

First Annual ORTHOPAEDIC RESEARCH SYMPOSIUM



Friday, June 17, 2011
9:00 a.m. – 1:00 p.m.
Detroit Athletic Club
Detroit, MI



Orthopaedic Research and Education Committee:

Stephen E. Lemos, M.D., Ph.D., Program Director

Jeffrey C. Flynn, Ph.D.	Bryant Oliphant, M.D.
Todd Frush, M.D.	Farhang Raaii, M.D.
Bryan Little, M.D.	Richard Reynolds, M.D.
David C. Markel, M.D.	Rahul Vaidya, M.D.
	Walid Yassir, M.D.





Ralph Blasier, M.D., J.D., received his M.D. from Wayne State University School of Medicine in 1979. After doing an internship in the Department of Surgery, he completed his residency in the Department of Orthopaedic Surgery at WSU in 1984. He received his J.D. from WSU School of Law in 2007. He started as a Staff Surgeon in 1984 (U.S. Naval Hospital, Guam), rising to Chief of Orthopaedic Department in 1985. After a 2-year stint as Clinical Instructor and Attending Staff Surgeon at Oakland Naval Hospital (Oakland, CA), he moved back to MI in 1987. He was an Attending and Instructor in the Department of Orthopaedic Surgery at the University of Michigan (Ann Arbor), and rose to the rank of Associate Professor by 1994. Dr. Blasier left U of M in 1995 to become Chief of the Department of Orthopaedic Surgery at Sinai-Grace Hospital (Detroit). He was also a Professor/Chairman at WSU, and an Attending Surgeon at the VA Medical Center, Detroit Receiving Hospital and Providence Hospital and Medical Centers. He has served as a Program Director of several Orthopaedic Residency programs (Sinai-Grace Hospital: 1995-2000; WSU: 2001-2006; and Detroit Medical Center/Providence Hospital: 2007-2010). Dr. Blasier left the noise of Detroit for the quieter life in the UP in 2010, where he is currently an orthopaedic surgeon at the OSF St. Francis Hospital and Medical Group in Escanaba, MI.

AGENDA

Breakfast	8:30 a.m.
Welcome by Stephen Lemos, M.D., Ph.D.	9:00 a.m.
Guest Speaker:	
Ralph Blasier, M.D., J.D. Attending Surgeon St. Francis Hospital and Medical Group Escanaba, MI “EMTALA, CMS, JCAHO, and On-call Pay for Specialists”	9:05 a.m.
Faculty Speakers (Part 1):	
Todd Frush, M.D. Orthopaedic Surgeon, Providence Hospital and Medical Centers Faculty, DMC/Providence Hospital Orthopaedic Surgery Residency Program “What Should our Orthopaedic Surgery Curriculum be?”	9:50 a.m.
Rahul Vaidya, M.D., F.R.C.Sc. Specialist in Chief of Orthopaedic Surgery, Detroit Medical Center Clinical Associate Professor of Surgery and Neurosurgery, Wayne State University Clinical Associate Professor of Surgical Specialties, Michigan State University Orthopaedic Surgeon, Detroit Receiving Hospital “Development of the Anterior Subcutaneous Internal Fixator (Infix)”	10:10 a.m.

Break 10:30 – 10:40 a.m.

Fellow Presentations:

Jason Hanna, M.D. “Comparison of Glenohumeral Pressure before and after Labral Repairs: Simple versus Vertical Suture Pattern”	10:40 a.m.
Nikhil Pandhi, D.O., M.P.H. “The Biomechanical Stability of Distal Clavicle Excision versus Acromioclavicular Joint Resection”	10:55 a.m.
Jeffrey Staron, M.D. “A Biomechanical Comparison of Anatomical Coracoclavicular Ligament Reconstructions after Complete Acromioclavicular Dislocation”	11:10 a.m.

Resident Presentations:

Petra Gheraibeh, M.D. “Gunshot Wounds to the Femur”	11:25 a.m.
John Khoury, M.D. “Constrained Acetabular Liners Cemented Into Cages during Total Hip Revision Arthroplasty”	11:40 a.m.
Gerard Lancaster, M.D. “Anatomic Consideration for Drilling Angles in Distal Biceps Repair”	11:55 a.m.
Farhang Raaii, M.D. “Chondrogenic Differentiation of Human Adipose Stem Cells”	12:10 p.m.

