

Osteopontin Product Line

Osteopontin (OPN) is a secreted glycoprotein which was originally isolated from bone. The molecular weight ranges from 66 kDa to 44 kDa depending on glycosylation and phosphorylation status. OPN is also known to be expressed in other fluids and tissues including milk, urine, activated T cells, smooth muscle cells, kidney and some tumor cells. OPN contains an Arg-Gly-Asp (RGD) amino acid sequence at the N-terminal end of the thrombin-cleavage side (Human: SVVYGLR) and binds to α_4 and α_9 of the integrin family. This motif is present in fibronectin, vitronectin and in a variety of other extra-cellular proteins that bind members of the integrin family of cell surface receptors such as $\alpha_V\beta_3$, $\alpha_5\beta_1$, $\alpha_8\beta_1$ and $\alpha_V\beta_5$. Furthermore, it is reported that this motif is involved in cell adherence, migration, growth, cancer, metastasis, angiogenesis and bone resorption. In OPN this motif has a function in neutrophil erosion of inflammatory cell and neutrophilic migration.

Latest research results showed that OPN could be also involved in rheumatoid arthritis. The N-terminal fragment of OPN after thrombin separation (OPN N-Half) is accumulated compared to the other OPN varieties in rheumatoid patients. Other recent findings also show the involvement of OPN in the development of Multiple sclerosis.

OPN is also identified as a ligand for CD44 and shows correlation to aggressiveness of lymphoid tumors, invasiveness of bladder carcinoma, and many other tumor types. Its interaction does not require RGD motif of OPN.

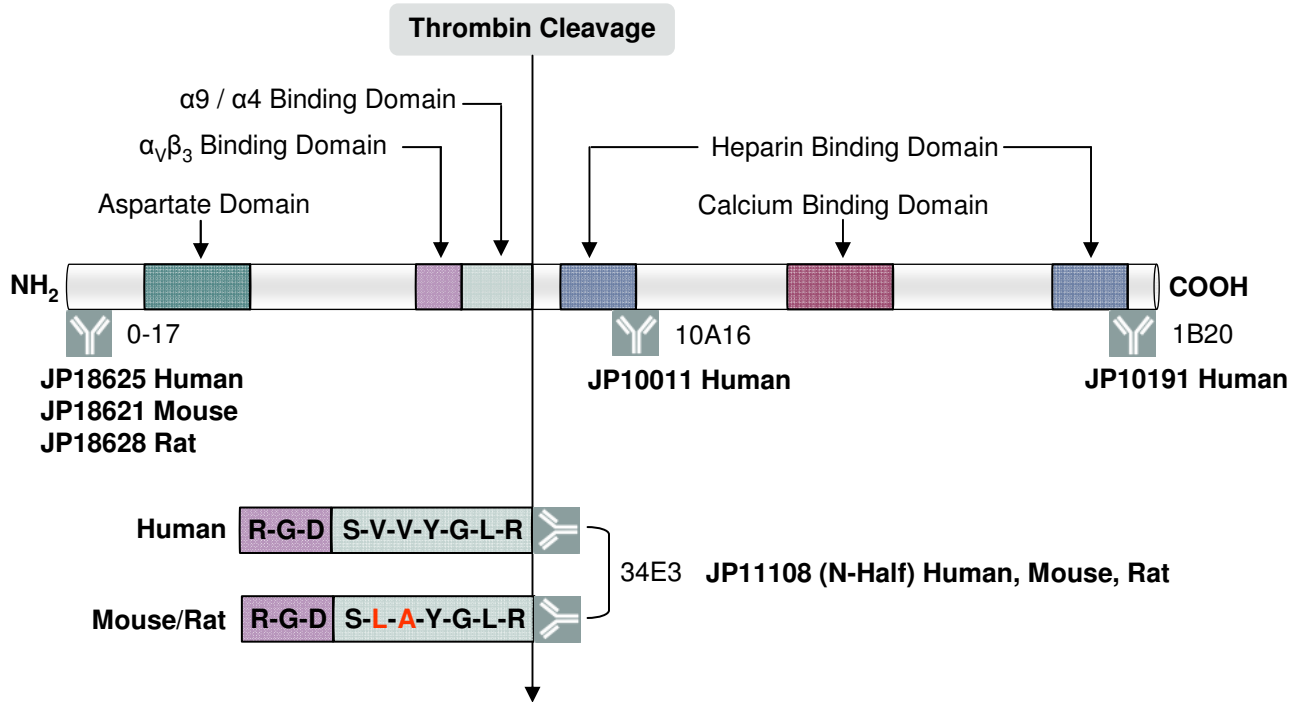
Although the distribution and expression pattern of OPN in the human body have suggested the multiple function of OPN, its function in different situations remain obscure.

