DESCRIPTION

Source Bovine milk-derived

SPECIFICATIONS

SDS-PAGE 60 kDa, reducing conditions


When 1 x 10^5 cells/well are added to a Bovine Osteopontin/OPN coated plate, cell adhesion is enhanced in a dose-dependent manner after 1 hour incubation at 37 °C. The ED<sub>50</sub> for this effect is 0.06-0.36 µg/mL.

Endotoxin Level <1.0 EU per 1 µg of the protein by the LAL method.

Purity >85%, by SDS-PAGE under reducing conditions and visualized by silver stain.

Formulation Lyophilized from a 0.2 µm filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 10 µg/mL in sterile PBS containing at least 0.1% human or bovine serum albumin.

Shipping The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

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.
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

Osteopontin (OPN, also known as early T lymphocyte activation protein 1, bone sialoprotein 1, and secreted phosphoprotein 1), is a secreted, highly acidic, calcium-binding, phosphorylated glycoprotein originally isolated from bone matrix. Subsequently, OPN has been found in kidney, placenta, blood vessels, and various tumor tissues. Many cell types 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, tumor metastasis, and cerebral ischemia (1, 2). Bovine OPN cDNA encodes a 278 amino acid (aa) residue precursor with a 16 aa signal peptide that is cleaved to yield a 262 aa mature protein with an integrin binding sequence (RGD), a thrombin cleavage site and N- and O-glycosylation sites. Human, mouse, rat, porcine, and bovine OPN share approximately 40%-80% aa sequence identity. OPN has been shown to bind to different cell types through RGD-mediated interaction with Integrins α<sub>v</sub>β<sub>1</sub>, α<sub>v</sub>β<sub>3</sub>, α<sub>v</sub>β<sub>5</sub>, and non-RGD-mediated interaction with CD44 and Integrins α<sub>9</sub>β<sub>1</sub> or α<sub>8</sub>β<sub>1</sub>. 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. 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 are modified as a result of proteolytic cleavage (3, 4).

References: