Recombinant Human BST-2/Tetherin

Catalog Number: 9939-BS

DESCRIPTION

Source	*E. coli*-derived human BST-2/Tetherin protein Asn49-Ser161, with an N-terminal Met and C-terminal 6-His tag Accession # Q10589-1
N-terminal Sequence Analysis	Met
Predicted Molecular Mass	14 kDa

SPECIFICATIONS

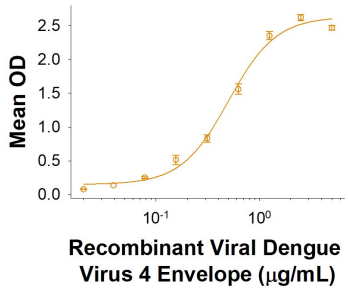
SDS-PAGE	13 kDa and 31 kDa, reducing conditions
Activity	Measured by its binding ability in a functional ELISA. When Recombinant Human BST-2/Tetherin is immobilized at 1 µg/mL (100 µL/well), Recombinant Viral Dengue Virus 4 Envelope Fc Chimera (Catalog# 9939-BS) binds with an ED_{50} of 0.2-1.6 µg/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>90%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in MES and NaCl with Trehalose. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 250 µg/mL in water.
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.** • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, -20 to -70 °C under sterile conditions after reconstitution.

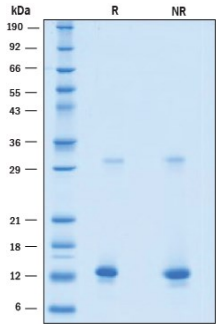
DATA

Binding Activity



When Recombinant Human BST-2/Tetherin (Catalog # 9939-BS) is immobilized at 1 µg/mL (100 µL/well), Recombinant Viral Dengue Virus 4 Envelope Fc Chimera binds with an ED_{50} of 0.2-1.6 µg/mL.

SDS-PAGE



2 µg/lane of Recombinant Human BST-2/Tetherin (Catalog # 9939-BS) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® blue staining, showing bands at 13 kDa and 31 kDa.

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Global bio-techne.com info@bio-techne.com techsupport@bio-techne.com TEL +1 612 379 2956
USA TEL 800 343 7475 Canada TEL 855 668 8722 China TEL +86 (21) 52380373
Europe | Middle East | Africa TEL +44 (0)1235 529449

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BACKGROUND

BST-2, also known as tetherin or CD317, is a type II transmembrane protein that is constitutively expressed in several cell types including T cells, B cells, monocytes and macrophages, as well as on several cancer cell lines including the B cell lineage in multiple myeloma (1, 2). Originally named bone marrow stromal cell antigen 2, BST-2 was identified to inhibit viral replication due to its unusual topology (3-5). The extracellular C-terminus of the protein is modified with GPI (glycosylphosphatidylinositol) membrane anchor, which enables BST-2 to interact at each of its ends with the cell or the viral membrane. The ectodomain of the protein also contains three cysteine residues that can form intermolecular disulfide bonds to form parallel dimers (2). Human BST-2 consists of a 20 amino acid (aa) cytoplasmic domain, a 28 aa transmembrane segment, and a 113 aa extracellular domain (ECD). Within the ECD, human BST-2 shares 41% and 35% aa sequence identity with mouse and rat BST-2, respectively. BST-2 was identified as a major mediator of the innate immune defense against enveloped viruses. BST-2 was shown to interact with formed viral particles tethering them to surface of infected cells, thereby reducing viral release (6). BST-2 inhibits the release of diverse group of enveloped viruses including members of the retrovirus, togavirus, filovirus, arenavirus, flavivirus, rhabdovirus, orthohepadnavirus, orthomyxovirus, poxvirus, paramyxovirus, and herpesvirus families (7-9). The mechanism BST-2 inhibition of viral budding was suggested to be through directly bridging the host and viral membranes through simultaneous embedding of its two opposing membrane anchors (9). To counteract BST-2 functions, many viruses have evolved to develop strategies to antagonize BST-2 function (9, 10). In addition to inhibiting viral release, BST-2 can act as an innate immune sensor of viral infections by acting as a pattern recognition receptor that activates NF-κB to induce inflammatory responses through interactions with the immunoglobulin-like transcript 7 (ILT7/LILRA4) (10, 11).

References:

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