Break 12:25 – 12:35 p.m.

Faculty Speakers (Part 2):

David C. Markel, M.D. 12:35 p.m.
Orthopaedic Surgeon and Chief, Department of
Orthopaedic Surgery, Providence Hospital and Medical
Centers
Chairman and Faculty, DMC/Providence Hospital
Orthopaedic Surgery Residency Program
*“Erythromycin as a Potential Drug Treatment for
Osteolysis: Evolution of a Concept”*

Stephen E. Lemos, M.D., Ph.D. 12:55 p.m.
Director, DMC Sports Medicine
Program Director, DMC Sports Medicine Fellowship
Program Director and Faculty, DMC/Providence Hospital
Orthopaedic Surgery Residency
Team Physician, Detroit Tigers & Detroit Pistons
Orthopaedic Surgeon and Chair, DMC Surgery Hospital
“Final Thoughts”

Lunch 1:30 p.m.

Publications (2010-2011)

- Bartkiw, M. J., A. Sethi, F. Coniglione, D. Holland, D. Hoard, R. Colen, J. G. Tyburski, and R. Vaidya. Civilian gunshot wounds of the hip and pelvis. *Journal of Orthopaedic Trauma*, 24:645-652, 2010.
- Desai, S., A. Sethi, C. C. Ninh, S. Bartol, and R. Vaidya. Pedicle screw fixation of the C7 vertebra using an anteroposterior fluoroscopic imaging technique. *European Spine Journal*, 19:1953-1959, 2010.
- Dougherty, P. J., R. Vaidya, C. D. Silverton, and C. S. Bartlett, III. Joint and long-bone gunshot injuries. *Instructional Course Lectures*, 59:465-479, 2010.
- Frush, T. J. and S. S. Hasan. Arthroscopic reduction and cannulated screw fixation of a large anterior glenoid rim fracture. *Journal of Shoulder and Elbow Surgery*, 19:e16-e19, 2010.
- Hao, H.-N., B. Zhang, S. Nasser, W. Ren, M. Latteier, P. Wooley, and L. Morawa. The roles of monocytic heat shock protein 60 and Toll-like receptors in the regional inflammation response to wear debris particles. *Journal of Biomedical Materials Research. Part A.*, 92A:1373-1381, 2010.
- Khoury, J. I., A. L. Malkani, E. M. Adler, and D. C. Markel. Constrained acetabular liners cemented into cages during total hip revision arthroplasty. *Journal of Arthroplasty*, 25:901-905, 2010.
- Kimpara, H., J. B. Lee, K. H. Yang, and A. I. King. Effects of body weight, height, and rib cage area moment of inertia on blunt chest impact response. *Traffic Injury Prevention*, 11:207-214, 2010.
- Mao, H., X. Jin, L. Zhang, K. H. Yang, T. Igarashi, L. J. Noble-Haeusslein, and A. I. King. Finite element analysis of controlled cortical impact-induced cell loss. *Journal of Neurotrauma*, 27:877-888, 2010.
- Mao, H., K. H. Yang, A. I. King, and K. Yang. Computational neurotrauma--design, simulation, and analysis of controlled cortical impact model. *Biomechanics and Modeling in Mechanobiology*, 9:763-772, 2010.
- Markel, D. C., S. York, M. J. Liston, Jr., J. C. Flynn, C. L. Barnes, C. M. Davis, III, and A. Research Committee. Venous thromboembolism: management by American Association of Hip and Knee Surgeons. *Journal of Arthroplasty*, 25:3-9, 2010.
- Ren, W., R. Zhang, M. Hawkins, T. Shi, and D. C. Markel. Efficacy of periprosthetic erythromycin delivery for wear debris-induced inflammation and osteolysis. *Inflammation Research*, 59:1091-1097, 2010.

