

Kevin C. Baker, Ph.D.
Associate Scientist
Bone & Joint Center
Department of Orthopaedic Surgery
Henry Ford Health System
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EDUCATION AND TRAINING

- 2007-2011 Wayne State University, Detroit, Michigan
Ph.D. Biomedical Engineering, July 2011
Dissertation: "Supercritical carbon dioxide processed resorbable polymer nanocomposites for bone graft substitute applications."
Advisor: R.M. Kannan, Ph.D.
- 2004-2005 Michigan Technological University, Houghton, Michigan
M.S. Materials Science & Engineering, December 2005
Thesis: "Biomimetic deposition of porous calcium-phosphate films on organic surfaces."
Advisor: J.W. Drelich, Ph.D.
- 2000-2004 Michigan Technological University, Houghton, Michigan
B.S. Biomedical Engineering, December 2004

PROFESSIONAL AND ACADEMIC POSITIONS

- 2021 – Present Associate Scientist, Bone & Joint Center, Department of Orthopaedic Surgery, Henry Ford Health System (Detroit, MI).
- 2017 – 2021 Chair, Institutional Animal Care and Use Committee (IACUC), Beaumont Health (Royal Oak, MI). Institutional Official: Richard Kennedy, Ph.D.
- 2011 – 2021 Director, Orthopaedic Research, Department of Orthopaedic Surgery, Beaumont Health (Royal Oak, MI). Chairman: Harry N. Herkowitz, M.D. (until 2013); Jeffrey S. Fischgrund, M.D. (2013-Present)
- 2011 – 2021 Associate Professor, Orthopaedic Surgery, Oakland University William Beaumont School of Medicine (Rochester, MI). Chairman:

Harry N. Herkowitz, M.D. (until 2013); Jeffrey S. Fischgrund, M.D. (2013-Present)

- 2008 – 2015 Adjunct Professor, Biomedical Engineering, Lawrence Technological University (Southfield, MI).
- 2007-2011 Director of Biomaterials Research Section & Manager, Orthopaedic Research Laboratories, Department of Orthopaedic Surgery, Beaumont Health (Royal Oak, MI). Chairman: Harry N. Herkowitz, M.D.
- 2006-2007 Research Engineer – Orthopaedic Research Laboratories, Department of Orthopaedic Surgery, Beaumont Health (Royal Oak, MI). Chairman: Harry N. Herkowitz, M.D.
- 2004-2005 Graduate Research Assistant – Surfaces & Interfaces Group, Department of Materials Science & Engineering, Michigan Technological University (Houghton, MI). Advisor: Jaroslaw Drelich, Ph.D.
- 2004 (Summer) Biomaterials Research Intern – Orthopaedic Research Laboratories, Beaumont Health (Royal Oak, MI). Chairman: Harry N. Herkowitz, M.D.
- 2003-2004 Undergraduate Research Assistant – Polymers & Nanotechnology Group, Department of Materials Science & Engineering, Michigan Technological University (Houghton, MI). Advisor: Howard Wang, Ph.D.
- 2003 (Summer) Biomechanics Research Intern – Bone & Joint Center, Henry Ford Hospital (Detroit, MI). Advisor: Yener Yeni, Ph.D.
- 2003 Undergraduate Research Assistant – Exercise Physiology Group, Department of Biomedical Engineering, Michigan Technological University (Houghton, MI). Advisor: William Cooke, Ph.D.

PROFESSIONAL MEMBERSHIPS

- 2018 - Present Cervical Spine Research Society
- 2015 - Present Lumbar Spine Research Society
- 2013 – Present Orthopaedic Research Society

AWARDS AND HONORS

- 2017 Outstanding Young Alumni – Michigan Technological University
- 2017 Neer Award for Excellence in Basic Science – “*Wear Rates of 32-mm and 40-mm Glenospheres in a Reverse Total Shoulder Arthroplasty Wear Simulation Model.*” American Shoulder & Elbow Surgeons (ASES). Co-Author.
- 2016 Finalist – Neer Award for Excellence in Basic Science – “*The Effect of Granulocyte-Colony Stimulating Factor on Rotator Cuff Healing after Injury and Repair.*” American Shoulder & Elbow Surgeons (ASES). Co-Author.
- 2016 Resident & Fellow P.A.S.E. Award for Best Basic Science Paper – “*Histomorphometric Analysis of In Vivo Bone Formation and Spine Fusion following Administration of a Peripheral Blood Mobilization Agent and Local Delivery of a Stem Cell-Associated Chemokine.*” 2016 Annual Meeting of the Lumbar Spine Research Society. Senior Author and Resident/Fellow Scientific Mentor.
- 2015 Best Podium Presentation – “*Longitudinal Characterization of Degenerative Changes to the Vertebral Motion Segment following Puncture of the Annulus Fibrosus.*” Orthopaedic Research Society Spine Section. 2015 Annual Meeting of the ORS. Senior Author.
- 2015 Physician-in-Training Award for Best Basic Science Paper by an Orthopaedic Surgery Resident. “*Influence of Bisphosphonate Pretreatments on the Osseous Incorporation and Chondrocyte Viability within Fresh Osteochondral Allografts in Cold Storage.*” Mid-America Orthopaedic Association. Co-Author and Resident Scientific Mentor.
- 2011, 2014 Finalist – Rising Star Leadership Award – Beaumont Health President’s Awards
- 2008 – 2011 Wayne State Graduate Professional Scholarship – Wayne State University

PEER-REVIWED PUBLICATIONS (* denotes corresponding author)

