-Resource Settings
  17. Jiajia Cui (Thesis Advisor: Mark Saltzman)  
Ph.D. in BME defended 2017 from Yale University (external reader)

- Disseration title: Poly(amine-co-ester) nanoparticles for the delivery of siRNA therapeutics.
18. Adam Travis (Thesis Advisor: David Cliffel)  
Ph.D. in Chemistry defended 7/2017  
Dissertation Title: Governing the Biological Interactions of Monolayer Protected Gold Nanoparticles by Controlling the Composition and Spatial Structure of the Thiolate Shell
  19. Timothy Boire (Thesis Advisor: Hak-Joon Sung and Duvall)  
Ph.D. defended 7/2017  
Dissertation Title: Development of a Synthetic External Stent to Prevent Vein Graft and Hemodialysis Access Site Failures
  20. Nathaniel Bloodworth (Thesis Advisor: David Merryman)  
Ph.D. defended 5/2017  
Dissertation Title: Targeting Cellular and Molecular Mediators of Pathologic Biomechanical Remodeling in Pulmonary Arterial Hypertension

Current:

1. Megan Bowler (Advisor: David Merryman)
2. Madison McEnery (Advisor: Scott Guelcher)
3. Mark Vander Roest (Advisor: David Merryman)
4. Frances Knight (Advisor: John Wilson)
5. Maryse Lapierre-Landry (Advisor: Melissa Skala)
6. Evan Kazura (Advisor: Franz Baudenbacher)

Non-BME students

7. Andrew Gordon (Molecular Physiology and Biophysics, Thesis Advisor: John Penn)
8. Brian O'Grady (Materials Science, Thesis Advisor: Leon Bellan)
9. Joseph Vanderburgh (Chemical and Biomolecular Engineering, Thesis Advisor: Scott Guelcher)

**Undergraduate Researchers:**

1. Travis Meyer - VUSR recipient, 2012 Vanderbilt BME graduate; Ph.D. student at Georgia Tech
2. John Hall – 2012 Vanderbilt BME graduate; employed by the US Patent and Trademark Office as a biomedical technology patent examiner.

3. Matthew Getzin – 2012 Vanderbilt BME graduate; Ph.D. student at Rensselaer Polytechnic Institute
4. Mitchell Weisenberger – SUGRE recipient, 2013 Vanderbilt BME graduate; employed by Epic Systems Corporation / now graduate student at University of Utah
5. Josh Shannon – VUSRП recipient, 2013 Vanderbilt BME graduate; graduate student University of South Florida
6. Ming Cheng – SUGRE recipient, 2013 Vanderbilt BME graduate; graduate student Northeastern University
7. Erica Curtis – 2013 BME graduate, SyBBURE Program, employed by Medshape Solutions
8. Samuel Fraifeld – SUGRE recipient, 2013 Vanderbilt BME graduate; employed by Schlumberger Oil Services
9. Skylar Haws – SUGRE recipient, 2014 Vanderbilt BME graduate, admitted to medical school, succumbed in 2015 to cancer.
10. Julia Dmowska – SUGRE and VUSRП recipient, 2015 Vanderbilt BME graduate
11. Tianwei Shen – VUSRП recipient, 2015 Vanderbilt BME / ChBE graduate, graduate student at University of Washington
12. Steven Wang – 2015 Vanderbilt BME graduate
13. Martin Lu – SUGRE recipient, 2016 Vanderbilt BME graduate
14. Douglas McKinley – 2017 Vanderbilt BME graduate
15. Cristina Contreras- SUGRE recipient, 2017 MIT BioE graduate
16. Megan Dunn (U of Arkansas), 2011 VINSE REU Program; currently Ph.D. student in Chemical Engineering at University of Michigan
17. Thomas Werfel (Murray State U), 2011 VINSE REU Program; currently Ph.D. student in Duvall Lab
18. James Kintzing (Grove City College), 2012 VINSE REU Program; currently Ph.D. student in Bioengineering at Stanford University
19. Corban Swain (Washington University), 2013 VINSE REU Program; currently Ph.D. student in Bioengineering at MIT
20. Jesus Sosa-Rivera (Universidad del Este, Puerto Rico), 2014 VINSE REU Program
21. Sayali Belsare (India), 2015 BME/bioengineering graduate
22. Alex Anderson – 2015 Vanderbilt ChBE graduate, graduate student University of Colorado
23. Zoha Malik – 2017 Vanderbilt BME graduate
24. Madison Hattaway – VUSRП recipient – 2017 Vanderbilt BME/ChBE double major; currently Environmental Engineering graduate student at U of California Davis

25. Belle Ye – 2017 BME/ChBE double major; currently Ph.D. student in BME at Boston University
26. Benjamin Burdette (University of Kentucky), 2015 VINSE REU Program; currently junior
27. Elizabeth Curvino- VUSR and SUGRE Program, 2018 Vanderbilt BME major, currently applying to numerous highly ranked grad programs
28. Linus Lee- 2017 Vanderbilt BME major; currently gap year researcher in Duvall lab while applying for medical school
29. Alvin Mukalel- 2017 Vanderbilt BME major; currently gap year researcher in Duvall lab while applying for graduate school
30. Najwa Faqih- 2020 Johns Hopkins BME major
31. Ayisha Jackson- 2019 Brown University BME major, 2016 VINSE REU Program
32. Somtochukwu Dimobi, SyBBURE Program. 2019 Vanderbilt CheBE grad
33. Allyson King, 2017 VUSR Program, 2019 Vanderbilt BME / CheBE double major
34. Danielle Liu, SyBBURE Program, 2020 Vanderbilt BME major
35. Mitchell Stokan, 2019 U of Kentucky Chemical Engineering major, 2017 VINSE REU Program
36. Kniya De'De', 2017 Vanderbilt Summer Science Academy CURE Program, 2020 Dartmouth University Biomedical Engineering major
37. Justin Mollison - 2020 Vanderbilt BME Major

#### **High School Student Researchers:**

1. Michelle Chintanaphol (Harpeth Hall H.S.), summer 2011
2. Camellia Zafar (Harpeth Hall H.S.), summer 2012
3. Varun Prakash (Metea Valley H.S.), summer 2014
4. Michelle Biesman (Harpeth Hall H.S.), summer 2016

#### **Other Visiting Scholars:**

1. Egon Urgard, University of Tartu, Tartu, Estonia, summer 2015
2. Bo Wang, Qilu Hospital, Shandong University, Sept 2017 – Aug 2018, supported through Chinese Scholarship Council

#### **CONFERENCE ABSTRACTS:**

1. Stokan ME<sup>†</sup>, Jackson MA<sup>†</sup>, Bedingfield SK<sup>†</sup>, Werfel TA<sup>†</sup>, **Duvall CL\***.  
“Hydrophobic Core, pH-responsive ABC Triblock Copolymers for Formulation of

- Stabilized siRNA Polyplexes.” Society for Biomaterials Annual Meeting. Atlanta, GA, April 2018. (Submitted)
2. Kilchrist KV<sup>†</sup>, Dimobi SC, Werfel TA<sup>†</sup>, Jackson MA<sup>†</sup>, Dailing EA<sup>‡</sup>, **Duvall CL\***. “Galectin-8 Imaging Demonstrates Endosomal Disruption by Nanocarrier and Predicts Biologic Drug Intracellular Bioavailability.” Society for Biomaterials Annual Meeting. Atlanta, GA, April 2018. (Submitted)
  3. Dailing EA<sup>‡</sup>, Evans BC<sup>‡</sup>, Kilchrist KV<sup>†</sup>, **Duvall CL\***. “Tuning Hydrophobe Density and Length in an Anionic Polymer for Enhanced Intracellular Delivery of a CPP-based MAPKAP Kinase II Inhibitor.” Society for Biomaterials Annual Meeting. Atlanta, GA, April 2018. (Submitted)
  4. Dimobi SC<sup>†</sup>, Kilchrist KV<sup>†</sup>, Werfel TA<sup>†</sup>, **Duvall CL\***. “Validation of a galectin-8 reporter as a measure of nanocarrier endosomal escape and biologic drug intracellular bioavailability.” American Institute of Chemical Engineers Student Conference, Minneapolis, MN, USA, October 2017 (Poster)  
**\*1st place presentation award in the food, pharmaceutical and biotechnology division**
  5. **CL Duvall\***. Nano-polyplexes for Therapeutic Peptide Delivery to Inhibit Vascular Graft Failure. Biomedical Engineering Society Annual Meeting. Phoenix, AZ, USA, October 2017. (Oral).  
**\*Invited talk in special session on Vascular Mechanobiology and Nanotherapeutics**
  6. Kavanaugh TE<sup>†</sup>, Dailing EA<sup>‡</sup>, Cho H, Hasty KA, **Duvall CL\***. “Development of Polymeric Antioxidant Microspheres to Scavenge ROS and Prevent Joint Damage from Post-traumatic Osteoarthritis.” Biomedical Engineering Society Annual Meeting. Phoenix, AZ, USA, October 2017. (Oral).  
**\*Graduate Student Design and Research Award**
  7. Jackson MA<sup>†</sup>, Werfel TA<sup>†</sup>, Curvino EJ, Yu F, Kavanaugh TE<sup>†</sup>, Sarett SM<sup>†</sup>, Dockery MD, Kilchrist KV<sup>†</sup>, Jackson AN, Giorgio TD, **Duvall CL\***. “Dual Carrier-Cargo Hydrophobization and Optimized Zwitterionic Surface Chemistry Improve *In Vivo* Pharmacokinetics and Reduce Cytotoxicity of Polymeric siRNA Nano-polyplexes.” Biomedical Engineering Society Annual Meeting. Phoenix, AZ, USA, October 2017. (Oral).
  8. Evans BC<sup>‡</sup>, Dailing EA, Kilchrist KV<sup>†</sup>, Mukalel AJ<sup>†</sup>. **Duvall CL\***. “Optimization of pH-responsive, Polymer-Enabled Intracellular Peptide Delivery.” Biomedical Engineering Society Annual Meeting. Phoenix, AZ, USA, October 2017. (Poster)