Publications (2010-2011, continued)

- Schmidig, G., A. Patel, I. Liepins, M. Thakore, and D. C. Markel. The effects of acetabular shell deformation and liner thickness on frictional torque in ultrahigh-molecular-weight polyethylene acetabular bearings. *Journal of Arthroplasty*, 25:644-653, 2010.
- Zhu, F., H. Mao, L. A. Dal Cengio, C. Wagner, C. Chou, X. Jin, C. Bir, P. Vandevord, K. H. Yang, and A. I. King. Development of an FE Model of the Rat Head Subjected to Air Shock Loading. *Stapp Car Crash Journal*, 54:211-225, 2010.
- Guan, F., X. Han, H. Mao, C. Wagner, Y. N. Yeni, and K. H. Yang. Application of optimization methodology and specimen-specific finite element models for investigating material properties of rat skull. *Annals of Biomedical Engineering*, 39:85-95, 2011.
- Jin, X., K. H. Yang, and A. I. King. Mechanical properties of bovine pia-arachnoid complex in shear. *Journal of Biomechanics*, 44:467-474, 2011.
- King, A. I., K. H. Yang, and W. N. Hardy. Recent firsts in cadaveric impact biomechanics research. *Clinical Anatomy*, 24:294-308, 2011.
- Mao, H., F. Guan, X. Han, and K. H. Yang. Strain-Based Regional Traumatic Brain Injury Intensity in Controlled Cortical Impact: A Systematic Numerical Analysis. *Journal of Neurotrauma*, 2011 (In press).
- Markel, D. and W. Ren. Expansion of peripheral CD14⁺CD16⁺ monocytes as a predictor of aseptic loosening. *Clinical Orthopaedics and Related Research*, 2011 (In press).
- Molli, R. G., K. C. Anderson, K. C. Buehler, and D. C. Markel. Computer-assisted navigation software advancements improve the accuracy of total knee arthroplasty. *Journal of Arthroplasty*, 26:432-438, 2011.
- Mulder, A. A., A.O. Esquivel, S. F Bak, D. R. Lincoln, and D. C. Markel. Novel angle measurements for assessment of shoulder location using the scapular Y radiograph. *Orthopedics* 2011 (In press).
- Raaij, F., N. Vaidya, K. Vaidya, N. Dibacco, A. Sethi, C. Les, and R. Vaidya. Patterns of mouthguard utilization among Atom and Pee Wee minor ice hockey players: a pilot study. *Clinical Journal of Sport Medicine*, 2011 (In press).
- Ren, W., R. Blasier, and D. C. Markel. Serendipity of erythromycin in the management of periprosthetic inflammation. *Current Drug Therapy*, 6:113-120, 2011.

Publications (2010-2011, continued)

- Ren, W. and D. C. Markel. Emerging ideas: Can erythromycin reduce the risk of aseptic loosening? *Clinical Orthopaedics and Related Research*, 2011 (In press).
- Ren, W., R. Zhang, B. Wu, P. H. Wooley, M. Hawkins, and D. C. Markel. Effects of SU5416 and a vascular endothelial growth factor neutralizing antibody on wear debris-induced inflammatory osteolysis in a mouse model. *Journal of Inflammation Research*, 4:29-38, 2011.
- Sethi, A., J. Craig, S. Bartol, M. Jacobsen, C. Coe, and R. Vaidya. Radiographic and CT evaluation of recombinant human bone morphogenetic protein-2-assisted spinal interbody fusion. *American Journal of Roentgenology*, 197, 2011 (In press).
- Song, W., W. Ren, C. Wan, A. O. Esquivel, T. Shi, R. Blasier, and D. C. Markel. A novel strontium-doped calcium polyphosphate/erythromycin/poly(vinyl alcohol) composite for bone tissue engineering. *Journal of Biomedical Materials Research. Part A*, 2011 (In press).
- Song, W., Q. Wang, C. Wan, T. Shi, D. Markel, R. Blasier, and W. Ren. A novel alkali metals/strontium co-substituted calcium polyphosphate scaffolds in bone tissue engineering. *Journal of Biomedical Materials Research Part B, Applied Biomaterials*, 2011 (In press).
- Vaidya, R., R. P. Colen, F. Tonnos, J. Vigdorchik, and A. Sethi. Treatment of unstable pelvic ring injuries with an internal anterior fixator and posterior fixation: initial clinical series. *Journal of Orthopaedic Trauma*, 2011 (In press).
- Wang, W., Y. Shen, D. Markel, R. Blasier, and W. Ren. Palliative effect of erythromycin on PMMA challenged pre-osteoblastic MC3T3-E1 cells. *Journal of Biomedical Materials Research Part A*, 2011 (In press).
- Zhang, L., M. Gurao, K. H. Yang, and A. I. King. Material characterization and computer model simulation of low density polyurethane foam used in a rodent traumatic brain injury model. *Journal of Neuroscience Methods*, 198:93-98, 2011.
- Zhu, F., C. Wagner, L. A. Dal Cengio, X. Jin, P. Vandevord, C. Chou, K. H. Yang, and A. I. King. Using a gel/plastic surrogate to study the biomechanical response of the head under air shock loading: a combined experimental and numerical investigation. *Biomechanics and Modeling in Mechanobiology*, 2011 (In press).

