



IgA₁ (8.F.169): sc-71326

BACKGROUND

IgA₁ (immunoglobulin A₁) antibodies are the first line of defense against microbial pathogens. IgA₁ proteases are characterized by a polyprotein precursor molecule with four separate domains including an N-terminal signal peptide sequence, a surface-directed mature protease domain, a variable region, and a membrane-embedded C-terminal region that forms a β-barrel in the outer membrane, through which the mature protein is exported. The regions of relatively constant sequence beyond the variable regions of Immunoglobulins are termed constant regions (C regions) and are present in both the heavy and light chains. With few exceptions, the sites of attachment for carbohydrates to immunoglobulin are located in the C regions. These regions also serve to hold the variable regions together using the disulfide bond between them, facilitate interaction with the antigen and increase the maximum rotation of the arms.

REFERENCES

- Herr, A.B., White, C.L., Milburn, C., Wu, C. and Bjorkman, P.J. 2003. Bivalent binding of IgA₁ to Fc α RI suggests a mechanism for cytokine activation of IgA phagocytosis. *J. Mol. Biol.* 327: 645-657.
- Furtado, P.B., Whitty, P.W., Robertson, A., Eaton, J.T., Almogren, A., Kerr, M.A., Woof, J.M. and Perkins, S.J. 2004. Solution structure determination of monomeric human IgA₂ by X-ray and neutron scattering, analytical ultracentrifugation and constrained modelling: a comparison with monomeric human IgA1. *J. Mol. Biol.* 338: 921-941.
- Lai, K.N., Chan, L.Y., Tang, S.C., Tsang, A.W., Li, F.F., Lam, M.F., Lui, S.L. and Leung, J.C. 2004. Mesangial expression of angiotensin II receptor in IgA nephropathy and its regulation by polymeric IgA₁. *Kidney Int.* 66: 1403-1416.
- Senior, B.W. and Woof, J.M. 2005. The influences of hinge length and composition on the susceptibility of human IgA to cleavage by diverse bacterial IgA₁ proteases. *J. Immunol.* 174: 7792-7799.
- Vidarsson, G., Overbeeke, N., Stermerding, A.M., van den Dobbelaars, G., van Ulsen, P., van der Ley, P., Kilian, M. and van de Winkel, J.G. 2005. Working mechanism of immunoglobulin A1 (IgA₁) protease: cleavage of IgA1 antibody to *Neisseria meningitidis* PorA requires *de novo* synthesis of IgA₁ Protease. *Infect. Immun.* 73: 6721-6726.
- Xu, L.X., Yan, Y., Zhang, J.J., Zhang, Y. and Zhao, M.H. 2005. The glycans deficiencies of macromolecular IgA₁ is a contributory factor of variable pathological phenotypes of IgA nephropathy. *Clin. Exp. Immunol.* 142: 569-575.
- Amore, A., Monteiro, R. and Coppo, R. 2006. Immunoglobulin A (IgA) and its cellular receptors: recent advances and new pathogenetical hypothesis. *G. Ital. Nefrol.* 23: 313-322.
- Bender, M.H. and Weiser, J.N. 2006. The atypical amino-terminal LPNTG-containing domain of the pneumococcal human IgA₁-specific protease is required for proper enzyme localization and function. *Mol. Microbiol.* 61: 526-543.

RESEARCH USE

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

CHROMOSOMAL LOCATION

Genetic locus: IGHA1 (human) mapping to 14q32.33.

SOURCE

IgA₁ (8.F.169) is a mouse monoclonal antibody raised against IgA of human origin.

PRODUCT

Each vial contains 200 μg IgG₁ in 1.0 mL PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

IgA₁ (8.F.169) is recommended for detection of IgA₁ of human origin by solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

STORAGE

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

PROTOCOLS

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