SANTA CRUZ BIOTECHNOLOGY, INC.

Factor VIII (R8B12): sc-73597

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Factor VIII is a glycoprotein cofactor that serves as a critical component in the blood coagulation pathway. Insufficient expression levels or expression of nonfunctional Factor VIII results in hemophilia A, a common severe hereditary bleeding disorder. In the liver, the main site of Factor VIII synthesis, the mature polypetide chain of 2,332 amino acids is secreted into the lumen of the endoplasmic reticulum, where it interacts with various chaperone proteins, including calreticulin, Calnexin and IgG-binding protein. From the lumen, a portion of Factor VIII translocates to the Golgi and undergoes activation via proteolysis of both the heavy and light chain portions of the protein into three fragments. Finally, proteolysis of activated Factor VIII by Factor Xa, Protein C or Thrombin results in inactivation of Factor VIII. Survival of Factor VIII in the bloodstream requires binding to von Willebrand factor (VWF) at both the amino- and carboxy-termini of the light chain. Point mutations occuring in those binding domains as well as at other active sites of Factor VIII likely underly 90-95% of disease cases.

CHROMOSOMAL LOCATION

Genetic locus: F8 (human) mapping to Xq28; F8 (mouse) mapping to X A7.3.

SOURCE

Factor VIII (R8B12) is a mouse monoclonal antibody raised against Factor VIII of human origin, with epitope mapping to the A2 domain residues 497-510 and 584-593.

PRODUCT

Each vial contains 100 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

Factor VIII (R8B12) is recommended for detection of Factor VIII of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for Factor VIII siRNA (h): sc-43756, Factor VIII siRNA (m): sc-44757, Factor VIII shRNA Plasmid (h): sc-43756-SH, Factor VIII shRNA Plasmid (m): sc-44757-SH, Factor VIII shRNA (h) Lentiviral Particles: sc-43756-V and Factor VIII shRNA (m) Lentiviral Particles: sc-44757-V.

Molecular Weight of Factor VIII heavy chain: 200 kDa.

Molecular Weight of Factor VIII light chain: 80 kDa.

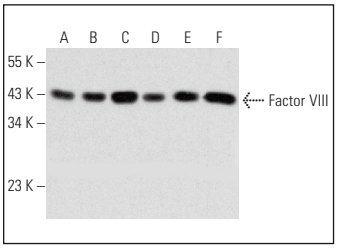
Molecular Weight of Factor VIII cleaved fragments: 50/43/73 kDa.

Positive Controls: c4 whole cell lysate: sc-364186, Jurkat whole cell lysate: sc-2204 or Hep G2 cell lysate: sc-2227.

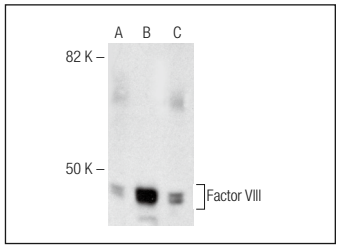
RECOMMENDED SUPPORT REAGENTS

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).

DATA



Factor VIII (R8B12): sc-73597. Western blot analysis of Factor VIII expression in Hep G2 (**A**), K-562 (**B**), Jurkat (**C**), c4 (**D**), 3T3-L1 (**E**) and KNRK (**F**) whole cell lysates.



Factor VIII (R8B12): sc-73597. Western blot analysis of Factor VIII expression in human PBL (**A**) and Hep G2 (**B**) whole cell lysates and human kidney tissue extract (**C**).

SELECT PRODUCT CITATIONS

1. Serrano, L.J., et al. 2018. Searching for a cell-based therapeutic tool for haemophilia A within the embryonic/foetal liver and the aorta-gonads-mesonephros region. Thromb. Haemost. 118: 1370-1381.
2. De Cristofaro, R., et al. 2019. Molecular aggregation of marketed recombinant FVIII products: biochemical evidence and functional effects. TH Open 3: e123-e131.
3. Shatoor, A.S., et al. 2020. The hypocoagulant effect of *Crataegus aronia* in rats entails vitamin K-dependent and vitamin K-independent effects. J. Food Biochem. 44: e13094.
4. Satti, H.H., et al. 2020. Subacute administration of astaxanthin inhibits vitamin K-dependent clotting factors in rats. J. Food Biochem. 44: e13407.
5. Gong, J., et al. 2021. Transduction of modified Factor VIII gene improves lentiviral gene therapy efficacy for hemophilia A. J. Biol. Chem. 297: 101397.
6. Gong, J., et al. 2023. Improved intravenous lentiviral gene therapy based on endothelial-specific promoter-driven factor VIII expression for hemophilia A. Mol. Med. 29: 74.

RESEARCH USE

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

CONJUGATES

See **Factor VIII light chain (RFFVIII C/5): sc-59512** for Factor VIII light chain antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.