1. Baker EA, Fleischer MM, Vara AD, Salisbury MR, **Baker KC**, Fortin PT, Friedrich CR. Local and systemic in vivo responses to osseointegrative titanium nanotube surfaces. *Nanomaterials*. 2021. 11(3): 583.
2. Possley D, Baker EA, **Baker KC**, Khalil JG. Surface modification techniques to enhance osseointegration of spinal implants. *J Am Acad Orthop Surg*. 2020. 28(22): e988-e994.
3. Maerz T, Newton MD, Fleischer M, Hartner SE, Gawronski K, Junginger L, Baker KC. Traumatic joint injury induces acute catabolic bone turnover concurrent with articular cartilage damage in a rat model of posttraumatic osteoarthritis. *J Orthop Res*. 2020. [Article In Press].
4. Gandhi S, Newton MD, Salisbury M, **Baker KC***. Technical experience and post-operative complications with repeat transperitoneal approach to the lumbar spine in female Lewis rats. *Lab Animal*. 2021. 55(1): 81-87.
5. Swank K, Furness J, Baker EA, Gehrke C, Biebelhausen S, **Baker KC***. Metabolomic profiling in the characterization of degenerative bone and joint diseases. *Metabolites*. 2020. 10(6): 223.
6. Kim DH, Hwang RW, Lee GH, Joshi R, **Baker KC**, Arnold P, Sasso R, Park D, Fischgrund J. Comparing rates of early pedicle screw loosening in posterolateral lumbar fusion with and without transforaminal lumbar interbody fusion. *Spine J*. 2020. 20(9): 1438-1445.
7. Gandhi S, Maerz T, Bachison C, Park DK, Fischgrund JS. **Baker KC***. Intradiscal delivery of anabolic growth factors and a metalloproteinase inhibitor in a rabbit acute lumbar disc injury model. *Int. J Spine Surg*. 2020. 14(4): 585-593.
8. Fellous TG, Redpath AN, Fleischer MM, Gandhi S, Hartner SE, Newton MD, Francois M, Wong S-P, Gowers KHC, Fahs AM, Possley DR, Bonnet D, Urquhart P, Nicolaou A, **Baker KC**, Rankin SM. Pharmacological tools to mobilize mesenchymal stromal cells into the blood promote bone formation after surgery. *NPJ Regen Med*. 2020. 5:3. PMID: 32133156.
9. Park DK, Roberts R, Arnold P, Kim DH, Sasso R, **Baker KC***, Fischgrund JS. Lumbar spine fusion rates with local bone in posterolateral and combined posterolateral and interbody approaches. *J Am Acad Orthop Surg Glob Res Rev*. 2019. 3(11): e018. PMID: 31875201.
10. Baker EA, Vara AD, Salisbury MR, Fleischer MM, **Baker KC**, Fortin PT, Roberts RV, Friedrich CR. Titania nanotube morphologies for osseointegration via models

of in vitro osseointegrative potential and in vivo intramedullary fixation. *J Biomed Mater Res B Appl Biomater.* 2020. 108(4): 1483-1493. PMID: 31692221.

11. Kim DH, Hwang RW, Lee GH, Joshi R, **Baker KC**, Arnold P, Sasso R, Park D, Fischgrund J. Potential significance of facet joint fusion or posteromedial fusion observed on CT imaging following attempted posterolateral or posterior interbody fusion. *Spine J.* 2019. 20(3): 337-343. PMID: 31672688.
12. Gandhi S, Wahlmeier ST, Louie P, Sauber R, Tooley TR, **Baker KC**, Park DK. Effect of local retropharyngeal steroids on fusion rate after anterior cervical discectomy and fusion. *Spine J.* 2020. 20(2): 261-265. PMID: 31505302.
13. Driscoll JA, Lubbe R, Jakus A, Chang K, Haleem M, Yun C, Singh G, Schneider A, Katchko KM, Soriano C, Newton M, Maerz T, Li X, **Baker K**, Hsu W, Shah RN, Stock SR, Hsu EL. 3D-printed ceramic-demineralized bone matrix hyperelastic bone composite scaffolds for spinal fusion. *Tissue Eng Part A.* 2020. 26(3-4): 157-166. PMID: 31469055.
14. Newton MD, Marek AA, Planalp M, Park DK, **Baker KC**, Maerz T. Longitudinal characterization of intervertebral disc remodeling following acute annular injury in a rat model of degenerative disc disease. *Connective Tissue Res.* 2019. 5: 1-9. PMID: 31232119.
15. Kaplan LM, Siljander MP, Verner JJ, **Baker KC**, Gehrke CK, Salisbury MR, Baker EA. Analysis of retrieved unicompartamental knee implants and tissue: Third-body wear as a potential contributor to progression of arthritis to adjacent compartments. *Orthopedics.* 2019. 42(3): 149-57. PMID: 31099880.
16. Ricart PH, Gandhi SD, Geisinger J, **Baker KC**, Park DK. Clinical and CT analysis of lumbar spine arthrodesis: β -tricalcium phosphate versus demineralized bone matrix. *JAAOS Global Res Rev.* 2018. 2(9): e024. PMID: 30465036.
17. Kurdziel MD, Marek AA, Ross D, Seta J, Doshi S, **Baker KC**, Maerz T. Biomechanical properties of the repaired and non-repaired rat supraspinatus tendon in the acute postoperative period. *Connective Tissue Res.* 2018. 60(3): 254-64. PMID: 29929403.
18. Maerz T, Newton MD, Marek AA, Planalp M, **Baker KC***. Dynamic adaptation of vertebral endplate and trabecular bone following annular injury in a rat model of degenerative disc disease. *Spine J.* 2018. 18(11): 2091-2101. PMID: 29886163.
19. Moore DD, **Baker KC**, Baker EA, Fleischer MM, Newton MD, Barreras N, Vaupel ZM, Fortin PT. Effect of bisphosphonate pretreatment on fresh osteochondral allografts: Analysis of in vitro graft structure and in vivo osseous incorporation. *Orthopedics.* 2018. 41(3): e376-e382. PMID: 29570765.

20. Grant K, Busse E, Park DK, **Baker KC**. Internal fixation of osteoporotic bone. *J Am Acad Orthop Surg*. 2018. 49(1): 143-152. PMID: 29473833.
21. Maerz T, Sherman E, Newton MD, Yilmaz A, Graham S, **Baker KC***. Metabolomic serum profiling after ACL injury in rats: A pilot study implicating inflammation and immune dysregulation in post-traumatic osteoarthritis. *J Orthop Res*. 2018. 36(7): 1969-79. PMID: 29315787.
22. Coustry F, Posey KL, Maerz T, **Baker KC**, Abraham AM, Ambrose C, Nobakhti S, Shefelbine SJ, Bi X, Newton MD, Gawronski K, Remer L, Veerisetty A, Hossain MG, Chiu F, Hecht JT. Mutant cartilage oligomeric matrix protein (COMP) compromises bone integrity, joint function and the balance between adipogenesis and osteogenesis. *Matrix Biology*. 2018. 67: 75-89. PMID: 29309831.
23. Newton MD, Hartner S, Gawronski K, Davenport E, Timmons S, **Baker KC**, Maerz T. Nondestructive, indirect assessment of the biomechanical properties of the rat intervertebral disc using contrast-enhanced μ CT. *J Orthop Res*. 2018. 36(7): 2030-38. PMID: 29314237.
24. Kurdziel MD, Newton MD, Hartner S, **Baker KC**, Wiater JM. Quantitative evaluation of retrieved reverse total shoulder arthroplasty liner surface deviation and volumetric wear. *J Orthop Res*. 2018. 36(7): 2007-14. PMID: 29314184.
25. Haggart J, Newton MD, Hartner S, Ho A, **Baker KC**, Kurdziel MD, Wiater JM. Neer Award 2017: Wear rates of 32 mm and 40 mm glenospheres in a reverse total shoulder arthroplasty wear simulation model. *J Shoulder Elbow Surg*. 2017. 26(11): 2029-37. PMID: 28893545.
26. Siljander MP, Sobh AH, **Baker KC**, Baker EA, Kaplan LM. Multidrug-resistant organisms in the setting of periprosthetic joint infection: Diagnosis, prevention and treatment. *J Arthroplasty*. 2018. 33(1): 185-94. PMID: 28869114.
27. Kurdziel MD, Salisbury M, Maerz T, **Baker KC***. Exposure of articular chondrocytes to wear particles induces phagocytosis, differential inflammatory gene expression and reduced proliferation. *J Mater Sci Mater Med*. 2017. 28(7): 106. PMID: 28534289.
28. Moore DD, Moravek JE, Baker EA, Salisbury MR, **Baker KC**, Wiater JM. Exploring failure of total shoulder arthroplasty systems through implant retrieval, radiographic and clinical data analyses. *J Shoulder Elbow Arthroplasty*. 2017. 1: 1-10.
29. Newton MD, Osborne J, Gawronski K, **Baker KC**, Maerz T. Articular cartilage surface roughness as an imaging-based morphological indicator of osteoarthritis:

