

## Inhibitor

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**Catalog No. KN-NIGU-M01**

# Human IL-1 Receptor-Ig heterodimer-containing medium for IL-1 inhibition

## Background

Interleukin-1 (IL-1 $\alpha$  and IL-1 $\beta$ ) is a proinflammatory cytokine involved in immune responses including both innate and acquired immunity. IL-1 is thought to play a role in many diseases, including arthritis, heart disease, pancreatitis, multiple myeloma, and stroke. IL-1 receptor (IL1R) I, also known as CD121a, is an 80 kDa type I transmembrane (TM) protein that binds cytokines IL1 $\alpha$  and IL1 $\beta$  and transduces a signal. Whereas IL1RII, also known as CD121b, is a 65 kDa protein that binds cytokines IL1 $\alpha$  and IL1 $\beta$  but does not transduce a signal. Signal transduction requires complex formation with the IL1R accessory protein (IL1R acp), another type I TM protein. Soluble IL1R acp and soluble IL-1RII is present in normal serum and soluble form of the IL-1 receptor accessory protein (acp) increases the affinity of binding of IL-1 $\alpha$  and IL-1 $\beta$  to the soluble IL1RII 1). Inhibition of IL-1 is beneficial in many animal models of disease and is expected to offer a new therapy for various human diseases.

- 1) Smith DE, Hanna R, Della F, Moore H, Chen H, Farese AM, MacVittie TJ, Virca GD and Sims JE: The soluble form of IL-1 receptor accessory protein enhances the ability of soluble type II IL-1 receptor to inhibit IL-1 action. *Immunity* 18: 87-96, 2003.

**Product type** Recombinant Protein / Inhibitor of human IL-1

## Source

Rat GRO/CINC2 N (Met 1 – Asp 47)	HADLN	Human IL1R acp (Ser 21 – Thr 367)	AAA	Human IgG <sub>1</sub> C region (Val 98 – Lys 330)	LEAQDFVQWLMNT	6his-Tag (HHHHHH)
S S						
S S						
Human IL1R II (Met 1 – Glu 343)						
AAA						
Human IgG <sub>1</sub> C region (Val 98 – Lys 330)						
LE						
Rat GRO/CINC2 C (Lys 89 – Ser 101)						
Myc-Tag (EQKLISEEDL)						

Condition medium (RPMI 1640, 10%FBS, 100 unit/ml penicillin, 100 $\mu$ g/ml streptomycin) was obtained from Cos-7 cells cotransfected with pCAGGS- Rat GRO/CINC2 $\alpha$ N- Human IL-1R acp- Human IgG1Fc- 6His and pCAGGS- Human IL-1R II- Human IgG1 Fc- Rat GRO/CINC2 $\alpha$ C- Myc by Eugene 6 (Roche, Indianapolis, IN). It was filtered by Millex-GV Filter Unit, 0.22  $\mu$ m (Millipore, Billerica, MA). It contains not only human IL-1R-Ig heterodimer but also IL-1R acp- IgG1Fc homodimer and IL-1R II- IgG1Fc homodimer. However, IL-1 inhibition effect by IL-1R-Ig heterodimer is much stronger than that by their homodimers. MOCK medium was obtained from them trasfected with pCAGGS.

