SANTA CRUZ BIOTECHNOLOGY, INC.

Hep B cAg (1-5): sc-52406

BACKGROUND

Hep B (Hepatitis B) virus is a member of a member of the hepadnavirus family that causes an inflammation of the liver, vomiting, jaundice and sometimes death. Hep B is one of the small number of known non-retroviral viruses that replicate their genome using reverse transcription. Three major antigens make up different parts of the Hep B Virus (HBV). These three include: surface antigen (Hep B sAg), an envelope glycoprotein found as membranous aggregates in the sera of individuals infected with HBV; and e-antigen (Hep B eAg), which is typically associated with much higher rates of viral replication; and core antigen (Hep B cAg), which encloses the viral genome and makes up the assembled and unassembled variants of the capsid protein. Hep B cAg and Hep B eAg are used primarily in HBV diagnosis, whereas Hep B sAg is used for HBV prevention in vaccines. Hep B viral antigens are primarily expressed in liver.

REFERENCES

1. Bruss, V., et al. 1988. Formation of transmembranous hepatitis B e-antigen by cotranslational *in vitro* processing of the viral precore protein. Virology 163: 268-275.
2. Wasenauer, G., et al. 1992. A cysteine and a hydrophobic sequence in the noncleaved portion of the pre-C leader peptide determine the biophysical properties of the secretory core protein (HBe protein) of human hepatitis B virus. J. Virol. 66: 5338-5346.
3. Yang, H.I., et al. 2002. Hepatitis B e-antigen and the risk of hepatocellular carcinoma. N. Engl. J. Med. 347: 168-174.
4. Andreone, P., et al. 2004. High risk of hepatocellular carcinoma in anti-HBe positive liver cirrhosis patients developing lamivudine resistance. J. Viral Hepat. 11: 439-442.
5. Chen, M.T., et al. 2004. A function of the hepatitis B virus precore protein is to regulate the immune response to the core antigen. Proc. Natl. Acad. Sci. USA 101: 14913-14918.
6. Tran, T.T., et al. 2004. Hepatitis B: epidemiology and natural history. Clin. Liver Dis. 8: 255-266.
7. Wai, C.T., et al. 2004. Clinical significance of hepatitis B virus genotypes, variants, and mutants. Clin. Liver Dis. 8: 321-352.

SOURCE

Hep B cAg (1-5) is a mouse monoclonal antibody raised against Hep B cAg.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Hep B cAg (1-5) is available conjugated to fluorescein (sc-52406 FITC), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

Hep B cAg (1-5) is recommended for detection of an epitope corresponding to amino acids 74-80 of the core antigen of Hep B origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), flow cytometry (1 µg per 1 x 10^6 cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); may cross-react with denatured Hep B cAg.

Molecular Weight of Hep B cAg: 21 kDa.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

SELECT PRODUCT CITATIONS

1. Xu, Y., et al. 2011. The X protein of hepatitis B virus activates hepatoma cell proliferation through repressing melanoma inhibitory activity 2 gene. Biochem. Biophys. Res. Commun. 416: 379-384.
2. Xiang, A., et al. 2015. The hepatitis B virus (HBV) core protein enhances the transcription activation of CRE via the CRE/CREB/CBP pathway. Antiviral Res. 120: 7-15.
3. Hu, Z., et al. 2020. Protein phosphatase 1 catalyzes HBV core protein dephosphorylation and is co-packaged with viral pregenomic RNA into nucleocapsids. PLoS Pathog. 16: e1008669.
4. Taha, T.Y., et al. 2020. Modulation of hepatitis B virus pregenomic RNA stability and splicing by histone deacetylase 5 enhances viral biosynthesis. PLoS Pathog. 16: e1008802.
5. Hwang, N., et al. 2021. Synthesis of 4-oxotetrahydropyrimidine-1(2H)-carboxamides derivatives as capsid assembly modulators of hepatitis B virus. Med. Chem. Res. 30: 459-472.
6. Lim, H.Y., et al. 2022. Tumor suppressor p53 inhibits hepatitis B virus replication by downregulating HBx via E6AP-mediated proteasomal degradation in human hepatocellular carcinoma cell lines. Viruses 14: 2313.

RESEARCH USE

For research use only, not for use in diagnostic procedures.