9. Curvino EC<sup>†</sup>, Kelly IB<sup>†</sup>, Fain JS, Jackson MA<sup>†</sup>, Weiss SM, **Duvall CL\***. “Porous Silicon Nanoparticle Fabrication Optimization Toward siRNA Loading and Delivery.” Biomedical Engineering Society Annual Meeting. Phoenix, AZ, USA, October 2017. (Oral).
  10. **CL Duvall\***. Precision Polymer Architectures and Molecular Conjugates to Enable Therapeutics Against Undruggable Targets. NanoDDS 15th International Nanomedicine and Drug Delivery Symposium. Ann Arbor, MI, USA, September 2017. (Oral).
- \*Invited talk**
11. Gupta MK<sup>‡</sup>, Martin JR<sup>†</sup>, Dollinger BR<sup>†</sup>, Hattaway ME<sup>†</sup>. **Duvall CL\*** “Thermogelling ABC Triblock Copolymer Hydrogels with Tunable Mechanisms of Degradation and Drug Release.” Society for Biomaterials - Biomaterials Day Conference. Nashville, TN, USA, August 2017. (Poster)
  12. Evans BC<sup>‡</sup>, Dailing EA, Kilchrist KV<sup>†</sup>, Mukalel AJ<sup>†</sup>, **Duvall CL\***. “Optimization of pH-Responsive, Polymer-Enabled Intracellular Peptide Delivery.” Society for Biomaterials - Biomaterials Day Conference. Nashville, TN, USA, August 2017. (Poster)
  13. Mukalel AJ<sup>†</sup>, Evans BC<sup>‡</sup>, Kilchrist KV<sup>†</sup>, Cheung-Flynn J, Brophy CM, **Duvall CL\***. “Excipients for the Lyoprotection of MAPKAP Kinase 2 Inhibitory Peptide Nanopolyplexes.” Society for Biomaterials - Biomaterials Day Conference. Nashville, TN, USA, August 2017. (Oral)
  14. Dailing EA<sup>‡</sup>, Kilchrist KV<sup>†</sup>, Evans BC<sup>‡</sup>, **Duvall CL\***. “Evaluating the Role of Polymer Structure on Cell Uptake and Endosomal Escape of a MAPKAP Kinase Inhibitory Peptide Therapeutic.” Society for Biomaterials - Biomaterials Day. Nashville, TN, USA, August 2017. (Oral)
  15. Vanderburgh JP<sup>†</sup>, Kwakwa K, Merkel AR, Werfel TA<sup>†</sup>, Gupta MK<sup>‡</sup>, **Duvall CL**, Sterling JA, Guelcher SA. “ROS-responsive and Bone-Targeted Nanocarriers of Gli-inhibitor Blocks Tumor-Induced Bone Disease.” Society for Biomaterials - Biomaterials Day. Nashville, TN, USA, August 2017. (Oral)
  16. Dimobi SC<sup>†</sup>, Kilchrist KV<sup>†</sup>, Werfel TA<sup>†</sup>, Jackson MA<sup>†</sup>, Dailing EA<sup>‡</sup>, **Duvall CL\***. “Validation of a Galectin-8 Reporter as a High Throughput Screening Measure of Nanocarrier Endosomal Escape and Biologic Drug Intracellular Bioavailability.” Society for Biomaterials - Biomaterials Day Conference. Nashville, TN, USA, August 2017. (Poster)
  17. Curvino EC<sup>†</sup>, Kelly IB<sup>†</sup>, Fain JS, Jackson MA<sup>†</sup>, Weiss SM, **Duvall CL\***. “Porous Silicon Nanoparticle Fabrication Modifications for Increased Delivery of siRNA.”



- Society for Biomaterials - Biomaterials Day Conference. Nashville, TN, USA, August 2017. (Poster)
18. King AR, Kilchrist KV, **Duvall CL**. “Generation and Validation of an IL-6 Expression Level Reporter Cell Line to Evaluate Anti-Inflammatory Nanoparticle Therapeutics.” Society for Biomaterials - Biomaterials Day Conference. Nashville, TN, USA, August 2017. (Poster)
  19. Kilchrist KV<sup>†</sup>, Dimobi SC, Werfel TA<sup>†</sup>, Jackson MA<sup>†</sup>, Dailing EA<sup>‡</sup>, **Duvall CL\***. “Validation of a Galectin-8 Reporter as a High Throughput Screening Measure of Nanocarrier Endosomal Escape and Biologic Drug Intracellular Bioavailability.” Gordon Research Conference, Biomaterials and Tissue Engineering. Holderness, NH. July 2017. (Poster)
  20. **CL Duvall\***. Precision Polymer Architectures and Conjugates to Enable Molecularly-Targeted Therapies. Gordon Research Conference, Biomaterials and Tissue Engineering. Holderness, NH. July 2017. (Oral).
- \*Invited talk**
21. Jackson MA<sup>†</sup>, Werfel TA<sup>†</sup>, Curvino EJ, Yu F, Kavanaugh TE<sup>†</sup>, Sarett SM<sup>†</sup>, Dockery MD, Kilchrist KV<sup>†</sup>, Jackson AN, Giorgio TD, **Duvall CL\***. “Zwitterionic Polyplex Coronas Improve Tumor Accumulation and Bioactivity Compared to Traditional PEGs after Intravenous Delivery.” Controlled Release Society Annual Meeting. Boston, MA, USA, July 2017. (Poster)
  22. Sarett SM<sup>†</sup>, Werfel TA<sup>†</sup>, Jackson MA<sup>†</sup>, Kilchrist KV<sup>†</sup>, Brantley-Sieders DM, **Duvall CL\***. “Lipophilic siRNA Targets Albumin *In Situ* and Promotes Bioavailability, Tumor Penetration, and Carrier-Free Gene Silencing.” Controlled Release Society Annual Meeting. Boston, MA, USA, July 2017. (Poster)
  23. Kavanaugh TE<sup>†</sup>, Dailing EA<sup>‡</sup>, Cho H, Hasty KA, **Duvall CL\***. “Development of Optimized Copolymers and Delivery Formulations to Scavenge ROS and Prevent Joint Damage from Post-traumatic Osteoarthritis.” Engineering Immunity Symposium. Vanderbilt University. Nashville, TN, June 2017. (Poster)
  24. Evans BC<sup>‡</sup>, Lander CE, **Duvall CL\***. “Platform Reagent Development for the Intracellular Delivery of Therapeutic Peptides.” TechConnect World Innovation Conference & Exposition. Washington DC, USA, May 2017. (Oral)
  25. Kavanaugh TE<sup>†</sup>, Dailing EA<sup>‡</sup>, Cho H, Hasty KA, **Duvall CL\***. “Development of Optimized Copolymers and Delivery Formulations to Scavenge ROS and Prevent Joint Damage from Post-traumatic Osteoarthritis.” OARSI, Las Vegas, NV, April 2017. (Poster)

26. Martin JR<sup>†</sup>, Patil P<sup>†</sup>, Gupta MK<sup>‡</sup>, **Duvall CL\***. “Enhanced *In Vivo* Degradation of Injectable, Reactive Oxygen Species-Sensitive PEG Hydrogels.” Society for Biomaterials Annual Meeting, Minneapolis, MN, April 2017. (Poster)
27. Patil P<sup>†</sup>, Martin JR<sup>†</sup>, Pollins AC, Cardwell NL, Davidson JM, Nanney LB, **Duvall CL\***. “ROS-Degradable Scaffolds Enhance Tissue Regeneration in a Porcine Ischemic Wound Healing Model.” Society for Biomaterials Annual Meeting, Minneapolis, MN, April 2017. (Poster)
28. Vanderburgh J<sup>†</sup>, Kwakwa K, Merkel A, Werfel TA<sup>†</sup>, **Duvall CL**, Sterling JA, Guelcher SA. “Systemic Delivery of Gli-inhibitor via ROS-responsive and Bone-Targeted Polymeric Nanocarriers Blocks Tumor Invasion to Bone.” Society for Biomaterials Annual Meeting, Minneapolis, MN, April 2017. (Oral)

**\*SFB STAR Award recipient**

29. Dimobi SC<sup>†</sup>, Kilchrist KV<sup>†</sup>, Werfel TA<sup>†</sup>, **Duvall CL\***. “Validation of a galectin-8 reporter as a measure of nanocarrier endosomal escape and biologic drug intracellular bioavailability.” National Society of Black Engineers (NSBE) National Convention. Kansas City, MO, USA, March 2017. (Poster and Oral)
30. Kilchrist KV<sup>†</sup>, Guth CM, Cheung-Flynn J, Brophy CM, **Duvall CL\***. “Ex Vivo Aorta Radial Overstretch Inhibits Smooth Muscle Contractility.” Regenerative Medicine Workshop at Hilton Head, Hilton Head, SC, USA, March 2017. (Poster)
31. Kavanaugh TE<sup>†</sup>, Dailing EA<sup>‡</sup>, Cho H, Hasty KA, **Duvall CL\***. “ROS Scavenging for the Prevention of Post-Traumatic Osteoarthritis.” Tennessee Rheumatology Research Retreat. Nashville, TN, February 2017. (Oral)
32. Dimobi SC<sup>†</sup>, Kilchrist KV<sup>†</sup>, Werfel TA<sup>†</sup>, **Duvall CL\***. “Validation of a galectin-8 reporter as a measure of nanocarrier endosomal escape and biologic drug intracellular bioavailability.” Tennessee Louis Stokes Alliance for Minority Participation (TLSAMP) Research Conference. Nashville, TN, USA, February 2017. (Poster)

**\*1<sup>st</sup> place presentation award to S. Dimobi**

33. Sarett SM<sup>†</sup>, Werfel TA<sup>†</sup>, Chandra I<sup>†</sup>, Jackson MA<sup>†</sup>, Kavanaugh TE<sup>†</sup>, Hattaway ME<sup>†</sup>, Giorgio TD, **Duvall CL\***. “Overcoming barriers to RNAi drug translation: Modification of siRNA with lipophilic albumin-binding moiety improves *in vivo* pharmacokinetics and mediates carrier-free gene silencing.” Keystone Symposia: Biobetters and Next-Generation Biologics. Salt Lake City, Utah, January 2017. (Poster)
34. Evans BC<sup>‡</sup>, Hocking KM, Osgood MJ, Voskresensky I, Dmowska J<sup>†</sup>, Kilchrist KV<sup>†</sup>, Brophy CM, **Duvall CL\***. A Novel Platform Technology for Cytosolic Peptide Delivery with Endosomolytic Nano-Polyplexes Applied to Vascular Graft Intimal

- Hyperplasia. VISE Annual surgery and engineering symposium. Nashville, TN, USA, December 2016 (Poster).
35. KV Kilchrist<sup>†</sup>, CM Guth, J Cheung-Flynn, CM Brophy, **CL Duvall\***. “Ex Vivo Rat Aorta Radial Overstretch Inhibits Smooth Muscle Contractility.” VISE Surgery, Intervention, and Engineering Symposium. Nashville, TN, USA, December 2016 (Poster).
36. BR Dollinger<sup>†</sup>, MK Gupta<sup>†</sup>, JR Martin<sup>†</sup>, NC Vierra, DA Jacobson, **CL Duvall\***. Diabetes Day. Vanderbilt University, Nashville, TN. November 2016. (Poster)
37. SC Dimobi<sup>†</sup>, KV Kilchrist<sup>†</sup>, TA Werfel<sup>†</sup>, **CL Duvall\***. Validation of a galectin-8 reporter as a measure of nanocarrier endosomal escape and biologic drug intracellular bioavailability. National Society of Black Engineers(NSBE) Region III Fall Regional Conference, Atlanta, Georgia, November 2016. (Oral)
- \*1<sup>st</sup> place presentation Award to S. Dimobi**
38. KV Kilchrist<sup>†</sup> (Presenter), BC Evans<sup>‡</sup>, KM Hocking, CM Brophy, **CL Duvall\***; Mechanism of Enhanced Cellular Uptake and Cytosolic Retention of MK2 Inhibitory Peptide Nano-polyplexes. 17<sup>th</sup> Annual Vanderbilt NanoDay! Nanoscience and Nanotechnology Forum. Nashville, Tennessee, USA, October 2016 (Poster).
39. MA Jackson<sup>†</sup>, TA Werfel<sup>†</sup>, EJ Curvino, MD Dockery, SO Dudzinski, F Yu<sup>‡</sup>, TE Kavanaugh<sup>†</sup>, KV Kilchrist<sup>†</sup>, SM Sarett<sup>†</sup>, TD Giorgio, **CL Duvall\***. Zwitterionic siRNA-polyplex coronas improve nanoparticle pharmacokinetics and tumor gene silencing *in vivo*. 17<sup>th</sup> Annual Vanderbilt NanoDay! Nanoscience and Nanotechnology Forum. Nashville, Tennessee, USA, October 2016 (Poster).
- \*Award: Third Place, Poster Presentation**
40. SC Dimobi<sup>†</sup>, KV Kilchrist<sup>†</sup>, TA Werfel<sup>†</sup>, **CL Duvall\***. Validation of a Galectin-8 Reporter as a Measure of Nanocarrier Endosomal Escape and Biologic Drug Intracellular Bioavailability. 17<sup>th</sup> Annual Vanderbilt NanoDay! Nanoscience and Nanotechnology Forum. Nashville, Tennessee, USA, October 2016 (Poster).
- \*Award: Second Place, Poster Presentation**
41. Evans BC<sup>‡</sup>, Mukalel AJ<sup>†</sup>, Kilchrist KV<sup>†</sup>, Brophy CM, **CL Duvall\***. Excipients for the lyoprotection and long-term storage of peptide nano-polyplexes. 17<sup>th</sup> Annual Vanderbilt NanoDay! Nanoscience and Nanotechnology Forum. Nashville, Tennessee, USA, October 2016 (Poster).
42. KV Kilchrist<sup>†</sup> (Presenter), BC Evans<sup>‡</sup>, KM Hocking, CM Brophy, **CL Duvall\***; “Mechanism of Enhanced Cellular Uptake and Cytosolic Retention of MK2 Inhibitory Peptide Nano-polyplexes.” Society for Biomaterials Southeastern Regional Meeting, October 14 2016.

