

This week in techniques

Approach	Summary	Licensing status	Publication and contact information
Disease models			
<p><i>Recombination activating gene 2 (RAG2)</i> knockout pigs to model immunodeficiency and evaluate transplant-based therapies</p>	<p>Pigs with <i>RAG2</i> knocked out could be useful as models of human immunodeficiencies and for testing transplant-based therapies. <i>In vitro</i>, engineered transcription activator-like effector nucleases (TALENs) were used to knock out <i>RAG2</i> in pig fibroblasts, which were then used in a somatic cell nuclear transfer procedure to generate eight <i>RAG2</i> knockout pigs. The <i>RAG2</i> knockout pigs failed to gain weight and showed a severe combined immunodeficiency phenotype that resulted in death or euthanasia before 29 days. A subsequent cohort of <i>RAG2</i> knockout pigs housed in cleaner conditions remained healthy for eight weeks and rapidly developed teratomas when injected with human induced pluripotent stem (iPS) cells. Next steps could include using the pigs to evaluate transplantation of stem cell-derived tissues.</p> <p>SciBX 7(22); doi:10.1038/scibx.2014.656 Published online June 5, 2014</p>	<p>Unpatented; pigs available from the National Swine Resource and Research Center at the University of Missouri</p>	<p>Lee, K. <i>et al. Proc. Natl. Acad. Sci. USA</i>; published online May 5, 2014; doi:10.1073/pnas.1406376111 Contact: Jin-Hoi Kim, Konkuk University, Seoul, South Korea e-mail: jhkim541@konkuk.ac.kr Contact: Randall S. Prather, University of Missouri, Columbia, Mo. e-mail: pratherr@missouri.edu Contact: R. Michael Roberts, same affiliation as above e-mail: robertsrm@missouri.edu</p>