# Recombinant Human Osteopontin/OPN

Catalog Number: 1433-OP

## DESCRIPTION

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|---|---|
| **Source** | Mouse myeloma cell line, NS0-derived<br>Ile17-Asn300, with a C-terminal 6-His tag<br>Accession # NP_000573.1 |
| **N-terminal Sequence Analysis** | Ile17 |
| **Predicted Molecular Mass** | 32.9 kDa |

## SPECIFICATIONS

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|---|---|
| **SDS-PAGE** | 60-65 kDa, reducing conditions |
| **Activity** | Measured by the ability of the immobilized protein to support the adhesion of HEK293 human embryonic kidney cells. Agnihotri, R. *et al.* (2001) J. Biol. Chem. **276**:28261.<br>When 1 x $10^5$ cells/well are added to a Recombinant Human (rh) Osteopontin/OPN coated plate, cell adhesion is enhanced in a dose-dependent manner after 1 hour incubation at 37 °C. The $ED_{50}$ for this effect is 0.1-0.6 µg/mL. Recombinant Human Coagulation Factor II/Thrombin (Catalog # 1473-SE) proteolytic treatment of this rhOsteopontin/His can increase HEK293 cell adhesion by about 5-fold. |
| **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 BSA as a carrier protein. See Certificate of Analysis for details. |

## PREPARATION AND STORAGE

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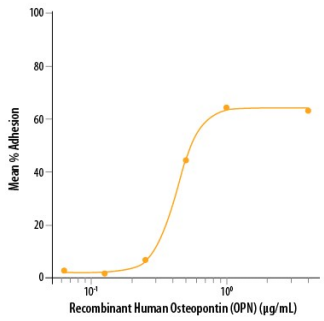
| **Reconstitution** | Reconstitute at 100 µg/mL in sterile PBS containing at least 0.1% human or bovine serum albumin. |
| **Shipping** | The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. |
| **Stability & Storage** | **Use a manual defrost freezer and avoid repeated freeze-thaw cycles.**<br>● 12 months from date of receipt, -20 to -70 °C as supplied.<br>● 1 month, 2 to 8 °C under sterile conditions after reconstitution.<br>● 3 months, -20 to -70 °C under sterile conditions after reconstitution. |

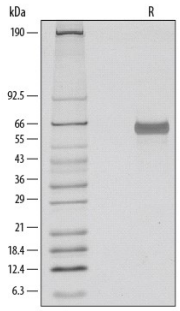
## DATA

### Bioactivity




Recombinant Human Osteopontin/OPN (Catalog # 1433-OP), when immobilized, supports the adhesion of the HEK293 human embryonic kidney cells.

### SDS-PAGE




1 µg/lane of Recombinant Human Osteopontin/OPN was resolved with SDS-PAGE under reducing (R) conditions and visualized by silver staining, showing a bands at 60-65 kDa.



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## 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). 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 (1-4). Depending on tissue-specific modification by O- and N-glycosylation, sulfation, phosphorylation and transglutamination, OPN can be detected at 45-75 kDa (5, 6). The central region of OPN contains RGD and non-RGD binding sites for multiple integrins (3, 4). 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 (6-8). OPN can also be cleaved by MMP-3, -7, -9, and -12 within the SVVYGLR motif and at sites closer to the C-terminus (8, 9). OPN is widely expressed and is prominent in mineralized tissues. It inhibits bone mineralization and kidney stone formation, and promotes inflammation and cell adhesion and migration (1, 2, 4, 6). Its expression is up-regulated during inflammation, obesity, atherosclerosis, cancer, and tissue damage, and contributes to the pathophysiology of these conditions (1, 2, 6, 9, 10).

**References:**

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