



*Technology Opportunity, Ref. No. UZ-08/287*

## **Blockers of Serotonin and its Receptors for the Treatment of Hepatitis**

### **Background**

Hepatitis is a disease induced by autoimmune processes, by alcoholic or toxic liver destruction and by infections, particularly by the hepatitis viruses such as HCV. 500 million people worldwide are affected with persistent infection causing hepatitis. The standard therapy for hepatitis C is treatment with interferon for two years, but there are strong side effects and clearance of virus is achieved only in 50% of the cases. Hence, there is a clear need for additional effective pharmacologic therapy.

### **New Findings**

This invention is from the lab Prof. Rolf Zinkernagel (nobel price laureate medicine 1996) and relates to the treatment of hepatitis, particularly virus induced hepatitis, using blockers of serotonin. To analyze the decisive role of serotonin in hepatitis tryptophan hydrolase-1-deficient (tph1-/-) mice were infected with LCMV. Serum alanine transaminase (ALT) and serum bilirubin concentrations, which both correlate directly with liver cell damage, were significantly reduced in LCMV infected tph1-/- mice and T cell mediated virus elimination was faster. C57BL/6 mice were treated with exogenous serotonin and infected with an intermediate dose of LCMV, which normally induces a very mild hepatitis. In these mice high levels of replicating virus was found and ALT levels were very high compared to controls. Serotonin treatment without infection was harmless to the liver. Furthermore LCMV infected C57BL/6 mice treated with fluoxetine leading to reduced serotonin in plasma showed significantly reduced damage of hepatocytes compared to control mice.

### **Patent Status and Contact**

A patent application covering the invention has been filed. We are looking for an industrial partner to exploit the commercial potential of the invention.

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