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# IPO7 Blocking Peptide (N-term)

**Synthetic peptide**
**Catalog # BP5434a**

## Specification

### IPO7 Blocking Peptide (N-term) - Product Information

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|---|---|
| Primary Accession | O95373 |
| Other Accession | Q9EPL8, NP_006382.1 |

### IPO7 Blocking Peptide (N-term) - Additional Information

**Gene ID** 10527

**Other Names**
Importin-7, Imp7, Ran-binding protein 7, RanBP7, IPO7, RANBP7

**Target/Specificity**
The synthetic peptide sequence is selected from aa 157-169 of HUMAN IPO7

**Format**
Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

**Storage**
Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

**Precautions**
This product is for research use only. Not for use in diagnostic or therapeutic procedures.

### IPO7 Blocking Peptide (N-term) - Protein Information

**Name** IPO7

**Synonyms** RANBP7

**Function**
Functions in nuclear protein import, either by acting as autonomous nuclear transport receptor or as an adapter-like protein in association with the importin-beta subunit KPNB1. Acting autonomously, is thought to serve itself as receptor for nuclear localization signals (NLS) and to promote translocation of import substrates through the nuclear pore complex (NPC) by an energy requiring, Ran-dependent mechanism. At the nucleoplasmic side of the NPC, Ran binds to importin, the importin/substrate complex dissociates and importin is re-exported from the nucleus to the cytoplasm where GTP hydrolysis releases Ran. The directionality of nuclear import is thought to be conferred by an asymmetric distribution of the GTP- and GDP-bound forms of Ran between the cytoplasm and nucleus. Mediates autonomously the nuclear import of ribosomal proteins RPL23A, RPS7 and RPL5 (PubMed:<a href="http://www.uniprot.org/citations/11682607" target="_blank">11682607</a>). In association with KPNB1 mediates the nuclear import of H1 histone and the Ran-binding site of IPO7 is not required but synergizes with that of KPNB1 in

importin/substrate complex dissociation. Promotes odontoblast differentiation via promoting nuclear translocation of DLX3, KLF4, SMAD2, thereby facilitating the transcription of target genes that play a role in odontoblast differentiation (By similarity). Facilitates BMP4-induced translocation of SMAD1 to the nucleus and recruitment to the MSX1 gene promoter, thereby promotes the expression of the odontogenic regulator MSX1 in dental mesenchymal cells (By similarity). Also promotes odontoblast differentiation by facilitating the nuclear translocation of HDAC6 and subsequent repression of RUNX2 expression (By similarity). Inhibits osteoblast differentiation by inhibiting nuclear translocation of RUNX2 and therefore inhibition of RUNX2 target gene transcription (By similarity). In vitro, mediates nuclear import of H2A, H2B, H3 and H4 histones.

**Cellular Location**
Cytoplasm {ECO:0000250|UniProtKB:Q9EPL8}. Nucleus {ECO:0000250|UniProtKB:Q9EPL8}. Note=Localizes to the nucleus in the presence of BMP4. {ECO:0000250|UniProtKB:Q9EPL8}

## IPO7 Blocking Peptide (N-term) - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Blocking Peptides

## IPO7 Blocking Peptide (N-term) - Images

## IPO7 Blocking Peptide (N-term) - Background

The importin-alpha/beta complex and the GTPase Ran mediate nuclear import of proteins with a classical nuclear localization signal. The protein encoded by this gene is a member of a class of approximately 20 potential Ran targets that share a sequence motif related to the Ran-binding site of importin-beta. Similar to importin-beta, this protein prevents the activation of Ran's GTPase by RanGAP1 and inhibits nucleotide exchange on RanGTP, and also binds directly to nuclear pore complexes where it competes for binding sites with importin-beta and transportin. This protein has a Ran-dependent transport cycle and it can cross the nuclear envelope rapidly and in both directions. At least four importin beta-like transport receptors, namely importin beta itself, transportin, RanBP5 and RanBP7, directly bind and import ribosomal proteins.

## IPO7 Blocking Peptide (N-term) - References

Huang, S., et al. Biosci. Rep. 30(3):159-168(2010)
Chachami, G., et al. Biochem. Biophys. Res. Commun. 390(2):235-240(2009)
Adeyemo, A., et al. PLoS Genet. 5 (7), E1000564 (2009) :
Zaitseva, L., et al. Retrovirology 6, 11 (2009) :
Yao, X., et al. J. Biol. Chem. 283(33):22867-22874(2008)
Olsen, J.V., et al. Cell 127(3):635-648(2006)
Rush, J., et al. Nat. Biotechnol. 23(1):94-101(2005)
Dean, K.A., et al. J. Cell. Sci. 114 (PT 19), 3479-3485 (2001) :
Jakel, S., et al. EMBO J. 18(9):2411-2423(1999)
Paraskeva, E., et al. J. Cell Biol. 145(2):255-264(1999)
Jakel, S., et al. EMBO J. 17(15):4491-4502(1998)
Gorlich, D., et al. J. Cell Biol. 138(1):65-80(1997)