pbl assay science
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Certificate of Analysis

Human Interleukin-29/Interferon Lambda 1, carrier-free

Catalog No: 11826-1
Lot No: 7463
Expiration: October 26, 2022
Size: 25 µg/vial

Description: Recombinant Human Interleukin-29/Interferon Lambda 1, carrier-free
Source: DNA sequence encoding the signal peptide from human CD33 was fused to the carboxyl terminally polyhistidine-tagged mature human IL-29 (Gly 20 - Thr 200) (Sheppard, P., *et al*. 2003, *Nat. Immunol*. 4(1):63 - 68). The chimeric protein was expressed in a mouse myeloma cell line, NS0.
Buffer: Phosphate buffered saline (PBS)
Reconstitution: It is recommended that sterile phosphate-buffered saline be added to the vial to prepare a working stock solution of no less than 100 µg/ml. The carrier-free protein should be used immediately upon reconstitution to avoid losses in activity due to non-specific binding to the inside surface of the vial. For long term storage as a dilute solution, a carrier protein (e.g. 0.1% HSA or BSA) should be added to the vial.
Endotoxin: < 1 EU/µg
Molecular Weight: Based on N-terminal sequencing, the mature recombinant IL-29 starts at Gly 20 and has a calculated molecular mass of 21.4 kDa. As a result of glycosylation, the recombinant monomer migrates as an approximately 26-35 kDa protein in SDS-PAGE under reducing conditions.
Purity: > 95%
Synonyms: Hu-IL-29; Hu-IFN-λ1

Assay Used to Measure Bioactivity: Human HepG2 cells infected with encephalomyocarditis virus (Sheppard, P., *et al*. 2003, *Nature Immunol*. 4:63). The ED_{50} for this effect is typically 1-5 ng/ml.

Product Information: IL-28A, IL-28B, and IL-29, also named interferon-λ2 (IFN-λ2), IFN-λ3, and IFN-λ1, respectively, are newly identified class II cytokine receptor ligands that are distantly related to members of the IL-10 family (11-13% aa sequence identity) and type I IFN family (15 - 19% aa sequence identity).[1 – 3] The genes encoding these three cytokines are localized to chromosome 19 and each is composed of multiple exons. The exon organization of these genes is also found in the IL-10 family genes but is distinct from the type I IFNs, which are encoded within a single exon. The expression of IL-28A, B, and IL-29 is induced by virus infection or double-stranded RNA. All three cytokines exert bioactivities that overlap those of type I IFNs, including antiviral activity and up-regulation of MHC class I antigen expression. The three proteins signal through the same heterodimeric receptor complex that is composed of the IL-10 receptor β (IL-10 Rβ) and a novel IL-28 receptor α (IL-28 Rα, also known as IFN-λ R1). Ligand binding to the receptor complex induces Jak kinase activation and STAT1 and STAT2 tyrosine phosphorylation. The phosphorylated STAT1 and STAT2 complex with IFN-regulatory factor 9 (IRF-9) to form the IFN-stimulated regulatory factor 3 (ISGF-3) transcription factor complex that is translocated to the nucleus. ISGF-3 binds to the IFN-stimulated response element (ISRE) present in the regulatory regions of the target genes. Human IL-29 cDNA encodes a 200 amino acid (aa) residue precursor protein with a putative 19 aa signal peptide and a 181 aa mature protein, which is a monomer in solution. It shares 67% and 69% aa sequence identity with human IL-28A and human IL-28B, respectively.

Shipping Conditions: Wet Ice
Physical State of Product During Shipping: Lyophilized
Storage Conditions/Comments: Upon receipt, the product should be kept at -20 to -70°C for retention of full activity. Upon reconstitution, this cytokine can be stored under sterile conditions at 2°C to 8°C for one month or at -20°C to -70°C in a manual defrost freezer for three months without detectable loss of activity. Avoid repeated freeze-thaw cycles. For more information on protein handling, visit our Resource Library at www.pblassaysci.com.

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References:

1. Vilcek, J., 2003, *Nature Immunol.* 4:8-9.
2. Sheppard, P., *et al.* 2003, *Nature Immunol.* 4:63-68.
3. Kotenko, S.V., *et al.* 2003, *Nature Immunol*. 4:69-77.

Authorization

Released by: _____ Date: October 26, 2021