

CATHERINE KYLEEN KUO

CONTACT

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EDUCATION

Ph.D., Biomaterials / Macromolecular Science and Engineering, University of Michigan, Ann Arbor, MI, Dec 2002
Joint Ph.D. Program

- Department of Biologic and Materials Sciences
- Macromolecular Science and Engineering Center

B.S.E., Materials Science and Engineering, University of Michigan, Ann Arbor, MI, May 1997

PROFESSIONAL EXPERIENCE

Visiting Scientist. Chemical Engineering (Langer Laboratory), MIT, Cambridge, MA. 2011 – Present

Assistant Professor. Department of Biomedical Engineering, Tufts University, Medford, MA. 2008 – Present

Assistant Professor. Sackler School of Biomedical Sciences, Tufts University, Boston, MA. 2010 – Present

Postdoctoral Fellow. Dr. Rocky S. Tuan, Mentor. National Institutes of Health, Bethesda, MD. 2002 – 2008

Graduate Student Research Fellow. Dr. Peter X. Ma, Mentor. Department of Biologic and Materials Sciences, Macromolecular Science and Engineering Center, University of Michigan, Ann Arbor, MI. 1997 – 2002

Research Scientist. Research and Development, Morrow Snowboards, Inc., Salem, OR. 1996

Engineer. Vehicle Systems Synthesis Analysis, General Motors Corporation, Warren, MI. 1995

HONORS & AWARDS

2012 Invited Speaker, 2012 BMES-SPRBM Conference on Cellular and Molecular Bioengineering, San Juan, Puerto Rico

2011 Invited Speaker, Gordon Research Conference on Biomaterials and Tissue Engineering, Holderness, NH– *not attended due to medical leave*

2011 March of Dimes Basil O'Connor Starter Scholar Research Award

2011 Faculty Research Award Grant, Tufts University

2010 Featured Scientist, NIH Women in Biomedical Careers – Women Scientists in Action

2009 Invited Speaker, NSF Biomaterials Workshop, Réduit, Mauritius

2009 Faculty Research Award Grant, Tufts University

2009 Invited Speaker, Biomaterials and Tissue Engineering Session, 35th Annual Northeast Bioengineering Conference, Cambridge, MA

2008 Invited Speaker, Gordon Research Conference on Musculoskeletal Biology and Bioengineering, Proctor Academy, Andover, NH

2008 Invited Speaker, NIH Career Symposium, National Institutes of Health, Bethesda, MD

2007 Invited Speaker, Tissue Engineering and Regenerative Medicine Session, 20th NIH Research Festival, Bethesda, MD

2007 Keystone Symposia Scholarship, Tissue Engineering and Development Biology, Snowbird, UT

2006 Keynote Postdoctoral Fellow Speaker, North Carolina Tissue Engineering & Regenerative Medicine 2006 Meeting, Research Triangle Park, NC

2006 Travel Grant Award, International Workshop on the Growth Plate, Stevenson, WA

2006 Poster Award, NIH / NIAMS Intramural Retreat 2006, Bethesda, MD

February 14, 2012

- 2006 Best Research Fellow Paper, Sixth International Symposium on Ligaments and Tendons, Chicago, IL
- 2006 Student Award, Society for Physical Regulation in Biology and Medicine 24th Scientific Conference, Cancun, Mexico
- 2005 Best Research Fellow Paper, Fifth International Symposium on Ligaments and Tendons, Washington, DC
- 2004 Outstanding Scientific Presentation Award, NIAMS Intramural Retreat 2004, Gettysburg, PA
- 2002 NIH Intramural Research Training Award Postdoctoral Fellowship (2002-2007), Bethesda, MD
- 2001 Dominic D. Dziewiatkowski Award for Excellence in Research, Dental School, University of Michigan, Ann Arbor, MI
- 2001 Student Travel and Professional Development Honorable Mention, Society for Biomaterials, Saint Paul, MN
- 2000 UM Macromolecular Science & Engineering Center Rackham Block Grant, Awarded for Outstanding Research, Ann Arbor, MI
- 2000 Best Engineering Presentation Award, UM Macromolecular Science & Engineering Center 24th Annual Symposium, Ann Arbor, MI
- 1999 UM Oral Health Sciences PhD Program Block Grant, Awarded for Outstanding Research Proposal, Ann Arbor, MI
- 1997 NIH Biomaterials Training Grant Fellowship (1997-2002), Ann Arbor, MI