References:

1. Shijubo N. *et al.*: Vascular endothelial growth factor and osteopontin in tumor biology. *Crit Rev Oncog.* 2000;11(2);135-46. Review.
2. Kon S. *et al.*: Antibodies to different peptides in osteopontin reveal complexities in the various secreted forms. *J Cell Biochem.* 2000;44(3);487-98.
3. Takemoto M. *et al.*: Enhanced expression of osteopontin in human diabetic artery and analysis of its functional role in accelerated atherosclerosis. *Arterioscler Thromb Basc Biol.* 2000;20(3);624-8.
4. Yasui T. *et al.*: Quantification of osteopontin in the urine of healthy and stone-forming men. *Urol Res.* 1999;27(4);225-30.
5. Hotta H. *et al.*: Detection of various epitopes of murine osteopontin by monoclonal antibodies. *Biochem Biophys Res Commun.* 1999;257(1);6-11.
6. Yumoto K. *et al.*: Osteopontin deficiency protects joints against destruction in anti-type II collagen antibody-induced arthritis in mice. *Proc Natl Acad Sci U S A.* 2002;99;4556-4561.
7. Kim JH. *et al.*: Osteopontin as a potential diagnostic biomarker for ovarian cancer. *JAMA* 2002 Apr 3; 287(13): 1671-9.
8. Kon S. *et al.*: Mapping of functional epitopes of osteopontin by monoclonal antibodies raised against defined internal sequences. *J Cell Biochem.* 2002;84(2);420-32.
9. Yokosaki Y. *et al.*: The integrin $\alpha(9)\beta(1)$ binds to a novel recognition sequence (SVVGLR) in the thrombin-cleaved amino-terminal fragment of osteopontin. *J Biol Chem.* 1999 Dec 17;274(51);36328-34.
10. Yamamoto N. *et al.*: Essential role of the cryptic epitope SLAYGLR within osteopontin in a murine model of rheumatoid arthritis. *J. Clin. Invest.* 2003;112(2);181-188.
11. Koguchi Y. *et al.*: High plasma osteopontin level and its relationship with interleukin-12-mediated type 1 T helper cell response in tuberculosis. *Am. J. Respir. Crit. Care. Med.* 2003;167(10);1355-1359.
12. Gravalles EM.: Osteopontin: a bridge between bone and the immune system *J. Clin. Invest.* 2003; 112(2): 147-149.
13. Tamura A. *et al.*: Osteopontin is released from the heart into the coronary circulation in patients with a previous anterior wall myocardial infarction. *Circ. J.* 2003;67(9);742-744.
14. Ishii T. *et al.*: Osteopontin as a positive regulator in the osteoclastogenesis of arthritis. 2004; 316(3):809-815.
15. Vordermark D. *et al.*: Plasma osteopontin levels in patients with head and neck cancer and cervix cancer are critically dependent on the choice of ELISA system. *BMC Cancer* 2006;6:207.

For further references, please contact us.

