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► **To cite this version:**

Philippe Roingeard. Is hepatitis C virus eradication a realistic objective in the absence of a prophylactic vaccine?. *Liver International*, Wiley-Blackwell, 2016, 36 (7), pp.1076. 10.1002/hep.26132 . inserm-01575076

HAL Id: inserm-01575076

<https://www.hal.inserm.fr/inserm-01575076>

Submitted on 17 Aug 2017

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Is hepatitis C virus eradication a realistic objective in the absence of a prophylactic vaccine?

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To the Editor:

I read with great interest the recent issue of Liver International containing the proceedings of the Paris Hepatitis Conference (PHC) on the management of patients with viral hepatitis, particularly the editorial written by my colleague Patrick Marcellin (1). It is true that the introduction of direct-acting antiviral agents (DAAs) has considerably improved the treatment of chronic hepatitis C virus (HCV) infection, and that a new generation of these molecules will soon provide an efficacy close to 100%, making it possible to cure infections caused by HCV of all genotypes. However, can these new, highly efficient treatments really make HCV eradication a realistic objective? A recent Science article pointed out that only a

minority (about 0.25%) of the 185 million chronic carriers of HCV worldwide are actually treated (2). The very high cost of the new treatments, which are unaffordable in low-income countries, is, of course, a major limitation. The launch of new generic oral antiviral drugs for HCV treatment will certainly help to reduce this cost. These treatments will be given to subjects identified as HCV chronic carriers, but it is estimated that only 5% of infected individuals worldwide are aware of their HCV carrier status. The successful control of HCV infection would therefore also need to include mass global screening to identify all infected individuals, a highly complex and expensive task. In the meantime, the risk remains that the large population of chronic HCV carriers (3% of the world population) will transmit the infection to others. This risk is far from negligible, as the world reservoir of HCV-infected individuals increases by three to four million newly infected subjects each year. This phenomenon is not limited to low-income countries, as 18,000 new HCV infections are thought to occur annually in the USA (3). Moreover, successful treatment with DAAs in a given individual will not protect against subsequent reinfection with HCV. Thus, although DAAs are clearly a major advance in the management of patients with chronic HCV infection, it will be very difficult to control the worldwide HCV epidemic with these molecules. For this reason, public health authorities should also support research aiming to develop a prophylactic vaccine against HCV. The development of such a vaccine is challenging, but promising T-cell-mediated (4) and antibody-mediated (5) strategies are currently being investigated, with the goal of developing a vaccine that would undoubtedly be determinant in efforts to control HCV infection worldwide.

References

1. Marcellin P. Viral hepatitis: towards the eradication of HCV and a cure for HBV. *Liver Int* 2016; **36**: 5-6.
2. Cox AL. Global control of hepatitis C virus. *Science* 2015; **349**: 790-1.
3. Ward JW. The hidden epidemic of hepatitis C virus infection in the United States: occult transmission and burden of disease. *Top Antivir Med* 2013; **21**: 15-9.
4. Park SH, Shin EC, Capone S, Caggiari L, De Re V, Nicosia A, et al. Successful vaccination induces multifunctional memory T-cell precursors associated with early control of hepatitis C virus. *Gastroenterology* 2012 ; **43**:1048-60.
5. Beaumont E, Patient R, Hourieux C, Dimier-Poisson I, Roingeard P. Chimeric hepatitis B virus/hepatitis C virus envelope proteins elicit broadly neutralizing antibodies and constitute a potential bivalent prophylactic vaccine. *Hepatology* 2013; **57**: 1303-13.