PROFESSIONAL ACTIVITIES

International and National

- Chair.** Tendon and Ligament Tissue Engineering Session, 2012 ORS Annual Meeting, San Francisco, CA, 2012
- Session Moderator and Judge.** ISL&T-XII, San Francisco, CA, 2012
- Track Co-Chair.** Orthopedic and Rehabilitation Engineering Track. BMES Annual Fall Meeting, Hartford, CT, 2011
- Program Committee Member, Session Moderator and Judge.** ISL&T-XI, Long Beach, CA, 2011
- Member.** International Advisory Committee for International Symposium on Ligaments and Tendons (ISL&T), 2010-Present
- Chair.** Cartilage Repair Basic Science Short Talk Session, 2011 ORS Annual Meeting, Long Beach, CA, 2011
- Chair.** Stem Cells and Tissue Engineering Session, 2010 BMES Annual Fall Meeting, Austin, TX, 2010
- Moderator.** Mechanobiology and Bioengineering Session, Gordon Research Conference on Musculoskeletal Biology and Bioengineering, Proctor Academy, Andover, NH, 2010
- Chair.** Bioreactors Design for Mechanical Stimulation Session, 2010 TERMIS-EU, Galway, Ireland, 2010
- Program Committee Member, Session Moderator and Judge.** ISL&T-X, Hong Kong, SAR, 2010
- Co-Chair.** Working Group on Career Development, 3rd Regional Scientific Workshop: "Moving Into the Future: New Dimensions and Strategies for Women's Health Research at the NIH," Office of Research on Women's Health/NIH/DHHS, Providence, RI, 2009
- Chair.** Tendon and Ligament Engineering Session, 2009 BMES Annual Fall Meeting, Pittsburgh, PA, 2009
- Chair.** Biomaterials and Tissue Engineering Session, NEBEC Annual Meeting, Cambridge, MA, 2009
- Program Committee Member, Session Moderator and Judge.** ISL&T-IX, Las Vegas, NV, 2009
- Chair.** "Integration of Women into Bioengineering Fields," Subcommittee 11 of NIH Working Group for Women in Biomedical Careers (*NIH Working Group co-chaired by NIH Director Elias Zerhouni and Dr. Vivian Pinn*), Bethesda, MD, 2007-2008
- Member.** "Mentoring Programs," Subcommittee 8 of NIH Working Group for Women in Biomedical Careers, Chaired by Dr. Lawrence Tabak (*NIH Working Group co-chaired by NIH Director Elias Zerhouni and Dr. Vivian Pinn*), Bethesda, MD, 2007-2008
- Faculty.** American Academy of Orthopaedic Surgeons / Orthopaedic Research and Education Foundation / Orthopaedic Research Society 2007 Clinician Scientist Development Program, Asheville, NC, 2007

Session Moderator. North Carolina Tissue Engineering & Regenerative Medicine Meeting, Research Triangle Park, NC, 2006

Co-Chair. Job Fair for NIH Postdoctoral, Research, and Clinical Fellows, (Member, 2005), Bethesda, MD, 2006, 2007

Institute Representative. NIH Fellows Committee: Basic Science Pathway Representative for NIAMS, Bethesda, MD, 2005-2007

Founder & Coordinator. NIAMS Fellows' Forum, Bethesda, MD, 2004-2007

Tufts University

Undergraduate Student Advisor. Undergraduate Classes of 2014, 2016. School of Engineering, 2011

Alumni Relations Coordinator. Biomedical Engineering Department, 2011-Present

Advisor. CSEMS Program for Undergraduate Students from Low-Income Backgrounds, 2008-Present

Library Liaison. Biomedical Engineering Department, 2008-Present

Co-Chair. Faculty Search Committee, Biomedical Engineering, 2008-2009

REVIEWER

Journals: *Acta Biomaterialia, The American Journal of Sports Medicine, Connective Tissue Research, Journal of Applied Physiology, Journal of Biomechanics, Journal of Medical Devices, Journal of Orthopedic Research, Materials, Materials Characterization, Matrix Biology, Journal of Tissue Engineering and Regenerative Medicine, Molecular Biotechnology, PLoS ONE, Tissue Engineering*

Proposals: Department of Defense, National Institutes of Health, National Institute of Standards and Technology, National Science Foundation, Research Grant Council of Hong Kong

PATENTS (ISSUED)

Kuo CK, Tuan RS, Winslow M, "Bioreactor Chamber Apparatus, and Method and System for Fabricating and Mechanically Stimulating Natural and Engineered Tissues," WO/2006/094212. Licensed to Tissue Growth Technologies.

PEER-REVIEWED PUBLICATIONS

Brown JP, Lind R, Burzese A, Kuo CK, "Elastogenesis of a Spinal Ligament During Embryonic Development and Postnatal Maturation and Aging," *J. of Orthopedic Research*. (In review).

Pritchard E, Hu X, Finley V, Kuo CK, Kaplan DL, "Effect of Silk Protein Processing on Drug Delivery from Silk Films," *J. of Controlled Release*. (In review).

Shamis Y, Hewitt KJ, Carlson MW, Margvelashvili M, Kuo CK, Daheron L, Egles C, Garlick JA, "Fibroblasts derived from human ES cells direct development and repair of 3D human skin equivalents," *Stem Cell Research and Therapy*. Feb 21;2(1):10 (2011).

