**1:** Antiviral Res. 2003 Jun; 59(1): 41-7. Related Articles, Links

## Mechanism of action of glycyrrhizic acid in inhibition of Epstein-Barr virus replication in vitro.

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We report here that glycyrrhizic acid (GL), a component of licorice root (Glycyrrhiza radix), is active against EBV replication in superinfected Raji cells in a dose-dependent fashion. The IC(50) values for viral inhibition and cell growth were 0.04 and 4.8mM, respectively. The selectivity index (ratio of IC(50) for cell growth to IC(50) for viral DNA synthesis) was 120. Time of addition experiments suggested that GL interferes with an early step of EBV replication cycle (possibly penetration). GL had no effect on viral adsorption, nor did it inactivate EBV particles. Thus, GL represents a new class of anti-EBV compounds with a mode of action different from that of the nucleoside analogs that inhibit viral DNA polymerase.
PMID: 12834859 [PubMed - indexed for MEDLINE]

**1:** J Gastroenterol. 2003; 38(10): 962-7. Related Articles, Links

## Glycyrrhizin enhances interleukin-10 production by liver dendritic cells in mice with hepatitis.

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BACKGROUND: Glycyrrhizin (GL), an aqueous extract of licorice root, is known to have various immune-modulating and biological response-modifier activities. GL is used in patients with hepatitis to reduce the activity of liver inflammation; however, the mechanism underlying the anti-inflammatory activity of GL is poorly understood. As antigen-presenting dendritic cells (DC) in the tissue play a major role in the regulation of the inflammatory mucosal milieu during tissue inflammation, we studied whether the function of liver DC was altered by GL therapy in a murine model of concanavalin-A (con A)-induced hepatitis. METHODS: Liver DC were propagated from control mice or mice with Con-A-induced hepatitis, and the effect of GL on liver DC was evaluated in vivo and in vitro. RESULTS: The levels of interleukin (IL)-10 produced by liver DC were significantly lower in mice with Con-A-induced hepatitis compared with control mice. However, treatment with GL caused increased production of IL-10 in mice with Con A-induced hepatitis. The increased production of IL-10 by mice with Con A-induced hepatitis was also confirmed in vitro by culturing liver DC with GL. CONCLUSIONS: This study indicates that increased production of IL-10 by liver DC due to GL administration may be involved in downregulation of the levels of liver inflammation in mice with Con A-induced hepatitis.Glycyrrhizin (GL), an aqueous extract of licorice root, is known to have various immune-modulating and biological response-modifier activities. GL is used in patients with hepatitis to reduce the activity of liver inflammation; however, the mechanism underlying the anti-inflammatory activity of GL is poorly understood. As antigen-presenting dendritic cells (DC) in the tissue play a major role in the regulation of the inflammatory mucosal milieu during tissue inflammation, we studied whether the function of liver DC was altered by GL therapy in a murine model of concanavalin-A (Con A)-induced hepatitis.
PMID: 14614603 [PubMed - in process]

Lancet. 2003 Jun 14; 361(9374): 2045-6. Related Articles, Links

## Glycyrrhizin, an active component of liquorice roots, and replication of SARS-associated coronavirus.

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The outbreak of SARS warrants the search for antiviral compounds to treat the disease. At present, no specific treatment has been identified for SARS-associated coronavirus infection. We assessed the antiviral potential of ribavirin, 6-azauridine, pyrazofurin, mycophenolic acid, and glycyrrhizin against two clinical isolates of coronavirus (FFM-1 and FFM-2) from patients with SARS admitted to the clinical centre of Frankfurt University, Germany. Of all the compounds, glycyrrhizin was the most active in inhibiting replication of the SARS-associated virus. Our findings suggest that glycyrrhizin should be assessed for treatment of SARS.
PMID: 12814717 [PubMed - indexed for MEDLINE]

Hepatol Res. 2002 May; 23(1): 55-61. Related Articles, Links

## Clinical spectrum of acute sporadic hepatitis E and possible benefit of glycyrrhizin therapy.

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The aim of the present study was to record the spectrum of sporadic hepatitis due to hepatitis E virus infection with special reference to moderate and severe liver disease, described as sub-acute hepatitis. Further, efficacy of glycyrrhizin therapy was studied as an open trial. Sixty-two consecutive patients were registered for the study. The clinical and laboratory profile of the patients was recorded on a preplanned proforma. Moderate and severe hepatitis was arbitrarily defined on the basis of clinical symptoms and serum bilirubin (total) of 10-15 mg% and 16 mg% or higher, respectively, at the time of presentation. It was noted that 22 (36.1%) of acute sporadic hepatitis E patients had moderate or severe liver disease. Glycyrrhizin was administered to these 22 patients by intravenous (IV) route in the dose of 60 ml daily. Therapy was tapered and stopped once significant clinical and biochemical improvement was noted. All patients showed clinical improvement by the seventh day of therapy. Total bilirubin was reduced by 68.9% by the end of 2 weeks of treatment and at this time, reduction in AST and ALT levels was to the tune of 94 and 97%, respectively. Normalization of AST and ALT levels was recorded in 19 patients (86.4%) and total bilirubin in 13 (59.1%) patients within 30 days of commencement of therapy. There were no side effects of IV glycyrrhizin therapy. It is concluded from the results of the present study that over one-third patients with acute sporadic hepatitis E in India have either moderate or severe liver injury. IV glycerrhizin therapy in this group of patients is well tolerated and effective.
PMID: 12084556 [PubMed - as supplied by publisher]