

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived human VISTA/B7-H5/PD-1H protein		
	Human VISTA/B7-H5/PD-1H (Phe33-Ala194) Accession # AAH20568	IEGRMD	Human IgG ₁ (Pro100-Lys330)
	N-terminus		C-terminus
N-terminal Sequence Analysis	Phe33		
Structure / Form	Disulfide-linked homodimer		
Predicted Molecular Mass	44.8 kDa (monomer)		

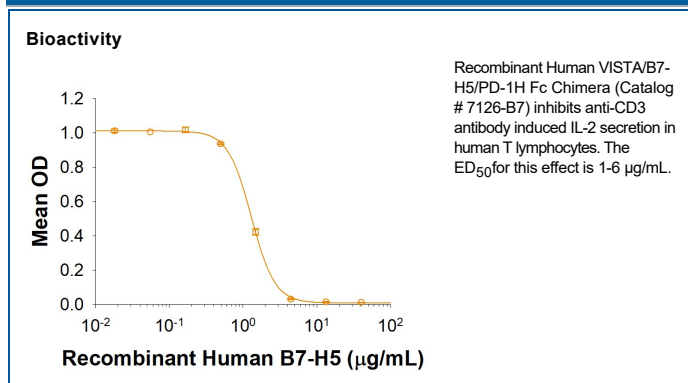
SPECIFICATIONS

SDS-PAGE	64-75 kDa, reducing conditions
Activity	Measured by its ability to inhibit anti-CD3 antibody induced IL-2 secretion in human T lymphocytes. The ED ₅₀ for this effect is 1-6 µg/mL.
Endotoxin Level	<0.01 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	<p>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</p> <ul style="list-style-type: none"> • 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



BACKGROUND

VISTA (V-domain immunoglobulin suppressor of T cell activation) is an immune checkpoint receptor expressed primarily on the surface of hematopoietic cells. Specifically, VISTA is expressed on naïve CD4+ T cells and regulatory T cells (1). And it is up regulated in vivo on activated monocytes and dendritic cells (2). VISTA inhibits CD4+ and CD8+ T cell proliferation, and their production of the proinflammatory cytokines IL 2 and IFN gamma (1). VISTA protein is also observed on the surface of cancer cells and attenuates the anti tumor immune response enabling tumor progression (1). In the autoimmune disease model EAE, VISTA limits disease progression by downregulating the overactive immune system (1). VISTA, also known as B7 H5, PD-1H, Platelet receptor Gi24, Dies1, and SISP1, is a 55 65 kDa transmembrane glycoprotein with homology to B7 like immune co stimulatory molecules (3, 4). The mature human VISTA protein contains a 162 amino acid extracellular domain (ECD) with one V type Ig like domain, a 21 aa transmembrane segment, and a 96 aa cytoplasmic domain. Within the ECD, human VISTA shares 70% and 67% amino acid sequence identity with mouse and rat VISTA, respectively (5). The 30 kDa ECD can be shed by MT1 MMP, with a 25 30 kDa fragment remaining in the membrane (5). VISTA promotes both MT1 MMP expression and the MT1 MMP mediated activation of MMP 2 (5). VISTA supports the differentiation of embryonic stem cells (ESC) and enhances BMP 4 induced signaling in ESC but is also down regulated following BMP 4 exposure (2, 6). It binds to BMP 4 directly and also associates with the type I BMP receptor Activin RIB/ALK 4 (2, 6). The identification of a binding partner for VISTA proved elusive for many years until two 2019 publications identified two distinct ligands for VISTA, VSIG-3 and PSGL-1 (7, 8). Both ligands are expressed on T cells and blocking antibodies to VISTA have been shown to reverse immune suppression making VISTA a potential therapeutic target for cancer (7, 8).

References:

1. Wang, L. et al. (2011) J. Exp. Med. 208:577.
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3. Flajnik, M.F. et al. (2012) Immunogenetics 64:571.
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6. Aloia, L. et al. (2010) J. Biol. Chem. 285:7776.
7. Wang, J. et al. (2019) Immunology. 156:74.
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