



## Vaccine

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# Open-label trial of therapeutic immunization with oral V-5 Immunitor (V5) vaccine in patients with chronic hepatitis C

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## Summary

We evaluated whether V-5 Immunitor (V5) – tableted therapeutic bivalent vaccine comprising heat-inactivated HCV antigens from pooled blood of HBV- and HCV-infected donors – may produce clinical benefit through induction of oral tolerance and reduction of immune-mediated liver injury. Once daily dose of V5 was administered *per os* to 10 patients with **chronic hepatitis C** in an open-label study that lasted 1 month. Every patient who entered the study had **elevated liver enzyme** levels, which at the end of study have decreased in 100% of analyzed patients. The reduction was highly significant,

from  $157.7 \pm 73.4$  to  $49.9 \pm 43.8$  U/L ( $P = 0.0013$ ) and  $147.0 \pm 79.2$  to  $58.7 \pm 56.6$  U/L ( $P = 0.0132$ ), for ALT and AST, respectively. The **AST/ALT ratio** has improved from 0.93 to 1.18 ( $P = 0.00058$ ) indicating the reversion of progression to **cirrhosis**. None of **intent-to-treat** patients who were anti-HCV antibody positive at study entry, became negative after 1 month on V5 ( $P = 0.998$ ). All patients, except one, reported complete recuperation from hepatitis C-associated clinical symptoms present at baseline ( $P = 0.0016$ ) with Mantel Haenszel's odds ratio 9.4 ( $P = 0.0021$ ) at 95% confidence interval:  $2.7 < OR < 476.3$ . No adverse events were observed at any time. The favorable biochemical and clinical responses have been observed in a small number of individuals for a limited time period. Larger scale and longer studies are needed to confirm our preliminary observations suggesting that V5 is safe and effective means for **immunotherapy** of chronic hepatitis C.

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## Keywords

Alloimmunization; Liver function test; Therapeutic vaccine; Immunomodulation; *Per os*

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