

DESCRIPTION

Source	Human embryonic kidney cell, HEK293-derived viral B18R protein			
	MD	Human IgG ₁ (Pro100-Lys300)	IEGR	Viral B18R (His20-Glu351) Accession # P25213
	N-terminus		C-terminus	
N-terminal Sequence Analysis	Met-Asp-Pro100			
Structure / Form	Disulfide-linked homodimer			
Predicted Molecular Mass	65 kDa (monomer)			

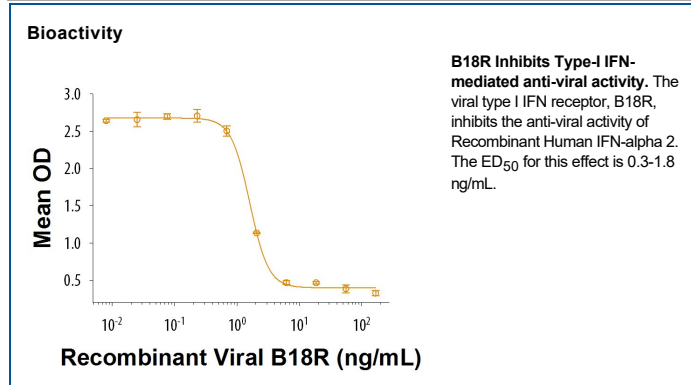
SPECIFICATIONS

SDS-PAGE	80-95 kDa, reducing conditions
Activity	Measured by its ability to inhibit Type-I IFN-mediated anti-viral activity. Symons, J.A. <i>et al.</i> (1995) Cell 81 :551. The ED ₅₀ for this effect, as measured by inhibition of Recombinant Human IFN-α2 (Catalog # 11105-1), is 0.3-1.8 ng/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 PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 500 µg/mL in PBS.
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. <ul style="list-style-type: none"> 12 months from date of receipt, -20 to -70 °C as supplied.

DATA



BACKGROUND

B18R (Soluble IFN alpha/beta receptor B18) is a 60-65 kDa protein encoded by the Vaccinia virus genome and by the genomes of other orthopoxviruses. Its function represents one of several mechanisms used by these viruses to evade the host immune response (1, 2). It is known as B18R in the Western Reserve (WR) strain of Vaccinia but as B19R in the Copenhagen strain (3). There is a structurally-unrelated, larger Vaccinia protein that is also known as B18R (or B16R) that contains multiple ankyrin-like repeats (4). The soluble IFN receptor B18R, however, contains three immunoglobulin-like domains and shows homology to human, mouse, and bovine type I IFN receptors (5). The Wyeth strain of Vaccinia virus encodes a truncated protein that lacks the C-terminal Ig-like domain, and B18R is functionally absent in the Lister strain (6, 7). B18R functions as a decoy receptor for type I IFNs (IFN alpha, beta, omega). It binds to type I IFNs from multiple species and prevents IFN signaling through its receptors (6-8). B18R binds to the surface of virus infected and uninfected cells where it retains its capacity to bind and neutralize IFN (6, 8). It shields those cells from the antiviral effects of type I IFNs, thereby enabling virus replication and pathogenicity (6-8). B18R also limits the effectiveness of IFN alpha produced following TLR activation (9), and it limits adaptive T cell responses (3). The B18R viral protein also acts to protect cells during mRNA transfection to produce induced pluripotent stem cells (iPSCs) from somatic cells (10). The addition of B18R results in increased cell viability of iPSCs in the presence of modified synthetic mRNAs such as OCT4, SOX2, KLF4, MYC, NANOG, and LIN28A. Using mRNAs in combination with B18R allows for integration-free reprogramming of somatic cells to iPSCs without the use of viral vectors or genomic modification.

References:

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3. Gomez, C.E. et al. (2012) J. Virol. **86**:5026.
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6. Alcamí, A. et al. (2000) J. Virol. **74**:11230.
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