Fall Quarter 4:4;2010

e-news

Comparative Orthopaedic Lab

"Finding a joint solution"

www.columc.missouri.edu

Current Projects

- Intra-articular therapy for OA
- Optimizing Allograft Tissue Preservation
- Biomarkers for Osteoarthritis
- Relationship of Vascular Disease with OA
- Pedicle Screw Fixation in Osteoporosis
- Bio-Anchor Fixation and Absorption
- Multiscale Modeling of OA
- *In vitro* Model of Traumatic Arthritis
- On-field Diagnosis of Meniscal Pathology
- Biology of RIA Harvests
- Biologic Total Joint Arthroplasty
- Clinical Evaluations of ACP

Last quarter's "top 5"

1. Dr. Bridget Garner successfully completed her PhD in Pathobiology based on her OA biomarker research in the COL!
2. COL investigators published a landmark article in *Osteoarthritis and Cartilage* describing a system for comprehensive assessment of osteoarthritis!
3. COL investigators co-authored a landmark article in *The Lancet* detailing the results of a study on biologic joint replacement in rabbits!
4. The COL team had 19 abstracts accepted for ORS 2011! 100% of those submitted!
5. The COL team presented more than 20 invited lectures at the World Veterinary Orthopaedic Congress in Italy in September – more than any other center in the world!

COL 2011 Orthopaedic Research Society Papers

1. Jayabalan P, et al. The Relationship between the Constituents of the Media, Mineralization of Bioactive Glass 13-93 and Chondrocyte Metabolism in the Tissue Engineering of Cartilage
2. Lowe JA, et al. Effects of Reaming the Femur for Bone Graft: A Study of Torsion on Normal and Osteoporotic Bone
3. Kuroki K, et al. Subchondral bone changes in three different canine models of osteoarthritis
4. Stoker AM et al. Affect of Potential Food Additive IB3656 on Inflammatory and Degradative Markers Using an *in vitro Co-Culture*Model of Osteoarthritis.
5. Cook JL, et al. Biologic Enhancement of Rotator Cuff Repair in a Canine Model
6. Stoker AM, et al. Assessment of Potential Biomarkers for the Evaluation of Osteochondral Allograft Viability During Preservation
7. Stoker AM, et al. Analysis and Comparison of Osteochondral Allograft Metabolism Using Various Preservation Protocols
8. Cook JL, et al. Comparison of a Novel Bone-Tendon Allograft to a Human Dermis-Derived Patch for Repair of Chronic Large Rotator Cuff Tears Using a Canine Model
9. Franklin SP, et al. In Pursuit of Biologic Hip Resurfacing in Dogs Using Poly-ε-Caprolactone
10. Budsberg S, et al. Ex –vivo Effects of Meloxicam in OA Canine Cartilage
11. Stoker AM and Enderle N. Comparison of Cartilage Explant, Chondrocyte Monolayer, and Chondrocyte 3D Culture Basal and Il-1β Stimulated Cytokine Metabolism
12. Stoker AM and Enderle N. Effect of IL-1β on Cytokine Production by Normal Canine Cartilage and Synovial Tissue *in vitro*
13. Tan AR, et al. Optimizing Osteochondral Graft Harvesting Techniques To Reduce Cell Death in Surrounding Tissue
14. Crist BD, et al. Biomechanical Evaluation of Trans-sacral, Trans-alar, and Iliosacral Screw Fixation for Comminuted Transforaminal Sacral Fractures
15, Pfeiffer FM and Choma TJ. Evaluation of Pedicle Screw Failure in Osteoporotic Vertebrae
16. Oswald ES, et al. Effect of Passaging and 3D Culture Osmotic Conditions on Osteoarthritic Human Chondrocyte GAG and MMP/TIMP Enzyme Production
17. Garner BC, et al. Synovial Fluid and Serum Derived Chemokine and Matrix Metalloproteinase Concentrations and Alterations inProteins in Spontaneous OA
18. Stoker AM, et al. Optimization of Osteochondral Allograft Preservation to Extend the Usable Life Span of Harvested Tissue
19. Pfeiffer FM, et al. Evaluation of Pedicle Screw Augmentation and Trajectory Using Loading Protocol That Simulates In Vivo Combinations of Pullout, Migration and Toggle

Recent Pubs

1. Lee CH, Cook JL, et al. Regeneration of articular surface of a synovial joint by cell homing. The Lancet 2010
2. Kuroki K, et al. Expression of Toll-like receptors 2 and 4 in stifle joint synovial tissues of dogs with or without OA. Am J Vet Res 2010
3. Cook JL, et al. The OARSI histopathology initiative – Histopathological assessments of osteoarthritis in the dog. OA & Cartilage 2010
4. Cook JL, Cook CR. What is the evidence on lumbosacral instability. JAVMA 2010
5. Breshears LA, et al. The effect of uniaxial cyclic tensile load on gene expression in canine CCL ligamentocytes. Vet Surg 2010
6. Bian L, et al. Dynamic mechanical loading enhances functional properties of tissue engineered cartilage. Tissue Eng 2010
7. Arnoczky SP, Cook JL, et al. Translational models for studying meniscal repair and replacement. Tissue Eng 2010
8. Bal BS, et al. In vivo outcomes of tissue engineered osteochondral grafts. J Biomed Mater Res 2010
9. Breshears LA, et al. Detection and evaluation of MMPs involved in cruciate ligament disease in dogs. Vet Surg 2010.
10. Fox DB, et al. Effects of growth factors on synovial fibroblasts seeded on synthetic scaffolds for meniscal engineering. Res Vet Sci. 2010