

DESCRIPTION

Source	Human embryonic kidney cell, HEK293-derived human Osteopontin/OPN protein Ile17-Asn314 with a C-terminal 6-His tag Accession # P10451.1
N-terminal Sequence Analysis	Ile17
Predicted Molecular Mass	35 kDa

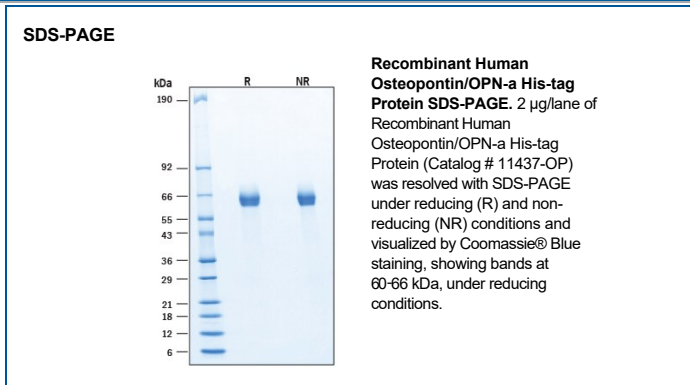
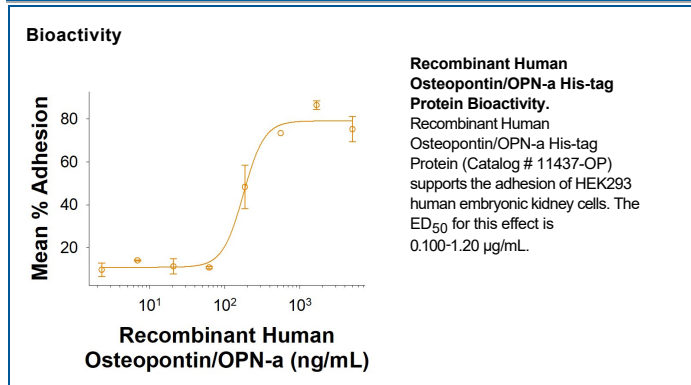
SPECIFICATIONS

SDS-PAGE	60-66 kDa, under reducing conditions.
Activity	Measured by the ability of the immobilized protein to support the adhesion of HEK293 human embryonic kidney cells. The ED ₅₀ for this effect is 0.100-1.20 µg/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 500 µg/mL in PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	<p>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</p> <ul style="list-style-type: none"> • 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.

DATA



BACKGROUND

Osteopontin (OPN), previously called SPP1 (secreted phosphoprotein 1), Eta-1 (early T lymphocyte activation 1) or BSP (bone sialoprotein), is a secreted molecule in the SIBLING (small integrin-binding ligand N-linked glycoprotein) family of non-collagenous matricellular proteins (1-3). Human OPN is synthesized as a 317 amino acid (aa) precursor protein with a 16 aa signal peptide and a 301 aa mature protein (3). At the transcript level, at least five isoforms are generated: OPNa (full-length), OPNb (lacking exon 5), OPNc (lacking exon 4), OPN4 (lacking exons 4 and 5), and OPN5 (alternative N-terminus upstream of exon 4). Besides these variants, four additional isoforms have been described for OPN5 (OPN5b, OPN5c, OPN5d, and OPN5e) (4). Mature human OPN shares 64% and 62% aa sequence identity with mouse and rat OPN, respectively. OPN is highly acidic and has 26 potential Ser/Thr phosphorylation sites and a C-terminal CD44 binding site (1-5). Depending on tissue-specific modification by O- and N-glycosylation, sulfation, phosphorylation and transglutamination, OPN can be detected at 45-75 kDa (6, 7). The central region of OPN contains RGD and non-RGD binding sites for multiple integrins (3, 5). OPN receptors include α v (β 1, β 3, or β 5) and (α 4, α 5, α 8, or α 9) β 1-integrins, receptor CD44, and epidermal growth factor receptor (12). Adjacent to the RGD motif is the sequence SVVYGLR (SLAYGLR in mouse) which serves as a cryptic binding site for additional integrins: it is masked in full length OPN but is exposed following OPN cleavage by thrombin in tumors and sites of tissue injury (8-10). OPN can also be cleaved by MMP-3, -7, -9, and -12 within the SVVYGLR motif and at sites closer to the C-terminus (9, 10). OPN is widely expressed and is prominent in mineralized tissues. It inhibits bone mineralization and kidney stone formation and promotes inflammation, cell adhesion and migration (1, 2, 5, 7). Its expression is upregulated during inflammation, obesity, atherosclerosis, cancer, and tissue damage, and contributes to the pathophysiology of these conditions (1, 2, 7, 10, 11). Osteopontin occurs in many healthy tissues and secretions as well, but the highest concentrations are found in milk. Its concentration in bovine milk is 0.018–0.022 g/L and ~0.138 g/L in human milk (13).

References:

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