A preliminary investigation of Osteoarthritis Initiative subjects. *J Orthop Res*. 2017. 35(12): 2755-2764. PMID: 28460415.

30. Okeagu CN, Baker EA, Barreras NA, Vaupel ZM, Fortin PT, **Baker KC***. Review of mechanical, processing and immunologic factors associated with outcomes of fresh osteochondral allograft transplantation of the talus. *Foot Ankle Int*. 2017. 38(7): 808-19. PMID: 28385038.
31. Maerz T, Fleischer MM, Newton MD, Davidson AA, Salisbury M, Altman P, Kurdziel MD, Anderson K, Bedi A, **Baker KC***. Acute mobilization and migration of bone marrow-derived stem cells following anterior cruciate ligament rupture. *Osteoarthritis Cartilage*. 2017. 25(8): 1335-44. PMID: 28284998.
32. Newton MD, Hartner S, Timmons S, Delaney ND, Pirrone MG, **Baker KC**, Maerz T. Contrast-enhanced μ CT of the intervertebral disc: A comparison of anionic and cationic contrast agents for biochemical and morphological characterization. *J Orthop Res*. 2017. 35(5): 1067-75. PMID: 27415967.
33. Pomajzl R, Baker EA, Fleischer M, Salisbury M, Phillips D, **Baker KC**, Fortin PT. Failure of fresh osteochondral allografts of the talus: A case series with histopathologic and radiographic analysis. *Foot Ankle Int*. 2016. 37(9): 958-67. PMID: 27272267.
34. Maerz T, Newton MD, Altman P, Anderson K, Matthew HW, **Baker KC***. Articular cartilage degeneration following anterior cruciate ligament injury: A comparison of surgical transection and noninvasive rupture as preclinical models of post-traumatic osteoarthritis. *Osteoarthritis Cartilage*. 2016. 24(11): 1918-1927. PMID: 27349462.
35. Kurdziel MD, Enin K, **Baker KC**, Verner JJ. Increasing liner version decreases the interfacial strength of polyethylene liners cemented into titanium-alloy acetabular shells. *J Arthroplasty*. 2016. 31(12): 2922-25. PMID: 27426030.
36. Maerz T, Kurdziel MD, Newton M, Altman P, Anderson KA, Matthew H, **Baker KC***. Subchondral and epiphyseal bone remodeling following surgical transection and noninvasive rupture of the anterior cruciate ligament as models of post-traumatic osteoarthritis. *Osteoarthritis Cartilage*. 2016. 24(4): 698-708. PMID: 26620090.
37. Maerz T, Newton MD, Matthew H, **Baker KC***. Surface roughness and thickness analysis of contrast-enhanced articular cartilage using mesh parameterization. *Osteoarthritis & Cartilage*. 2016. 24(2): 290-8. PMID: 26455998.
38. Chun DS, **Baker KC**, Hsu WK. Lumbar pseudoarthrosis: a review of current diagnosis and treatment. *Neurosurg Focus*. 2015. 39(4): E10. PMID: 26424334.

39. Koreckij T, Davidson AA, **Baker KC***, Park DK. Retropharyngeal steroids and dysphagia following multi-level anterior cervical surgery. *Spine*. 2016. 41(9): E530-4. PMID: 27128258.
40. Maerz T, Kurdziel MD, Davidson A, Anderson KA, **Baker KC***, Matthew HT. Biomechanical characterization of a model of noninvasive traumatic anterior cruciate ligament injury in the rat. *Ann Biomed Eng*. 2015. 43(10): 2467-76. PMID: 25777293.
41. **Baker KC**, Maerz T, Saad H, Shaheen P, Kannan RM. In vivo bone formation by and inflammatory response to resorbable polymer-nanoclay constructs. *Nanomedicine*. 2015. 11(8): 1871-81. PMID: 26220733.
42. Wiater BP, Baker EA, Salisbury MR, Koueiter DM, **Baker KC**, Nolan BM, Wiater JM. Elucidating trends in revision reverse total shoulder arthroplasty procedures: a retrieval study evaluating clinical, radiographic, and functional outcomes data. *J Shoulder Elbow Surg*. 2015. 24(12): 1915-25. PMID: 26212759.
43. Ross D, Maerz T, Kurdziel MD, Hein J, Doshi S, Bedi A, Anderson KA, **Baker KC***. The effect of granulocyte colony stimulating factor (G-CSF) on rotator cuff healing following injury and repair. *Clin Orthop Rel Res*. 2015. 473(5): 1655-64. PMID: 25733010.
44. Kurdziel MD, Moravek JE, Wiater BP, Davidson A, Seta J, Maerz T, **Baker KC**, Wiater JM. The impact of rotator cuff deficiency on structure, mechanical properties and gene expression profiles of the long head of the biceps tendon (LHBT): implications for management of the LHBT during primary shoulder arthroplasty. *J Orthop Res*. 2015. 33(8): 1158-64. PMID: 25877256.
45. Moore D, **Baker KC***, Les K. Hydatid disease of the femur treated with a total femoral replacement: A case report. *JBJS Case Connect*. 2015. 5(1): e7-5. PMID: 29252343.
46. Sabesan VJ, Ackerman J, Sharma V, **Baker KC**, Kurdziel MD, Wiater JM. Glenohumeral mismatch affects micromotion of cemented glenoid components in total shoulder arthroplasty. *J Shoulder Elbow Surg*. 2015. 24(5): 814-22. PMID: 25487898.
47. Wiater BP, Moravek J, Kurdziel MD, **Baker KC**, Wiater JM. Biomechanical evaluation of all-polyethylene pegged bone ingrowth glenoid fixation techniques on implant micromotion. *Am J Orthop*. 2016. 45(4): E211-6. PMID: 27327928.
48. Carpenter S, Pinkas D, Newton MD, Kurdziel MD, **Baker KC**, Wiater JM. Wear rates of retentive vs. nonretentive reverse total shoulder arthroplasty liners in an in vitro wear simulation. *J Shoulder Elbow Surg*. 2014. 24(9): 1372-9. PMID: 25842031.

