

## Anti-Human IL-1RAP (IL-1R3) (Nadunolimab) [Clone CAN04]

### Biosimilar Recombinant Human Monoclonal Antibody

#### Product Information

|                     |                           |
|---------------------|---------------------------|
| <b>Product No.:</b> | I-2140                    |
| <b>Clone:</b>       | CAN04                     |
| <b>Isotype:</b>     | Human Human IgG1 $\kappa$ |

#### Product Description

##### Specificity:

This non-therapeutic biosimilar antibody uses the same variable region sequence as the therapeutic antibody Nadunolimab. Nadunolimab (CAN04) activity is directed against IL-1RAP.

##### Antigen Distribution:

IL-1RAP is ubiquitously expressed. On normal blood cells, IL-1RAP is expressed mainly on monocytes. IL-1RAP is overexpressed on tumor cells of several hematological and solid cancers. IL-1RAP has both membrane-bound and soluble forms.

##### Background:

IL-1RAP (interleukin-1 receptor accessory protein) is a co-receptor that works with the IL-36 subfamily of the IL-1 interleukin family<sup>1</sup>. Members of the IL-1 family play key signaling roles in innate and adaptive immunity. IL-1RAP is particularly involved in promoting inflammatory responses via the IL-1, IL-33, and IL-36 signaling pathways. IL-1RAP also plays a role in cancer promotion, progression, and metastasis. Additionally, IL-1RAP dimerizes with IL-1R1 to initiate signaling of IL-1 $\alpha$  and IL-1 $\beta$ , both of which promote chemotherapy resistance<sup>2</sup>. As such, IL-1RAP is a target for cancer therapy<sup>1</sup>. Two different therapies targeting IL-1RAP are under development: 1) chimeric antigen receptor T-cells (CAR-T) therapy and 2) antibody immunotherapy for either direct blockade or activation of antibody-dependent cell-mediated cytotoxicity (ADCC).

Nadunolimab was generated by grafting the complementarity-determining regions of a murine monoclonal antibody into a human IgG1 isotype<sup>3</sup>. BALB/c mice were immunized with a fusion protein of the extracellular part of IL-1RAP (Pro100-Lys330) and the Fc-part of human IgG1. Splenocytes were fused with mouse myeloma cell line Sp2/0 and screened by ELISA for binding to the IL-1RAP extracellular domain<sup>3,4</sup>.

Nadunolimab binds IL-1RAP in a manner that blocks IL-1 $\alpha$  and IL-1 $\beta$  as well as partially inhibits IL-33 signaling. Nadunolimab binds to the top of the IL-1RAP D2 domain, specifically to residues 105-114, 145-158, and 169-176<sup>5</sup>. Residues Thr154 to Ile171 are necessary for binding, with Q165 being critical. Additionally, binding is directly coincident with portions of the IL-1 $\beta$  and IL-33 signaling

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# Product Datasheet

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complexes.

Alternative names for nadunolimab are CAN04 and mAb3F8.

**Known Reactivity Species:**

Human

**Expression Host:**

HEK-293 Cells

**Format:**

Purified No Carrier Protein

**Immunogen:**

Fusion protein of the extra cellular part of IL-1RAP (Pro100-Lys330)

**Formulation**

This biosimilar antibody is aseptically packaged and formulated in 0.01 M phosphate buffered saline (150 mM NaCl) PBS pH 7.2 - 7.4 with no carrier protein, potassium, calcium or preservatives added. Due to inherent biochemical properties of antibodies, certain products may be prone to precipitation over time. Precipitation may be removed by aseptic centrifugation and/or filtration.

**Purity**

≥95% by SDS Page, ≥95% monomer by analytical SEC

**Endotoxin**

≤ 1.0 EU/mg as determined by the LAL method

**Storage and Stability**

Functional grade preclinical antibodies may be stored sterile as received at 2-8°C for up to one month. For longer term storage, aseptically aliquot in working volumes without diluting and store at ≤ -70°C.

**Avoid Repeated Freeze Thaw Cycles.**

**Product Preparation**

Recombinant biosimilar antibodies are manufactured in an animal free facility using only *in vitro* protein free cell culture techniques and are purified by a multi-step process including the use of protein A or G to assure extremely low levels of endotoxins, leachable protein A or aggregates.

**Pathogen Testing**

To protect mouse colonies from infection by pathogens and to assure that experimental preclinical data is not affected by such pathogens, all of Leinco's recombinant biosimilar antibodies are tested and guaranteed to be negative for all pathogens in the IDEXX IMPACT I Mouse Profile.

**Other Applications Reported in Literature:**

**ACT,**

**Antagonist,**

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**B,  
ELISA,  
FA,  
IHC**



## **Country of Origin**

USA

## **References**

- 1 Frenay J, Bellaye PS, Oudot A, et al. Int J Mol Sci. 23(23):14918. 2022.
- 2 Rydberg Millrud C, Deronic A, Grönberg C, et al. Cancer Immunol Immunother. 72(3):667-678. 2023.
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- 5 Fields JK, Kihn K, Birkedal GS, et al. Front Immunol. 12:779100. 2021.
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