Recombinant Rat VISTA/B7-H5/PD-1H Fc Chimera

Catalog Number: 2288-B7

DESCRIPTION

Source

Mouse myeloma cell line, NS0-derived rat VISTA/B7-H5/PD-1H protein

Rat VISTA (Met1-Ala192) Accession # NP_001037765.1	IEGRMD	Human IgG_1 (Pro100-Lys330)

N-terminus C-terminus

N-terminal Sequence Analysis	Ile33
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	44.6 kDa

SPECIFICATIONS

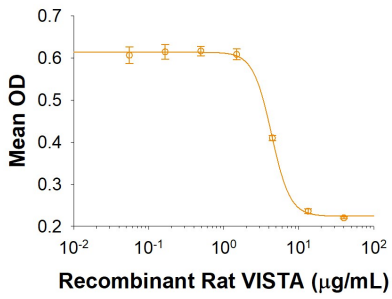
SDS-PAGE	60-70 kDa, reducing conditions
Activity	Measured by its ability to inhibit anti-CD3 antibody induced IFN-gamma secretion by human peripheral blood mononuclear cells (PBMC). The ED_{50} for this effect is 1-6 µg/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 200 µg/mL in PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	• 12 months from date of receipt, ≤ -20 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, ≤ -20 °C under sterile conditions after reconstitution.

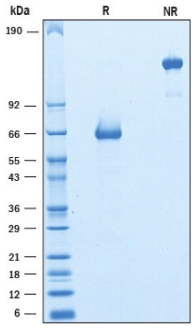
DATA

Bioactivity



Recombinant Rat VISTA/B7-H5/PD-1H Fc Chimera (Catalog # 2288-B7) inhibits IFN-gamma secretion by human peripheral blood mononuclear cells in the presence of anti-CD3 antibody. The ED_{50} for this effect is 1-6 µg/mL.

SDS-PAGE



2 µg/lane of Recombinant Rat VISTA/B7-H5/PD-1H was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 60-70 kDa and 120-140 kDa, respectively.

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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

V-domain Ig suppressor of T cell activation (VISTA), also known as platelet receptor Gi24, Dies1, SISP1, PD-1H, and B7-H5, is a 50-60 kDa transmembrane glycoprotein with homology to B7-like immune co-stimulatory molecules (1, 2). Mature rat VISTA contains a 160 amino acid (aa) extracellular domain (ECD) with one Ig-like domain, a 24 aa transmembrane segment, and a 96 aa cytoplasmic domain. The ECD of rat VISTA shares a 78% and 67% aa sequence identity with mouse and human VISTA, respectively. In human VISTA, a 30 kDa ECD can be shed by MT1-MMP, leaving a 25-30 kDa fragment remaining in the membrane (3). VISTA promotes both MT1-MMP expression and the MT1-MMP mediated activation of MMP-2 (3). VISTA has been shown to support the differentiation of embryonic stem cells (ESC) and enhances BMP-4 induced signaling in ESC, but it is also down-regulated following BMP-4 exposure (4, 5). Vista can bind directly to BMP-4, but it also associates with the type I BMP receptor Activin RIB/ALK 4 (4, 5). VISTA is highly expressed on mature CD11b high myeloid-derived APCs and to a lesser extent on $CD4^+$, $CD8^+$, and T regs and is also found on tumor infiltrating lymphocytes (7). It is up-regulated *in vivo* on activated monocytes and dendritic cells (5). VISTA inhibits $CD4^+$ and $CD8^+$ T cell proliferation, and their production of IL2 and IFN-gamma (6). Its expression on tumor cells attenuates the antitumor immune response and enables more rapid tumor progression (6). Suppression of VISTA signaling was shown to increase the rate of progression in the mouse autoimmune disease model EAE (6). VISTA-Ig suppressed proliferation of T cells but not B cells and blunted the production of T cell cytokines and activation markers, suggesting that VISTA as a negative checkpoint regulator suppresses T cell activation (8, 9).

References:

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