

Product Information

Osteopontin

Bovine milk

Product Number **O3514**

Product Description

Bovine Osteopontin (OPN) is purified from bovine milk. The natural form of bovine Osteopontin has a molecular mass of approximately 60 kDa. Bovine osteopontin cDNA encodes a 278 amino acid residue precursor protein with a 16 amino acid residue predicted signal peptide that is cleaved to yield a 278 amino acid residue mature protein with an integrin binding sequence (RGD), a thrombin cleavage site, and N- and O-glycosylation sites. Human, mouse, rat, pig, and bovine osteopontin share approximately 40% amino acid sequence identity.

Osteopontin (OPN), also known as secreted phosphoprotein 1 (Spp1), bone sialoprotein-1, and early T lymphocyte activation protein-1 (ETA-1), is a secreted acidic phosphorylated glycoprotein. Osteopontin has important functions in bone metabolism and inflammatory processes.¹ OPN binds various cell types through RGD-mediated interaction with the integrins $\alpha_v\beta_1$, $\alpha_v\beta_3$, $\alpha_v\beta_5$, and non-RGF-mediated interactions with CD44 variants and integrins ($\alpha_6\beta_1$ or $\alpha_9\beta_1$).²

Osteopontin (OPN), originally isolated from bone matrix, is also found in kidney, placenta, blood vessels, and various tumor tissues. Many cell types (macrophages, osteoclasts, activated T-cells,³ fibroblasts, epithelial cells, vascular smooth muscle cells, and natural killer cells) express osteopontin in response to activation by cytokines, growth factors, or inflammatory mediators. OPN inhibits nitric oxide production and cytotoxicity by activated macrophages. Increased expression of OPN is associated with numerous pathobiological conditions such as atherosclerotic plaques, renal tubulointerstitial fibrosis, granuloma formations in tuberculosis and silicosis,⁴ neointimal formation associated with balloon catheterization, metastasizing tumors, and cerebral ischemia. OPN is chemotactic for macrophages, smooth muscle cells, endothelial cells, and glial cells.

Reagent

Osteopontin, Bovine is supplied as approximately 50 μ g of protein lyophilized from a 0.2 μ m filtered solution of phosphate buffered saline containing 2.5 mg bovine serum albumin.

Storage/Stability

Prior to reconstitution, store at -20°C . Reconstituted product may be stored at $2-8^\circ\text{C}$ for up to one month. For prolonged storage, freeze in working aliquots. Avoid repeated freezing and thawing.

Preparation Instructions

Reconstitute the contents of the vial using 0.2 μ m filtered phosphate buffered saline containing 0.1% human serum albumin or bovine serum albumin. Prepare a stock solution of no less than 50 μ g/ml.

Product Profile

The biological activity of Bovine Osteopontin is measured by its ability to mediate 293 cell adhesion.⁵ Osteopontin immobilized at 0.5 μ g/ml, 100 μ l/well, will mediate >25% 293 cell adhesion (100 μ l/well at 10^6 cells/ml).

References

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