Presentations (2010-2011)

AO North America Challenges in Fracture Care Across Disciplines (Phoenix, AZ ; November 11-14, 2010)

Oral presentation:

Reynolds, R. A. K., J. E. Legakis, R. L. Thomas, T. F. Slongo, J. B. Hunter, and J.-M. Clavert. Adolescent lateral entry femoral nails for treatment of pediatric femur fractures: a comparison with titanium elastic nails.

American Osteopathic Academy of Orthopedics Annual Meeting (San Francisco, CA; October 24-26, 2010)

Molli, R. G., K. C. Anderson, K. C. Buehler, and D. C. Markel. Computer-assisted navigation software advancements. (Award: First place - Resident oral presentation)

Combined Orthopaedic Associations Meeting (Glasgow, Scotland; September 12-17, 2010)

Oral presentation:

Sethi, A., B. Anderson, M. Liston, A. Elbanna, and R. Vaidya. Leg length discrepancy after comminuted femoral shaft fractures treated with intramedullary nailing.

Poster presentation:

Vaidya, R., A. Sethi, R. Colen, and F. Tonnos. Minimally invasive treatment of unstable pelvic ring injuries with an internal anterior fixator and posterior iliosacral screw.

European Symposium on Calcified Tissues (Glasgow, Scotland; June 26-30, 2010)

Poster presentations:

Ren, W., A. Esquivel, R. Blasier, and D. C. Markel. Quantitative microCT analysis of SPP-erythromycin (EM)-PVA scaffold.
Ren, W., R. B. Blasier, and D. C. Markel. Underappreciated benefits of erythromycin in the management of periprosthetic inflammation and osteolysis.

Frontiers in Polymers and Biomaterials Conference (Puerto Morelos, Mexico; November 19-22, 2010)

Oral presentation:

Nelson, M., W. Song, D. C. Markel, R. Blasier, and W. Ren. Strontium-doped calcium polyphosphate (SPP)-erythromycin composite scaffolds in a mouse pouch infection model.

Indian Orthopedic Association Annual Meeting (Jaipur, India; December 9-14, 2010)

Oral presentation:

Sethi, A., P. Gheraibeh, S. Sethi, D. Hoard, R. Colen, and R. Vaidya. Retrograde vs antegrade intramedullary nailing for low velocity gunshot fractures of the femur.

International Pediatric Orthopaedic Symposium (Orlando, FL; December 1-4, 2010)

Poster presentations:

Khalil, J. G., O. Erez, J. E. Legakis, J. Tweedie, E. Kaminski, and R. A. Reynolds. Ultrasound evaluation of ulnar nerve anatomy in the pediatric population.

World Congress on Biomechanics (Singapore, Singapore; August 1-6, 2010)

Oral presentation:

Ren, W., W. Song, D. C. Markel, and R. Blasier. Characterization of a novel SPP-EM-PVA bone graft for bone defect healing.

American Academy of Orthopaedic Surgeons Annual Meeting (Las Vegas, NV; February 25-28, 2010)

Poster presentation:

Bartol, S., R. Vaidya, and A. Sethi. Comparison of subsidence in rhBMP-2 supplemented allograft and PEEK cages in lumbar interbody fusion.

