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Benralizumab

Cat. No.:	HY-P9923
CAS No.:	1044511-01-4
Target:	Interleukin Related; Apoptosis
Pathway:	Immunology/Inflammation; Apoptosis
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.

BIOLOGICAL ACTIVITY

Description

Benralizumab (MEDI-563) is an interleukin-5 receptor α (IL-5Rα)-directed cytolytic monoclonal antibody that induces direct, rapid and nearly complete depletion of eosinophils via enhanced antibody-dependent cell-mediated cytotoxicity. Benralizumab can be used for severe eosinophilic asthma[1].

IC_{50} & Target

IL-5Rα

In Vitro

Benralizumab (MEDI-563) binds to recombinant human and cynomolgus monkey IL-5Rα extracellular domains with a dissociation constant of 11 and 42 pM, respectively[2].
Benralizumab (1 pM-100 nM, 48 h) inhibits IL-5–induced proliferation of CTLL-2 cells transfected with recombinant human IL-5Rαβ with an IC_{50} of 0.3 nM[2].
Benralizumab binds only to the constructs containing human IL-5Rα D1[2].
Benralizumab mediates ADCC (antibody-dependent cell-mediated cytotoxicity) of human eosinophils and basophils with EC_{50}s of 0.9 pM and 0.5 pM, respectively, and mediates eosinophil apoptosis[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Proliferation Assay[2]

Cell Line:	CTLL-2 human IL-5Rαβ cells
Concentration:	1 pM-100 nM
Incubation Time:	48 h
Result:	Inhibited cell proliferation with an IC_{50} of 0.3 nM.

In Vivo

Benralizumab (MEDI-563) (0-30 mg/kg; i.v.; once every 3 weeks for 12 weeks) reduces peripheral blood and bone marrow eosinophil[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Female and male cynomolgus monkeys[2]
Dosage:	0.1, 1, 10, and 30 mg/kg
Administration:	Intravenous injection, once every 3 weeks for 12 weeks

Result:	Blood eosinophil counts decreased close to the limit of detection after the first administration at all dose levels and remained undetectable. Eosinophil precursors in the bone marrow were reduced 80% or greater in all doses 3 days after the last administration (terminal necropsy) and remained undetectable until 18 days after the last dose in the 30 mg/kg group. The profound effect observed in the bone marrow was specific for the eosinophil lineage.

REFERENCES

[1]. Kolbeck R, et al. MEDI-563, a humanized anti-IL-5 receptor alpha mAb with enhanced antibody-dependent cell-mediated cytotoxicity function. J Allergy Clin Immunol. 2010 Jun;125(6):1344-1353.e2.

[2]. Menzies-Gow A, et al. Corticosteroid tapering with benralizumab treatment for eosinophilic asthma: PONENTE Trial. ERJ Open Res. 2019 Sep 25;5(3). pii: 00009-2019.

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