43. Dailing, EA<sup>‡</sup>, Evans BC<sup>‡</sup>, Kilchrist KV<sup>†</sup>, **CL Duvall\***. Evaluating the Role of Polymer Structure on Cell Uptake and Endosomal Escape of Nanopolyplexes for Peptide Drug Delivery. Georgia Tech Biomaterials Day. Atlanta, GA, USA, October 2016 (Poster)
44. BR Dollinger<sup>†</sup>, MK Gupta<sup>‡</sup>, JR Martin<sup>†</sup>, NC Vierra, DA Jacobson, **CL Duvall\***. Antioxidant, thermoresponsive hydrogel viably encapsulates and protects cells from ROS. Southeast Regional Biomaterials Day 2016. Georgia Institute of Technology, Atlanta, GA. Oct 2016. (Oral & Poster)
45. TE Kavanaugh<sup>†</sup>, EA Dailing<sup>‡</sup>, H Cho, KA Hasty, **CL Duvall\***. ROS Scavenging for the Prevention of Post-Traumatic Osteoarthritis. Society for Biomaterials: Southeast Regional Biomaterials Day. Atlanta, GA, October 2016. (Oral)
46. S Bedingfield<sup>†</sup>, T Kavanaugh<sup>†</sup>, H Cho, K Hasty, **CL Duvall\***. Targeted Nanoparticles for Delivery of siRNA for Prevention of Post-traumatic Osteoarthritis. Society for Biomaterials: Southeast Region Biomaterials Day, October 14, 2016. (Poster).
47. TA Werfel<sup>†</sup>, DM Brantley-Sieders, MA Jackson<sup>†</sup>, TE Kavanaugh<sup>†</sup>, KC Kirkbride<sup>‡</sup>, MM Morrison, DJ Hicks, V Sanchez, L Lee<sup>†</sup>, M Miteva<sup>†</sup>, TD Giorgio, RS Cook, **CL Duvall\***. Optimizing Architecture and Hydrophobic Content of RNAi Polyplexes Enables Selective mTORC2 Therapy In Vivo. Southeast Biomaterials Day, Atlanta, GA, October 2016. (Oral)
- \*Award: Society for Biomaterials Drug Delivery Special Interest Group Student Research Award**
48. **CL Duvall\***, KV Kilchrist<sup>†</sup>, BC Evans<sup>‡</sup>, CM Brophy. Elucidation of the Delivery Mechanism of MK2 Inhibitory Peptide Nano-polyplexes for Improving Long-term Vascular Graft Patency. Biomedical Engineering Society Annual Meeting, Minneapolis, MN, October 2016. (Oral).
- \*Invited talk as part of Cellular and Molecular Bioengineering Young Innovator Award**
49. **CL Duvall\***, SM Sarett<sup>†</sup>, TA Werfel<sup>†</sup>, MA Jackson<sup>†</sup>, TE Kavanaugh<sup>†</sup>, TD Giorgio, DM Brantley-Sieders, RS Cook. Optimization of RNAi Nanomedicines for Breast Tumor Therapy. Biomedical Engineering Society Annual Meeting, Minneapolis, MN, October 2016. (Oral).
- \*Invited session keynote**
50. SK Bedingfield<sup>†</sup>, TE Kavanaugh<sup>†</sup>, CA Gullett, H Cho, TA Werfel<sup>†</sup>, KA Hasty, **CL Duvall\***. Targeted Nanoparticles for Delivery of siRNA to Sites of Early Onset Post-Traumatic Osteoarthritis. Biomedical Engineering Society Annual Meeting, Minneapolis, MN, October 2016. (Oral).

51. BR Dollinger<sup>†</sup>, MK Gupta<sup>‡</sup>, JR Martin<sup>†</sup>, NC Vierra, DA Jacobson, **CL Duvall\***. PPS-based, Thermoresponsive Hydrogels Protect Primary Human Pancreatic Islets from Cytotoxic ROS. Biomedical Engineering Society (BMES) Annual Meeting, Minneapolis, MN, October 2016. (Oral)
52. SC Dimobi<sup>†\*</sup>, KV Kilchrist<sup>†</sup>, TA Werfel<sup>†</sup>, **CL Duvall\***. Validation of a galectin-8 reporter as a measure of nanocarrier endosomal escape and biologic drug intracellular bioavailability. Biomedical Engineering Society Annual Meeting, Minneapolis, Minnesota, October 2016. (Poster).
53. KA Kwakwa, JP Vanderburgh<sup>†</sup>, AR Merkel, TA Werfel<sup>†</sup>, **CL Duvall**, SA Guelcher, JA Sterling. Nanoparticle Delivery of Gli Inhibitor Blocks Tumor-Induced Bone Disease. 2016 American Society for Bone and Mineral Research (ASBMR) annual meeting. Atlanta, GA, September 2016. (Oral)
54. BC Evans<sup>‡</sup>, AJ Mukalel<sup>†</sup>, KV Kilchrist<sup>†</sup>, CM Brophy, **CL Duvall\***. Excipients for the lyoprotection and long-term storage of peptide nano-polyplexes. Boulder Peptide Symposium, Boulder, CO, USA, September 2016. (Poster)
55. EA Dailing<sup>‡</sup>, BC Evans<sup>‡</sup>, KV Kilchrist<sup>†</sup>, **CL Duvall\***. Evaluating the Role of Polymer Structure on Cell Uptake and Endosomal Escape of Nanopolyplexes for Peptide Drug Delivery. American Chemical Society National Meeting, Philadelphia PA, August 2016. (Oral)
56. **CL Duvall\***. ROS Responsive Polymers for Drug and Cell Delivery in Regenerative Applications. American Chemical Society National Meeting, Philadelphia PA, August 2016. (Oral)

**\*Soft Material Surface Modification to Control Cell/Surface Interactions Symposium Invited Keynote**

57. TA Werfel<sup>†</sup>, DM Brantley-Sieders, MA Jackson<sup>†</sup>, TE Kavanaugh<sup>†</sup>, M Morrison, D Hicks, RS Cook, **CL Duvall\***. Optimizing Architecture and Hydrophobic Content of RNAi Polyplexes Enables Selective mTORC2 Therapy In Vivo. Gordon Research Conference: Drug Carriers in Medicine and Biology. Waterville Valley, New Hampshire. August 2016. (Poster).
58. SM Sarett<sup>†</sup>, TA Werfel<sup>†</sup>, **CL Duvall\***. Modification of siRNA with lipophilic albumin-binding moiety improves *in vivo* pharmacokinetics and mediates carrier-free gene silencing. Gordon Research Conference: Drug Carriers in Medicine and Biology. Waterville Valley, New Hampshire. August 2016. (Poster).
59. Pasek, R.C., T.E. Kavanaugh<sup>†</sup>, M.Aramandla, J.C. Dunn, G. Poffenberger, D.R. Brigstock, A.C. Powers, **C.L. Duvall**, M.A. Gannon\*. (2016). Requirement for Ctgf in b-cell compensation during pregnancy and harnessing its potential to increase

- human b-cell proliferation. American Diabetes Association, New Orleans, LA, June 2016. (Oral)
60. TA Werfel<sup>†</sup>, DM Brantley-Sieders, MA Jackson<sup>†</sup>, TE Kavanaugh<sup>†</sup>, KC Kirkbride<sup>‡</sup>, MM Morrison, DJ Hicks, RS Cook, **CL Duvall\***. Development of RNAi Technology to Selectively Inhibit mTORC2 in Breast Cancer. World Biomaterials Conference, Montreal, Canada, May 2016. (Oral)
- \*Award: SFB Student Chapter Travel Grant**
61. MA Jackson<sup>†</sup>, T A Werfel<sup>†</sup>, TE Kavanaugh<sup>†</sup>, KV Kilchrist<sup>†</sup>, ZE Johnson, **CL Duvall\***. Exploring zwitterionic siRNA-polyplex coronas as alternatives to traditional PEGylated architectures for improved intravenous pharmacokinetics. World Biomaterials Conference, Montreal, Canada, May 2016. (Poster)
- \*Award: WBC Trainee Travel Award**
62. SM Sarett<sup>†</sup>, TA Werfel<sup>†</sup>, I Chandra<sup>†</sup>, MA Jackson<sup>†</sup>, TE Kavanaugh<sup>†</sup>, ME Hattaway<sup>†</sup>, TD Giorgio, **CL Duvall\***. Hydrophobic interactions between polymeric carrier and palmitic acid-conjugated siRNA improve PEGylated polyplex stability and enhance in vivo pharmacokinetics and pharmacodynamics. World Biomaterials Conference, Montreal, Canada, May 2016. (Poster)
63. TA Werfel<sup>†</sup>, BC Evans<sup>†</sup>, KM Hocking<sup>†</sup>, KV Kilchrist<sup>†</sup>, CM Brophy, **CL Duvall\***. Nanotechnology-enabled Anti-mir-320 Therapy for Inhibiting Pathological Vasoconstriction. Atherosclerosis, Thrombosis and Vascular Biology | Peripheral Vascular Disease (ATVB | PVD) Scientific Sessions, Nashville, TN, USA, May 2016. (Oral)
64. Kilchrist KV<sup>†</sup>, Evans BC<sup>‡</sup>, Brophy CM, **CL Duvall\***. Mechanism of Enhanced Cellular Uptake and Cytosolic Retention of MK2 Inhibitory Peptide Nanopolyplexes. University of Memphis Society for Biomaterials Biomaterials Day. Memphis, TN, USA, March 2016 (Oral).
65. S Bedingfield<sup>†</sup>, T Kavanaugh<sup>†</sup>, H Cho, K Hasty, **CL Duvall\***. Targeted Nanoparticles for Delivery of siRNA for Prevention of Post-traumatic Osteoarthritis. Society for Biomaterials: Memphis Biomaterials Day, March 18, 2016. (Poster)
66. Evans BC<sup>‡</sup>, Hocking KM, Osgood MJ, Voskresensky I, Dmowska J<sup>†</sup>, Kilchrist KV<sup>†</sup>, Brophy CM, **CL Duvall\***. A Novel Platform Technology for Cytosolic Peptide Delivery with Endosomolytic Nano-Polyplexes Applied to Vascular Graft Intimal Hyperplasia. University of Memphis Society for Biomaterials Biomaterials Day. Memphis, TN, USA, March 2016 (Poster).
- \*Award: 1<sup>st</sup> place poster competition.**
67. JR Martin<sup>†</sup>, CE Nelson<sup>†</sup>, SM Sarett<sup>†</sup>, MK Gupta<sup>‡</sup>, F Yu, K Hocking<sup>†</sup>, SA Guelcher,

