

#### **IL-33**

Catalog # PVGS1417

# **Specification**

#### **IL-33 - Product Information**

Primary Accession
Species
Human

<u>095760</u>

Sequence

Ser112-Thr270

**Purity** 

> 95% as analyzed by SDS-PAGE

**Endotoxin Level** 

< 0.2 EU/  $\mu g$  of protein by gel clotting method

# **Biological Activity**

ED<sub>50</sub> < 0.5 ng/ml, measured by a cell proliferation assay using D10S cells, corresponding to a specific activity of >  $2.0 \times 10$ <sup>6</sup> units/mg.

# **Expression System**

E. coli

Formulation

Lyophilized after extensive dialysis against PBS.

### Reconstitution

It is recommended that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Reconstitute the lyophilized powder in  $ddH_2O$  up to  $100 \mu g/ml$ .

#### Storage & Stability

Upon receiving, this product remains stable for up to 6 months at lower than -70°C. Upon reconstitution, the product should be stable for up to 1 week at 4°C or up to 3 months at -20°C. For long term storage it is recommended that a carrier protein (example 0.1% BSA) be added. Avoid repeated freeze-thaw cycles.

# **IL-33 - Additional Information**

#### **Gene ID 90865**

# **Other Names**

Interleukin-33, IL-33, Interleukin-1 family member 11, IL-1F11, Nuclear factor from high endothelial venules, NF-HEV, Interleukin-33 (95-270), Interleukin-33 (99-270), Interleukin-33 (109-270), IL33 (<a href="http://www.genenames.org/cgi-bin/gene\_symbol\_report?hgnc\_id=16028" target="blank">HGNC:16028</a>), C9orf26, IL1F11, NFHEV

# **Target Background**

Interleukin-33 (IL-33) is a proinflammatory cytokine that belongs to the IL-1 family. IL-33 is



expressed in a variety of cells, including epithelial and endothelial cells, smooth muscle cells, macrophages and fibroblasts. The primary receptors for IL-33 are ST2 and IL-1 receptor accessory protein (IL-1RAcP), both of which belong to the IL-1 receptor family. IL-33 is localized to the nucleus of resting cells where it binds to chromatin in the H2A-H2B histone complex as a transcriptional suppressor. IL-33 is secreted by cells during injury which induces a T-helper 2 type inflammatory response. Evidence suggests IL-33 plays a role in autoimmune disease. IL-33's interaction with ST2 can drive allergic pathology and IL-33 has been reported to play a role in the development of rheumatoid arthritis and systemic lupus erythematosus.

### **IL-33 - Protein Information**

Name IL33 (<u>HGNC:16028</u>)

Synonyms C9orf26, IL1F11, NFHEV

## **Function**

Cytokine that binds to and signals through the IL1RL1/ST2 receptor which in turn activates NF-kappa-B and MAPK signaling pathways in target cells (PubMed:<a href="http://www.uniprot.org/citations/16286016" target=" blank">16286016</a>, PubMed:<a href="http://www.uniprot.org/citations/19841166" target="blank">19841166</a>). Involved in the maturation of Th2 cells inducing the secretion of T-helper type 2- associated cytokines (PubMed:<a href="http://www.uniprot.org/citations/17853410" target=" blank">17853410</a>, PubMed:<a href="http://www.uniprot.org/citations/18836528" target="blank">18836528</a>). Also involved in activation of mast cells, basophils, eosinophils and natural killer cells (PubMed: <a href="http://www.uniprot.org/citations/17853410" target=" blank">17853410</a>, PubMed:<a href="http://www.uniprot.org/citations/18836528" target="\_blank">18836528</a>). Acts as an enhancer of polarization of alternatively activated macrophages (PubMed: <a href="http://www.uniprot.org/citations/19841166" target="blank">19841166</a>). Acts as a chemoattractant for Th2 cells, and may function as an 'alarmin', that amplifies immune responses during tissue injury (PubMed:<a href="http://www.uniprot.org/citations/17853410" target=" blank">17853410</a>, PubMed:<a href="http://www.uniprot.org/citations/18836528" target="blank">18836528</a>). Induces rapid UCP2-dependent mitochondrial rewiring that attenuates the generation of reactive oxygen species and preserves the integrity of Krebs cycle required for persistent production of itaconate and subsequent GATA3-dependent differentiation of inflammation-resolving alternatively activated macrophages (By similarity).

### **Cellular Location**

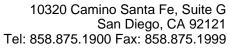
Nucleus. Chromosome. Cytoplasm Cytoplasmic vesicle, secretory vesicle Secreted Note=Secreted and released in the extracellular milieu by passing through the gasdermin-D (GSDMD) pore following cleavage by CELA1 (PubMed:35794369). Associates with heterochromatin and mitotic chromosomes (PubMed:17185418). The secretion is dependent on protein unfolding and facilitated by the cargo receptor TMED10; it results in protein translocation from the cytoplasm into the ERGIC (endoplasmic reticulum-Golgi intermediate compartment) followed by vesicle entry and secretion (PubMed:32272059).

#### **Tissue Location**

Expressed at high level in high endothelial venules found in tonsils, Peyer patches and mesenteric lymph nodes. Almost undetectable in placenta.

# **IL-33 - Protocols**

Provided below are standard protocols that you may find useful for product applications.





- Western Blot
- Blocking Peptides
- Dot Blot
- <u>Immunohistochemistry</u>
- Immunofluorescence
- <u>Immunoprecipitation</u>
- Flow Cytomety
- Cell Culture

IL-33 - Images