



Office of Technology Development
800 Huntington Avenue
Boston, Massachusetts 02115
www.idi.harvard.edu

**IDI 02-005 and
03-009**

SILENCING THE *FAS* GENE WITH siRNAs

Application: Treatment of hepatitis, liver cancer and renal ischemia-reperfusion injury; prevention of hepatic allograft rejection; prevention of myocardial or renal infarction.

Inventor(s): Judy Lieberman, M.D., Premlata Shankar, Ph.D., Manjunath Swamy, M.D., Erwei Song, Ph.D., Sang-Kyung Lee, Ph.D., Nedim Ince, Ph.D., Peter Hamer, Ph.D.

Invention Summary:

The FAS receptor (*Fas*), a member of the TNF/NGF superfamily, is a cell-surface protein expressed in various tissues including liver, thymus, heart and kidney. The interaction between *Fas* and the *Fas* ligand is a key regulator of apoptosis. Since *Fas*-mediated apoptosis is implicated in a broad spectrum of liver diseases, inhibiting *Fas* activity and hepatocyte death can be lifesaving. In a landmark experiment, Dr. Lieberman and her colleagues infused a mouse with a solution of siRNAs targeting the *Fas* gene, which protected the animal from fulminant hepatitis C. This study proved that targeting the *Fas* gene with short interfering RNA molecules (siRNAs) results in the reduction of *Fas* expression or protein activity in hepatocytes. In a recent study, Dr. Lieberman and her colleagues have shown that siRNA duplexes targeting *Fas* protect mice from acute renal failure after an ischemic episode confirming that silencing *Fas* can prevent or treat renal ischemia-reperfusion injury. In summary, these discoveries provide methods of treating human subjects having a Fas-mediated disease or disorder with therapeutically or prophylactically effective amounts of siRNAs.

Publications: *Nature Med* 9:347-351 (2003)

Patent Status: US Application # 10/533,622, Publication # US-2007-0254850-A1
US Application # 10/577,814, Publication # US-2008-0227733 A1
PCT Publication # WO 2005/013886; PCT Publication # WO 2005/042719

Availability: Exclusive license

Contact: Ryan Dietz
Director, Office of Technology Development
617-278-3463
dietz@idi.harvard.edu