- JM Davidson, **CL Duvall\***. Local Delivery of siRNA from ROS-Degradable Scaffolds to Promote Diabetic Wound Healing. Regenerative Medicine Workshop, Hilton Head, SC, March 2016. (Oral)
68. TE Kavanaugh<sup>†</sup>, SK Bedingfield<sup>†</sup>, TA Werfel<sup>†</sup>, H Cho, KA Hasty, **CL Duvall\***. Polymeric Nanoparticles for Targeted Drug Delivery to Sites of Arthritis. Tennessee Rheumatology Research Retreat. Nashville, TN, February 2016. (Oral)
69. JR Martin<sup>†</sup>, CE Nelson<sup>†</sup>, MK Gupta<sup>†</sup>, F Yu, KM Hocking<sup>†</sup>, SA Guelcher, JM Davidson, **CL Duvall\***. Local delivery of siRNA from ROS-degradable scaffolds to promote angiogenesis in diabetic wounds. Biomedical Engineering Society Annual Meeting. Tampa, FL, October 2015. (Oral)
70. Evans BC<sup>†</sup>, Hocking KM<sup>†</sup>, Osgood MJ, Voskresensky I, Brophy CM, **Duvall CL\***. MK2 Inhibitory Peptide Delivered via Nano-Polyplexes Blocks Inflammation and Modulates Vascular Smooth Muscle Cell Phenotype. Annual Meeting of the Biomedical Engineering Society (BMES). Tampa, Florida, October 2015 (Oral).  
**\*Award: Graduate Design and Research Award**
71. JR Martin<sup>†</sup>, CE Nelson<sup>†</sup>, MK Gupta<sup>†</sup>, F Yu, KM Hocking<sup>†</sup>, SA Guelcher, JM Davidson, **CL Duvall\***. Local delivery of siRNA from ROS-degradable scaffolds to promote angiogenesis in diabetic wounds. Fusion Drug Delivery Conference. Tucson, AZ, October 2015. (Poster).  
**\*First place student poster award**
72. TA Werfel<sup>†</sup>, M Miteva<sup>†</sup>, T Kavanaugh<sup>†</sup>, K Kirkbride, M Jackson<sup>†</sup>, R Cook, TD Giorgio, **CL Duvall\***. Combinatorial Library of Ternary Polyplexes Enables Identification of Improved siRNA Nanocarriers for Rapid In Vivo Translation. Controlled Release Society, Edinburgh, Scotland, July 2015. (Poster)
73. BC Evans<sup>†</sup>, KM Hocking<sup>†</sup>, MJ Osgood, I Voskresensky, J Dmowska<sup>†</sup>, KV Kilchrist<sup>†</sup>, CM Brophy, **CL Duvall\***. Nano-polyplex MK2 Inhibitory Peptide Delivery Inhibits Vascular Graft Intimal Hyperplasia by Blocking Inflammation and Maintaining the Contractile VSMC Phenotype. Controlled Release Society, Edinburgh, Scotland, July 2015. (Poster)
74. TA Werfel<sup>†</sup>, MJ Uddin, BC Crews, MK Gupta<sup>‡</sup>, LJ Marnett\*, **CL Duvall\***. Targeted Imaging of Cyclooxygenase-2 in Inflammation and Cancer by Fluorocoxib A-Loaded ROS-Responsive Nanoparticles. Controlled Release Society, Edinburgh, Scotland, July 2015. (Oral)
75. JR Martin<sup>†</sup>, CE Nelson<sup>†</sup>, MK Gupta<sup>‡</sup>, F Yu, SA Guelcher, JM Davidson, **CL Duvall\***. Localized, siRNA-mediated silencing of PHD2 to promote wound vascularization. American Society for Cell and Gene Therapy, New Orleans, LA, May 2015. (Oral)

76. KR Beavers<sup>†</sup>, JW Mares, SM Weiss, **CL Duvall\***. Porous Silicon Nanoparticle Delivery of Peptide Nucleic Acid Anti-MicroRNA Therapeutics. Society for Biomaterials (SFB) Annual Meeting, Charlotte, NC, April 2015. (Oral)
77. TA Werfel<sup>†</sup>, M Miteva<sup>†</sup>, **CL Duvall\***. Combinatorial Modifications Yield Optimized, Endosomolytic Ternary Micelles for Potent and Tunable siRNA Silencing. Society for Biomaterials (SFB) Annual Meeting, Charlotte, NC, April 2015. (Oral)
78. SM Sarett<sup>†</sup>, KV Kilchrist<sup>†</sup>, M Miteva<sup>†</sup>, **CL Duvall\***. Conjugation of Palmitic Acid Improves Potency and Longevity of siRNA Delivered via Endosomolytic Polymer Nanoparticles. Society for Biomaterials (SFB) Annual Meeting, Charlotte, NC, April 2015. (Oral)
79. KM Hocking<sup>†</sup>, CM Brophy, BC Evans<sup>†</sup>, E Wise, **CL Duvall\***. Viscoelastic Modeling of Human Saphenous Vein Grafts after Surgical Manipulation. Academic Surgical Congress. Las Vegas, NV, Feb 2015.
80. KM Poole<sup>†</sup>, DR McCormack, CE Nelson<sup>†</sup>, **CL Duvall\***, MC Skala\*. Monitoring the Vascular Response to Biomaterials with Speckle Variance OCT. Optical Coherence Tomography and Coherence Domain Optical Methods in Biomedicine XVIII: SPIE BiOS, San Francisco, CA, February 2015. (Oral)
81. KM Poole<sup>†</sup>, CE Nelson<sup>†</sup>, JR Martin<sup>†</sup>, DR McCormack, RV Joshi<sup>†</sup>, MC Skala\*, **CL Duvall\***. Noninvasive Optical Imaging of Response to On-Demand Antioxidant Therapy in a Model of Peripheral Arterial Disease. American Heart Association Scientific Sessions, Chicago, IL, November 2014. (Poster)

**\*Chosen for Best of Basic Science Abstracts Poster Session**

82. JR Martin<sup>†</sup>, MK Gupta<sup>‡</sup>, JM Page, F Yu, JM Davidson, SA Guelcher, **CL Duvall\***. Poly(thioacetal) polymers and their use in the formation of hydrophobic and hydrophilic cell-degradable tissue engineering scaffolds. Annual Meeting of the Biomedical Engineering Society, San Antonio, TX, October 2014. (Oral)
83. MK Gupta<sup>‡</sup>, SH Lee, SW Crowder, CE Nelson<sup>†</sup>, **CL Duvall**, HJ Sung\*. Reactive Oxygen Species-Responsive Polyplex Micelles as a PEG-Detachable Platform for Plasmid DNA Delivery. Annual Meeting of the Biomedical Engineering Society, San Antonio, TX, October 2014. (Poster)
84. MK Gupta<sup>‡</sup>, JR Martin<sup>†</sup>, T Shen<sup>†</sup>, TA Werfel<sup>†</sup>, JM Page, SA Guelcher, **CL Duvall\***. Cell Protective, ABC Triblock Polymer-based Thermoresponsive Hydrogels With ROS-Triggered Degradation and Drug Release. The 66<sup>th</sup> Southeastern Regional Meeting of the American Chemical Society, Nashville, TN, October 2014. (Oral)
85. MK Gupta<sup>‡</sup>, SH Lee, SW Crowder, X Wang, CE Nelson<sup>†</sup>, **CL Duvall**, HJ Sung\*. Reactive Oxygen Species (ROS)-Responsive, PEGylated Oligoproline Peptide



- Linked Smart Polymeric Nanocarrier for Plasmid DNA Delivery. The 66<sup>th</sup> Southeastern Regional Meeting of the American Chemical Society, Nashville, TN, October 2014. (Oral)
86. BC Evans<sup>†</sup>, KM Hocking<sup>†</sup>, MJ Osgood, I Voskresensky, J Dmowska<sup>†</sup>, KV Kilchrist<sup>†</sup>, CM Brophy, **CL Duvall\***. A Novel Platform Technology for Cytosolic Peptide Delivery with Endosomolytic Nano-Polyplexes Applied to Vascular Graft Intimal Hyperplasia. Life Science Tennessee Annual Conference & Venture Forum. Nashville, TN, USA, October 2014. (Poster)
87. BC Evans<sup>†</sup>, KM Hocking<sup>†</sup>, KV Kilchrist<sup>†</sup>, CM Brophy, **CL Duvall\***. A Novel Platform Technology for Cytosolic Peptide Delivery with Endosomolytic Nano-Polyplexes Applied to Vasospasm. University of Kentucky Biomaterials Day. Lexington, KY, USA, September 2014. (Oral)
- \*2<sup>nd</sup> place oral presentation award**
88. SM Sarett<sup>†</sup>, KV Kilchrist<sup>†</sup>, M Miteva<sup>†</sup>, **CL Duvall\***. Conjugation of Palmitic Acid Improves Potency of siRNA Delivered by Endosomolytic Polymer Nanoparticles. University of Kentucky Biomaterials Day, Lexington, KY, September 2014. (Oral)
89. TA Werfel<sup>†</sup>, MJ Uddin, BC Crews, LJ Marnett, **CL Duvall\***. Selective Imaging of Cyclooxygenase-2 Activity in Cancer and Inflammation by ROS-Responsive Nanoparticles. University of Kentucky Biomaterials Day, Lexington, KY, September 2014. (Oral)
90. JR Martin<sup>†</sup>, MK Gupta<sup>‡</sup>, JM Page, F Yu, JM Davidson, SA Guelcher, **CL Duvall\***. Cell-degradable poly(thioketal) polymers and their use in the formation of hydrophobic and hydrophilic tissue engineering scaffolds. University of Kentucky Biomaterials Day, Lexington, KY, September 2014. (Oral)
- \*3<sup>rd</sup> place oral presentation award**
91. BC Evans<sup>†</sup>, KM Hocking<sup>†</sup>, MJ Osgood, I Voskresensky, J Dmowska<sup>†</sup>, CM Brophy, **CL Duvall\***. Nano-polyplex MK2 Inhibitory Peptide Delivery Inhibits Vascular Graft Intimal Hyperplasia. Gordon Research Conference: Drug Carriers in Medicine and Biology. Waterville Valley, New Hampshire, August 2014. (Poster and Oral)
- \*Dr. Duvall Awarded Oral Presentation in Young Investigator and Late Breaking Science Session**
92. CE Nelson<sup>†</sup>, JR Martin<sup>†</sup>, MK Gupta<sup>‡</sup>, EJ Adolph, F Yu, JM Davidson, SA Guelcher, **CL Duvall\***. Versatile Platform for Sustained Gene Silencing Improves Excisional Wound Healing in Diabetic Rats. Annual meeting of the Controlled Release Society. Chicago, IL. July 2014 (Oral)
- \*Outstanding Preclinical Sciences & Animal Health Paper Award**