Orthopaedic Research Society Annual Meeting (New Orleans, LA; March 6-19, 2010)

Oral presentations:

Markel, D. C., J. Flynn, N. Jackson, A. Esquivel, T. Shi, P. Wooley, and W. Ren. CD14⁺ CD16⁺ monocytes are associated with the pathology of aseptic loosening.

Poster presentations:

Markel, D. C., N. M. Jackson, J. C. Flynn, and W. Ren. Bone marrow, BMP, and osteogenic potential: emerging insights into implant fixation.
Mulder, A. A., A. O. Esquivel, S. F. Bak, D. R. Lincoln, and D. C. Markel. Radiographic parameters for the assessment of shoulder location.
Ren, W., A. Bosnjakovic, D. C. Markel, T. Shi, and R. M. Kannan. In vitro activity of PAMAM-erythromycin nanodevice in a macrophage cell line.

Song, W., C. X. Wan, D. C. Markel, and W. P. Ren. SCPP-EM-PVA composite as a promising scaffold for the prevention and treatment of aseptic loosening.

Vigdorchik, J. M., A. O. Esquivel, X. Jin, K. H. Yang, D. C. Markel, and R. V. Vaidya. The biomechanical stability of a novel supra-acetabular pedicle screw internal fixation device for vertically unstable pelvic fractures.

Orthopaedic Trauma Association Annual Meeting (Baltimore, MD; October 13-16, 2010)

Poster presentation:

Anderson, B., A. Sethi, A. Elbanna, M. Liston, D. Hoard, and R. Vaidya. Limb-length discrepancy in comminuted femoral shaft fractures following intramedullary nailing.

Society for Biomaterials Annual Meeting (Seattle, WA; April 21-24, 2010)

Poster presentations:

Esquivel, A. O., W. Ren, W. Song, R. Blasier, and D. C. Markel. Quantitative microCT analysis of SCPP-erythromycin (EM)-PVA scaffold.

Jackson, N. M., W. Ren, J. C. Flynn, and D. C. Markel. Gene expression analysis of osteoblast-related factors in human bone marrow cells from patients with total hip replacement.

Song, W., Q. G. Wang, C. X. Wan, D. C. Markel, R. Blasier, and W. P. Ren. A novel SCpp-EM-PVA composite for aseptic loosening.

Mid-America Orthopaedic Association Annual Meeting (Austin, TX; April 21-25, 2010)

Poster presentation:

Mulder, A. A., A. O. Esquivel, N. Jackson, J. C. Flynn, W. Ren, and D. C. Markel. Inflammatory response to suture materials in a murine air pouch model.

MI Orthopaedic Society Annual Meeting (Mackinac Island, MI; June 18-20, 2010)

Oral presentations:

Anderson, B., A. Sethi, A. Elbanna, M. J. Liston, D. B. Hoard, and R. Vaidya. Assessment of limb length discrepancy following im nailing in comminuted femoral shaft fractures.

Chen, E., A. Sethi, and R. Vaidya. Knee pain in cancer patients following chemotherapy radiotherapy and bone marrow transplantation.

Duncan, D., G. Lancaster, D. C. Markel, S. E. Lemos, and J. Michaelson. Anatomical evaluation of the Toggle Loc device for distal biceps tendon repairs.

Kesto, W., A. Esquivel, and D. Markel. Biomechanical evaluation of meniscal repairs in a shear force scenario.

Mulder, A. A., A. O. Esquivel, S. F. Bak, D. R. Lincoln, and D. C. Markel. Radiographic parameters for the assessment of shoulder location.

Sami, S., N. M. Jackson, A. Esquivel, J. C. Flynn, W. Ren, and D. Markel. Inflammatory and immunological responses to bolus vs. three injections of Synvisc in a murine biocompatibility model.

Sami, S., D. Nanavati, A. Sethi, and R. Vaidya. Knee dislocation in obese and morbidly obese patients.

Wolfe, C., A. Bouffard, and H. T. Goitz. Arthroscopic knotless rotator cuff repair and accelerated rehabilitation outcomes.

Poster presentations:

Mulder, A. A., N. Jackson, A. Esquivel, W. Ren, and D. Markel. Inflammatory response to suture material in a murine air pouch model.

Song, W., C. X. Wan, D. Markel, R. Blasier, and W. Ren. A novel SCPP-EM-PVA composite scaffold for the treatment of aseptic loosening.

