

**DESCRIPTION**

**Source** *E. coli*-derived human IL-33 protein  
Ser112-Thr270  
Accession # O95760

**N-terminal Sequence Analysis** Ser112

**Predicted Molecular Mass** 18 kDa

**SPECIFICATIONS**

**Activity** Measured in a cell proliferation assay using D10.G4.1 mouse helper T cells.  
The ED<sub>50</sub> for this effect is 0.06-0.24 ng/mL.

**Optimal dilutions should be determined by each laboratory for each application.**

**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, EDTA and DTT. See Certificate of Analysis for details.

**PREPARATION AND STORAGE**

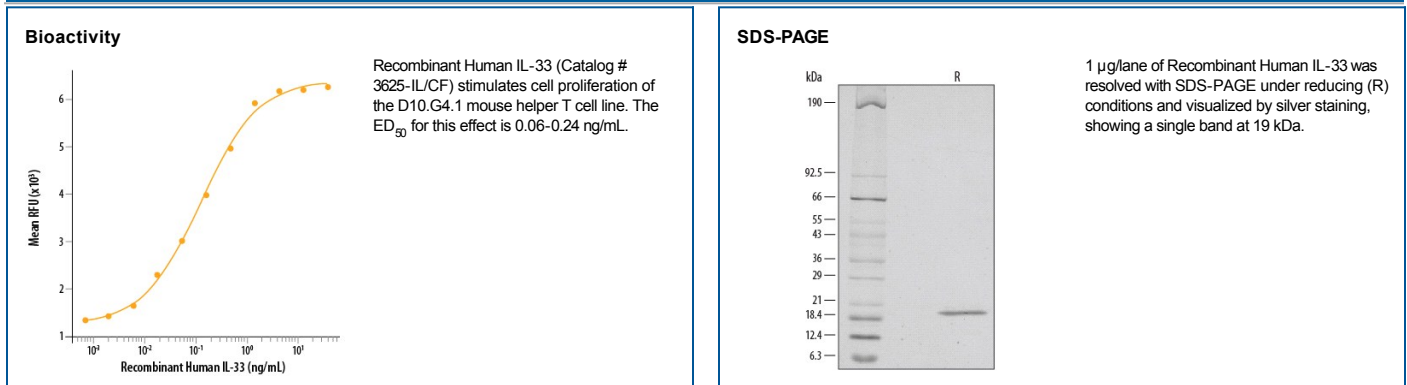
**Reconstitution** Reconstitute at 100 µg/mL in sterile PBS.

**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.

- 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**

IL-33, also known as NF-HEV and DVS 27, is a 30 kDa proinflammatory protein that may also regulate gene transcription (1-3). DVS 27 was identified as a gene that is upregulated in vasospastic cerebral arteries (1). NF-HEV was described as a nuclear factor that is preferentially expressed in the endothelial cells of high endothelial venules relative to endothelial cells from other tissues (2). IL-33 was identified based on sequence and structural homology with IL-1 family cytokines (3). DVS 27, NF-HEV, and IL-33 share 100% amino acid sequence identity. IL-33 is constitutively expressed in smooth muscle and airway epithelia. It is up-regulated in arterial smooth muscle, dermal fibroblasts, and keratinocytes following IL-1 $\alpha$  or IL-1 $\beta$  stimulation (1, 3). Similar to IL-1, IL-33 can be cleaved *in vitro* by caspase-1, generating an N-terminal fragment that is slightly shorter than the C-terminal fragment (3, 4). The N-terminal portion of full length IL-33 contains a predicted bipartite nuclear localization sequence and a homeodomain-like helix-turn-helix DNA binding domain. By immunofluorescence, full length IL-33 localizes to the nucleus in HUVECs and transfectants (2). The C-terminal fragment, corresponding to mature IL-33, binds and triggers signaling through mast cell IL-1 R4/ST2L, a longtime orphan receptor involved in the augmentation of Th2 cell responses (3, 5-7). A ternary signaling complex is formed by the subsequent association of IL-33 and ST2L with IL-1R AcP (8). Stimulation of Th2 polarized lymphocytes with mature IL-33 *in vitro* induces IL-5 and IL-13 secretion (3). *In vivo* administration of mature IL-33 promotes increased production of IL-5, IL-13, IgE, and IgA, as well as splenomegaly and inflammatory infiltration of mucosal tissues (3). Full length and mature human IL-33 share 52-58% aa sequence identity with mouse and rat IL-33. Human IL-33 shares less than 20% aa sequence identity with other IL-1 family proteins.

**References:**

1. Onda, H. *et al.* (1999) *J. Cereb. Blood Flow Metab.* **19**:1279.
2. Baekkevold, E.S. *et al.* (2003) *Am. J. Pathol.* **163**:69.
3. Schmitz, J. *et al.* (2005) *Immunity* **23**:479.
4. Black, R.A. *et al.* (1989) *J. Biol. Chem.* **264**:5323.
5. Xu, D. *et al.* (1998) *J. Exp. Med.* **187**:787.
6. Lohning, M. *et al.* (1998) *Proc. Natl. Acad. Sci.* **95**:6930.
7. Dinarello, C.A. (2005) *Immunity* **23**:461.
8. Chackerian, A.A. *et al.* (2007) *J. Immunol.* **179**:2551.