This week in techniques

Approach	Summary	Licensing status	Publication and contact information
Drug delivery			
Drug-silica nanoconjugates for tumor-specific delivery of cytotoxic agents	<p>Nanoconjugates with sizes optimized for tumor penetration and retention could safely deliver cytotoxic drugs to tumors. Drug-silica nanoconjugates consisting of a hard silica core, an outer layer of silica conjugated to the generic chemotherapy irinotecan and a surface coat of polyethylene glycol were synthesized in three diameters—20 nm, 50 nm and 200 nm. In xenograft mouse models of breast cancer, the 50 nm nanoconjugates exhibited greater uptake and longer retention by tumors than the 20 nm and 200 nm nanoconjugates. Also in the models, the 50 nm nanoconjugates decreased tumor growth and metastasis and increased survival compared with the 20 nm and 200 nm nanoconjugates and with less toxicity than unconjugated irinotecan. Next steps include filing an IND and collaborating with Mayo Clinic researchers to initiate a clinical evaluation of the system.</p> <p>Merrimack Pharmaceuticals Inc., Baxter International Inc. and PharmaEngine Inc. have MM-398 (PEP02), a nanoparticle liposome formulation of irinotecan, in Phase I, Phase II and Phase III testing to treat various cancers.</p> <p>SciBX 7(43); doi:10.1038/scibx.2014.1275 Published online Nov. 6, 2014</p>	Patent application filed; available for licensing	<p>Tang, L. <i>et al. Proc. Natl. Acad. Sci. USA</i>; published online Oct. 14, 2014; doi:10.1073/pnas.1411499111</p> <p>Contact: Jianjun Cheng, University of Illinois at Urbana-Champaign, Urbana, Ill. e-mail: jianjunc@illinois.edu</p> <p>Contact: Timothy M. Fan, same affiliation as above e-mail: t-fan@illinois.edu</p> <p>Contact: Andrew L. Ferguson, same affiliation as above e-mail: alf@illinois.edu</p> <p>Contact: William G. Helferich, same affiliation as above e-mail: helferic@illinois.edu</p>