Vigdorchik, J., A. Esquivel, X. Jin, K. H. Yang, D. C. Markel, and R. Vaidya. The biomechanical stability of a novel supra-acetabular pedicle screw internal fixation device for vertically unstable pelvic fractures.

Detroit Academy of Orthopaedic Surgery Annual Meeting (Troy, MI; May 10, 2010)

Oral presentations:

Duncan, D., G. Lancaster, D. C. Markel, S. E. Lemos, and J. Michaelson. Anatomical evaluation of the Toggle Loc device for distal biceps tendon repairs.

MI State University College of Osteopathic Medicine Orthopaedic Surgery Research Day (East Lansing, MI; June 9, 2010)

Oral presentation:

Molli, R. G., K. C. Anderson, K. C. Buehler, and D. C. Markel. Computer-assisted navigation software advancements improve the accuracy of total knee arthroplasty. (Award: First place - Resident oral presentation)

Providence Hospital Research Day (Southfield, MI; April 28, 2010)

Oral presentations:

Mulder, A., A. Esquivel, S. Bak, D. Lincoln, and D. C. Markel. Radiographic parameters for the assessment of shoulder location. (*Award: Third place - Resident oral presentation*)
Sami, S., N. M. Jackson, A. Esquivel, J. C. Flynn, W. Ren, and D. C. Markel. Inflammatory and immunological responses to bolus versus multiple injections of Synvisc in a murine biocompatibility model.

Poster presentations:

Gheraibeh, P. and R. Vaidya. Intramedullary nailing as treatment for low velocity gunshot femur fractures: a retrospective review.
Mulder, A., N. Jackson, A. Esquivel, J. C. Flynn, W. Ren, and D. C. Markel. Inflammatory response to suture materials in a murine air pouch model.
Vigdorichik, J. M., A. O. Esquivel, X. Jin, K. H. Yang, D. C. Markel, and R. Vaidya. The biomechanical stability of a novel supra-acetabular pedicle screw internal fixation device for vertically unstable pelvic fractures.

International Meeting on Advanced Spine Techniques Annual Meeting (Copenhagen, Denmark; July 13-16, 2011)

Poster presentation:

Legakis, J., Y. K. Chung, A. Bazzi, R. L. Thomas, R. A. Reynolds, and W. K. Yassir. Analysis of cost differences in pediatric spinal fusion surgery.

Pediatric Orthopaedic Society of North America Annual Meeting (Montreal, Canada; May 11-14, 2011)

Oral presentation:

Khalil, J. G., O. Erez, J. E. Legakis, J. Tweedie, E. Kaminski, and R. A. Reynolds. Ultrasound evaluation of ulnar nerve anatomy in the pediatric population.

American Academy of Orthopaedic Surgeons Annual Meeting (San Diego, CA; February 15-19, 2011)

Oral presentation:

Markel, D. C., S. Sami, N. M. Jackson, A. Esquivel, J. Flynn, and W. Ren. Immunological response to bolus vs multiple injections of Synvisc in a murine biocompatibility model.

Poster presentation:

Duncan, D., G. Lancaster, J. Michaelson, D. Markel, and S. Lemos. Anatomical evaluation of a flip-button type device for distal biceps tendon repairs.
Sethi, A. and R. Vaidya. Revision surgery after off label use of rhBMP-2 in PLIF and TLIF surgery.

American Orthopedic Association Annual Meeting (Boston, MA; June 22-25, 2011)

Poster presentation:

Duncan, D., A. Esquivel, S. Marsh, N. Dobrasevic, and S. Lemos. A biomechanical comparison of the thermal tenodesis, traditional tenotomy and suture anchor tenodesis of the LHBB.

Orthopaedic Research Society Annual Meeting (Long Beach, CA; January 13-16, 2011)

Oral presentation:

Markel, D. C., N. M. Jackson, J. C. Flynn, and W. Ren. Periprosthetic tissue gene expression from 26 revision patients: effect of aseptic loosening.