Kuo CK, Marturano JE, Tuan RS, "Novel strategies in tendon and ligament tissue engineering: Advanced biomaterials and regeneration motifs," *Sports Medicine, Arthroscopy, Rehabilitation, Therapy & Technology* (2010).

Lozito TP, Kuo CK, Taboas JM, and Tuan RS, "Human mesenchymal stem cells express vascular cell phenotypes upon interaction with endothelial cell matrix," *Journal of Cellular Biochemistry*. Jul 1;107(4):714-22 (2009).

Lozito TP, Taboas JM, Kuo CK, and Tuan RS, "Mesenchymal stem cell modification of endothelial matrix regulates their vascular differentiation," *Journal of Cellular Biochemistry*. Jul 1;107(4):706-13 (2009).

- Korecki CL, Kuo CK, Tuan RS, Iatridis JC, “Intervertebral disc cell response to dynamic compression is age and frequency dependent,” *Journal of Orthopaedic Research*. Jun; 27(6):800-6 (2009).
- Banos CC*, Thomas AH*, Kuo CK, “Collagen Fibrillogenesis in Tendon Development: Current Models and Regulation of Fibril Assembly,” *Birth Defects Research (Part C): Embryo Today: Reviews*. Sep;84(3), 228-244 (2008). *These authors contributed equally.
- Kuo CK & Tuan RS, “Mechanoactive tenogenic differentiation of human mesenchymal stem cells,” *Tissue Engineering. Tissue Engineering Part A*. Oct;14(10):1615-27 (2008).
- Kuo CK, Petersen BC, Tuan RS, “Correlation of TGF- β isoforms and their receptors with matrix molecule expression during embryonic tendon development,” *Developmental Dynamics: Patterns and Phenotypes*, 237(5), 1477-1489 (2008).
- Kuo CK & Ma PX, “Maintaining dimensions and mechanical properties of ionically crosslinked alginate hydrogel scaffolds in vitro,” *Journal of Biomedical Materials Research: Part A*, 84(4), 899-907 (2007). Early View Published Online: 23 Jul 2007.
- Arany PR, Flanders K, Kobayashi T, Kuo CK, Stuelten C, Desai K, Tuan RS, Rennard SI, Roberts AB, “Smad3 deficiency alters key structural elements of the extracellular matrix and the mechanotransduction of wound closure,” *Proceedings of the National Academy of Sciences of the United States of America*, 103(24), 9250-9255 (2006).
- Kuo CK*, Li WJ*, Mauck RL*, Tuan RS, “Cartilage tissue engineering: its potential and uses,” *Current Opinion in Rheumatology*, 18, 64-73 (2006). *These authors contributed equally.
- Kuo CK & Tuan RS, “Tissue Engineering with Mesenchymal Stem Cells, The Possibilities of Using Stem Cells in Place of Tissue-Specific Cells,” *IEEE Engineering in Medicine and Biology Magazine*, 22(5), 51-56 (2003).
- Kuo CK & Ma PX, “Ionically crosslinked alginate hydrogels as scaffolds for tissue engineering: Part 1. Structure, gelation and mechanical properties,” *Biomaterials* 22(6), 511-521 (2001).

BOOK CHAPTERS

- Tuan RS, Kuo CK, Li WJ, “Cartilage and Ligament Tissue Engineering,” *BIOMATERIALS SCIENCE: An Introduction to materials in Medicine 3RD EDITION*, Ratner B, Schoen F, Hoffman A, Lemons J (eds), Academic Press. 2011.
- Taboas JM, Kuo CK, Huang G T-J, Tuan RS, “Growth Factors in Adult Stem Cell Based Skeletal Tissue Engineering,” *Translational Approaches in Tissue Engineering and Regenerative Medicine*, Mao J, Mikos A, Vunjak-Novakovic G (eds), Artech House Publishers. 2007.

INVITED TALKS

- “Structure-Property Relationships of Embryonic Tendon During Development,” 2nd Inaugural Conference on Cellular and Molecular Bioengineering, San Juan, Puerto Rico, January 3 – 7, 2012.
- “Harnessing Embryonic Cues to Inform Tissue Regeneration Strategies,” Gordon Research Conference on Biomaterials and Tissue Engineering, Holderness, NH, July 31 - August 5, 2011. *Not attended due to medical leave.*
- “An Engineer’s Approach to Developmental Biology,” Center for Molecular Medicine, Maine Medical Center Research Institute, Portland, ME, April 28, 2011.