49. Maerz T, Newton MD, Kristof K, Motovylyak O, Fischgrund JS, Park DK, **Baker KC***. Three-dimensional characterization of in vivo intervertebral disc degeneration using EPIC- μ CT. *Osteoarthritis Cartilage*. 2014. 22(11): 1918-25. PMID: 25151083.
50. Smorgick Y, Bachison C, Badve S, Montgomery DM, **Baker KC**, Fischgrund JS. Predisposing factors for dural tear in patients undergoing lumbar spine surgery. *J Neurosurg*. 2015. 22(5): 483-6.
51. Kunapuli S, Newton MD, Kurdziel MD, **Baker KC**, Verner JJ. Complete dissociation of a dual mobility acetabular liner secondary to repeat dislocation. *Current Orthopaedic Practice*. 2015. 25(4).
52. Zaryanov AV, Park DK, Khalil JG, **Baker KC**, Fischgrund JS. Cement augmentation in vertebral burst fractures. *Neurosurg Focus*. 2014. 37(1): E5. PMID: 24981904.
53. Peers S, Moravek JE, Budge MD, Newton MD, Kurdziel MD, **Baker KC**, Wiater JM. Wear rates of highly cross-linked polyethylene humeral liners subjected to alternating cycles of glenohumeral flexion and abduction. *J Shoulder Elbow Surg*. 2015. 24(1): 143-9. PMID: 25037062.
54. Pifer M, Maerz T, **Baker KC***, Anderson KA. Matrix metalloproteinase (MMP) content and activity in low-platelet, low-leukocyte and high-platelet, high-leukocyte platelet rich plasma (PRP) and the biologic response to PRP by human ligament fibroblasts. *Am J Sports Med*. 2014. 42(5): 1211-8. PMID: 24627579.
55. **Baker KC***, Herkowitz HN. Use of bone graft extenders in spinal surgery. *Orthopaedic Knowledge Online Journal (OKOJ)*. 2014. 12(10). Doi: 10.5435/OKOJ-12-10-3.
56. Maerz T, Koueiter D, **Baker KC***. Polymeric scaffolds in orthopaedic tissue engineering: A review of current research and future technology. *Orthopaedic Knowledge Online Journal (OKOJ)*. 2014. 12(12). Doi: 10.5435/OKOJ-12-12-2
57. Maerz T, Mu R, **Baker KC***. Cell and scaffold surface engineering for cell migration and tissue regeneration. *Surface Innovations*. 2014. 2(1): 17-25.
58. Arabi A, Boggs E, Patel MR, Zwiesler-Vollick J, Maerz T, **Baker K**, Tuck S, Core J, Li Y. Surface modification of electrospun polycaprolactone fibers and effect on cell proliferation. *Surface Innovations*. 2014. 2(1): 47-59.
59. Smorgick Y, Mirovsky Y, Gelfer Y, Fischgrund JS, **Baker KC**, Anekstein Y. Radiographic predisposing factors for degenerative spondylolisthesis. *Orthopedics*. 2014. 37(3): e260-4. PMID: 24762153.

60. Boone C, Carlberg K, Koueiter DK, **Baker KC**, Sadowski J, Nowinski G, Wiater PJ, Grant KD. Short versus long intramedullary nails for treatment of intertrochanteric femur fractures (OTA 31-A1 and A2). *J Orthop Trauma*. 2014. 28(5): e96-e100. PMID: 24751609.
61. Lynch J, Pifer M, Maerz T, Kurdziel M, Davidson A, **Baker KC***, Anderson KA. The GraftLink UCL reconstruction: Biomechanical comparison to the docking technique in both kinematics and failure tests. *Am J Sports Med*. 2013. 41(10): 2278-87. PMID: 23940203.
62. Ross D, Maerz T, Lynch J, Norris S, **Baker KC***, Anderson KA. Rehabilitation timing following rotator cuff repair: A review of current literature. *J Am Acad Orthop Surg*. 2014. 22(1):1-9. PMID: 24382874.
63. Fishman MP, Budge MD, Moravek JE, Mayer M, Kurdziel MD, **Baker KC**, Wiater JM. Biomechanical testing of small versus large lesser tuberosity osteotomy technique on gap formation and ultimate failure load. *Journal of Shoulder & Elbow Surgery*. 2014. 23(4): 470-6. PMID: 24090982.
64. Lynch J, Maerz T, Kurdziel MD, Davidson AA, **Baker KC***, Anderson KA. Biomechanical evaluation of the new Tight Rope and traditional docking ulnar collateral ligament reconstruction techniques: Kinematic and failure testing. *Am J Sports Med*. 2013. 41(5): 1165-73. PMID: 23636555.
65. Maerz T, Herkowitz HN, **Baker KC***. Molecular and genetic advances in regeneration of the intervertebral disc. *Surgical Neurology International – Spine*. 2013. 22(4-Suppl 2): S94-S105. PMID: 23646279.
66. Smorgick Y, Park DK, **Baker KC**, Lurie JD, Tosteson TD, Zhao W, Herkowitz HN, Fischgrund JS, Weinstein JN. Single versus multilevel fusion for single level degenerative spondylolisthesis and multilevel lumbar stenosis: Four year results of the Spine Patient Outcomes Research Trial. *Spine*. 2013. 38(10): 797-805. PMID: 23169068.
67. Smorgick Y, **Baker KC**, Bachison CC, Herkowitz HN, Montgomery DM, Fischgrund JS. Hidden blood loss during posterior spine fusion surgery. *Spine J*. 2013. 13(8): 877-81. PMID: 23523442.
68. Budge MD, Kurdziel MD, **Baker KC**, Wiater JM. A biomechanical analysis of initial fixation options for porous tantalum-backed glenoid components. *J Shoulder Elbow Surg*. 2013. 22(5): 709-15. PMID: 22999848.
69. Dutchesshen N, Maerz T, Button K, **Baker KC***, Haut R, Guettler J. The acute effect of bipolar radiofrequency energy thermal chondroplasty on intrinsic