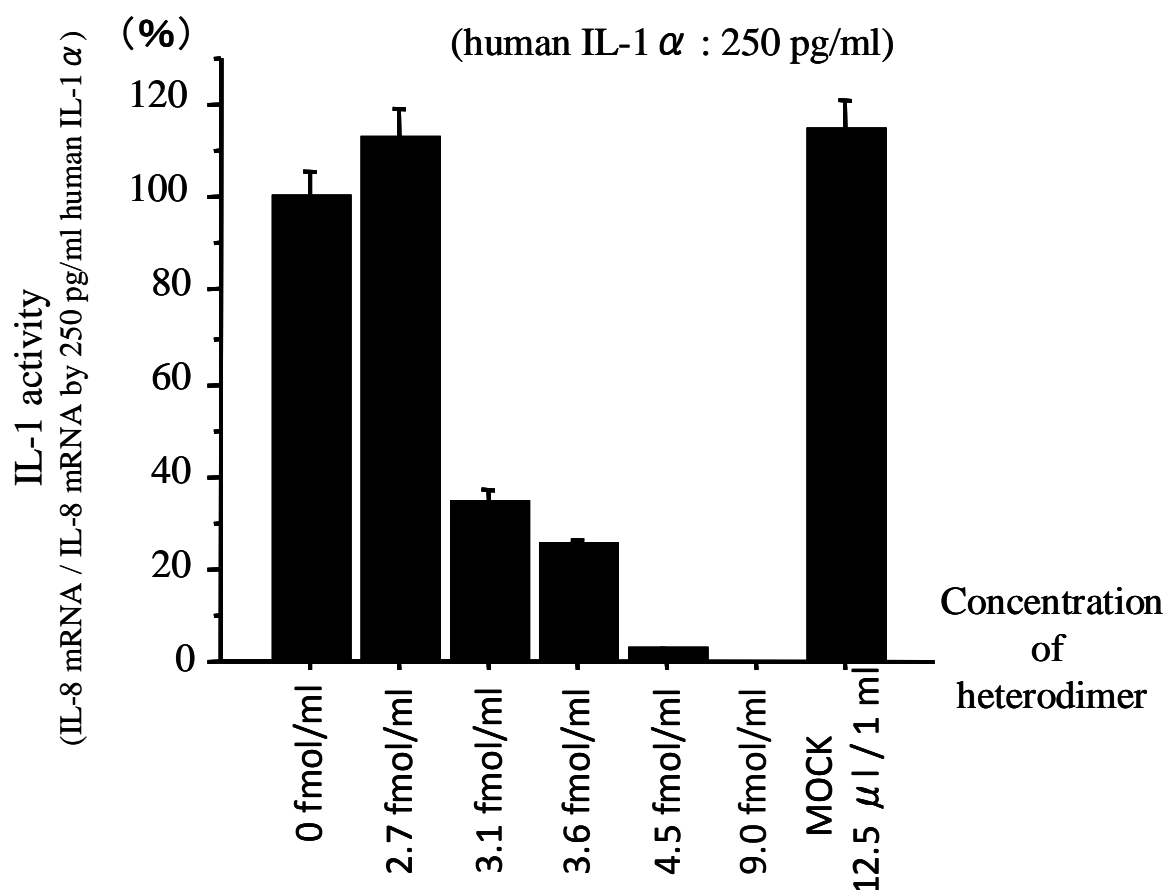
**Form** Liquid (control medium is attachd)

**Volume/** 500 $\mu$ l / tube, Human IL-1R-Ig heterodimer 360 fmol/ml

**Concentration** Concentration of Human IL-1R-Ig heterodimer in condition medium, which is measured by Rat GRO/CINC2 $\alpha$  ELISA kit (IBL, Takasaki, Japan), is approximately 360 fmol/mL.

**Activity** Measured by its ability to inhibit IL-8 gene expression in MRC-5 cell (human lung fibroblast) after culture for 24 hr with rhIL-1 $\alpha$  and the condition medium. Medium contained approximately 3.6 fmol/mL and 4.5 fmol/mL of human IL-1R-Ig heterodimer-containing medium will inhibit 75% and 97% , respectively, of the biological response due to 250 pg/mL of rhIL-1 $\alpha$ . ID50; 3.0 fmol/mL. MOCK medium will not inhibit it.

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## Storage

Store below -20°C (below -70°C for prolonged storage).

Aliquot to avoid cycles of freeze/thaw.

## Reference

- IL-1 Receptor Accessory Protein-Ig/IL-1 Receptor Type II-Ig Heterodimer Inhibits IL-1 Response More Strongly than Other IL-1 Blocking Biopharmaceutical Agents. J Clin Immunol. 2010 Dec 22. (PMID: [21181432](https://pubmed.ncbi.nlm.nih.gov/21181432/))

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**COSMO BIO Co., LTD.**

Inspiration for Life Science

TOYO 2CHOME, KOTO-KU, TOKYO, 135-0016, JAPAN

URL: <http://www.cosmobio.co.jp>

e-mail: [export@cosmobio.co.jp](mailto:export@cosmobio.co.jp)

[Outside Japan] Phone : +81-3-5632-9617

[国内連絡先] Phone : +81-3-5632-9610

FAX : +81-3-5632-9618

FAX : +81-3-5632-9619