SANTA CRUZ BIOTECHNOLOGY, INC.

# Protein S (PS7): sc-52720

SANTA CRUZ BIOTECHNOLOGY

*The Power to Question*

## BACKGROUND

Protein S (PROS) is a vitamin K-dependent plasma protein that inhibits blood clotting by serving as a cofactor for activated protein C (APC), and facilitates clearance of early apoptotic cells. In the plasma, circulating Protein S becomes inactive upon complexing with C4b-binding protein (C4BP); 60-70% of Protein S circulates in complex with C4BP. Calcium-dependent association of C4BP-Protein S with apoptotic cells influences the regulation of complement activation. Protein S has APC-independent anticoagulant activity through direct inhibition of prothrombin activation via interactions with Factor Xa, Factor Va and phospholipids. Autosomal dominant Protein S deficiency (levels 15 to 37% of normal) correlates with severe recurrent venous thrombosis.

## REFERENCES


1. Stenflo, J. and Jonsson, M. 1979. Protein S, a new vitamin K-dependent protein from bovine plasma. FEBS Lett. 101: 377-381.
2. DiScipio, R.G. and Davie, E.W. 1979. Characterization of Protein S, a γ-carboxyglutamic acid containing protein from bovine and human plasma. Biochemistry 18: 899-904.
3. Dahlback, B., et al. 1981. High molecular weight complex in human plasma between vitamin K dependent Protein S and complement component C4b-binding protein. Proc. Natl. Acad. Sci. USA 78: 2512-2516.
4. Comp, P.C., et al. 1984. Recurrent venous thromboembolism in patients with a partial deficiency of Protein S. N. Engl. J. Med. 311: 1525-1528.
5. Broekmans, A.W., et al. 1985. Hereditary Protein S deficiency and venous thrombo-embolism. A study in three Dutch families. Thromb. Haemost. 53: 273-277.
6. Andersen, B.D., et al. 2001. Characterization and structural impact of five novel PROS1 mutations in eleven Protein S-deficient families. Thromb. Haemost. 86: 1392-1399.
7. Sere, K.M., et al. 2001. Purified Protein S contains multimeric forms with increased APC-independent anticoagulant activity. Biochemistry 40: 8852-8860.
8. Webb, J.H., et al. 2002. Vitamin K-dependent Protein S localizing complement regulator C4b-binding protein to the surface of apoptotic cells. J. Immunol. 169: 2580-2586.
9. Rezende, S.M., et al. 2002. Genetic and phenotypic variability between families with hereditary Protein S deficiency. Thromb. Haemost. 87: 258-265.


## CHROMOSOMAL LOCATION

Genetic locus: PROS1 (human) mapping to 3q11.1.

## SOURCE

Protein S (PS7) is a rat monoclonal antibody raised against Protein S of human origin.

## PRODUCT

Each vial contains 100 µg $IgG_{2a}$ in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

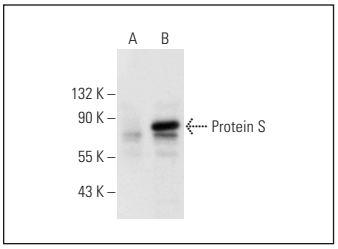
Protein S (PS7) is recommended for detection of Protein S of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and flow cytometry (1 µg per 1 x $10^6$ cells).

Suitable for use as control antibody for Protein S siRNA (h): sc-63328, Protein S shRNA Plasmid (h): sc-63328-SH and Protein S shRNA (h) Lentiviral Particles: sc-63328-V.

Molecular Weight of Protein S: 70 kDa.

Positive Controls: Protein S (h): 293 Lysate: sc-111877 or Hep G2 cell lysate: sc-2227.

## DATA




Protein S (PS7): sc-52720. Western blot analysis of Protein S expression in non-transfected: sc-110760 (**A**) and human Protein S transfected: sc-111877 (**B**) 293 whole cell lysates.

## SELECT PRODUCT CITATIONS


1. Carrera Silva, E.A., et al. 2013. T cell-derived Protein S engages TAM receptor signaling in dendritic cells to control the magnitude of the immune response. Immunity 39: 160-170.
2. Katzeff, J.S., et al. 2020. Altered serum protein levels in frontotemporal dementia and amyotrophic lateral sclerosis indicate calcium and immunity dysregulation. Sci. Rep. 10: 13741.


## STORAGE

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

## RESEARCH USE

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

## PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.