- biomechanical properties and thickness of chondromalacic human articular cartilage. *J Biomech Eng.* 2012. 134(8): 081007. PMID: 22938360.
70. Smorgick Y, Mirovsky Y, **Baker KC**, Gelfer Y, Avisar E, Anekstein Y. Predictors of back pain in adolescent idiopathic scoliosis surgical candidates. *J Pediatr Orthop.* 2013. 33(3): 289-92. PMID: 23482265.
71. Kersten AK, Fabing M, Ensminger S, Demetropoulos CK, Cooper R, **Baker KC***, Anderson K. Suture capsulorrhaphy versus capsulolabral advancement for shoulder instability. *Arthroscopy.* 2012. 28(10): 1344-51. PMID: 22920288.
72. Budge MD, Nolan BM, Fabing MH, Ankerson E, **Baker KC**, Wiater JM. Results of total shoulder arthroplasty with uncemented monoblock porous tantalum glenoid component: A prospective minimum two-year follow-up study. *J Shoulder Elbow Surg.* 2013; 22(4): 535-41. PMID: 22959525
73. Jackson A, Maerz T, Koueiter DM, Andrecovich CJ, **Baker KC***, Anderson KA. Strength of ulnar fixation in ulnar collateral ligament reconstruction: A biomechanical comparison of traditional bone tunnels to the tension-slide technique. *J Shoulder Elbow Surg.* 2012. 21(12): 1674-9. PMID: 22748930.
74. Smorgick Y, Settecerri JJ, **Baker KC**, Herkowitz HN, Fischgrund JS, Zaltz I. Spinal cord position in adolescent idiopathic scoliosis. *J Pediatr Orthop.* 2012. 32(5): 500-503. PMID: 22706466.
75. Kaplan L, Kurdziel MD, **Baker KC***, Verner JJ. Characterization of daptomycin-loaded antibiotic cement. *Orthopedics.* 2012. 35(4): e503-509. PMID: 22495850.
76. Pifer M, Kibuule L, Maerz T, Studzinski D, **Baker KC***, Herkowitz HN. In vitro response of human chondrocytes to a combination of growth factors and a proteinase inhibitor: Implications for intervertebral disc regeneration." *Orthopedics.* 2012. 35(1): 35-42. PMID: 22229919.
77. **Baker KC**, Manitiu M, Bellair R, Gratopp CA, Herkowitz HN, Kannan RM. Supercritical carbon dioxide processed resorbable polymer nanocomposite bone graft substitutes. *Acta Biomater.* 2011. 7(9): 3382-3389. PMID: 21640204.
78. Vaupel ZA, **Baker KC**, Kurdziel MD, Wiater JM. Wear simulation of reverse total shoulder arthroplasty systems: Effect of glenosphere design. *J Shoulder Elbow Surg.* 2012. 21(10); 1422-9. PMID: 22365559.
79. Majid K, Crowder TC, Baker EA, **Baker KC**, Koueiter DM, Shields E, Herkowitz HN. Analysis of in vivo corrosion of 316L stainless steel posterior thoracolumbar plate systems: A retrieval study. *J Spinal Disord Tech.* 2011. 11(6): 560-7. PMID: 21336173.

80. Majid K, Tseng MD, **Baker KC***, Reyes-Trochhia A, Herkowitz HN. Biomimetic calcium phosphate coatings as rhBMP-2 delivery systems in posterolateral lumbar fusion. *Spine J.* 2011. 11(6): 560-567. PMID: 20097616.
81. Vaupel ZA, Baker EA, **Baker KC**, Kurdziel MD, Fortin PT. Damage modes in the Agility total ankle arthroplasty system: A retrieval analysis. *Foot Ankle Int.* 2009. 30(9): 815-823. PMID: 19755064.
82. Kippe MA, Demetropoulos CK, **Baker KC**, Jurist KA, Guettler JH. Failure of coracoclavicular artificial graft reconstructions from repetitive rotation. *Arthroscopy.* 2009. 25(9): 975-982. PMID: 19732635.
83. **Baker KC**, Bellair R, Manitiu M, Herkowitz HN, Kannan RM. Structure and mechanical properties of supercritical carbon dioxide processed porous resorbable polymer constructs. *J Mech Behav Biomed Mater.* 2009. 2(6): 620-626. PMID: 19716107.
84. Rhoads DP, **Baker KC***, Israel R, Greene PW. Fracture of an alumina femoral head used in ceramic-on-ceramic total hip arthroplasty. *J Arthroplasty.* 2008. 23(8): 1239.e25-30. PMID: 18534489.
85. Brkaric MP, **Baker KC***, Israel R, Harding TS, Montgomery DM, Herkowitz HN. Early failure of bioabsorbable anterior cervical fusion plates: Case report and failure analysis. *J Spinal Disord Tech.* 2007. 20: 248-254. PMID: 17473648.
86. **Baker KC**, Drelich JW, Miskioglu I, Israel R, Herkowitz HN. Effect of Polyethylene pretreatments on the biomimetic deposition and adhesion of calcium phosphate films. *Acta Biomater.* 2007. 3(3): 391-401. PMID: 17079198.
87. **Baker KC**, Drelich JW. Biomimetic Formation of Nano-crystalline Calcium phosphate films on self-assembled monolayers of alkanethiols: Effects of end functionality and deposition methodology. in *Functional Fillers and Nano-scale Minerals: New Markets/New Horizons*, J.J. Kellar (Ed.), SME, Littleton CO 2006, pp. 199-216.
88. Kim DG, Dong XN, Cao T, **Baker KC**, Shaffer RR, Fyhrie DP, Yeni YN. Evaluation of filler materials used for uniform load distribution at boundaries during structural biomechanical testing of whole vertebrae. *J Biomech Eng.* 2006. 128: 161-165. PMID: 16532630.
89. **Baker KC**, Anderson MA, Oehlke SA, Astashkina AI, Haikio DC, Drelich JW, Donahue SW. Growth, nucleation and biocompatibility of calcium-phosphate films biomimetically deposited on metallic substrates. *J Mater Sci Eng C.* 2006. 26(8):1351-1360.

90. Yeni YN, Shaffer RR, **Baker KC**, Dong XN, Grimm MJ, Les CM, Fyhrie DP. The Effect of yield damage on the viscoelastic properties of cortical bone tissue as measured by dynamic mechanical analysis. *J Biomed Mater Res A*. 2007. 82A:530-537. PMID: 17295254.