93. KM Hocking<sup>†</sup>, BC Evans<sup>†</sup>, **CL Duvall**, CM Brophy, J Cheung-Flynn\*. Modulation of Hsp20 Influences Vasoreactivity Independent of [Ca<sup>2+</sup>]<sub>i</sub>. Atherosclerosis Thrombosis and Vascular Biology, Toronto, Canada, May 2014. (Poster)
94. BC Evans<sup>†</sup>, KM Hocking<sup>†</sup>, CM Brophy, **CL Duvall**\*. Electrostatically-complexed, pH-responsive nanoparticles as a platform for intracellular peptide delivery. Vanderbilt Institute of Nanoscale Science and Engineering Summer NanoSeminar. Nashville, Tennessee, July 2014. (Oral)
95. MK Gupta<sup>‡</sup>, JR Martin<sup>†</sup>, T Werfel<sup>†</sup>, T Shen<sup>†</sup>, **CL Duvall**\*. ABC Triblock Polymer-based Thermo-Responsive Hydrogels with ROS-Triggered Degradation and Drug Release. Vanderbilt Institute of Nanoscale Science and Engineering Summer NanoSeminar. Nashville, Tennessee, May 2014. (Oral)
96. CE Nelson<sup>†</sup>, RV Joshi<sup>†</sup>, SC Haws<sup>†</sup>, KM Poole<sup>†</sup>, MK Gupta<sup>‡</sup>, MC Skala, **CL Duvall**\*. ROS-Responsive Microspheres for Local, On Demand Delivery of Antioxidant Curcumin to Ischemic Tissues. Annual Meeting of the Society for Biomaterials. Denver, CO. April 2014. (Oral)
- \*SFB Student Travel Achievement Recognition (STAR) Award Winner**
97. BC Evans<sup>†</sup>, CE Nelson<sup>†</sup>, KM Hocking<sup>†</sup>, CM Brophy, **CL Duvall**\*. GrafDefense: Nano-polyplexes for Improving Saphenous Vein Graft Potency. Society for Biomaterials Business Plan Competition. Denver, CO. April 2014. (Oral)
98. BC Evans<sup>†</sup>, KM Hocking<sup>†</sup>, CM Brophy, **CL Duvall**\*. A Novel Platform for Enhanced Intracellular Delivery of Therapeutic Peptides to Promote Tissue Vasorelaxation. Society for Biomaterials Annual Meeting & Exposition. Denver, Colorado, USA, April 2014. (Oral)
99. EJ Adolph<sup>†</sup>, CE Nelson<sup>†</sup>, **CL Duvall**, SA Guelcher\*. Release of Stabilized Diblock Copolymer/Plasmid DNA Polyplexes from Injectectable Scaffolds. Annual Meeting of the Society for Biomaterials. Denver, CO. April 2014. (Oral)
100. M Miteva<sup>†</sup>, HM Li<sup>‡</sup>, CE Nelson<sup>†</sup>, KC Kirkbride<sup>‡</sup>, TD Giorgio, **CL Duvall**\*. Optimizing PEG Length for Enhanced In Vivo Pharmacokinetics of a Micellar siRNA Carrier. Annual Meeting of the Society for Biomaterials. Denver, CO. April 2014. (Poster)
101. MK Gupta<sup>‡</sup>, JR Martin<sup>†</sup>, T Shen<sup>†</sup>, **CL Duvall**\*. Reactive Oxygen Species Degradable Thermo-Responsive Hydrogels for *In Situ* Drug Delivery to Cell Therapies. Annual Meeting & Exposition – Society for Biomaterials, Denver, CO, April 2014. (Oral)
102. MK Gupta<sup>‡</sup>, SH Lee, SW Crowder, CE Nelson<sup>†</sup>, **CL Duvall**, HJ Sung\*. Reactive Oxygen Species-responsive Polyplex Micelles as a PEG-detachable Platform for

- Plasmid DNA Delivery. Annual Meeting of the Society for Biomaterials. Denver, CO. April 2014. (Poster)
103. JM Page, BC Evans<sup>†</sup>, MK Gupta<sup>‡</sup>, SA Guelcher, **CL Duvall\***. pH-responsive, hydrolytically degradable nanoparticles for cytosolic drug delivery. Society for Biomaterials Annual Meeting & Exposition. Denver, Colorado, USA, April 2014. (Oral)
104. TD Giorgio, HM Li<sup>‡</sup>, M Miteva<sup>†</sup>, KC Kirkbride<sup>‡</sup>, M Cheng<sup>†</sup>, CE Nelson<sup>†</sup>, **CL Duvall\***. Dual MMP-7-proximity-activated and folate-targeted nanoparticles for siRNA delivery. American Association for Cancer Research Annual Meeting, San Diego, CA. April 2014. (Poster)
105. JM Tucker-Schwartz, KR Beavers<sup>†</sup>, AT Shah, **CL Duvall**, MC Skala\*. Development of Real Time Photothermal Optical Coherence Tomography for Three Dimensional Imaging of Drug Delivery in Cancer. Vanderbilt-Ingram Cancer Center Retreat on Predictive Oncology, Nashville, TN, March 2014. (Poster)
106. BC Evans<sup>†</sup>, KM Hocking<sup>†</sup>, MJ Osgood, I Voskresensky, CM Brophy, **CL Duvall\***. Nano-polyplexes for enhanced intracellular delivery of a MK2 inhibitory peptide inhibit vascular graft intimal hyperplasia. Hilton Head Regenerative Medicine Conference. Hilton Head, South Carolina, March 2014. (Oral delivered by Dr. Duvall)
107. KM Poole<sup>†</sup>, CA Patil, CE Nelson<sup>†</sup>, DR McCormack, MC Madonna, **CL Duvall\***, & MC Skala\*. Longitudinal Study of Arteriogenesis with Swept Source Optical Coherence Tomography. Optical Coherence Tomography and Coherence Domain Optical Methods in Biomedicine XVIII: SPIE BiOS, San Francisco, CA, Feb 2014. (Oral presentation)
108. JM Tucker-Schwartz, KR Beavers<sup>†</sup>, WW Sit, **CL Duvall**, MC Skala\*. In vivo Imaging of Gold Nanorod Delivery to Tumors Using Photothermal Optical Coherence Tomography SPIE Photonics West, San Francisco, CA, Feb 2014. (podium presentation)
109. Evans BC<sup>†</sup>, Hocking KM<sup>†</sup>, Osgood MJ, Voskresensky I, Dmowska J<sup>†</sup>, Brophy CM, **Duvall CL\***. Nano-polyplexes for enhanced intracellular delivery and retention of a MK2i inhibitory peptide inhibit vascular graft intimal hyperplasia. VISE Annual surgery and engineering symposium, Nashville, TN, Dec 2013. (poster)
110. Nelson CE<sup>†</sup>, Hanna A, Adolph EJ, Yu F, Davidson JM, Guelcher SA, **Duvall CL\***. Annual Diabetes Day, Vanderbilt University, Nashville, TN. November 2013. (oral and poster)

**\*Invited Presentation in honor of Oscar B Crofford Scholar in Diabetes Student Award**

111. Poole KM<sup>†</sup>, Nelson CE<sup>†</sup>, Patil CA, Skala MC, **Duvall CL**\*. Intravital optical imaging to evaluate therapies in a model of diabetic peripheral arterial disease. Annual Diabetes Day, Vanderbilt University, Nashville, TN. November 2013. (poster)
112. Werfel TW<sup>†</sup>, Nyhoff L, Nelson CE<sup>†</sup>, **Duvall CL**\*, Kendall PL\*. Insulin Functionalized siRNA Nanoparticles Target B Lymphocytes to Prevent T1D and Induce Tolerance. Annual Diabetes Day, Vanderbilt University, Nashville, TN. November 2013. (poster)
113. Evans BC<sup>†</sup>, Hocking KM<sup>†</sup>, Osgood MJ, Voskresensky I, Brophy CM, **Duvall CL**\*. MK2 Inhibitory Nano-Polyplexes Prevent Intimal Hyperplasia Ex Vivo in Human Vein and In Vivo in a Rabbit Transplant Model. TERMIS-Americas 2013 Annual Conference and Exposition, Atlanta, GA, Nov. 2013. (oral presentation)
114. JR Martin<sup>†</sup>, JM Page, MK Gupta<sup>‡</sup>, F Yu, JM Davidson, SA Guelcher, **CL Duvall**\*. In Vivo Performance of an ROS-degradable Tissue Engineering Scaffold. TERMIS Americas 2013 Annual Conference and Exposition, Atlanta, GA, Nov 2013. (oral)
115. CE Nelson<sup>†</sup>, A Hanna, EJ Adolph, F Yu, JM Davidson, SA Gulecher, **CL Duvall**\*. Prolyl Hydroxylase Domain 2 Silencing Enhances Vascularization of Tissue Scaffolds in Vivo. TERMIS-Americas Annual Conference, Atlanta, GA, November 2013. (Oral)

**\*Invitation to Wake Forest Institute for Regenerative Medicine (WFIRM) Young Investigator's Breakfast**

116. KM Poole<sup>†</sup>, CE Nelson<sup>†</sup>, CA Patil, SC Haws<sup>†</sup>, MC Skala\*, & **CL Duvall**\*. Intravital Optical Imaging to Evaluate Peripheral Arterial Disease Therapies. Tissue Engineering and Regenerative Medicine Society Annual Conference (TERMIS-AM), Atlanta, GA, Nov 2013. (Oral presentation)

**\*Travel Award for being in top 25 trainee abstracts**

117. EJ Adolph, CE Nelson<sup>†</sup>, **CL Duvall**, SA Guelcher. Delivery of Diblock Copolymer/Plasmid DNA Polyplexes From Polyurethane Scaffolds. American Institute for Chemical Engineers 2013 Annual Meeting, San Francisco, CA, Nov 2013. (poster)

**\*Awarded 2<sup>nd</sup> Place Poster Award**

118. Sarett SM<sup>†</sup>, Nelson CE<sup>†</sup>, **Duvall CL**\*. Local Delivery of Lipid-Conjugated siRNA from poly(ester urethane) Scaffolds. Vanderbilt University Nanoscience and Nanotechnology Forum (Nanoday), Nashville, TN, Oct 2013. (poster)

119. Miteva M<sup>†</sup>, Li H, Nelson CE<sup>†</sup>, Kirkbride K<sup>‡</sup>, Giorgio TD, **Duvall CL**\*. Optimizing PEG Length for Enhanced *In Vivo* Pharmacokinetics of a Micelle siRNA Carrier. Nanoday Meeting, Nashville, TN, Oct 2013. (poster)
120. Beavers KR<sup>†</sup>, Mares JW, Swartz CM, Weiss SM, **Duvall CL**\* -In Situ Peptide Nucleic Acid Synthesis from Porous Silicon as a Functionalized Strategy for Drug Delivery and Biosensing. 14th Annual Nanoscience and Nanotechnology Forum, Nashville, TN, Oct 2013. (poster)
121. CE Nelson<sup>†</sup>, AJ Kim, A Hanna, EJ Adolph, MK Gupta<sup>‡</sup>, F Yu, JM Davidson, SA Guelcher, **CL Duvall**\*. Local and Sustained Silencing of Prolyl Hydroxylase 2 Blood Vessel Production in Mice. Annual Meeting of the Biomedical Engineering Society, Seattle, WA, September 2013. (Oral)
122. EJ Adolph, CE Nelson<sup>†</sup>, JM Shannon<sup>†</sup>, **CL Duvall**, SA Guelcher\*. Enhanced Stability and Activity of pH-sensitive Self-assembled Diblock Copolymer/Plasmid Complexes. BMES Annual Meeting, Seattle, WA, September 25 - 28, 2013. (Oral)
123. CN Swain<sup>†</sup>, CE Nelson<sup>†</sup>, **CL Duvall**\*. Charge Reversing, Endosomolytic Nanoparticles to Enhance Intracellular Bioavailability of siRNA. Annual Meeting of the Biomedical Engineering Society, Seattle, WA, September 2013. (Oral)
- \*VINSE REU Travel Award**
124. Beavers KB<sup>†</sup>, Mares JW, Evans BC<sup>†</sup>, Weiss SM, **CL Duvall**\*. An Improved Strategy for Loading, characterization, and Controlled Delivery of Peptide Nucleic Acid Therapeutics. Biomedical Engineering Society 2013 Annual Meeting, Seattle, WA, Sept. 2013. (poster)
125. EJ Adolph, CE Nelson<sup>†</sup>, JM Shannon<sup>†</sup>, **CL Duvall**, SA Guelcher. Enhanced Stability and Activity of pH-sensitive Self-assembled Diblock Copolymer/Plasmid Complexes. European Society For Biomaterials 2013 Annual Meeting, Madrid, Spain, Sept 2013. (poster)
126. **CL Duvall**\*. Stimulus Responsive Nanotechnologies for Cardiovascular Regeneration. International Symposium on Stimuli-Responsive Materials. Santa Rosa, California, October 2013
- Invited Speaker**
127. CE Nelson<sup>†</sup>, AJ Kim, A Hanna, EJ Adolph, MK Gupta<sup>‡</sup>, F Yu, JM Davidson, SA Guelcher, **CL Duvall**\*. Local and Sustained Silencing of Prolyl Hydroxylase 2 Increases Blood Vessel Production in Mice. Gordon Research Conference – Biomaterials and Tissue Engineering, Holderness, NH, July 2013. (Poster)
128. Evans BC<sup>†</sup>, Hocking KM<sup>†</sup>, Brophy CM, **Duvall CL**\*. MK2 Inhibitory Peptide

