

# Hepatitis B preventive versus therapeutic vaccine

Volume 2 Issue 4 - 2016

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## Editorial

The pathobiology of HbV hepatitis infection finds port of entry through injection, sex contact, drug addiction. HBV, migrate to its natural tropism the hepatic tissue. The virus bind to a specific hepatocyte surface receptor which facilitate entry, then a transcription factor found only in hepatocyte that enhance viral mRNA synthesis acting post-entry. Host CTL mediate an immune attack against virus infected hepatocyte, which in turn induce cell mediated immune injury together with the viral antigen-antibody complexes may be deposited in the vascular basement membrane of the vital infected host tissue /organ systems<sup>1,2</sup> which finally lead to manifestation of arthritis, glomerulonephritis, cryoglobulinemia<sup>3</sup> and vasculitis as changes pathognomic with HBV hepatitis.<sup>1,2</sup>

The genome of the HbV consists of one molecule of circular DNA of 302 Kbp in size, including; negative DNA strand of full length and positive DNA strand is partially completes. While the genomic studies revealed that the genome consists of four genes or four reading frames (ORF) and denoted as the, S, C, P and X genes. The proteomic analysis have shown that S gene encodes for Surface antigen, C encodes for core antigen, e encodes for e antigen, and P gene encodes for DNA and RNA dependent polymerase.<sup>1,2</sup> Virus in hepatocellular tissue differentially expressed 17 proteins ten up regulated and seven down regulated.<sup>4</sup> HbV vaccine antigen own single immune specificity with four antigenic epitope subtypes, "a" is the group specific and two sets of mutually exclusive "d" or "y" and "w" or "r" epitopes. This lead to the four serotypes- adw, adr, awy and ayr with variable degree of geographic prevalence.<sup>1,2</sup>

The human disease may be of primary molecular genetics nature, like sickle cell anemia, severe combined immunodeficiency and cystic fibrosis. Or secondary like HPV cancer disease, HIV/AIDS and/or HbV which induces chronic hepatitis, autoimmune hepatitis and hepatocellular carcinoma together with immunodeficiency.<sup>5,6</sup> Some workers advocates that HbV is oncogenic<sup>2</sup> others, however, state it's not oncogenic per se but during integration with host hepatocyte genome, an insertional mutagenesis within hepatocyte activating cellular oncogene.<sup>1</sup>

HbV vaccine is valid for preventive measure for massive prophylaction before getting infection for various ages in several shuts. Therapeutic HbV vaccine may be till now in question, but recently worker have prove the utility of therapeutic HbV vaccine in limited vaccine designs in human beings suffering from chronic hepatitis consequences.<sup>7</sup> Thus, HBV hepatitis is immune mediated with oncogenic or insertional mutagenesis events leading to carcinoma; can be prevented by preventive vaccine but not with therapeutic vaccine which still be of limited affectivity. Hopes that in the coming few years valid therapeutic vaccine can be designed.

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**Received:** July 15, 2016 | **Published:** July 22, 2016

## Acknowledgments

None.

## Conflicts of interest

Author declares there are no conflicts of interest.

## Funding

None.

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