CONFERENCE PRESENTATIONS (2017-present; full list available upon request)

1. Gandhi S, Newton MD, Hartner S, Fleischer MM, Salisbury M, **Baker KC**. An in situ regenerative medicine approach to intervertebral disc regeneration. 2020 Annual Meeting of the American Academy of Orthopaedic Surgeons. Orlando, FL. March 2020.
2. Linkous NT, Osborne JD, Kurdziel MD, Newton MD, Yilmaz A, Ugur Z, Graham SF, **Baker KC**, Moore DD. Influence of cement type and Argon Beam pretreatment on articular cartilage adjacent to a simulated Giant Cell Tumor of the distal femur. 2020 Annual Meeting of the American Academy of Orthopaedic Surgeons. Orlando, FL. March 2020.
3. Baker EA, Vaupel ZM, Gehrke CK, Briggs DM, **Baker KC**, Coetzee JC, Myerson MS, Anderson JG, Biebelhausen SP, Fortin PT. Retrieval analysis of total ankle arthroplasty implants and periprosthetic tissue through a multicenter collection. 2020 Annual Meeting of the Orthopaedic Research Society. Phoenix, AZ. February 2020.
4. Newton MD, Linkous N, Osborne J, Kurdziel MD, Yilmaz A, Ugur Z, Falkowski E, Anoni R, Graham SF, Moore DD, **Baker KC**. Influence of cement type and Argon Beam treatment on articular cartilage adjacent to a simulated Giant Cell Tumor of the distal femur. 2020 Annual Meeting of the Orthopaedic Research Society. Phoenix, AZ. February 2020.
5. Newton MD, Fleischer MM, Harner S, Galasso L, Alsaleh M, Cavinatto L, Singh E, Lammlin L, Weisz K, Luan T, Maerz T, Allen AA, Bedi A, Rankin S, **Baker KC**. Augmentation of rotator cuff repair via systemic stem cell mobilization therapy combined with local chemokine delivery. 2020 Annual Meeting of the Orthopaedic Research Society. Phoenix, AZ. February 2020.
6. Fleischer M, Newton M, Hartner S, Luczak B, Driscoll A, Arveschoug A, **Baker KC**. Augmented immunomodulation of endogenous marrow-derived stem cells in the setting of ACL rupture. 2020 Annual Meeting of the Orthopaedic Research Society. Phoenix, AZ. February 2020.
7. Hsu M, Loy BN, Salisbury M, Baker EA, Vaupel Z, Fortin PT, **Baker KC**. Influence of local chemokine delivery and postoperative peripheral blood mobilization on Achilles tendon repair. 2019 Annual Meeting of the American Academy of Orthopaedic Surgeons. Las Vegas, NV. March 2019.

8. Gandhi SD, Sauber R, Weisz K, Tooley T, **Baker KC**, Park DK. Effect of local retropharyngeal steroids on fusion rate after anterior cervical discectomy and fusion. 2019 Annual Meeting of the American Academy of Orthopaedic Surgeons. Las Vegas, NV. March 2019.
9. Gandhi SD, Possley DR, Fahs A, **Baker KC**, Khalil J, Park DK. Fusion rate with stand-alone interbody cage for adjacent segment disease after anterior cervical discectomy and fusion. 2019 Annual Meeting of the American Academy of Orthopaedic Surgeons. Las Vegas, NV. March 2019.
10. Fleischer M, Newton M, Hartner S, Gandhi S, Possley D, Fahs A, Anoni R, Rankin S, **Baker KC**. Combinatorial strategies to promote marrow-derived mesenchymal stem cell mobilization and in vivo bone formation. 2019 Annual Meeting of the Orthopaedic Research Society. Austin, TX. February 2019.
11. Newton M, Hartner S, Fleischer MM, Salisbury M, Bush CJ, Luczak SB, Altman P, Gellci K, Anoni R, Kambhampati S, Kannan R, Bedi A, Maerz T, **Baker KC**. Mobilization and recruitment of endogenous marrow-derived stem cells to combat post-traumatic osteoarthritis following ACL rupture. 2019 Annual Meeting of the Orthopaedic Research Society. Austin, TX. February 2019.
12. Hartner S, Fleischer M, Newton M, Acker B, Bush CJ, Luczak S, Altman P, Salisbury M, Kannan R, Kambhampati S, Bedi A, Maerz T, **Baker K**. Modulation of the acute post-ACL rupture intra-articular environment via recruitment of marrow-derived stem cells to promote bone tunnel healing in ACL reconstruction. 2019 Annual Meeting of the Orthopaedic Research Society. Austin, TX. February 2019.
13. Newton MD, Hartner S, Fleischer M, Gandhi S, Salisbury M, Gellci K, **Baker KC**. Recruitment of mesenchymal stem cells to the intervertebral disc via local chemokine delivery from an injectable hydrogel. 2019 Annual Meeting of the Orthopaedic Research Society. Austin, TX. February 2019.
14. Fleischer MM, Newton MD, Hartner S, Naimark M, Lee S, Salisbury M, Gorgas E, Anoni R, Maerz T, Allen A, Bedi A, **Baker KC**. Locally-delivered chemokines promote marrow-derived mesenchymal stem cell recruitment in a rotator cuff repair model. 2019 Annual Meeting of the Orthopaedic Research Society. Austin, TX. February 2019.
15. Lubbe R, Jakus A, Driscoll A, Haleem M, Chang K, Maerz T, **Baker K**, Shah R, Hsu W, Hsu E. Hyperelastic bone composite scaffolds for de novo bone formation: Composition matters. 2018 Annual Meeting of the Lumbar Spine Research Society. Chicago, IL. April 2018.

