This week in techniques

Approach	Summary	Licensing status	Publication and contact information
Drug delivery			
Shear-activated nanoparticles for targeting drugs to obstructed blood vessels	<p>Shear-activated nanoparticles could be useful for targeted delivery of drugs to obstructed blood vessels. Microscale aggregates of poly(lactic-co-glycolic acid) (PLGA)-based nanoparticles were designed to remain intact under normal blood flow but to disintegrate into nanoparticles under the high shear stress of obstructed vessels. As proof of concept, the PLGA nanoparticles were coated with the clot-lysing tissue plasminogen activator (tPA) and formed into microscale aggregates. In a mouse model of pulmonary embolism, tPA-coated aggregates accumulated at the injury site, broke up into nanoparticle components and dissolved emboli, whereas soluble tPA at a 10-fold higher dose failed to resolve the clot. Next steps could include optimizing the size and improving the biocompatibility of the particles, scaling up manufacturing and testing in large animal models.</p> <p>Roche's Genentech Inc. unit and Boehringer Ingelheim GmbH market the tPA Activase alteplase to treat acute ischemic stroke, pulmonary embolism and myocardial infarction.</p> <p>SciBX 5(30); doi:10.1038/scibx.2012.795 Published online Aug. 2, 2012</p>	<p>Patented; available for licensing or startup formation from the Wyss Institute for Biologically Inspired Engineering at Harvard University</p>	<p>Korin, N. <i>et al. Science</i>; published online July 5, 2012; doi:10.1126/science.1217815 Contact: Donald E. Ingber, Boston Children's Hospital, Boston, Mass. e-mail: don.ingber@wyss.harvard.edu</p>