3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone 800-325-5832 • (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

ProductInformation

Monoclonal Anti-Insulin-Like Growth Factor Binding Protein-1 (IGFBP-1)
Clone 33627.11
Purified Mouse Immunoglobulin

Product Number **I 2032**

Product Description

Monoclonal Anti-Human Insulin-like Growth Factor Binding Protein-1 (IGFBP-1) (mouse IgG1 isotype) is produced from a mouse hybridoma elicited from a mouse immunized with purified recombinant human insulin-like growth factor binding protein-1, expressed in *Escherichia coli*. The antibody is purified from the IgG fraction of ascities fluid using protein G.

Monoclonal Anti-Human Insulin-like Growth Factor Binding Protein-1 (IGFBP-1) recognizes recombinant human IGFBP-1 by various immunochemical techniques including immunoblotting, ELISA capture, and neutralization. The antibody can neutralize the bioactivity of recombinant human IGFBP-1 in the presence of recombinant human IGF-1 and also be used as a capture antibody in human IGFBP-1 sandwich ELISAs. No cross-reactivity is seen with recombinant human IGFBP-2, IGFBP-3, and IGFBP-4.

Insulin-like growth factor binding protein-1 (IGFBP-1) is a member of the superfamily of insulin-like growth factor (IGF) binding proteins which include six high-affinity IGF binding proteins (IGFBP) and at least four low-affinity binding proteins referred to as IGFBP related proteins (IGFBP-rP). The IGFBP members are cysteine-rich proteins with conserved cysteine residues, clustered in the amino-terminal and the carboxy-terminal regions of the molecule. Contained within IGFBP-1 and –2 is an integrin receptor recognition sequence (RGD) that is responsible for promoting cell migration by an IGF-independent action.

IGFBPs hold a central position in IGF ligand-receptor interactions through influences on both the bioavailability and distribution of IGFs in the extracellular environment.[1] IGFBPs will either inhibit or enhance the biological activities of IGF or act in an IGF-independent manner. Post-translational modification of IGFBPs, including phosphorylation and proteolysis, will modify the affinities of the binding proteins for IGF and may indirectly regulate IGF actions.[2]

IGFBP-1 is expressed in liver, decidua, and kidneys and is the major IGF binding protein in human amnionic fluid. In hepatocytes, IGFBP-1 production is regulated at the transcriptional level due to the effects of insulin and corticosteriods. IGFBP-1 is the major determinant of the level of free IGF in serum. The expression of IGFBP-1 is inhibited by insulin, IGF-I, and IGF-II and is stimulated by glucocorticoids, thyroid hormone, and epidermal growth factor (EGF), indicating an endocrine function. IGFBP-1 shows inhibitory actions on cell proliferation and differentiation, presumably by interfering with the interactions between IGF and the IGF receptor (IGFR).

Reagent

Monoclonal Anti-Human Insulin-like Growth Factor Binding Protein-1 (IGFBP-1) is supplied as 500 µg of antiserum lyophilized from a 0.2 µm filtered solution of phosphate buffered saline (PBS).

Preparation Instructions

To one vial of lyophilized powder, add 1 ml of sterile phosphate buffered saline (PBS) to produce a 0.5 mg/ml stock solution of antibody.

Storage/Stability

Prior to reconstitution, store at –20 °C. Reconstituted product may be stored at 2-8 °C for at least one month. For prolonged storage, freeze in working aliquots at –20 °C. Avoid repeated freezing and thawing. Do not store in frost-free freezer.

Product Profile

The Neutralization $Dose_{50}$ (ND_{50}) for this antibody is 10-40 µg/ml in the presence of approximately 5 µg/ml of recombinant human IGFBP-1 and approximately 6 ng/mL of recombinant human IGF-1, using human MCF-7 cells.[3]

The ND_{50} is the concentration of antibody required to yield one-half maximal inhibition of the cytokine activity on a responsive cell line, when the cytokine is present at a concentration just high enough to elicit a maximum response.

The exact concentration of the antibody required to neutralize human IGFBP-1 activity is dependent on the cytokine concentration, cell type, growth conditions, and the type of activity studied.

For immunoblotting, a working antibody concentration of 1 to 2 µg/ml is recommended. The detection limit for recombinant human IGFBP-1 is approximately 0.5 ng/lane under non-reducing conditions.

For ELISA capture, use 2 µg/ml of monoclonal anti-human IGFBP-1 (capture antibody). In the ELISA capture assay, plates are coated with 100 µl/well of the capture antibody (2 µg/ml) in combination with 100 µl/well of a detection antibody (affinity-purified biotinylated polyclonal anti-human IGFBP-1 antibody at 100 ng/ml). An ELISA range of 62.4 to 4000 pg/ml may be obtained.
Note: In order to obtain the best results in various techniques and preparations, we recommend determining the optimal working dilutions by titration.

Endotoxin level is <10 ng/mg antibody as determined by the LAL (Limulus amebocyte lysate) method.

References

1. Kelly, K.M., et al., Insulin-like growth factor-binding proteins (IGFBPs) and their regulatory dynamics. Int. J. Biochem. Cell Biol., **28,** 619-637 (1996).
2. Jones, J.I., and Clemmons, D.R., Endocrine Rev., **16**, 3 (1995).
3. Karey, K.P., et al., Cancer Research, **48**, 4083 –4092 (1988).

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