16. Siljander M, Thor C, Baker EA, **Baker KC**, Verner JJ. Corrosion and fretting of taper interfaces in total hip arthroplasty – What is the effect of head size? 2018 Annual Meeting of the American Academy of Orthopaedic Surgeons. New Orleans, LA. March 2018.
17. Siljander M, Baker EA, **Baker K**, Kaplan L. Unicompartamental knee arthroplasty damage modes and chondrocyte inflammatory response. 2018 Annual Meeting of the American Academy of Orthopaedic Surgeons. New Orleans, LA. March 2018.
18. **Baker KC**, Geisinger J, Jones C, Roberts R, Salisbury M, Fleischer M, Davidson A, Fischgrund JS, Park D. Enhancement of bone formation and interbody fusion via stem cell mobilization in a sheep model of anterior cervical discectomy and fusion. 2018 Annual Meeting of the American Academy of Orthopaedic Surgeons. New Orleans, LA. March 2018.
19. Fleischer MM, Newton MD, Hartner SE, Salisbury M, Bush CJ, Altman P, Luczak SB, Bedi A, Maerz T, **Baker K**. ACL rupture-induced intra-articular recruitment of peripheral blood mobilized stem cells is CXCR4 dependent. 2018 Annual Meeting of the Orthopaedic Research Society. New Orleans, LA. March 2018.
20. Hartner SE, Newton MD, Fleischer MM, **Baker KC**, Maerz T. Acute patellofemoral cartilage hypertrophy, subchondral bone loss, and trabecular bone remodeling after anterior cruciate ligament rupture. 2018 Annual Meeting of the Orthopaedic Research Society. New Orleans, LA. March 2018.
21. Maerz T, Newton MD, Fleischer M, Hartner SE, Gawronski KM, **Baker KC**. Anterior cruciate ligament rupture is associated with acutely decreased bone anabolism and increased bone catabolism. 2018 Annual Meeting of the Orthopaedic Research Society. New Orleans, LA. March 2018.
22. Geisinger J, Jones C, Salisbury M, Baker E, Maerz T, Fischgrund J, Park DK, **Baker K**. Effect of local delivery of SDF-1 β and postoperative stem cell mobilization on bone formation and interbody fusion in an ovine model. 2018 Annual Meeting of the Orthopaedic Research Society. New Orleans, LA. March 2018.
23. Newton MD, Gandhi S, Fleisher M, Salisbury M, Hartner SE, **Baker KC**. Recruitment of mesenchymal stem cells to the intervertebral disc via local chemokine delivery from an injectable hydrogel. 2018 Annual Meeting of the Orthopaedic Research Society. New Orleans, LA. March 2018.
24. Geisinger J, Roberts R, Jones C, Davidson A, Salisbury M, Maerz T, Park D, Fischgrund J, **Baker K**. Effect of local delivery of SDF-1 and postoperative stem cell mobilization on bone formation and interbody fusion in an ovine model. 2017 Annual Meeting of the Lumbar Spine Research Society. Chicago, IL. April 2017.

25. Newton MD, Hartner SE, Gawronski K, Davenport E, Timmons S, **Baker KC**, Maerz T. Nondestructive assessment of the biomechanical properties of the intervertebral disc using both cationic and anionic contrast-enhanced μ CT. 2017 Annual Meeting of the Orthopaedic Research Society. San Diego, CA. March 2017.
26. Maerz T, Newton M, Gawronski K, Remer L, **Baker KC**, Coustry F, Hecht JT, Posey K. Increased joint laxity and altered bone and cartilage morphology in a mutant cartilage oligomeric matrix protein (COMP) mouse model of pseudoachondroplasia. 2017 Annual Meeting of the Orthopaedic Research Society. San Diego, CA. March 2017.
27. Maerz T, Sherman E, Newton M, Yilmaz A, Kumar P, Graham SF, **Baker KC**. A combined metabolomic and morphological analysis of a preclinical model of ACL injury-induced post-traumatic osteoarthritis. 2017 Annual Meeting of the Orthopaedic Research Society. San Diego, CA. March 2017.
28. Smith J, Wilhelm SK, Baker EA, Wiater JM, **Baker KC**. Serum bone turnover biomarkers in revision surgery for shoulder arthroplasty loosening. 2017 Annual Meeting of the Orthopaedic Research Society. San Diego, CA. March 2017.
29. Schneider A, Jakus A, Singh G, Katchko K, Chun D, Weiner J, Cook R, Schallmo M, Newton M, Maerz T, **Baker K**, Shah R, Hsu W, Hsu E. Development of a ceramic-demineralized bone matrix biomaterial ink for 3D-printing of hyperelastic bone composite scaffolds for spinal fusion. 2017 Annual Meeting of the Orthopaedic Research Society. San Diego, CA. March 2017.
30. Maerz T, Newton MD, Fleischer M, Hartner S, **Baker KC**. Acute changes in articular cartilage morphology correspond with subchondral and epiphyseal bone remodeling following anterior cruciate ligament rupture. 2017 Annual Meeting of the Orthopaedic Research Society. San Diego, CA. March 2017.

VISITING PROFESSORSHIPS/LECTURESHIPS

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| 2021 | Orthopaedic Nurses Association – Invited Speaker, 2021 Annual Meeting (virtual, June 2021). “Post-Traumatic Osteoarthritis: Biology and Patient Outcomes.” |
| 2019 | Department of Physics – Oakland University (Rochester, Michigan) Physics Colloquium Speaker Series. “Stem Cell Trafficking in Post-Traumatic Osteoarthritis.”
Invited by: Yang Xia, Ph.D. |

- 2018 Instructional Course Lecture – Lumbar Spine Research Society. 2018 Annual Meeting of the Lumbar Spine Research Society (Chicago, IL). “Recent Concepts in the Basic Science of Degenerative Disc Disease (DDD).”
Invited by: Wellington Hsu, M.D. & Ira Goldstein, M.D.
- 2018 Bone & Joint Center – Henry Ford Hospital (Detroit, Michigan)
Lecture: Stem Cell Trafficking in Post-Traumatic Osteoarthritis
Invited by: Yener N. Yeni, Ph.D.
- 2018 Society of Polymer Engineers – Detroit Chapter. Lecture: “Applications of Polymer Materials in Orthopaedic Surgery.” (Troy, MI). Invited by: Society of Polymer Engineers
- 2017 Society of Biomedical Engineering Seminar Series - Dept. of Biomedical Engineering – Colorado State University (Fort Collins, Colorado)
Invited by: Tammy Haut Donahue, Ph.D.
- 2017 4th Annual Council on Sports Medicine Meeting. Lecture: “The Basic Science of Biologic Therapies: The Role for Tendon, Tendon-Bone and Muscle Healing.” The Breakers. West Palm Beach, FL.
Invited by: David Altcheck, M.D. and Asheesh Bedi, M.D.
- 2016 Dept. of Orthopaedic Surgery – University of Michigan (Ann Arbor, Michigan). Musculoskeletal Research In Progress: “ACL Injury-Induced Post-Traumatic Osteoarthritis: An Acute Perspective on a Chronic Process.”
Invited by: Asheesh Bedi, M.D. and Karl Jepsen, Ph.D.
- 2016 Department of Materials Science & Engineering – Michigan Technological University (Houghton, Michigan). MSE Graduate Seminar Series: “Towards In Situ Regeneration of Musculoskeletal Tissues.”
Invited by: Jaroslaw Drelich, Ph.D.
- 2016 Arthritis Foundation Great Lakes Chapter Young Investigators Conference: “Acute Response to Joint Trauma and Its Role in Development of Post-Traumatic Osteoarthritis.”
- 2015 American Orthopaedic Society for Sports Medicine (AOSSM) Workshop on Orthobiologics: “Systemic Stem Cell Trafficking in ACL Injury-Induced Post-Traumatic Osteoarthritis.” and “Towards In Situ Tissue Engineering of the Tendon-Bone Interface for Augmented Rotator Cuff Repair.”

