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**Product Data Sheet**

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Product Name: Dupilumab

Cat. No.: GC60798

**Chemical Properties**

Cas. No. 1190264-60-8

SMILES [Dupilumab]

Formula M.Wt

Solubility Storage 4°C, do not freeze.

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT, or blue ice upon request.

Structure **Protocol****Cell experiment [1]:**

Cell lines TF-1 cell line

Preparation Method TF-1 cells were stimulated with IL-4 (0.5 ng/mL) or IL-13 (5 ng/mL), followed by the addition of dupilumab. CCK-8 was used to detect TF-1 cell proliferation 72 hours later.

Reaction Conditions 0.01 ng/ml-1 µg/ml, 72 h

Applications Dupilumab was able to inhibit the proliferation of TF-1 cells stimulated by IL-4 or IL-13, with IC<sub>50</sub> values of 10.8 ± 1.1 and 12.0 ± 2.4 ng/mL, respectively.

**Caution: Product has not been fully validated for medical applications. For research use only.**

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**Animal experiment [2]:**

Animal models	Mouse models of IL-4/IL-13 and allergen-induced lung inflammation model
Preparation Method	HDM(house dust mite )-exposed mice either received no antibody treatment, or twice-weekly subcutaneous injections of 10 or 25 mg/kg dupilumab, IL-4 Ab, mouse IL-13R $\alpha$ 2-Fc or a corresponding isotype control antibody (human IgG4 and mouse IgG2a) starting 3 days before the first HDM exposure.
Dosage form	10 or 25 mg/kg, 4 weeks,twice-weekly, s.c.
Applications	Dupilumab effectively protects from allergen-induced lung function impairment by preventing pathogenic immune cell-induced lung inflammation as well as IL-13-driven GCM (mucus production).

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### References:

- [1] Zhang L, Ding Y, Wang Q, et al. Preclinical immunological characterization of rademikibart (CBP-201), a next-generation human monoclonal antibody targeting IL-4R $\alpha$ , for the treatment of Th2 inflammatory diseases[J]. Scientific Reports, 2023, 13(1): 12411.
- [2] Le Floc'h A, Allinne J, Nagashima K, et al. Dual blockade of IL-4 and IL-13 with dupilumab, an IL-4R $\alpha$  antibody, is required to broadly inhibit type 2 inflammation[J]. Allergy, 2020, 75(5): 1188-1204.

### Background

Dupilumab (REGN-668, SAR-231893) is a potent, fully human IgG4 monoclonal antibody specific for IL-4R $\alpha$ . Dupilumab blocks interleukin-4 (IL-4) and interleukin-13 (IL-13)-mediated signaling by targeting the shared receptor subunit IL-4R $\alpha$ <sup>[1]</sup>.

Dupilumab can inhibit intracellular STAT6 signaling induced by IL-4 and IL-13, with IC<sub>50</sub> of 9.9  $\pm$  2.7 ng/mL and 9.7  $\pm$  2.5 ng/mL, respectively. Dupilumab inhibits TF-1 cell proliferation induced by cytokines IL-4 or IL-13 in a concentration-dependent manner, with IC<sub>50</sub> of 10.8  $\pm$  1.1 and 12.0  $\pm$  2.4 ng/mL, respectively. When primary human peripheral blood mononuclear cells (PBMCs) are stimulated with IL-4 or IL-13 in vitro, thymus and activation-regulated chemokines (TARC) is released into the culture supernatant, and Dupilumab can inhibit the release of TARC<sup>[2]</sup>.

Dupilumab effectively protects mice from house dust mite (HDM)-induced airway hyperresponsiveness (AHR). Dupilumab effectively prevents allergen-induced lung function impairment by preventing pathogenic immune cell-induced lung inflammation and IL-13-driven mucus production (GCM)<sup>[1]</sup>. Subcutaneous administration of dupilumab

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(25 mg/kg) to humanized IL-4/IL-4RA (B-hIL4/hIL4RA) mice improved helper T cell (Th2)-driven allergic responses. Compared with hlgG4 isotype control, Dupilumab treatment almost completely abolished the increased number of immune cells (CD45+ hematopoietic cells and eosinophils) and ovalbumin-specific IgE concentrations in the blood, as well as eosinophil infiltration in the lung tissue<sup>[2]</sup>.

### References:

[1] Le Floc'h A, Allinne J, Nagashima K, et al. Dual blockade of IL-4 and IL-13 with dupilumab, an IL-4R $\alpha$  antibody, is required to broadly inhibit type 2 inflammation[J]. *Allergy*, 2020, 75(5): 1188-1204.

[2] Zhang L, Ding Y, Wang Q, et al. Preclinical immunological characterization of rademikibart (CBP-201), a next-generation human monoclonal antibody targeting IL-4R $\alpha$ , for the treatment of Th2 inflammatory diseases[J]. *Scientific Reports*, 2023, 13(1): 12411.

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