- “Engineering Models for Tissue Development and Regeneration,” Biomedical Engineering Department, Rensselaer Polytechnic Institute, Troy, NY, January 26, 2011.
- “Engineering Models for Tissue Development and Regeneration,” Mechanical Engineering Department, Northeastern University, Boston, MA, April 1, 2010
- “Mechanical Factors for Tissue Development,” Biomaterials: Perspectives and Possibilities, NSF Workshop, University of Mauritius, Réduit, Mauritius, November 30, 2009.
- “Engineering Models for Tissue Development and Regeneration,” Sackler School of Graduate Biomedical Sciences, Tufts University, Boston, MA, November 19, 2009
- “Stem Cell-Based Strategies for Musculoskeletal Tissue Regeneration,” Orthopaedic Grand Rounds, New England Baptist Hospital, Boston, MA, November 4, 2009.
- “Enhancing Tenogenesis for Tissue Engineering,” Biomaterials and Tissue Engineering Session, 35th Annual Northeast Bioengineering Conference, Cambridge, MA, April 4, 2009
- “Mechanoregulation of Mesenchymal Differentiation,” Gordon Research Conference on Musculoskeletal Biology and Bioengineering, Proctor Academy, Andover, NH, July 27, 2008.
- “Mechanoactive Tenogenesis of Adult Mesenchymal Stem Cells,” Tissue Engineering and Regenerative Medicine Session, 20th NIH Research Festival, Bethesda, MD, September 26, 2007.
- “Stem Cell-Based Musculoskeletal Tissue Regeneration Strategies: Meeting at the Crossroads of Engineering and Developmental Biology,” Biochemical Science Division, NIST, Gaithersburg, MD, May 11, 2007.
- “Stem Cell-Based Musculoskeletal Tissue Regeneration Strategies: Meeting at the Crossroads of Engineering and Developmental Biology,” The George W. Woodruff School of Mechanical Engineering, Georgia Tech, Atlanta, GA, May 3, 2007.
- “Stem Cell-Based Musculoskeletal Tissue Regeneration Strategies: Meeting at the Crossroads of Engineering and Developmental Biology,” Sibley School of Mechanical and Aerospace Engineering, Cornell University, Ithaca, NY, April 25, 2007.
- “Stem Cell-Based Tendon Regeneration Strategies: Meeting at the Crossroads of Engineering and Developmental Biology,” College of Engineering and Mathematical Sciences, University of Vermont, Burlington, VT, April 3, 2007.
- “Stem Cell-Based Tendon Regeneration Strategies: Meeting at the Crossroads of Engineering and Developmental Biology,” Biomedical Engineering Department, Tufts University, Medford, MA, March 19, 2007.
- “Drawing on Developmental Biology to Understand Tenogenesis of Human Mesenchymal Stem Cells,” Department of Orthopaedics, Mount Sinai School of Medicine, New York, NY, January 26, 2007.
- “Drawing on Developmental Biology to Understand Tenogenesis of Human Mesenchymal Stem Cells,” North Carolina Tissue Engineering & Regenerative Medicine 2006 Meeting, Research Triangle Park, NC, August 25, 2006.
- “Tendon Regeneration: Pulling at Biology and Engineering,” The Orthobiologics Group of Wyeth Discovery Research, Cambridge, MA, February 23, 2006.
- “Tenogenic Potential of Mesenchymal Stem Cells,” Taipei Medical University, Graduate Institute of Medical Sciences, Taipei, R.O.C., September 15, 2005.
- “Growth Factor Modulation of Scleraxis-Driven Tenogenesis,” Gordon Research Conference on Musculoskeletal Biology and Bioengineering, Proctor Academy, Andover, NH, July 27, 2004. Poster Selected for Podium Presentation.

- “Musculoskeletal Tissue Regeneration: Basic Concepts and Tools,” National Institutes of Health, National Institute of Arthritis, and Musculoskeletal and Skin Diseases, NIAMS Fellows’ Forum, Bethesda, MD, September 27, 2004.
- “What’s With All the Eggs?” Cartilage Biology and Orthopaedics Branch Research Talk (with Cynthia Coleman, Wan-Ju Li, and Robert Mauck), Given to the Division of Bioengineering and Physical Science Research, National Institutes of Health, Bethesda, MD, October 24, 2003.
- “Ionically Crosslinked Alginate Hydrogels as Scaffolds for Tissue Engineering,” National Institutes of Health, National Institute of Arthritis, and Musculoskeletal and Skin Diseases, Cartilage Biology and Orthopaedics Branch, Washington, DC, June 27, 2002.
- “Ionically Crosslinked Alginate Hydrogels as Scaffolds for Tissue Engineering,” National Institute of Standards and Technology, Polymer Division, Tissue Engineering Seminar Series, Gaithersburg, MD, June 25, 2002.
- “Adhesion Properties of Ultraviolet-Curable Inks to High-Density Polyethylene” Oregon State University, Department of Chemical Engineering, City, OR, June, 1996.