2011 Society for Tribologists and Lubrication Engineers (STLE): “Bearing Surface Materials in Total Hip Arthroplasty.”

INTELLECTUAL PROPERTY/PATENTS

US 8,729,171 B2 “Supercritical Carbon-Dioxide Processed Biodegradable Polymer Nanocomposites.” R. Kannan; **K. Baker**; R. Bellair; M. Manitiu; H. Herkowitz.

EXTERNAL PEER-REVIEWED RESEARCH GRANTS

2018 – 2022 U.S. Army/Congressionally-Directed Medical Research Program (CDMRP) – “Mitigation of Post-Traumatic Osteoarthritis via Augmented Immunomodulation of Endogenous Marrow-Derived Stem Cells.” W81XWH-17-1-0155. Principal Investigator.

2017 - 2019 Lumbar Spine Research Society (LSRS) – Research Grant: “Peripheral Blood Mobilization of Marrow-Derived Stem Cells to Enhance Bone Formation and Lumbar Fusion.” Principal Investigator.

2017 – 2019 Cervical Spine Research Society (CSRS) – Resident/Fellow Research Grant: “In Situ Tissue Engineering Approach to Intervertebral Disc Regeneration.” Co-Investigator and Scientific Mentor.

2015 – 2017 U.S. Army/Congressionally-Directed Medical Research Program (CDMRP) – Combatting Post-Traumatic Osteoarthritis via Enhanced Intra-Articular Recruitment of Stem Cells and Targeted Delivery of a Chondrogenic Differentiation Agent. CDMRP/PRMRP W81XWH-15-1-0186. Principal Investigator.

2015 – 2017 Cervical Spine Research Society (CSRS) – 21st Century Research Grant Award: “Chemokine-directed Homing of Peripheral Blood Mobilized Stem Cells to Enhance Cervical Spine Fusion.” Principal Investigator.

2015 – 2017 Cervical Spine Research Society (CSRS) – Resident/Fellow Research Grant: “Elucidating the Interaction Between Marrow-Derived Stem Cells and Calcium Phosphate-based Graft Materials in Chimeric Rat Models of Posterolateral Fusion.” Co-Investigator and Scientific Mentor.

- 2014 – 2016** **AO Spine North America** – Young Investigators Research Grant: “In Situ Tissue Engineering to Enhance Spine Fusion: Mesenchymal Stem Cell Mobilization and Directed Migration to the Lumbar Spine.” Co-Investigator.
- 2014 – 2016** **American Orthopaedic Foot & Ankle Society (AOFAS)** – Research Grant: “Enhancement of Achilles Tendon Repair via Peripheral Blood Mobilization and Chemokine-Directed Migration of Native Marrow-Derived Stem Cells.” Principal Investigator.
- 2014 – 2016** **American Orthopaedic Society for Sports Medicine (AOSSM)** – New Investigator Research Grant: “Stem Cell Mobilization and Chemokine-Directed Intra-Articular Migration of Native Marrow-Derived Stem Cells: Acute Phase Treatment to Mitigate Post-Traumatic Osteoarthritis Following ACL Rupture.” Co-Investigator and Scientific Mentor.
- 2013 – 2014** **Oakland University William Beaumont School of Medicine** – Collaborative Research Grant: “Fracture Resistance of Degradable Polymeric Materials for Osteosynthesis.” Co-Investigator.
- 2011 – 2013** **American Orthopaedic Foot and Ankle Society (AOFAS)** – Research Grant: “The Effect of Bisphosphonate Pretreatments on the Enhancement of Osseous Incorporation and Chondrocyte Viability of Fresh Osteochondral Allografts.” Co-Investigator.
- 2011 – 2012** **Ruth Jackson Orthopaedic Society** – Research Grant: “Genetic and Molecular Basis for Gender Differences in Carpal Tunnel Syndrome.” Co-Investigator.
- 2010 – 2011** **National Science Foundation (NSF)** – CMMI Major Research Instrumentation: Acquisition of an Environmental Scanning Electron Microscope for Engineering Research and Education. Award# 1040607. Co-Investigator.
- 2008 – 2010** **American Shoulder and Elbow Surgeons** – Basic Science Research Grant: “Influence of Glenosphere Design on the Wear Behavior of Reverse Total Shoulder Arthroplasty Systems: An In Vitro Wear Simulation.” Co-Investigator.
- 2008 – 2010** **Cervical Spine Research Society** – Seed/Starter Research Grant: “Resorbable Polymer Nanocomposites as Structural Bone Graft Substitutes for Anterior Cervical Discectomy and Fusion.” Co-Investigator.

PROFESSIONAL SERVICE AND COMMITTEES

2021 – Present	Section Editor & Author, “Orthobiologics: Scientific & Clinical Solutions for Orthopaedic Surgeons” Eds. Roy Aaron, MD; Scott Bruder, MD, PhD. Publication of the AAOS. Wolters-Kluwer Inc. Section Title: <i>Solutions for Spinal Pathology</i> (Section 5). Chapter Title: <i>Biomaterial and Cell-Based Solutions for Intervertebral Disc Regeneration</i> (Chapter 34).
2020 – 2021	Section Editor, Structure & Function of Musculoskeletal Tissues – AAOS Resident Education Curriculum Project
2019 – 2021	Human Pluripotent Stem Cell Research Oversight (HPSCRO) Committee – Oakland University
2018 – 2020	Research Infrastructure & Core Lab Committee – Beaumont Health
2018 – 2019	Section Reviewer, Orthopaedic Basic Science 5 th Edition – American Academy of Orthopaedic Surgeons (AAOS). Wolters-Kluwer.
2018 – 2021	Scientific Member, Institutional Biosafety Committee – Beaumont Health
2018 – Present	Basic Science Content Committee – American Academy of Orthopaedic Surgeons (AAOS)
2018 – 2021	Chair, Beaumont Animal Care Committee (IACUC)
2017 – Present	Deputy Editor – Journal of the American Academy of Orthopaedic Surgeons (JAAOS and JAAOS Global Research & Reviews)
2017 – Present	External Advisory Board (Emeritus Member) – Department of Materials Science & Engineering, Michigan Technological University
2017 – 2020	Deputy Editor – Journal of Shoulder & Elbow Arthroplasty
2017 – 2018	Interim Chair, Beaumont Animal Care Committee (IACUC)
2016 – 2020	Intellectual Property Committee – Beaumont Health
2016 – 2020	Central Scientific Review Committee (IRB Studies) – Beaumont Health
2016 – 2019	Executive Board – Lumbar Spine Research Society
2011 – 2021	Research Committee – OUWB School of Medicine
2011 – 2017	Member, Beaumont Animal Care Committee (IACUC)