

This week in therapeutics

Indication	Target/marker/pathway	Summary	Licensing status	Publication and contact information
Pain				
Neuropathic pain	Matrix metalloproteinase 2 (MMP2); MMP9; p38 mitogen-activated protein kinase (p38 MAPK); MAP kinase ERK-1; MAP kinase ERK-2; interleukin-1 β (IL-1 β)	<p>Studies in mice suggest that antagonizing MMP9 and MMP2 could be useful for treating early-stage and late-stage neuropathic pain, respectively. MMP9 activated a feedback loop between microglial p38 MAPK and IL-1β to produce rapid, transient early-stage pain. MMP2 activated a feedback loop involving MAP kinase ERKs and IL-1β in astrocytes to produce delayed, sustained late-stage pain. Ongoing studies are examining the role of MMP2 and MMP9 in arthritis-related neuropathic pain, and further work will determine whether other MMPs play a role in neuropathic pain.</p> <p>At least five companies—Cephalon Inc., Elan Corp. plc, Eli Lilly and Co., GW Pharmaceuticals plc and Pfizer Inc.—market treatments for neuropathic pain. At least eight companies are developing MMP inhibitors for diabetes, cancer, emphysema, hepatitis C virus and other indications. (See Hitting pain where it hurts, page 5.)</p>	Provisional patent obtained; not licensed	<p>Kawasaki, Y. <i>et al. Nat. Med.</i>; published online Feb. 10, 2008; doi:10.1038/nm1723</p> <p>Contact: Ru-Rong Ji, Brigham and Women's Hospital and Harvard Medical School, Boston, Mass. e-mail: rrji@zeus.bwh.harvard.edu</p>