Poster presentations:

Fan, D., N. M. Jackson, D. C. Markel, J. C. Flynn, and W. Ren. The response of bone marrow mesenchymal stromal cells to BMP-2: measuring their osteogenic potential.
Kesto, W., A. Esquivel, and D. C. Markel. Biomechanical evaluation of meniscal repairs in a shear force scenario.
Nelson, M., W. Song, A. O. Esquivel, N. M. Jackson, T. Shi, D. C. Markel, R. Blasier, J. C. Flynn, and W. Ren. Calcium polyphosphate/erythromycin/poly (vinyl alcohol) composite in a mouse pouch infection model.
Sami, S., N. M. Jackson, A. Esquivel, J. C. Flynn, W. Ren, and D. C. Markel. Inflammatory and immunological responses to bolus vs. three injections of Synvisc in a murine biocompatibility model.
Song, W., T. Shi, C. X. Wan, D. C. Markel, R. Blasier, and W. Ren. The inhibitory effect of strontium on osteoclastogenesis *in vitro*.
Song, W., X. Jing, J. Kim, C. X. Wan, D. C. Markel, K. H. Yang, R. Blasier, and W. P. Ren. The fragility of calcium polyphosphate scaffold can be improved by adjusting the calcining time.

Orthopaedic Trauma Association Annual Meeting (San Antonio, TX; October 12-15, 2011)

Poster presentation:

Vigdorichik, J. M., A. O. Esquivel, X. Jin, K. H. Yang, D. C. Markel, and R. V. Vaidya. Stability of an anterior internal fixator for vertically unstable pelvic fractures.

Society for Biomaterials Annual Meeting (Orlando, FL; April 13-16, 2011)

Poster presentations:

Bhullar, P., W. Song, X. Jin, T. Shi, D. Markel, and W. Ren. Electrospun polyvinyl alcohol/cyclodextrin/tobramycin nanofibrous matrix for drug delivery.

Buzas, D., W. Song, X. Jin, T. Shi, D. Markel, and W. Ren. Preparation of polyvinyl alcohol (PVA) microspheres using freeze-thaw cycling methods.

Ren, W., A. Bosnjakovic, M. Mishra, T. Shi, and R. M. Kannan. Synthesis and characterization of dendrimer-drug nanodevices to target periprosthetic inflammation.

Mid-America Orthopaedic Association Annual Meeting (Tucson, AZ; April 6-10, 2011)

Oral presentations:

Kesto, W. K., A. Esquivel, and D. C. Markel. Biomechanical evaluation of meniscal repairs in a shear force scenario.

Lemos, S. E., D. D. Duncan, N. Dobrasevic, S. G. Manza, A. Esquivel, and D. Lemos. Comparison of suture patterns in labral repairs of the glenohumeral joint.

Sami, S. A., N. M. Jackson, A. Esquivel, J. C. Flynn, W. Ren, and D. C. Markel. Inflammatory and immunological responses to bolus versus multiple injections of Synvisc in a murine biocompatibility model.

Poster presentations:

Lemos, S. E., D. D. Duncan, N. Dobrasevic, S. G. Manza, and A. O. Esquivel. A biomechanical comparison of biceps tenodesis with suture anchor versus thermal tenodesis.

Raaii, F. and D. C. Markel. Differentiation of adult human adipose-derived stem cells into articular chondrocytes is achieved by overexpression of the BMP receptor 1A.

MI Orthopaedic Society Annual Meeting (Mackinac Island, MI; June 24-26, 2011)

Oral presentations:

Cable, M. G., J. C. Flynn, and D. C. Markel. In vitro rat and human model for evaluating the effects of interleukin-1 beta on type II chondrocytes.

Hanna, J. D., A. O. Esquivel, and S. E. Lemos. Comparison of glenohumeral pressure before and after labral repairs: simple versus vertical suture pattern.

Karek, M. R., B. Oliphant, J. C. Flynn, N. M. Jackson, R. Vaidya, and D. C. Markel. Elution profiles of two methods of antibiotic cement tibial nail preparations.

Keyes, B. J. and D. C. Markel. Evaluation of limb alignment, component positioning and function in primary total knee arthroplasty using a pinless navigation technique compared with conventional methods.

Markel, D. C., N. Jackson, J. Flynn, and W. P. Ren. Periprosthetic tissue gene profiles from 26 revision patients due to aseptic loosening.

