

#### DESCRIPTION

<b>Species Reactivity</b>	Human
<b>Specificity</b>	Detects human $\beta$ IG-H3 in direct ELISAs and Western blots. In direct ELISAs and Western blots, approximately 50% cross-reactivity with recombinant mouse $\beta$ IG-H3 is observed.
<b>Source</b>	Polyclonal Goat IgG
<b>Purification</b>	Antigen Affinity-purified
<b>Immunogen</b>	Mouse myeloma cell line NS0-derived recombinant human $\beta$ IG-H3 Gly24-His683 Accession # Q15582
<b>Formulation</b>	Lyophilized from a 0.2 $\mu$ m filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 $\mu$ m filtered solution in PBS.

#### APPLICATIONS

**Please Note:** Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

	Recommended Concentration	Sample
<b>Western Blot</b>	0.1 $\mu$ g/mL	Recombinant Human $\beta$ IG-H3 (Catalog # 3409-BG)

#### PREPARATION AND STORAGE

<b>Reconstitution</b>	Reconstitute at 0.2 mg/mL in sterile PBS.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
<b>Stability &amp; Storage</b>	<b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <ul style="list-style-type: none"> <li>• 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>• 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>• 6 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

#### BACKGROUND

Beta IG-H3, also known as TGFBI and RGD-CAP, is a matricellular adaptor protein that is induced in most cell types in response to TGF- $\beta$  stimulation (1-4). The human  $\beta$ IG-H3 cDNA encodes a 683 amino acid (aa) precursor that includes a 23 aa signal sequence, one EMI domain, four FAS1 domains, and one RGD motif (1). Human  $\beta$ IG-H3 shares 91% and 93% aa sequence identity with mouse and porcine  $\beta$ IG-H3, respectively.  $\beta$ IG-H3 is expressed as a 75 kDa protein with no post-translational additions (5). Following secretion, cleavages at multiple positions near the C-terminal end liberate peptides with pro-apoptotic activity (5,6). Peptides that encompass the RGD motif contribute to the pro-apoptotic effects of TGF- $\beta$  (6). FAS1 domains contain YH motifs that are characterized by conserved Tyr and His residues (7). The YH motifs in each of the FAS1 domains enable  $\beta$ IG-H3 binding to matrix Fibronectin, Collagen I, and Collagen VI (3, 8-10) in addition to cell expressed Integrins  $\alpha_v\beta_3$ ,  $\alpha_v\beta_5$ , and  $\alpha_3\beta_1$  (7, 8, 11, 12). The expression of  $\beta$ IG-H3 is modulated at particular developmental stages in some cell types. It is upregulated in keratinocytes and immature dendritic cells but downregulated in osteoblasts (8, 11, 13). It promotes keratinocyte differentiation but blocks osteoblast differentiation (8,11).  $\beta$ IG-H3 stimulates macrophage endocytosis and vascular endothelial cell proliferation and migration (12, 13). High glucose levels induce  $\beta$ IG-H3 in renal proximal tubule cells which is predictive of diabetic nephropathy (3). Several point mutations (clustered in the fourth FAS1 domain) of  $\beta$ IG-H3 are linked to different corneal dystrophies (14).  $\beta$ IG-H3 is downregulated in many cancers (4, 15) and functions as a suppressor of tumorigenicity when overexpressed (2, 4, 15).

#### References:

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