Human Osteopontin/OPN Antibody

Monoclonal Mouse IgG_{2A} Clone # 223112

Catalog Number: MAB14332

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human Osteopontin in ELISAs. In ELISAs, this antibody does not cross-react with recombinant mouse Osteopontin.
Source	Monoclonal Mouse IgG_{2A} Clone # 223112
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Mouse myeloma cell line NS0-derived recombinant human Osteopontin Ile17-Asn300 Accession # NP_000573.1
Formulation	Lyophilized from a 0.2 μm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied as a 0.2 μm filtered solution in PBS.

APPLICATIONS

Please Note: *Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.*

Human Osteopontin/OPN Sandwich Immunoassay		**Reagent**
ELISA Capture	2-8 µg/mL	Human Osteopontin/OPN Antibody (Catalog # MAB14332)
ELISA Detection	0.1-0.4 µg/mL	Human Osteopontin/OPN Biotinylated Antibody (Catalog # BAF1433)
Standard		Recombinant Human Osteopontin/OPN (Catalog # 1433-OP)

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.5 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** ● 12 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution. ● 6 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

Osteopontin (OPN, previously also referred to as transformation-associated secreted phosphoprotein, bone sialoprotein I, 2ar, 2B7, early T lymphocyte activation 1 protein, minopotin, calcium oxalate crystal growth inhibitor protein), is a secreted, highly acidic, calcium-binding, RGD-containing, phosphorylated glycoprotein originally isolated from bone matrix (1). Subsequently, OPN has been found in kidney, placenta, blood vessels and various tumor tissues. Many cell types (including macrophages, osteoclasts, activated T-cells, fibroblasts, epithelial cells, vascular smooth muscle cells, and natural killer cells) can express OPN in response to activation by cytokines, growth factors or inflammatory mediators. Elevated expression of OPN has also been associated with numerous pathobiological conditions such as atherosclerotic plaques, renal tubulointerstitial fibrosis, granuloma formations in tuberculosis and silicosis, neointimal formation associated with balloon catheterization, metastasizing tumors, and cerebral ischemia. Human OPN cDNA encodes a 314 amino acid (aa) residue precursor protein with a 16 aa residue predicted signal peptide that is cleaved to yield a 298 aa residue mature protein with an integrin binding sequence (RGD), and N- and O-glycosylation sites. By alternative splicing, at least three human OPN isoforms exist. OPN has been shown to bind to different cell types through RGD-mediated interaction with the integrins $\alpha_v\beta_1$, $\alpha_v\beta_3$, $\alpha_v\beta_5$, and non-RGD-mediated interaction with CD44 and the integrins $\alpha_8\beta_1$ or $\alpha_9\beta_1$. OPN exists both as a component of extracellular matrix and as a soluble molecule. Functionally, OPN is chemotactic for macrophages, smooth muscle cells, endothelial cells and glial cells. OPN has also been shown to inhibit nitric oxide production and cytotoxicity by activated macrophages. Human, mouse, rat, pig and bovine OPN share from approximately 40% - 80% amino acid sequence identity. Osteopontin is a substrate for proteolytic cleavage by thrombin, enterokinase, MMP-3 and MMP-7. The functions of OPN in a variety of cell types were shown to be modified as a result of proteolytic cleavage (2, 3).

References:

1. Ann. N.Y. Acad. Sci. (1995) **760,** Apr. 21.
2. Senger, D.R. *et al.* (1996) Biochim. Biophys. Acta. **1314**:13.
3. Agnihotri, R. *et al.* (2001) J. Biol. Chem. **276**:28261.