

## Product Information

**Importin b 1**  
**human, recombinant**  
N-terminal histidine tagged  
expressed in *E. coli*

Product Number **I 9781**  
Storage Temperature  $-70^{\circ}\text{C}$

Synonyms: Karyopherin  $\beta 1$ ; p97; Imp $\beta$

### Product Description

Human Importin  $\beta 1$  is a recombinant protein expressed in *E. coli* with an N-terminal histidine tag. It has an apparent molecular weight of 97 kDa (SDS-PAGE).

Importin  $\beta 1$  (karyopherin  $\beta 1$ , p97), an import receptor, is a member of the nuclear transport receptor family composed, in humans, of more than 20 proteins with molecular weights of 90 to 180 kDa. These proteins interact directly with the nuclear pore complex (NPC) and mediate nucleocytoplasmic transport. Importin  $\beta 1$  imports into the nucleus proteins carrying canonical nuclear localization signals (NLS) as well as UsnRNAs, which it binds via adaptor proteins, importin  $\alpha$  (Imp $\alpha$ ) and snurportin-1, respectively. Importin  $\beta 1$  also binds directly, without adaptor proteins, ribosomal proteins, Smad proteins, and virus derived proteins, such as HIV Rev and Tat that contain nonclassical NLS.

The mechanism of importin  $\beta 1$  action can be demonstrated by the well-studied import of proteins containing classical NLS. Importin  $\beta 1$  forms a complex with importin  $\alpha$ , which, in turn, binds the cargo protein via its NLS. The Imp $\beta$ /Imp $\alpha$ /cargo complex translocates into the nucleus. When the complex reaches the nuclear site of the NPC, Ran-GTP binds the Imp $\beta$  to form a Imp $\beta$ /Ran-GTP complex and releases the Imp $\alpha$  and the cargo protein. The Imp $\beta$ /Ran-GTP complex is then

exported to the cytoplasm, where the complex dissociates upon hydrolysis of GTP to GDP. Importin  $\beta$  is now ready for a new import cycle.

his product is supplied as a solution in 20 mM HEPES, pH 7.5, 110 mM potassium acetate, 2 mM magnesium acetate, 0.5 mM EGTA, 0.1 mM ATP, 2 mM DTT, 5% glycerol, and protease inhibitors

Purity: minimum 80% (SDS-PAGE)

### Precautions and Disclaimer

This product is for laboratory research use only. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices

### Storage/Stability

The product ships on dry ice and storage at  $-70^{\circ}\text{C}$  is recommended

### References

1. Chi, N.C. et al., *J. Cell Biol.*, **2**, 265-274 (1995).
2. Gorlich, D., and Kutay, U., *Annu. Rev. Cell. Dev. Biol.*, **15**, 607-60 (1999).
3. Conti, E., and Izaurralde, E., *Curr. Opin. Cell Biol.*, **13**, 310-319 (2001).
4. Nakielny, S., and Dreyfuss, G., *Cell*, **99**, 677-690 (1999).

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