Pandhi, N. G., A. O. Esquivel, and S. E. Lemos. The biomechanical stability of distal clavicle excision versus acromioclavicular joint resection.

Staron, J. S., A. O. Esquivel, and S. E. Lemos. A biomechanical comparison of anatomical coracoclavicular ligament reconstructions after complete acromioclavicular dislocation.

Poster presentations:

Awan, T., S. G. Marsh, and S. E. Lemos. Acute distal biceps tear in a female.

Khalil, J. G., O. Erez, J. E. Legakis, J. Tweedie, E. Kaminski, and R. A. Reynolds. Ultrasound evaluation of ulnar nerve anatomy in the pediatric population.

Nasr, K., N. Jackson, B. Khoury, A. Esquivel, W. Ren, and D. C. Markel. The effects of polyethylene particles at a weight-bearing rat tibia bone-implant interface.

Pandhi, N. G., S. G. Marsh, and S. E. Lemos. Acute olecranon fracture in a baseball player.

Vigdorichik, J. M., A. O. Esquivel, X. Jin, K. H. Yang, D. C. Markel, and R. V. Vaidya. Stability of an anterior internal fixator for vertically unstable pelvic fractures.

MI Osteopathic Association Annual Postgraduate Convention and Scientific Seminar (Dearborn, MI; May 11-14, 2011)

Oral/poster presentation:

Keyes, B. J. and D. C. Markel. Evaluation of limb alignment, component positioning and function in primary total knee arthroplasty using a pinless navigation technique compared with conventional methods. (*Award: First place - Resident oral presentation*)

Detroit Academy of Orthopaedic Surgery Annual Meeting (Troy, MI; May 9, 2011)

Oral presentations:

Cable, M. G., J. C. Flynn, N. Jackson, and D. C. Markel. In vitro rat and human model for evaluating the effects of interleukin-1 beta and alendronate on type II chondrocytes. (*Award: Second place - Resident oral presentation*)

Karek, M. R., B. Oliphant, J. C. Flynn, N. M. Jackson, R. Vaidya, and D. C. Markel. Elution profiles of two methods of antibiotic cement tibial nail preparations.

Mulder, A. A., A. O. Esquivel, S. F. Bak, D. R. Lincoln, and D. C. Markel. Novel angle measurement for assessment of shoulder location using the scapular Y radiograph.

Nasr, K., N. Jackson, B. Khoury, A. Esquivel, W. Ren, and D. C. Markel. The effects of polyethylene particles at a weight-bearing rat tibia bone-implant interface.

Poster presentation:

Khalil, J. G., O. Erez, J. E. Legakis, J. Tweedie, E. Kaminski, and R. A. Reynolds. Ultrasound evaluation of ulnar nerve anatomy in the pediatric population.

MI State University College of Osteopathic Medicine Orthopaedic Surgery Research Day (East Lansing, MI; June 8, 2011)

Oral presentation:

Keyes, B. J. and D. C. Markel. Evaluation of limb alignment, component positioning and function in primary total knee arthroplasty using a pinless navigation technique compared with conventional methods. (*Award: First place - Resident oral presentation*)

St. John Providence Health System Osteopathic Research Day (Warren, MI; April 7, 2011)

Poster presentation:

Keyes, B. J. and D. C. Markel. Evaluation of limb alignment, component positioning and function in primary total knee arthroplasty using a pinless navigation technique compared with conventional methods. (*Award: First place - Resident poster presentation*)

Providence Hospital Research Day (Southfield, MI; April 27, 2011)

Oral presentations:

Francis, F., N. Karrumi, D. Samaan, D. Lincoln, D. Herzog, R. Gonda, J. Michaelson, K. Burgin, and J. Vigdorichik. Anterior cruciate ligament injuries: evaluation of the diagnostic accuracy of 3.0 Tesla MRI images in comparison to 1.5 Tesla.

Karek, M. R., B. Oliphant, J. C. Flynn, N. M. Jackson, R. Vaidya, and D. C. Markel. Antibiotic elution profiles of two cemented nails.

Keyes, B. J. and D. C. Markel. Evaluation of limb alignment, component positioning and function in primary total knee arthroplasty using a pinless navigation technique compared with conventional methods.