- Delivery with Endosomolytic Nano-Polyplexes Prevents Vasoconstriction and Intimal Hyperplasia in Human Saphenous Vein Bypass Grafts. Controlled Release Society 2013 Annual Meeting, Honolulu, HI, July 2013. (poster)
129. CE Nelson<sup>†</sup>, AJ Kim, A Hanna, EJ Adolph, MK Gupta<sup>‡</sup>, F Yu, JM Davidson, SA Guelcher, **CL Duvall**<sup>\*</sup>. Tunable and Sustained Scaffold-based Gene Silencing in Vivo. Annual Meeting of the Controlled Release Society, Honolulu, HI, July 2013. (Poster)
130. Li H<sup>‡</sup>, Miteva M<sup>†</sup>, Cheng ME<sup>†</sup>, Nelson CE<sup>†</sup>, **Duvall CL**<sup>\*</sup>, Giorgio TD<sup>\*</sup>. Dual MMP-7-Proximity-Activated and Folate-Targeted Nanoparticles for siRNA Delivery. Controlled Release Society 40<sup>th</sup> Annual Meeting, Honolulu, Hawaii, July 2013. (poster)
131. KM Poole<sup>†</sup>, JM Tucker-Schwartz, CA Patil, CE Nelson<sup>†</sup>, **CL Duvall**<sup>\*</sup>, & MC Skala<sup>\*</sup>. Longitudinal Measurement of Vascular Remodeling, Flow Restoration, and Oxygenation with Optical Imaging in the Mouse Hind Limb Ischemia Model. Frontiers in Biomedical Imaging Science IV, Nashville, TN, July 2013. (Oral and poster presentations)
- \*Young Investigator Award**
132. Tucker-Swartz JM, Beavers KR<sup>†</sup>, Sit WW, **Duvall CL**, Skala MC<sup>\*</sup> - In Vivo Imaging of Nanoparticle Accumulation in Tumors using Photothermal Optical Coherence Tomography, Frontiers in Biomedical Imaging Science IV, Nashville, TN, July 2013. (poster presentation)
133. R Guo, CL Ward, **CL Duvall**, JM Davidson, JC Wenke, SA Guelcher<sup>\*</sup>. Injectable polyurethane/alginate composite scaffolds for cell delivery. 2013 eCM XIV: Stem & Progenitor Cells for Musculoskeletal Regeneration, Davos, Switzerland June 23 - 25, 2013.
134. KM Poole<sup>†</sup>, JM Tucker-Schwartz, CA Patil, CE Nelson<sup>†</sup>, **CL Duvall**<sup>\*</sup>, & MC Skala<sup>\*</sup>. Optical Imaging of Vascular Remodeling and Blood Oxygenation after Growth Factor Treatment in the Mouse Hind Limb Ischemia Model. Engineering Conferences International: Advances in Optics for Biotechnology, Medicine and Surgery XIII, Lake Tahoe, CA, June 2013. (Poster presentation)
- \*1<sup>st</sup> place poster award**
135. Yu S, Lau C, Barham W, Nelson C<sup>†</sup>, Li H<sup>‡</sup>, Smith C, Yull F, **Duvall C**, Giorgio T<sup>\*</sup>. Targeting tumor-associated macrophages for immunotherapy via RNA interference using smart, environmentally-responsive nanoparticles. Cancer Immunotherapy 11<sup>th</sup> Annual Meeting, Mainz, Germany, May 2013. (oral)
136. CE Nelson<sup>†</sup>, JR Kintzing<sup>†</sup>, JM Shannon<sup>†</sup>, MK Gupta<sup>‡</sup>, **CL Duvall**<sup>\*</sup>. Hemocompatible pH-responsive polymer nanoparticles for intravenous siRNA

- Delivery. Annual Meeting of the Society for Biomaterials. Boston, MA, April 2013. (Poster)
137. Evans BC<sup>†</sup>, Hocking KM<sup>†</sup>, Brophy CM, **Duvall CL**<sup>\*</sup>. Enhanced Intracellular Peptide Delivery with pH-responsive, Endosomolytic Nano-Polyplexes to Prevent Intimal Hyperplasia in Human Saphenous Vein Grafts. *Society for Biomaterials 2013 Annual Meeting & Exposition*, Boston, MA, April 2013.\_
- \*SIG Star Award Honorable Mention**
138. JR Martin<sup>†</sup>, MK Gupta<sup>‡</sup>, JM Page, SA Guelcher, **CL Duvall**<sup>\*</sup>. Synthesis of a Novel Injectable, ROS-degradable Tissue Engineering Scaffold. Society for Biomaterials 2013 Annual Meeting, Boston, MA, Apr 2013. (poster)
139. EJ Adolph, CE Nelson<sup>†</sup>, JM Shannon<sup>†</sup>, **CL Duvall**, SA Guelcher. Lyophilized Poly(ethylene glycol-b-(dimethylaminoethyl methacrylate-co-butyl methacrylate))-DNA Nanoparticles for Nonviral Gene Therapy. Society For Biomaterials 2013 Annual Meeting, Boston, MA, Apr 2013. (poster)
140. JM Tucker-Schwartz, MJ Schultis, KR Beavers<sup>†</sup>, **CL Duvall**, MC Skala<sup>\*</sup>. Full Range Photothermal Optical Coherence Tomography of Gold Nanoparticles. OSA Optics in Life Science Congress, Kona, HI, Apr 2013. (podium presentation)
141. **\*Air Force Office of Scientific Research Travel Award**
142. Martin JR<sup>†</sup>, Gupta MK<sup>‡</sup>, Page JM, Yu F, Davidson JM, Guelcher SA, **Duvall CL**<sup>\*</sup>. Synthesis of a Novel, Injectable, ROS-degradable Tissue Engineering Scaffold . Society for Biomaterials-Biomaterials Day Meeting, Nashville, TN March 2013. (oral presentation)
143. Beavers KR<sup>†</sup>, Mares JW, Weiss SM, **Duvall CL**<sup>\*</sup>. In Situ Synthesis of Peptide Nucleic Acids from Porous Silicon. Society for Biomaterials-Biomaterials Day Meeting, Nashville, TN March 2013. (poster presentation).
144. JM Shannon<sup>†</sup>, JR Kintzing<sup>†</sup>, CE Nelson<sup>†</sup>, MK Gupta<sup>‡</sup>, **CL Duvall**<sup>\*</sup>. PEG Shielded Endosomolytic Copolymers for Efficient and Hemocompatible siRNA Delivery. Local Meeting of the Society for Biomaterials – Biomaterials Day, Vanderbilt University, Nashville, TN, March 2013. (Poster)
145. SC Haws<sup>†</sup>, RV Joshi<sup>†</sup>, CE Nelson<sup>†</sup>, MK Gupta<sup>‡</sup>, **CL Duvall**<sup>\*</sup>. Reactive Oxygen Species (ROS) Sensitive Microspheres for Sustained Release of Curcumin. Local Meeting of the Society for Biomaterials – Biomaterials Day, Vanderbilt University, Nashville, TN, March 2013. (Poster)
146. Cheng MJ<sup>†</sup>, Li H<sup>‡</sup>, Simpson EM, Giorgio TD, **Duvall CL**<sup>\*</sup>. Novel MMP-Proteolysis Triggered, Folate Targeting Nanoparticles for siRNA Delivery Society for Biomaterials-Biomaterials Day Meeting, Nashville, TN March 2013. (poster)

147. Li H<sup>‡</sup>, Miteva M<sup>†</sup>, Nelson CE<sup>†</sup>, Cheng MJ<sup>†</sup>, Simpson EM, Giorgio TD, **Duvall CL\***. Dual MMP-7-Proximity-Activated and Folate Targeted Nanoparticles for siRNA Delivery. Society for Biomaterials-Biomaterials Day Meeting, Nashville, TN March 2013. (oral presentation)
148. Miteva M<sup>†</sup>, Li H<sup>‡</sup>, Nelson CE<sup>†</sup>, Giorgio TD, **Duvall CL\***. A pH-responsive mixed micelle for siRNA delivery. Society for Biomaterials-Biomaterials Day Meeting, Nashville, TN March 2013. (poster)
149. JM Tucker-Schwartz, KR Beavers<sup>†</sup>, **CL Duvall**, MC Skala\*. In Vivo Image Contrast Enhancement with Optical Coherence Tomography using Gold Nanorods. SFB Biomaterials Day – Vanderbilt, Nashville, TN, Mar 2013. (podium presentation)
150. KM Poole<sup>†</sup>, WW Sit, JM Tucker-Schwartz, MC Skala\*, & **CL Duvall\*** Optical Coherence Tomography and Hyperspectral Imaging of Vascular Recovery in a Model of Peripheral Arterial Disease. Society for Biomaterials: Biomaterials Day, Nashville TN, March 2013. (Poster presentation)
151. JM Tucker-Schwartz, TA Meyer<sup>†</sup>, CA Patil, **CL Duvall**, MC Skala\*. In Vivo Imaging of Gold Nanorod Contrast Agents Using Photothermal Optical Coherence Tomography. SPIE Photonics West, San Francisco, CA, Feb 2013. (podium presentation)
- \*Newport Research Excellence Travel Award**
152. H Li<sup>‡</sup>, M Miteva<sup>†</sup>, MJ Cheng, TD Giorgio\*, **CL Duvall\***. Dual MMP-7-Proximity-Activated and Folate Targeted Nanoparticles for siRNA Delivery. 12<sup>th</sup> Host-Tumor Interactions/Cancer Biology Retreat, Nashville, TN, Nov 2012. (oral)
153. CE Nelson<sup>†</sup>, A Hanna, AJ Kim, F Yu, EJ Adolph, MK Gupta<sup>‡</sup>, JM Davidson, SA Guelcher, **CL Duvall\***. Local and Sustained Delivery of siRNA for Improve Diabetic Wound Healing. The Vanderbilt Diabetes Research and Training Center Diabetes Day, Nashville, TN, Nov 2012. (Poster)
154. **CL Duvall\***, CE Nelson<sup>†</sup>, H Li<sup>‡</sup>, SS Yu, JM Davidson, SA Guelcher, TD Giorgio. Delivery Technologies for Local and Targeted siRNA Delivery. Zing Polymer Chemistry Meeting. (oral). Xcaret, Mexico, Nov 2012. **\*Invited Talk\***
155. KR Beavers<sup>†</sup>, JW Mares, SM Weiss\*, **CL Duvall\***. Fabrication and Functionalization of Porous Silicon Nanoparticles for Drug Delivery. Vanderbilt Nanoday, Nashville, TN, Oct 2012. (poster)
- \*2<sup>nd</sup> place poster award.**
156. SS Yu, CM Lau, WJ Barham, CE Nelson<sup>†</sup>, FE Yull, **CL Duvall**, TD Giorgio\*. Achieving Cancer Immunotherapy Through RNAi Interference in Tumor-Associated



