Data Sheet (Cat.No.TMPY-06744)

TargetMol

IL-3R alpha/CD123 Protein, Human, Recombinant (hFc & Avi), Biotinylated

General Information

Synonyms:	IL3RX;IL3RAY;interleukin 3 receptor, α (low affinity);interleukin 3 receptor, alpha (low affinity);hIL-3Ra;IL3R;IL-3R α/CD123;IL3RY;CD123
Protein Construction:	A DNA sequence encoding the human IL3Ra (NP_002174.1)(Met1-Arg305) was expressed with a c-terminal AVI tagged Fc region of human IgG1 at the C-terminus (Fc-AVI). The expressed protein was biotinylated in vivo by the Biotin-Protein ligase (BirA enzyme) which is co-expressed. Predicted N terminal: Thr 19
Species:	Human
Expression Host:	HEK293 Cells
Accession:	NP_002174.1
Molecular Weight:	61.62 kDa (predicted); 76.36 kDa (reducing conditions)

QC Testing

Biological Activity:	Loaded Biotinylated Recombinant Human IL-3R alpha/CD123 Protein, hFc Tag (Cat#TMPY-06744) on SA Biosensor, can bind Recombinant Human IL-3 Protein, His Tag (Cat#TMPY-00095) with an affinity constant of 0.603 μM as determined in BLI assay (Sartorius Octet RED384) (Routinely tested).
Purity:	≥ 95 % as determined by SDS-PAGE. ≥ 95 % as determined by SEC-HPLC.
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

Interleukin-3 receptor subunit alpha, also known as IL-3 receptor subunit alpha, IL-3R-alpha, CD123, and IL3RA, is a single-pass type I membrane protein that belongs to the type I cytokine receptor family and Type 5 subfamily. The specific alpha subunit of the interleukin-3 receptor (IL-3Ralpha, CD123) is strongly expressed in various leukemic blasts and leukemic stem cells and seems to be an excellent target for the therapy of leukemias. The WSXWS motif of IL3RA appears to be necessary for proper protein folding and thereby efficient intracellular transport and cell-surface receptor binding. The box one motif of IL3RA is required for JAK interaction and/or activation. IL3RA represents a unique marker for primitive leukemic stem cells. Targeting of IL3RA may be a promising strategy for the preferential ablation of AML cells. Aberrant IL3RA expression is a good marker for monitoring of minimal residual disease. IL3RA is strongly expressed in various leukemic blasts and leukemic stem cells and seems to be an excellent target for the therapy of leukemias. Recent studies have shown that interleukin-3 receptor alpha (CD123) is highly expressed on leukemia stem cells of patients with acute myeloid leukemia, and is correlated with tumor load and poor prognosis. CD123 was highly expressed in the bone marrow of the patients with myelodysplastic syndrome (MDS), significantly correlated with the proportion of bone marrow blasts, and thus might be the marker of MDS malignant clone. IL3RA is also a useful new marker for distinguishing B-cell disorders with circulating villous lymphocytes as its expression is characteristic of typical hairy cell leukemia (HCL) with high sensitivity and specificity.

Reference

Del Giudice I, et al. (2004) The diagnostic value of CD123 in B-cell disorders with hairy or villous lymphocytes. Haematologica. 89(3): 303-8.

Du X, et al. (2007) New immunotoxins targeting CD123, a stem cell antigen on acute myeloid leukemia cells. J Immunother. 30(6): 607-13.

Yue LZ, et al. (2010) Expression of CD123 and CD114 on the bone marrow cells of patients with myelodysplastic syndrome. Chin Med J (Engl). 123(15): 2034-2037.

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