This week in techniques

Approach	Summary	Licensing status	Publication and contact information
Imaging			
Tantalum oxide nanoparticles for X-ray imaging of articular cartilage	<p>Tantalum oxide nanoparticles could be useful as an X-ray contrast agent for imaging articular cartilage. Ta₂O₅ nanoparticles were synthesized with terminal functional groups consisting of neutral phosphonate, cationic ammonium or anionic carboxylate. In a metacarpophalangeal joint from the index finger of a human cadaver, the ammonium-linked Ta₂O₅ nanoparticle showed preferential uptake in an osteoarthritic defect area and enabled clear visualization of the defect with 2D and 3D X-ray computed tomography. In rats, intra-articular injection of a nontoxic variant of the ammonium-linked Ta₂O₅ nanoparticle enabled <i>in vivo</i> imaging of the knee joint with high-resolution micro-computed tomography. Next steps include evaluating the tantalum oxide nanoparticles as a contrast agent in animal models of osteoarthritis.</p> <p>SciBX 7(29); doi:10.1038/scibx.2014.881 Published online July 31, 2014</p>	Patent and licensing status available from the Boston University Technology Development Office	<p>Freedman, J.D. <i>et al. Angew. Chem. Int. Ed.</i>; published online June 30, 2014; doi:10.1002/anie.201404519 Contact: Mark W. Grinstaff, Boston University, Boston, Mass. e-mail: mgrin@bu.edu</p>