Macrophages via 'Click', Mannosylated Polymeric Nanoparticles. 2012 Annual Meeting of the Biomedical Engineering Society, Atlanta, GA, Oct 2012. (oral)

**\*BMES 2012 Design and Research Award**

157. KM Poole<sup>†</sup>, WW Sit, AJ Walsh, J Tucker-Schwartz, MC Skala\*, **CL Duvall\***. Noninvasive Quantification of Hemoglobin Oxygen Saturation in a Model of Peripheral Arterial Disease. Biomedical Engineering Society Annual Meeting, Atlanta, GA, Oct 2012. (oral)
158. JW Mares, JD Ryckman, KR Beavers<sup>†</sup>, **CL Duvall**, SM Weiss\*. Shape-Engineered Porous Silicon Nanoparticles by Direct Imprinting for Drug Delivery. Biomedical Engineering Society 2012 Annual Meeting, Atlanta, GA, Oct 2012. (oral)
159. JR Martin<sup>†</sup>, MK Gupta<sup>‡</sup>, JM Page, EJ Adolph, SA Guelcher, **CL Duvall\***. Synthesis of a Novel Injectable, ROS-degradable Tissue-Engineering Scaffold. Biomedical Engineering Society 2012 Annual Meeting, Atlanta, GA, Oct 2012. (poster)
160. JR Kintzing<sup>†</sup>, CE Nelson<sup>†</sup>, JM Shannon<sup>†</sup>, MK Gupta<sup>‡</sup>, **CL Duvall\***. Testing of a Novel RAFT-synthesized Polymer Library for Efficient, Hemocompatible siRNA Delivery. Biomedical Engineering Society 2012 Annual Meeting, Atlanta, GA, Oct 2012. (oral)
161. H Li<sup>‡</sup>, M Miteva<sup>†</sup>, MJ Cheng<sup>†</sup>, TD Giorgio\*, **CL Duvall\***. MMP-Proximity-Activated, Folate Functionalized Polymeric Particles for siRNA Delivery. 2012 Biomedical Engineering Society Annual Conference, Atlanta, GA, Oct 2012. (oral)
162. **CL Duvall\***, CE Nelson<sup>†</sup>, H Li<sup>‡</sup>, SS Yu, JM Davidson, SA Guelcher, TD Giorgio. Local and Targeted siRNA Delivery Technologies. 2012 Annual Meeting of the Biomedical Engineering Society, Atlanta, GA, Oct 2012. (oral) **\*Invited Talk\***
163. CE Nelson<sup>†</sup>, AJ Kim, EJ Adolph, MK Gupta<sup>‡</sup>, F Yu, JM Davidson, SA Guelcher, **CL Duvall\***. Injectable Tissue Engineering Scaffolds that Mediate Efficient Gene Silencing In Vivo. Biomedical Engineering Society 2012 Annual Meeting, Atlanta, GA, Oct 2012. (oral)
- \*BMES 2012 Medtronic Excellence in Biomaterials Award**
164. CE Nelson<sup>†</sup>, RV Joshi<sup>†</sup>, **CL Duvall\***. Controlled Delivery of Recombinant FGF Using Stimuli Responsive Microspheres Enhances Fibroblast Proliferation. Biomedical Engineering Society 2012 Annual Meeting, Atlanta, GA, Oct 2012. (poster)
165. AL Zachman, KM Poole<sup>†</sup>, AR Boone, **CL Duvall**, MC Skala, DG Harrison, HJ Sung\*. Therapeutic scaffolds for peripheral artery disease: Pro-angiogenic and anti-

- inflammatory regulation. Biomedical Engineering Society 2012 Annual Meeting, Atlanta, GA, Oct 2012. (oral)
166. MK Gupta<sup>‡</sup>, TA Meyer<sup>†</sup>, CE Nelson<sup>†</sup>, **CL Duvall\***. “Smart” Micelles for Reactive Oxygen Species Triggered Drug Release. Annual Meeting of the Society for Biomaterials. New Orleans, LA, Oct 2012. (oral- delivered by Dr. Duvall)
167. CE Nelson<sup>†</sup>, EJ Adolph, MK Gupta<sup>‡</sup>, F Yu, JM Davidson, SA Guelcher, **CL Duvall\***. Tunable Release of siRNA from Injectable Polyurethane Scaffolds In Vivo. Annual Meeting of the Society for Biomaterials. New Orleans, LA, Oct 2012. (oral-delivered by Dr. Duvall)
- \*SIG Star Award Honorable Mention**
168. SA Guelcher, EJ Adolph, R Guo, PP Young CE Nelson<sup>†</sup>, **CL Duvall**, LB Nanney, JM Davidson. A versatile, biodegradable polyurethane scaffold for tissue repair and drug delivery – 3<sup>rd</sup> Tissue Engineering and Regenerative Medicine International Society World Congress. Vienna, Austria, Sep 2012. (oral)
169. SS Yu, CM Lau, WJ Barham, CE Nelson<sup>†</sup>, H Li<sup>‡</sup>, FE Yull, **CL Duvall**, TD Giorgio\*. Achieving Cancer Immunotherapy Through RNAi Interference in Tumor-Associated Macrophages via ‘Click’, Mannosylated Polymeric Nanoparticles. Society for Biomaterials University of Kentucky Biomaterials Day, Lexington, KY, Sept 2012. (oral)
170. Martina Miteva<sup>†</sup>, Hongmei Li<sup>‡</sup>, Chris Nelson<sup>†</sup>, Todd Giorgio\*, Craig Duvall\*. A novel pH-responsive mixed micelle for siRNA delivery. Society for Biomaterials University of Kentucky Biomaterials Day, Lexington, KY, Sept 2012. (poster)
- \*2<sup>nd</sup> place in poster competition.**
171. JR Martin<sup>†</sup>, MK Gupta<sup>‡</sup>, JM Page, EJ Adolph, SA Guelcher, **CL Duvall\***. Synthesis of a Novel Injectable, ROS-degradable Tissue-Engineering Scaffold. Society for Biomaterials University of Kentucky Biomaterials Day, Lexington, KY, Sept 2012. (oral)
172. SS Yu, CM Lau, WJ Barham, CE Nelson<sup>†</sup>, FE Yull, **CL Duvall**, TD Giorgio\*. In Vivo, Cell- and Site-Specific RNAi Interference in Tumor-Associated Macrophages via ‘Click’, Mannosylated Polymeric Nanoparticles. NanoBio Seattle 2012, Seattle, WA, Jul 2012. (poster)
173. MK Gupta<sup>‡</sup>, TA Meyer<sup>†</sup>, CE Nelson<sup>†</sup>, **CL Duvall\***. “Smart” Micelles for Reactive Oxygen Species Triggered Drug Release. Controlled Release Society 2012 Annual meeting, Québec City, Canada, July 2012. (poster)
174. H Li<sup>‡</sup>, SS Yu<sup>†</sup>, M Miteva<sup>†</sup>, CE Nelson<sup>†</sup>, TD Giorgio\*, **CL Duvall\***. MMP-Responsive, Proximity-Activated Targeting Polymeric Nanoparticles for siRNA

- Delivery. Controlled Release Society 2012 Annual meeting, Québec City, Canada, July 2012. (poster)
- \*CRS 2012 Consumer and Diversified Products Best Paper Award.**
175. CE Nelson<sup>†</sup>, AJ Kim, F Yu, EJ Adolph, MK Gupta<sup>‡</sup>, JM Davidson, SA Guelcher, **CL Duvall\***. Controllable Release of Smart Polymer Nano-micelles for siRNA Delivery from Injectable Polyurethane Scaffolds In Vivo. Controlled Release Society 2012 Annual meeting, Québec City, Canada, July 2012. (poster)
176. SS Yu, CM Lau, WJ Barham, HM Onishko, CE Nelson<sup>†</sup>, FE Yull, **CL Duvall**, TD Giorgio\*. Environmentally-Responsive Nanoparticles for the Intracellular Delivery of RNAi Therapeutics into Tumor-Associated Macrophages. Vanderbilt-Ingram Cancer Center Retreat: New Horizons in Lung Cancer Research, Nashville, TN, May 2012. (poster)
177. KM Poole<sup>†</sup>, WW Sit, AJ Walsh, J Tucker-Schwartz, **CL Duvall\***, MC Skala\*. Quantitative Optical Imaging of Vascular Structure and Function in a Model of Peripheral Arterial Disease. Biomedical Optics and 3-D Imaging: OSA Optics and Photonics Congress, Miami, FL, May 2012. (oral)
178. SS Yu, CM Lau, WJ Barham, HM Onishko, CE Nelson<sup>†</sup>, FE Yull, **CL Duvall**, TD Giorgio\*. Cell- and Site-Specific RNAi Interference in Tumor-Associated Macrophages via ‘Click’, Mannosylated Polymeric Nanoparticles. American Society of Gene & Cell Therapy’s 15th Annual Meeting, Philadelphia, PA, May 2012. (poster)
179. H Li<sup>‡</sup>, SS Yu<sup>†</sup>, M Miteva<sup>†</sup>, CE Nelson<sup>†</sup>, TD Giorgio\*, **CL Duvall\***. Matrix Metalloproteinase Responsive, Proximity-activated Targeting Polymeric Nanoparticles for siRNA Delivery to Tumor Metastasis. American Society of Gene and Cell Therapy 15<sup>th</sup> Annual Meeting, Philadelphia, Pennsylvania, May 2012. (poster)
180. **CL Duvall\***. Advanced Therapeutics for Regenerative Medicine. Hilton Head Regenerative Medicine Workshop, Hilton Head, SC, Apr 2012 (oral) **\*Invited Talk\***
181. CE Nelson<sup>†</sup>, MK Gupta<sup>‡</sup>, EJ Adolph, F Yu, JM Davidson, SA Guelcher, **CL Duvall\***. Sustained Local Delivery of siRNA from Injectable PUR. Hilton Head Regenerative Medicine Workshop, Hilton Head, SC, Apr 2012 (poster)
182. BC Evans<sup>†</sup>, MK Gupta<sup>‡</sup>, **CL Duvall\***. Smart intracellular delivery of a peptidic MAPKAP kinase II inhibitor. Hilton Head Regenerative Medicine Workshop, Hilton Head, SC, Apr 2012. (poster)
183. SS Yu, CM Lau, WJ Barham, HM Onishko, CE Nelson<sup>†</sup>, FE Yull, **CL Duvall**, TD Giorgio\*. Environmentally-Responsive Nanoparticles for the Intracellular

