Biologic Joint Replacement work published in *The Lancet*

The COL participated as part of a research team that created complete joint surfaces in rabbits using a biological “scaffold”. The study was led by Jeremy Mao of Columbia University.

The scaffold was implanted using the surgical technique currently used for shoulder replacement in humans. The scaffolds are infused with a growth factor, which encourages the host’s own cells to make new cartilage and bone. This is the first time this type of cartilage regeneration has ever been reported using this type of scaffold.

The study found that the rabbits given the infused scaffolds resumed weight-bearing and functional use of their limbs faster and more consistently than those without. Four months later, cartilage had formed in the scaffolds creating a new, functional cartilage surface for the humeral head. The team observed no complications or adverse events after surgery; the new tissue regeneration was associated with excellent limb use and shoulder health, indicating the procedure is both safe and effective. The next step toward FDA approval and clinical use is to study the technique in larger animals.

**Current Projects**

- Intra-Articular Therapy for OA
- Subchondral Bone in OA
- Optimizing Allograft Tissue Preservation
- Biomarkers for Osteoarthritis
- Relationship of Vascular Disease with OA
- Pedicle Screw Fixation in Osteoporosis
- Clinical Evaluations of ACP
- Multiscale Modeling of OA
- *In vitro* Model of Traumatic Arthritis
- On-field Diagnosis of Meniscal Pathology
- Comparison of Suture Anchors
- Biologic Total Joint Arthroplasty

**Last quarter’s “top 5”**

1. We received a very generous financial gift from ACell, Inc that will support our personnel
2. Dr. Vladimir Bobic visited the COL to work on our Subchondral Bone in OA collaboration
3. Dr. Steven Arnoczky visited the COL to give the Niemeyer Lecture and DOS Grand Rounds
4. Our Biologic Joint Replacement research made international news
5. Drs. Cook and Bal were selected for the One Health Initiative Advisory Board

**Recent Pubs**