

IFN-gamma Protein, Sheep (His)

Cat. No.:	HY-P72245
Synonyms:	IFNG; Interferon gamma; IFN-gamma
Species:	Sheep
Source:	E. coli
Accession:	P17773 (Q24-M166)
Gene ID:	443396
Molecular Weight:	Approximately 21 kDa

PROPERTIES

AA Sequence	<p>Q G P F F K E I E N L K E Y F N A S N P D V A K G G P L F S E I L K N W K E E S</p> <p>D K K I I Q S Q I V S F Y F K L F E N L K D N Q V I Q R S M D I I K Q D M F Q K</p> <p>F L N G S S E K L E D F K R L I Q I P V D D L Q I Q R K A I N E L I K V M N D L</p> <p>S P K S N L R K R K R S Q N L F R G R R A S M</p>
Appearance	Lyophilized powder
Formulation	Lyophilized from a 0.2 µm solution of 20 mM Tris-HCl, 0.5 M NaCl, 6% Trehalose, pH 8.0.
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH ₂ O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	<p>IFN-gamma (Interferon-gamma), a type II interferon produced by immune cells like T-cells and NK cells, assumes pivotal roles in antimicrobial, antiviral, and antitumor responses by activating effector immune cells and enhancing antigen presentation. Its primary signaling occurs through the JAK-STAT pathway upon interaction with its receptor, IFNGR1, influencing gene regulation. Upon IFN-gamma binding, the IFNGR1 intracellular domain unfolds, facilitating the association of downstream signaling components, including JAK2, JAK1, and STAT1. This sequence leads to STAT1 activation, nuclear translocation, and the transcription of IFN-gamma-regulated genes, many of which encode transcription factors like IRF1, capable of further driving the regulation of subsequent transcriptional events. IFN-gamma also contributes to the class I antigen presentation pathway by inducing the replacement of catalytic proteasome subunits with immunoproteasome subunits, thereby increasing the quantity, quality, and repertoire of peptides for class I MHC loading. Additionally, it</p>
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enhances the efficiency of peptide generation by inducing the expression of the activator PA28, which associates with the proteasome and alters its proteolytic cleavage preference. Furthermore, IFN-gamma up-regulates MHC II complexes on the cell surface by promoting the expression of key molecules such as cathepsins B/CTSB, H/CTSH, and L/CTSL. Beyond its immune functions, IFN-gamma participates in the regulation of hematopoietic stem cells during development and under homeostatic conditions, influencing their development, quiescence, and differentiation. Existing as a homodimer, IFN-gamma interacts with IFNGR1 via its extracellular domain, a crucial interaction that promotes IFNGR1 dimerization to orchestrate its diverse and critical functions in immune responses and hematopoiesis.

Caution: Product has not been fully validated for medical applications. For research use only.

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