- Delivery of RNAi Therapeutics into Tumor-Associated Macrophages. 2012 American Association for Cancer Research Annual Meeting, Chicago, IL, Mar 2012. (poster)
184. SS Yu, CM Lau, WJ Barham, HM Onishko, CE Nelson<sup>†</sup>, H Li, FE Yull, **CL Duvall**, TD Giorgio\*. In vivo, Macrophage-Specific RNAi Targeting via "Click", Mannosylated Polymeric Micelles. Society for Biomaterials University of Memphis Biomaterials Day, Memphis, TN, Feb 2012. (oral)
185. H Li<sup>‡</sup>, SS Yu<sup>†</sup>, M Miteva<sup>†</sup>, CE Nelson<sup>†</sup>, TD Giorgio\*, **CL Duvall**\*. Matrix Metalloproteinase Responsive, Proximity-activated Targeting Polymeric Nanoparticles for siRNA Drug Carrier. Society for Biomaterials University of Memphis Biomaterials Day, Memphis, TN, Feb 2012. (oral)
186. CE Nelson<sup>†</sup>, EJ Adolph, MK Gupta<sup>‡</sup>, F Yu, JM Davidson, SA Guelcher, **CL Duvall**\*. Tunable local delivery of siRNA from Injectable Scaffolds in vivo. Society for Biomaterials University of Memphis Biomaterials Day, Memphis, TN, Feb 2012. (oral)
- \*1<sup>st</sup> Prize Oral Presentation**
187. BC Evans<sup>†</sup>, MK Gupta<sup>‡</sup>, **CL Duvall**\*. Cell-permeant, pH-responsive Nanocarriers for Intracellular Peptide Delivery to Prevent Graft Failure. Society for Biomaterials University of Memphis Biomaterials Day, Memphis, TN, Feb 2012. (poster)
188. CE Nelson<sup>†</sup>, MK Gupta<sup>‡</sup>, EJ Adolph, JM Davidson, SA Guelcher, **CL Duvall**\*. Sustained Local Delivery of siRNA from an Injectable Tissue Scaffold. Keystone: Keystone Symposia on Molecular and Cellular Biology – Nucleic Acid Therapeutics: From Base Pairs to Bedsides. Santa Fe, NM, Jan 2012. (poster)
189. TA Meyer<sup>†</sup>, JW Stone, **CL Duvall**\*. Functionalization of Gold Nanorods with Thermoresponsive polyNIPAAm to Improve Photothermal Ablation. Biomedical Engineering Society 2011 Annual Meeting, Hartford, CT, Oct 2011. (poster)
190. JM Shannon<sup>†</sup>, CE Nelson<sup>†</sup>, Scott Guelcher, **CL Duvall**\*. Biodegradable Tissue Scaffolds for Cell and siRNA Delivery. Biomedical Engineering Society 2011 Annual Meeting, Hartford, CT, Oct 2011. (poster)
191. T Werfel<sup>†</sup>, H Li<sup>‡</sup>, CE Nelson<sup>†</sup>, **CL Duvall**\*. Proximity Activated Smart Nanoparticle for the Delivery of siRNA to Metastatic Tumor Cells. Biomedical Engineering Society 2011 Annual Meeting, Hartford, CT, Oct 2011. (poster)
192. RV Joshi<sup>†</sup>, **CL Duvall**\*. Stimuli-Responsive Microspheres for Sustained Protein Delivery to Ischemic Environments. Biomedical Engineering Society 2011 Annual Meeting, Hartford, CT, Oct 2011. (poster)
193. MK Gupta<sup>‡</sup>, **CL Duvall**\*. Amphiphilic Diblock Polymer Micelles for Oxidation-

- dependent Drug Delivery. Biomedical Engineering Society 2011 Annual Meeting, Hartford, CT, Oct 2011. (poster)
194. J Tucker-Schwartz, TA Meyer<sup>†</sup>, **CL Duvall**, MC Skala<sup>\*</sup>. Photothermal Optical Coherence Tomography with Gold Nanorod Contrast Agents. Biomedical Engineering Society 2011 Annual Meeting, Hartford, CT, Oct 2011. (oral)
195. H Li<sup>‡</sup>, CE Nelson<sup>†</sup>, TD Giorgio, **CL Duvall**<sup>\*</sup>. Surface-Functionalized Nanoparticles for Proximity-Activated Targeting of Dual-Mode Therapy for Multidrug-Resistant Breast Cancer and Breast Cancer Metastases. DOD BCRP 2011 Era of Hope Conference, Orlando, FL, Aug 2011. (poster)
196. SS Yu, C Lau, H Li<sup>‡</sup>, CE Nelson<sup>†</sup>, **CL Duvall**, FE Yull, TD Giorgio<sup>\*</sup>. MMP-9-Dependent Delivery of siRNA to Tumor-Associated Macrophages via Proximity-Activated Targeting. DOD BCRP 2011 Era of Hope Conference, Orlando, FL, Aug 2011. (poster)
197. KM Poole<sup>†</sup>, **CL Duvall**, MC Skala<sup>\*</sup>. Quantitative Optical Imaging of Microvessel Structure and Function in a Model of Peripheral Arterial Disease. Frontiers of Biomedical Imaging Science Conference, Nashville, TN, June 2011. (poster)
198. JM Tucker-Schwartz, TA Meyer<sup>†</sup>, **CL Duvall**, MC Skala<sup>\*</sup>. Photothermal optical coherence tomography: characterization with gold nanorods. Frontiers of Biomedical Imaging Science Conference, Nashville, TN, June 2011. (poster)
199. CE Nelson<sup>†</sup>, MK. Gupta<sup>‡</sup>, EJ. Adolph, SA Guelcher, **CL Duvall**<sup>\*</sup>. Engineered Scaffold for Sustained, Local siRNA Delivery. American Society of Gene and Cell Therapy 2011 Annual Meeting, Seattle, WA, May 2011. (poster)
200. H Li<sup>‡</sup>, CE Nelson<sup>†</sup>, TD Giorgio, **CL Duvall**<sup>\*</sup>. Smart Nanoparticle for MMP-7 Proximity-Activated siRNA. Delivery. American Society of Gene and Cell Therapy 2011 Annual Meeting, Seattle, WA, May 2011. (poster)
201. CE Nelson<sup>†</sup>, MK. Gupta<sup>‡</sup>, EJ Adolph, SA Guelcher, **CL Duvall**<sup>\*</sup>. “Smart”, sustained local delivery of siRNA from an injectable scaffold. Society for Biomaterials 2011 Annual Meeting, Orlando, FL, Apr 2011. (oral)

**\*\*All abstracts above this point represent work done at Vanderbilt\*\***

202. D.S.W. Benoit, **CL Duvall**, AJ Convertine, C Lee, AS Hoffman, PS Stayton<sup>\*</sup>. Development of an In Vivo Polymeric Delivery System for siRNA. Society for Biomaterials 2010 Annual Meeting, Seattle, WA, Apr 2010. (oral)
203. G.Y. Berguig, A.J. Convertine, **CL Duvall**, A.S. Hoffman, P.S. Stayton<sup>\*</sup>.

- Mechanistic Study of Biologic Intracellular Delivery with pH-Responsive Polymers. Society for Biomaterials 2010 Annual Meeting, Seattle, WA, April 2010. (oral)
204. Gupta MK<sup>‡</sup>, Jung DK, Hu J, Venkataraman R, Crowder SW, Yu SS, **Duvall CL**, Baudenbacher FJ, Hatzopoulos A, Sung HJ\*. Multi-functional Electrospun Polymer Patch to Tune Embryonic Stem Cell Delivery onto Hypertrophic Myocardium. 2010 TERMIS Annual Conference, Orlando, FL 2010. (poster, Vanderbilt work and affiliation)
205. **CL Duvall**, AJ Convertine, DSW Benoit, AS Hoffman, PS Stayton\*. Effective Intracellular Delivery of an Anti-Cancer Peptide via a RAFT-Synthesized Polymer Conjugate. Society for Biomaterials 2009 Annual Meeting, San Antonio, TX, April 2009. (oral)
206. DSW Benoit, **CL Duvall**, AJ Convertine, AS Hoffman, PS Stayton\*. Targeted, Endosomolytic Polymer Delivery Vehicles for siRNA. 2008 AIChE Annual Meeting, Philadelphia, PA, November 2008. (oral)
207. **CL Duvall**, AJ Convertine, DSW Benoit, AS Hoffman, PS Stayton\*. Smart Polymer Pro-Apoptotic Peptide Bioconjugates for Cancer Therapy. 2008 BMES Annual Fall Meeting, St Louis, MO, October 2008. (oral)
208. DSW Benoit, AJ Convertine, **CL Duvall**, AS Hoffman, and PS Stayton\*. Development and Characterization of a Synthetic siRNA Delivery System for Cancer Therapies. 8th World Biomaterials Congress, Amsterdam, Netherlands, May 2008. (oral)
209. **CL Duvall**, RE Guldberg, WR Taylor\*. Osteopontin Deficient Mice Display Diminished Macrophage Migration and Delayed Recovery from Hind Limb Ischemia. Emory University and MCG Symposium for Cardiovascular Research, Lake Oconee, GA, January 2007. (oral)
210. **CL Duvall**, WR Taylor, RE Guldberg\*. Osteopontin Deficient Mice Display Altered Torsional Mechanical Properties and Callus Formation and Remodeling During Fracture Healing. ASME 2006 Summer Bioengineering Conference, Amelia Island, FL, June 2006. (oral)
211. **CL Duvall**, WR Taylor, RE Guldberg\*. Altered Angiogenesis and Extracellular Matrix Composition in Osteopontin Deficient Mice during Fracture Healing. 52nd Annual Meeting of the Orthopedic Research Society, Chicago, IL, March 2006. (oral)
212. WJ Nicholson, P Anaya, **CL Duvall**, D Weiss, M Whalin, TJ Murphy, RE Guldberg, WR Taylor\*. Decreased Collateral Vessel Formation in Mice with Overexpression of Monocyte Specific Receptor for Advanced Glycation Endproducts (RAGE). AHA Scientific Sessions 2005, Dallas, TX, November 2005. (oral)

213. **CL Duvall**, WR Taylor, RE Guldberg\*. Osteopontin Deficient Mice Display Reduced Vascular Response and Altered Bone Properties during Fracture Healing. ASME 2005 Summer Bioengineering Conference, Vail, CO, June 2005. (oral)
214. **CL Duvall**, WR Taylor, RE Guldberg\*. Altered Bone Properties and Fracture Healing in Osteopontin Deficient Mice. 51st Annual Meeting of the Orthopedic Research Society, Washington D.C., February 2005. (oral)
215. **CL Duvall**, WR Taylor, RE Guldberg\*. Quantitative Microcomputed Tomography Analysis of Vascular Growth. 50th Annual Meeting of the Orthopedic Research Society, San Francisco, CA, March 2004. (oral)
216. **CL Duvall**, WR Taylor, RE Guldberg\*. Micro-CT Based Methods for Quantification of Vascular Growth. Tissue Engineering Society International, Orlando, FL, December 2003. (oral)
217. **CL Duvall**, GC Robertson, F Alameddine, KJ Jepsen, L Liaw, WR Taylor, RE Guldberg\*. Osteopontin Plays a Key Role in Angiogenesis within Subcutaneously Implanted Porous Polymer Sponges and Following Vascular Injury in vivo. ET 2003: Engineering Tissues, Hilton Head, SC, March 2003. (poster)
218. **CL Duvall**, GC Robertson, F Alameddine, KJ Jepsen, L Liaw, WR Taylor, RE Guldberg\*. Altered Angiogenesis and Whole Bone Properties in Osteopontin Deficient Mice. 49th Annual Meeting of the Orthopedic Research Society, New Orleans, LA, February 2003. (oral)
219. R Guldberg\*, S Cartmell, N Case, R Coleman, A Duty, **C Duvall**, K Huynh, A Lin, S Nagaraja, M Oest, B Porter, G Robertson. Tissue Engineering Applications of Microcomputed Tomography Imaging. International Congress on Biological and Medical Engineering, Singapore. December 2002. (oral)
220. F Alameddine, **CL Duvall**, GC Robertson, L Liaw, RE Guldberg, WR Taylor\*. Osteopontin (OPN) Plays a Central Role in Angiogenesis. American Heart Association Scientific Sessions, Chicago, IL, November 2002. (oral)
221. SM Kladakis, M Ma, **CL Duvall**, D Bronnenberg, RM Nerem, SR Hanson\*. The Effect of Shear Stress on the Cell Shape and F-actin alignment of Circulating Endothelial Progenitor Cells from Baboon Blood. Tissue Engineering 2002: International Workshop, St. Gallen, Switzerland. February 2002.