EBV EBNA-1 (1EB12): sc-81581

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BIOTECHNOLOGY

The Power to Question

BACKGROUND

Epstein-Barr virus, frequently referred to as EBV, is a member of the herpes-virus family and is one of the most common human viruses. Epstein-Barr virus, an agent with growth transforming potential for human B cells, is associated with certain human cancers (e.g. B cell lymphomas and Burkitt's lymphoma) and one type of epithelial tumor, designated NPC (undifferentiated nasopharyngeal carcinoma). EBV nuclear antigen 1 protein (EBV EBNA-1) is expressed in all EBV-associated tumors, including Burkitt's lymphoma and nasopharyngeal carcinoma tumors. EBV EBNA-1 is also required for synthesis and maintenance of the Epstein-Barr virus genome. Epstein-Barr virus nuclear antigen 2 (EBV EBNA-2) activates transcription of specific genes and is essential for B lymphocyte transformation. EBV EBNA-2 is specifically bound to a novel nuclear protein, p100, which can co-activate gene expression mediated by the EBV EBNA-2 acidic domain. It is generally accepted that the Epstein-Barr nuclear antigen latent genes EBNA-2, -3A, -3C, -LP and LMP-1 are essential for growth transformation and immortalization of B lymphocytes. EBNA-3A and EBNA-3B co-activation are at most 40% that of EBNA-3C.

SOURCE

EBV EBNA-1 (1EB12) is a mouse monoclonal antibody raised against Epstein-Barr virus nuclear antigen 1, with epitope mapping to amino acids 40-65.

PRODUCT

Each vial contains 200 µg IgG$_1$ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

EBV EBNA-1 (1EB12) is available conjugated to agarose (sc-81581 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-81581 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-81581 PE), fluorescein (sc-81581 FITC), Alexa Fluor® 488 (sc-81581 AF488), Alexa Fluor® 546 sc-81581 AF546), Alexa Fluor® 594 (sc-81581 AF594) or Alexa Fluor® 647 (sc-81581 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-81581 AF680) or Alexa Fluor® 790 (sc-81581 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

EBV EBNA-1 (1EB12) is recommended for detection of Epstein-Barr virus nuclear antigen 1 by Western Blotting (starting dilution 1:2000, dilution range 1:1000-1:10000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Molecular Weight of EBV EBNA-1: 88 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).
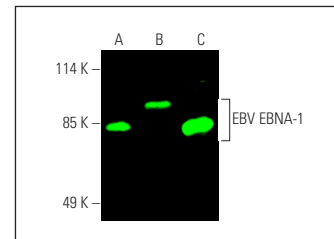
STORAGE

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

DATA
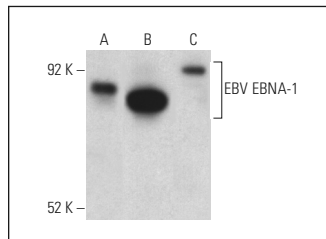
EBV EBNA-1 (1EB12): sc-81581. Western blot analysis of EBV EBNA-1 expression in GA-10 (**A**) and Raji (**B**) nuclear extracts and NAMALWA whole cell lysate (**C**). Detection reagent used: m-IgGκ BP-HRP: sc-516102.

EBV EBNA-1 (1EB12) Alexa Fluor® 680: sc-81581 AF680. Direct near-Infrared western blot analysis of EBV EBNA-1 expression in Raji (**A**) and NAMALWA (**B**) whole cell lysates and Raji nuclear extract (**C**). Blocked with UltraCruz® Blocking Reagent: sc-516214.

SELECT PRODUCT CITATIONS

1. Voedisch, B., et al. 2011. About making a CHO production cell line "research-friendly" by genetic engineering. BMC Proc. 5: P132.

2. Siouda, M., et al. 2014. Epstein-Barr virus down-regulates tumor suppressor DOK1 expression. PLoS Pathog. 10: e1004125.

3. Wang, C., et al. 2017. Berberine inhibits the proliferation of human nasopharyngeal carcinoma cells via an Epstein-Barr virus nuclear antigen 1-dependent mechanism. Oncol. Rep. 37: 2109-2120.

4. Wang, H., et al. 2018. The HSP 70 inhibitor 2-phenylethynesulfonamide inhibits replication and carcinogenicity of Epstein-Barr virus by inhibiting the molecular chaperone function of HSP 70. Cell Death Dis. 9: 734.

5. Kim, M.Y., et al. 2019. Combination therapy with a PI3K/mTOR dual inhibitor and chloroquine enhances synergistic apoptotic cell death in Epstein-Barr virus-infected gastric cancer cells. Mol. Cells 42: 448-459.

6. Mundo, L., et al. 2020. Frequent traces of EBV infection in Hodgkin and non-Hodgkin lymphomas classified as EBV-negative by routine methods: expanding the landscape of EBV-related lymphomas. Mod. Pathol. 33: 2407-2421.

7. Dheekollu, J., et al. 2021. Cell-cycle-dependent EBNA1-DNA crosslinking promotes replication termination at oriP and viral episome maintenance. Cell 184: 643-654.e13.

8. Li, D.K., et al. 2022. Epstein-Barr virus induces lymphangiogenesis and lymph node metastasis via upregulation of VEGF-C in nasopharyngeal carcinoma. Mol. Cancer Res. 20: 161-175.

9. Tischer-Zimmermann, S., et al. 2023. Reinforcement of cell-mediated immunity driven by tumor-associated Epstein-Barr virus (EBV)-specific T cells during targeted B-cell therapy with rituximab. Front. Immunol. 14: 878953.

RESEARCH USE

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