CONFERENCE PRESENTATIONS & ABSTRACTS (Selected)

- Brown JP, Finley V, Henry A, Kuo CK. “Mechanical Loading Effects on Elastogenic Gene Expression of Embryonic Tendon and Ligament Cells *In Vitro* Varies with Developmental Stage and Anatomical Location”, 2012 ORS Annual Meeting, San Francisco, CA, February 4-7. Podium Presentation.
- Marturano JE, Kuo CK. “Mechanical and biochemical effects of inhibiting collagen crosslinking in developing embryonic tendon,” 2012 Annual Meeting of the Orthopaedic Research Society, San Francisco, CA, February 4-7, 2012. Poster Presentation.
- Marturano JE, Schiller ZA, Kuo CK. “Effects of collagen crosslink inhibition on embryonic tendon,” Twelfth International Symposium on Ligaments and Tendons, San Francisco, CA, February 3, 2012. Podium Presentation.
- Brown JP, Finley V, Henry AB, Kuo CK “Mechanical Loading Effects on Embryonic Tendon and Ligament Cells *In Vitro* Varies with Developmental Stage and Biochemical Cues,” 2011 TERMIS-NA Annual Meeting, Houston, TX, December 11-14, 2011. Poster Presentation.
- Marturano JE, Schiller ZA, Kuo CK. “Elaboration of mechanical and biochemical properties of embryonic tendon during development,” 2011 TERMIS-NA, Houston, TX, December 11-14, 2011. Poster Presentation.
- Schiller ZA, Kuo CK, “Reducing cytoskeletal tension can modulate the effects of hypoxia on adipogenesis of mesenchymal stem cells,” 2011 TERMIS-NA Annual Meeting, Houston, Texas, December 11 -14, 2011. Poster Presentation.
- Brown JP, Finley V, Kuo CK. “Embryonic Ligament and Tendon Cell Response to Mechanical Loading Varies with Developmental Stage,” 2011 BMES Annual Meeting, Hartford, CT, October 12-15, 2011. Podium Presentation.
- Marturano JE, Kuo CK. “Collagen crosslinking contributes significantly to the mechanical properties of developing tendon,” 2011 BMES Annual Meeting, Hartford, CT, October 12-15, 2011. Podium Presentation.
- Finley V, Brown JP, Kuo CK. “Synergistic Effects of Mechanical and Soluble Cues on Embryonic Tendon Cell Gene Expression,” 2011 BMES Annual Meeting, Hartford, CT, October 12-15, 2011. Poster Presentation.
- Schiller ZA, Kuo CK, “Modulating cytoskeletal tension regulates the effects of hypoxia on adipogenesis of mesenchymal stem cells,” 2011 BMES Annual Meeting, Hartford, CT, October 12-15, 2011. Poster Presentation.
- Kuo CK, “Investigating structure-function relationships of developing tendon,” Annual Hilton Head Workshop, GTEC, Hilton Head, SC, March 16, 2011. Podium Presentation..

- Brown JP, Lind RM, Kuo CK, "Spinal ligament tissue development *in vivo* and cell response to growth factors *in vitro*," Eleventh International Symposium on Ligaments and Tendons, Long Beach, CA, January 12, 2011. Podium Presentation. Winner of Savio L-Y Woo Young Researcher Award.
- Marturano JE, Schiller ZA, Kuo CK, " Probing biochemical contributions to mechanical properties of developing tendon," Eleventh International Symposium on Ligaments and Tendons, Long Beach, CA, January 12, 2011. Poster Presentation.
- Marturano JE, Schiller ZA, Kuo CK, "Assessing the contribution of tissue constituents to mechanical properties of embryonic tendon," Orthopaedic Research Society 57th Annual Meeting, Long Beach, CA, January 13-16, 2011. Short Talk and Poster Presentation.
- Thomas AH, Schiller ZA, Kuo CK, "Myoblasts and Myotubes Differentially Regulate Embryonic Tendon Cell Gene Expression," Orthopaedic Research Society 57th Annual Meeting, Long Beach, CA, January 13-16, 2011. Short Talk and Poster Presentation.
- Brown JP, Lind RM, Kuo CK, "Elastogenesis of the Ligamentum Flavum During Development, Maturation and Aging," Orthopaedic Research Society 57th Annual Meeting, Long Beach, CA, January 13-16, 2011. Poster Presentation.
- Marturano JE, Arena J, Kuo CK, "Analysis of spatiotemporal changes in elasticity of developing tendon using atomic force microscopy," 2010 BMES Annual Meeting, Austin, Texas, October 6-9, 2010. Podium Presentation.
- Thomas AH, Burbank A, Kuo CK, "Co-regulation of tendon and muscle progenitor cells via paracrine signaling in a 3D culture system," 2010 BMES Annual Meeting, Austin, Texas, October 6-9, 2010. Podium Presentation.
- Schiller ZA, Kuo CK, "Hypoxia-mediated adipogenesis of mesenchymal stem cells may be regulated via the cytoskeleton," 2010 BMES Annual Meeting, Austin, Texas, October 6-9, 2010. Poster Presentation.
- Thomas AH, Schiller ZA, Banos CC, Kuo CK, "Immature and mature muscle cells secrete soluble factors to differentially regulate embryonic tendon cell tenogenesis *in vitro*," 2010 BMES Annual Meeting, Austin, Texas, October 6-9, 2010. Poster Presentation.
- Marturano JE, Arena J, Kuo CK, "Characterization of Embryonic Tendon Mechanical Properties and Morphology," Tissue Engineering and Regenerative Medicine International Society-EU Chapter Meeting, Galway, Ireland, June 13-17, 2010. Podium Presentation.
- Thomas AH, Schiller ZA, Banos CC, Kuo CK, "Influence of Muscle-Derived Soluble Factors on Embryonic Tendon Progenitor Cells," 36th Annual Northeast Bioengineering Conference, New York, NY, March 26-29, 2010. Poster Presentation.
- Banos CC, Thomas AH, Schiller ZA, Kuo CK, "Influence of Muscle-Derived Soluble Factors on Embryonic Tendon Progenitor Cells," Orthopaedic Research Society 56th Annual Meeting, New Orleans, LA, March 6-9, 2010. Poster Presentation.
- Marturano JE, Arena J, Kuo CK, "Variation of embryonic tendon elasticity measured with underwater force-volume atomic force microscopy," Orthopaedic Research Society 56th Annual Meeting, New Orleans, LA, March 6-9, 2010. Podium Presentation (Spotlight Session).
- Thomas AH, Banos CC, Kuo CK, "Investigating the Effects of Muscle Differentiation Stage on Tendon Progenitor Cells," 2009 BMES Annual Fall Meeting, Pittsburgh, PA, October 7-10, 2009. Podium Presentation.
- Zamarripa N, Farboodmanesh S, Kuo CK, "Novel Biomimetic Scaffold for Tendon and Ligament Tissue Engineering," 35th Annual Northeast Bioengineering Conference, Cambridge, MA, April 3-5, 2009. Podium Presentation.
- Banos CC, Thomas AH, Kuo CK, "Influence of Muscle-Derived Soluble Factors on Embryonic Tendon Progenitor Cells," 35th Annual Northeast Bioengineering Conference, Cambridge, MA, April 3-5, 2009. Poster Presentation.

