This week in therapeutics

Indication	Target/marker/pathway	Summary	Licensing status	Publication and contact information
Autoimmune disease				
Colitis; inflammatory bowel disease (IBD); autoimmune disease	Forkhead box P3 (FOXP3)	<p>Cell culture and mouse studies suggest butyrylated compounds could be used to treat colitis or other autoimmune diseases. In mice fed starch derivatives, short-chain fatty acids produced by gut microbe fermentation of butyrylated starch, but not acetylated or propionylated starch, induced colonic T_{reg} cell differentiation. In stimulated T cells, butyrate or a histone deacetylase (HDAC) inhibitor increased <i>Foxp3</i> expression and histone H3 acetylation at promoter and enhancer elements of <i>Foxp3</i> compared with no treatment. In a mouse model of chronic intestinal inflammation, oral butyrylated starch prevented colitis in mice with T_{reg} cells but not in mice depleted of T_{reg} cells. Next steps for the RIKEN group include determining if butyrate and colonic T_{reg} cells are involved in food allergy.</p> <p>Next steps for the Memorial Sloan-Kettering Cancer Center group include developing HDAC inhibitors and short-chain fatty acids as therapeutic agents for IBD.</p> <p>SciBX 6(46); doi:10.1038/scibx.2013.1311 Published online Dec. 5, 2013</p>	<p>For first study, patent application filed by RIKEN covering use of butyrate to induce differentiation of colonic T_{reg} cells as a potential therapeutic for inflammatory, autoimmune and allergic diseases; unlicensed; butyrylated starch patented by the Commonwealth Scientific and Industrial Research Organisation (CSIRO); available for licensing; two CSIRO scientists were authors on the RIKEN manuscript</p> <p>For second study, patent application filed by MSKCC protecting methods and compositions for modulating inflammation and treating T_{reg} cell-associated diseases; available for licensing</p>	<p>Furusawa, Y. <i>et al. Nature</i>; published online Nov. 13, 2013; doi:10.1038/nature12721 Contact: Hiroshi Ohno, RIKEN Center for Integrative Medical Sciences, Kanagawa, Japan e-mail: ohno@rcai.riken.jp Contact: Koji Hase, same affiliation as above e-mail: hase@ims.u-tokyo.ac.jp Contact: Shinji Fukuda, same affiliation as above e-mail: sfukuda@sfc.keio.ac.jp</p> <p>Arpaia, N. <i>et al. Nature</i>; published online Nov. 13, 2013; doi:10.1038/nature12726 Contact: Alexander Y. Rudensky, Memorial Sloan-Kettering Cancer Center, New York, N.Y. e-mail: rudenska@mskcc.org</p>