This week in techniques

Approach	Summary	Licensing status	Publication and contact information
Chemistry			
Semisynthetic synthesis of artemisinin	<p>Biological production of artemisinic acid and chemical conversion of the acid to artemisinin could help supply first-line treatments for malaria infection at low cost. Artemisinin is naturally produced in the plant <i>Artemisia annua</i>. <i>Saccharomyces cerevisiae</i> expressing <i>A. annua</i> enzymes synthesized the artemisinin precursor artemisinic acid, which then was extracted from suspension at more than 10-fold higher titers than those produced by other methods. A 4-step chemical synthesis process was used to synthesize artemisinin from artemisinic acid with an overall yield of 40%–45% and with higher purity than plant-derived artemisinin. Next steps include commercializing the process to produce artemisinin-based combination therapies to treat malaria infection.</p> <p>Novartis AG markets the artemisinin-based combination therapy Coartem artemether/lumefantrine to treat malaria.</p> <p>Sigma-Tau Group and Pfizer Inc. market Eurartesim dihydroartemisinin/piperaquine to treat malaria.</p> <p>Suda Ltd.'s ArTiMist, a sublingual aerosol formulation of artemisinin, is in Phase III testing for the indication.</p> <p>SciBX 6(16); doi:10.1038/scibx.2013.394 Published online April 25, 2013</p>	<p>Patent status undisclosed; Amyris Inc. exclusively licensed the technology to the Institute for OneWorld Health, which has licensed it to Sanofi; available for licensing for non-malaria indications</p>	<p>Paddon, C.J. <i>et al. Nature</i>; published online April 10, 2013; doi:10.1038/nature12051 Contact: Chris J. Paddon, Amyris Inc., Emeryville, Calif. e-mail: paddon@amyris.com</p>