- Thomas AH, Zamarripa N, Farboodmanesh S, Kuo CK, “Novel Composite Nanofiber Scaffolds for Tenogenesis of MSCs,” 2008 BMES Annual Fall Meeting, St. Louis, MO, October 2-4, 2008. Poster Presentation.
- Kuo CK, Onodera J, Taboas JM, Tuan RS, “MMPs are Involved in Tenogenic Differentiation of Mesenchymal Stem Cells,” Orthopaedic Research Society 54th Annual Meeting, San Francisco, CA, March 2-5, 2008. Podium Presentation.
- Kuo CK, Morgan MT, Song Y, Tuan RS, “BMP-4 and TGF- β 3 Synergistically Enhance Chondrogenic Differentiation of Human Mesenchymal Stem Cells,” Orthopaedic Research Society 54th Annual Meeting, San Francisco, CA, March 2-5, 2008. Poster Presentation.
- Lozito T, Kuo CK, Taboas JM, Tuan RS, “Expression of Vascular Cell Markers by Adult Human Mesenchymal Stem Cells is Enhanced by Solubilizable Factors in Endothelial Cell Matrix,” Orthopaedic Research Society 54th Annual Meeting, San Francisco, CA, March 2-5, 2008. Poster Presentation.
- Lozito T, Kuo CK, Taboas JM, Tuan RS, “Adult Human Mesenchymal Stem Cells Secrete Enzymes that Alter the Biological Activity of Endothelial Cell Matrix,” Orthopaedic Research Society 54th Annual Meeting, San Francisco, CA, March 2-5, 2008. Poster Presentation.
- Korecki CL, Kuo CK, Tuan RS, Iatridis JC, “Intervertebral Disc Cell Response to Dynamic Compression is Age and Frequency Dependent,” Orthopaedic Research Society 54th Annual Meeting, San Francisco, CA, March 2-5, 2008. Poster Presentation.
- Korecki CL, Kuo CK, Tuan RS, Iatridis JC, “Effect of Age and Frequency on Intervertebral Disc Cell Response to Dynamic Compression,” Proceedings of the ASME 2007 Summer Bioengineering Conference, Keystone, CO, June 20-24, 2007. Podium Presentation.
- Kuo CK & Tuan RS, “Three-Dimensional Tenogenesis of Adult Mesenchymal Stem Cells Depends on Mechanical and Biological Stimulation,” Keystone Symposium on Tissue Engineering and Development Biology, Snowbird, UT, April 12-17, 2007. Poster Presentation.
- Kuo CK, Taboas JM, Tuan RS, “TGF- β 3 Potentiates Tenogenesis and Neotissue formation by Human Mesenchymal Stem Cells in 3D Culture,” Orthopaedic Research Society 53rd Annual Meeting, San Diego, CA, February 11-14, 2007. Poster Presentation.
- Morgan MT, Kuo CK, Tuan RS, “Differential Effects of BMP-4 and TGF- β 3 on the Chondrogenic Differentiation of Human Mesenchymal Stem Cells in Alginate Hydrogels,” The 8th New Jersey Symposium on Biomaterials Science, New Brunswick, NJ, November 8-10, 2006. Poster Presentation.
- Lozito T, Kuo CK, Taboas JM, Tuan RS, “Endothelial Cell Matrix Influences MSC Stem Cell Differentiation,” American Society for Matrix Biology, Biennial Meeting 2006, Nashville, TN, November 1-4, 2006. Podium Presentation.
- Kuo CK & Tuan RS, “Regulating Tenogenic Differentiation of Adult Mesenchymal Stem Cells,” Gordon Research Conference. 2006 Gordon Research Conference on Musculoskeletal Biology and Bioengineering, Proctor Academy, Andover, NH, July 23-28, 2006. Poster Presentation.
- Lozito T, Kuo CK, Taboas JM, Tuan, RS, “Differentiating Mesenchymal Stem Cells into Endothelial Cells,” 4th Annual Meeting of the International Society for Stem Cell Research, Toronto, Canada, June 29-July 1, 2006. Poster Presentation.
- Kuo CK, Boyce AT, Cerrato R, Petersen BC, Tuan RS, “Chondrogenic vs. Tenogenic Effects of Growth/Differentiation Factors -5, -6, and -7 are Regulated by the Microenvironment,” International Workshop on the Growth Plate, Stevenson, WA, June 11-15, 2006. Poster Presentation.
- Arany PR, Flanders KC, Kobayashi T, Kuo CK, Stuelten C, Desai KV, Tuan R, Rennard SI, Roberts AB, “Smad3 Deficiency Affects the Mechanotransduction of Wound Closure,” The Wound Healing Society 16th Annual

