

### This week in therapeutics

Indication	Target/marker/pathway	Summary	Licensing status	Publication and contact information
<b>Neurology</b>				
Depression	Nicotinic acetylcholine receptor $\alpha_4\beta_2$	<p><i>In vitro</i> and mouse studies suggest two new classes of nicotinic acetylcholine receptor <math>\alpha_4\beta_2</math> partial agonists could help treat depression. Chemical synthesis and <i>in vitro</i> testing identified an isoxazole ether analog and several cyclopropylpyridine ether analogs that were selective partial agonists of nicotinic acetylcholine receptor <math>\alpha_4\beta_2</math> at low micromolar and low nanomolar EC<sub>50</sub> values, respectively. In a mouse model of depression, the isoxazole ether analog and three lead cyclopropylpyridine ether analogs decreased immobility in the forced swim test compared with vehicle. Ongoing work by PsychoGenics Inc. includes showing efficacy for one of the lead cyclopropylpyridine ether analogs in an animal model of drug-resistant depression. Pfizer Inc. markets Chantix/Champix varenicline, a nicotinic acetylcholine receptor <math>\alpha_4\beta_2</math> partial agonist, to treat addiction. Bulgarian Pharmaceutical Group Ltd. markets Tabex cytisine, a nicotinic acetylcholine receptor <math>\alpha_4\beta_2</math> partial agonist, to treat addiction. AZD3480 (TC-1734), a neuronal nicotinic acetylcholine receptor <math>\alpha_4\beta_2</math> agonist from Targacept Inc. and AstraZeneca plc, is in Phase IIb testing to treat Alzheimer's disease (AD) and Phase II testing to treat attention deficit hyperactivity disorder (ADHD).</p> <p><b>SciBX 5(3); doi:10.1038/scibx.2012.79</b> Published online Jan. 19, 2012</p>	Findings from both studies patented by the University of Illinois at Chicago; licensed to PsychoGenics	<p>Yu, L.-F. <i>et al. J. Med. Chem.</i>; published online Dec. 13, 2011; doi:10.1021/jm201301h <b>Contact:</b> Alan P. Kozikowski, University of Illinois at Chicago, Chicago, Ill. e-mail: <a href="mailto:kozikowa@uic.edu">kozikowa@uic.edu</a></p> <p>Zhang, H. <i>et al. J. Med. Chem.</i>; published online Dec. 15, 2011; doi:10.1021/jm201157c <b>Contact:</b> Alan P. Kozikowski, University of Illinois at Chicago, Chicago, Ill. e-mail: <a href="mailto:kozikowa@uic.edu">kozikowa@uic.edu</a></p>