Osteopontin Product Line - Part I Antibodies



02/11

INFORMATION

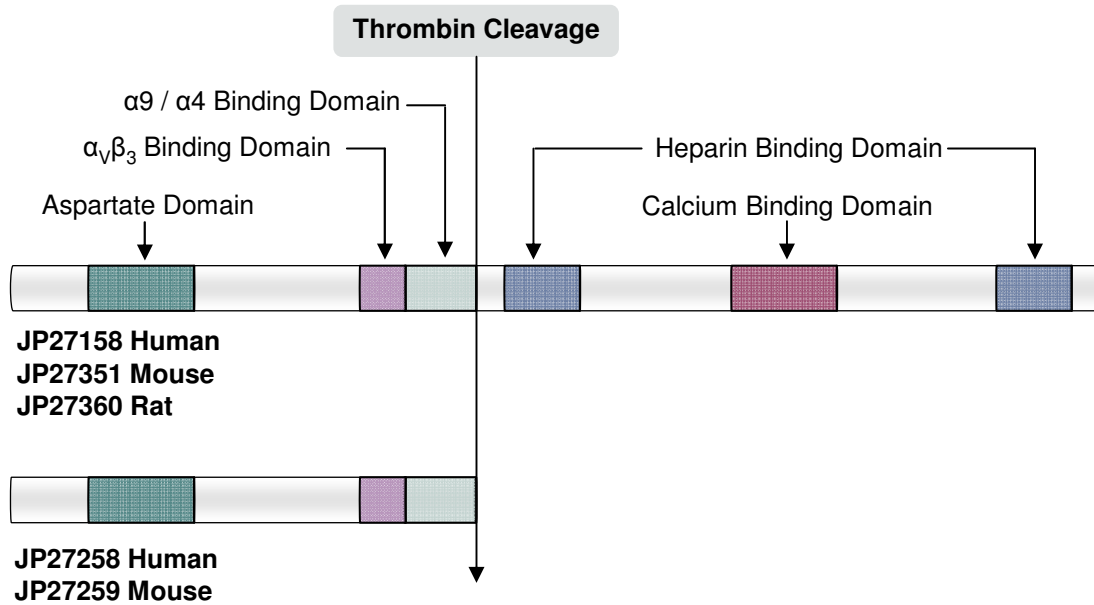
Osteopontin Antibodies

For research use only!

Cat. No.	Product Name	Quantity	Application		Remarks
			WB*	IHC* F/P*	
JP10011	Anti-Human Osteopontin (10A16) Mouse IgG mAb	200 µg	(*MW) 0.5 µg/mL	0.5~1 µg/mL	Human OPN specific. No cross-reactivity to mouse and rat OPN.
JP10191	Anti-Human Osteopontin (1B20) Mouse IgG mAb	100 µg	(*MW) 1~2 µg/mL	2 µg/mL	Cross-reaction to rat and rabbit plasma OPN. Can react with human osteopontin, but unknown cross reactivity is observed in erythrocytes. (This reaction cannot be seen in rat).
JP11108	Anti-Osteopontin N-Half (34E3) Mouse IgG mAb	100 µg	not tested	5 µg/mL	Specific to the C-terminus of OPN N-Half (N-terminal OPN fragment cleaved by thrombin). Cross react with Human, Mouse, Rat OPN N-Half.
JP18625	Anti-Human Osteopontin (0-17) Rabbit IgG	100 µg	(*MW) 1~2 µg/mL	2~5 µg/mL	Cross react with both recombinant and native human OPN. Can react with thrombin digested form of Human OPN. No cross reactivity to Mouse OPN.
JP18621	Anti-Mouse Osteopontin (0-17) Rabbit IgG	100 µg	(*MW) 1~2 µg/mL	2~5 µg/mL	Cross react to both recombinant and native Mouse OPN. Cross reaction to Rat OPN but no cross reactivity to Human OPN
JP18628	Anti-Rat Osteopontin (0-17) Rabbit IgG	100 µg	(*MW) 1~2 µg/mL	2 µg/mL	Cross reaction to recombinant and native rat OPN. Can react with thrombin digested form of Rat OPN. No cross reaction to Human and Mouse OPN.

*IHC: Immunohistochemistry, *F/P: Fomalin fixed paraffin embedded tissues. *WB: Western Blotting, *MW: Microwave pre-treatment is necessary.

Osteopontin Product Line - Part II ELISAs



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INFORMATION

Osteopontin ELISAs

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Cat. No.	Product Name	Quantity	Assay Range	Reaction Time	Application
JP27158	Osteopontin ELISA	96 well	5~320 ng/mL	1st reaction, 37 °C, 1 h 2nd reaction, 4 °C, 30 min	Urine, EDTA-Plasma, Supernatant of cell lines. Detect native and recombinant forms.
JP27258	Osteopontin N-Half ELISA	96 well	6.25~400 pmol/mL	1st reaction, 37 °C, 1 h 2nd reaction, 4 °C, 30 min	Urine, EDTA-Plasma, Synovial fluid, Supernatant of cell lines. Detect native and recombinant forms.
JP27351	Mouse Osteopontin ELISA	96 well	1~64 ng/mL	1st reaction, 37 °C, 1 h 2nd reaction, 4 °C, 30 min	Urine, EDTA-Plasma, Supernatant of cell lines. Detect native and recombinant forms.
JP27259	Mouse Osteopontin N-Half ELISA	96 well	25~1.600 pmol/L	1st reaction, 37 °C, 1 h 2nd reaction, 4 °C, 30 min	Urine, EDTA-Plasma, Supernatant of cell lines. Detect native and recombinant forms.
JP27360	Rat Osteopontin ELISA	96 well	0.07~4.75 ng/mL	1st reaction, 37 °C, 1 h 2nd reaction, 4 °C, 30 min	Urine, EDTA-Plasma, Supernatant of cell lines. Detect native and recombinant forms.

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