- Meeting and Exhibition, Scottsdale, AZ, May 14-17, 2006. Podium Presentation.
- Kuo CK & Tuan RS, "Wnt and MMP Expression During Dynamic Tenogenesis of Mesenchymal Stem Cells," Sixth International Symposium on Ligaments and Tendons, Chicago, IL, March 18, 2006. Podium Presentation.
- Kuo CK & Tuan RS, "Cyclic Tensile Stimulation Regulates Transcription of MMPs During Tenogenesis of Human Mesenchymal Stem Cells," Stem Cells, Tissue Engineering and Regenerative Medicine, 24th Scientific Conference of the Society for Physical Regulation in Biology and Medicine, Cancun, Mexico, January 11-13, 2006. Podium Presentation.
- Kuo CK & Tuan RS, "Human Mesenchymal Stem Cell Response to Uniaxial Tensile Loading in a 3D Construct," Orthopaedic Research Society 52nd Annual Meeting, Chicago, IL, March 19-22, 2006. Poster Presentation.
- Kuo CK, Petersen BC, Marcum KL, Tuan RS, "Growth Factor and Extracellular Matrix Expression in Embryonic Tendon Development," Orthopaedic Research Society 52nd Annual Meeting, Chicago, IL, March 19-22, 2006. Poster Presentation.
- Kuo CK & Tuan RS, "Three-Dimensional Culture Regulates Gene Expression of Scleraxis and Tenogenic Matrix Molecules in Human Mesenchymal Stem Cells," 3rd Annual Meeting of the International Society for Stem Cell Research, San Francisco, CA, June 23-25, 2005. Poster Presentation.
- Kuo CK & Tuan RS, "Probing Tenogenic Potential of Human Mesenchymal Stem Cells," Morphogenesis and Regenerative Medicine Symposium, Charlottesville, VA, May 23-25, 2005. Poster Presentation.
- Kuo CK, Wang X, Tuan RS, "Scleraxis-Driven Tenogenesis of Human Mesenchymal Stem Cells," Orthopaedic Research Society 51st Annual Meeting, Washington, DC, February 20-23, 2005. Podium Presentation.
- Kuo CK, Christoforetti J, Thompson D, Clinton C, Brockmeier S, Tuan RS, "A Model for Embryonic Tendon Wound Healing In Ovo," Orthopaedic Research Society 51st Annual Meeting, Washington, DC, February 20-23, 2005. Poster Presentation.
- Kuo CK & Tuan RS, "Three-Dimensionality Regulates Scleraxis Expression During Tenogenesis of Mesenchymal Stem Cells," Fifth International Symposium on Ligaments and Tendons, Washington, DC, February 19, 2005. Podium Presentation.
- Kuo CK, Wang X, Tuan RS, "Cell Traction Induces Differentiation of Scleraxis-Expressing Mesenchymal Stem Cells," Polymer Networks 2004: 17th Polymer Networks Group Meeting, National Institutes of Health, Bethesda, MD, August 15-19, 2004. Poster Presentation.
- Kuo CK & Tuan RS, "Scleraxis-Driven Mesenchymal Stem Cell-Based Tissue Regeneration Construct," 2004 Gordon Research Conference on Musculoskeletal Biology and Bioengineering, Proctor Academy, Andover, NH, July 25-30, 2004. Poster Presentation, Selected for Podium Presentation.
- Kuo CK & Tuan RS, "Scleraxis-Driven Mesenchymal Stem Cell-Based Tissue Regeneration Construct," Tissue Engineering Society International 6th Annual International Conference and Exposition, Orlando, FL, December 10-13 2003. Podium Presentation.
- Kuo CK & Ma PX, "Tissue Regeneration Templates Based on Alginate Hydrogels", 2002 Society for Biomaterials 28th Annual Meeting, Tampa, FL, April 24-27, 2002. Poster Presentation.
- Kuo CK & Ma PX, "Characterization of Dimensionally Stable, Ionically Crosslinked Alginate Hydrogel Scaffolds", American Institute of Chemical Engineering Annual Meeting, Reno, NV, November 2-4, 2001. Poster Presentation.
- Kuo CK, Woo KM, Ma PX, "Alginate Scaffolds for Mechanical Stimulation of Cartilage", Macromolecular Science and Engineering Center 25th Annual Symposium, Ann Arbor, MI, October 25, 2001. Poster Presentation.

