

HEPATITIS B SEROLOGY

Hepatitis B surface antigen (HBsAg): A protein on the surface of the hepatitis B virus (HBV); it can be detected in high levels in serum during acute or chronic HBV infection. The presence of HBsAg indicates that the person is infectious. The body normally produces antibodies to HBsAg as part of the normal immune response to infection. HBsAg is the antigen used to make Hepatitis B vaccine.

Hepatitis B surface antibody (anti-HBs): The presence of anti-HBs is generally interpreted as indicating recovery and immunity from HBV infection. Anti-HBs also develops in a person who has been successfully vaccinated against hepatitis B.

Total hepatitis B core antibody (anti-HBc): Appears at the onset of symptoms in acute hepatitis B infection and persists for life. The presence of anti-HBc indicates previous or ongoing infection with HBV in an undefined time frame.

IgM antibody to hepatitis B core antigen (IgM anti-HBc): Positivity indicates recent infection with HBV (≤ 6 months). Its presence usually indicates acute infection.

Hepatitis B e antigen (HBeAg): A secreted product of the nucleocapsid gene of the hepatitis B virus that is found in serum during acute and chronic hepatitis B infection. Its presence indicates that the virus is replicating and the infected person has high levels of HBV.

Hepatitis B e antibody (HBeAb or anti-HBe): Produced by the immune system temporarily during acute HBV infection or consistently during or after a burst in viral replication. Spontaneous conversion from e antigen to e antibody (a change known as seroconversion) is a predictor of long-term clearance of HBV in patients undergoing antiviral therapy and indicates lower levels of HBV.

Link to CDC Tutorial on Hepatitis B Serology

<http://www.cdc.gov/hepatitis/Resources/Professionals/Training/Serology/training.htm>

INTERPRETATION OF HEPATITIS B SEROLOGY

Tests	Results	Interpretation
HBsAg anti-HBc anti-HBs	negative negative negative	Susceptible
HBsAg anti-HBc anti-HBs	negative positive positive	Immune due to natural infection
HBsAg anti-HBc anti-HBs	negative negative positive	Immune due to hepatitis B vaccination
HBsAg anti-HBc IgM anti-HBc anti-HBs	positive positive positive negative	Acutely infected
HBsAg anti-HBc IgM anti-HBc anti-HBs	positive positive negative negative	Chronically infected
HBsAg anti-HBc anti-HBs	negative positive negative	Interpretation unclear; four possibilities: <ol style="list-style-type: none"> 1. Resolved infection (most common) 2. False-positive anti-HBc, thus susceptible 3. "Low level" chronic infection 4. Resolving acute infection