This week in techniques

Approach	Summary	Licensing status	Publication and contact information
Disease models			
<i>Methyl CpG binding protein 2 (MECP2; RTT)</i> -deficient neurons derived from human embryonic stem cells (hESCs)	<p><i>MECP2</i>-deficient neurons derived from hESCs could be useful for studying Rett syndrome and screening for therapeutics to treat the disease. Transcription activator-like effector nuclease (TALEN)-based genome editing was used to generate <i>MECP2</i>-deficient hESCs, which were then differentiated into neurons. <i>MECP2</i>-deficient neurons showed impairments in transcriptional activity, protein synthesis, neurite complexity and protein kinase B (PKB; PKBA; AKT; AKT1) and mammalian target of rapamycin (mTOR; FRAP; RAFT1) pathway signaling, whereas nondeficient isogenic neurons did not. In the <i>MECP2</i>-deficient neurons, activation of AKT and mTOR signaling rescued impairments in transcriptional activity, protein synthesis and neuronal complexity. Next steps could include using the neurons to evaluate therapeutic candidates to treat Rett syndrome.</p> <p>SciBX 6(42); doi:10.1038/scibx.2013.1200 Published online Oct. 31, 2013</p>	Patent and licensing status unavailable	<p>Li, Y. <i>et al. Cell Stem Cell</i>; published online Oct. 3, 2013; doi:10.1016/j.stem.2013.09.001</p> <p>Contact: Rudolf Jaenisch, Whitehead Institute for Biomedical Research, Cambridge, Mass. e-mail: jaenisch@wi.mit.edu</p>