- Kuo CK & Ma PX, "Ionically Crosslinked Alginate Hydrogels: Effect of Aqueous Environment on Mechanical Properties", Society for Biomaterials 27th Annual Meeting and Exposition, Saint Paul, MN, April 24-29, 2001. Poster Presentation.
- Kuo CK & Ma PX, "Injectable Hydrogel Matrices Designed for Repair of Craniofacial Bone Defects", 30th Annual Meeting and Exhibition of the American Association for Dental Research, Chicago, IL, March 7-10, 2001. Podium Presentation.
- Kuo CK & Ma PX, "Controlling Diffusion of Solutes through Ionically Crosslinked Alginate Hydrogels Designed for Tissue Engineering", 2000 Materials Research Society Fall Meeting, Boston, MA, Nov 27-Dec 1, 2000. Poster Presentation.
- Kuo CK & Ma PX, "Functional Properties of Novel Injectable Hydrogels for Tissue Engineering Scaffolding", Macromolecular Science and Engineering Center 24th Annual Symposium, Ann Arbor, MI, October 19, 2000. Poster Presentation.
- Kuo CK & Ma PX, "Controlling Gelation Rate of Ionically Crosslinked Alginate Hydrogels", 2000 Annual Fall Meeting of the Biomedical Engineering Society, Seattle, WA, October 12-14, 2000. Poster Presentation.
- Kuo CK & Ma PX, "Diffusivity of Three-Dimensional, Ionically Crosslinked Alginate Hydrogels", 4th International Symposium on Biorelated Polymers at the 220th ACS National Meeting, Washington D.C., August 20-24, 2000. Podium Presentation.
- Kuo CK & Ma PX, "Ionically Crosslinked Alginate Hydrogels: Controlling Gelation Rate", Sixth World Biomaterials Congress, Kamuela, HA, May 15-20, 2000.
- Kuo CK & Ma PX, "Characterization of Material Properties of Ionically Crosslinked Alginate Gels as Scaffolds for Tissue Engineering", Macromolecular Science and Engineering Center 23rd Annual Symposium, Ann Arbor, MI, October 21, 1999. Poster Presentation.
- Kuo CK & Ma PX, "Ionically Crosslinked Three Dimensional Alginates for Tissue Engineering", The Fifth International Union of Materials Research Societies International Conference on Advanced Materials, Beijing, China, June 12-18, 1999. Poster Presentation.
- Kuo CK & Ma PX, "Ionically Crosslinked Alginates as Three-Dimensional Templates for Tissue Engineering", Society for Biomaterials 25th Annual Meeting, Providence, RI, April 28-May 2, 1999. Podium Presentation.
- Kuo CK & Ma PX, "Controlling Structural Uniformity and Mechanical Properties of Ionically Crosslinked Alginate Gels", Macromolecular Science and Engineering Center 22nd Annual Symposium, Ann Arbor, MI, October 22, 1998. Poster Presentation.
- Kuo CK & Ma PX, "Three-Dimensionally Defined Alginate Scaffolds for In Vitro Tissue Engineering", 1998 Annual Fall Meeting of the Biomedical Engineering Society, Cleveland, OH, October 10-13, 1998. Poster Presentation.
- Kuo CK & Ma PX, "Alginates as Scaffolds for In Vitro Tissue Engineering", 2nd International Symposium, Molecular Control of Organogenesis, Ann Arbor, MI, May 9, 1998. Poster Presentation.
- Kuo CK & Ma PX, "Ionically Crosslinked Alginate Hydrogels as Scaffolds for Tissue Engineering", The 10th International Conference on Mechanics in Medicine and Biology, Honolulu, HA, March 2-5 1998. Podium Presentation.