ActiveMax® Human DLL4 μBeads, premium grade (for cells)

Cat. No. MBS-C013

Product Information

Product	Size	Amount
ActiveMax® Human DLL4 μBeads, premium grade (for cells)	2.5 mg	2.5×10^7 beads
	10 mg (2.5 mg × 4)	1.0×10^8 beads

Product Description

ActiveMax® Human DLL4 μBeads, premium grade (for cells) are uniform, superparamagnetic beads of 5.5 μm in diameter immobilized with Human DLL4 Protein, expressed from human 293 cells (HEK293) and contains AA Ser 27 - Pro 524 (Accession # NP_061947.1).
ActiveMax® Human DLL4 μBeads, premium grade (for cells) are produced under sterile manufacturing conditions (ISO 5), and no animal-or human-derived components are used throughout the production process. It is produced under our rigorous quality control system that includes a comprehensive set of tests including sterility and endotoxin tests.

Product Applications

ActiveMax® Human DLL4 μBeads, premium grade (for cells) can activate Notch signaling in hematopoietic stem/progenitor cells ((HSPCs), mimicking DLL4+ epithelial cells in the thymus, and then drives T-lineage commitment and differentiation. It can be used for in vitro production of induced pluripotent stem cell derived T cells, such as inducing the differentiation from CD34+ cells to progenitor T cells to TCRαβ T cells in vitro, which provides a simple and robust tool to both study human T cell development and facilitate the development of engineered T cell therapies from renewable sources.
The Product performance has been carefully validated and tested for compatibility for cell culture use or any other applications in the early preclinical stage. For use in clinical phases, we also offer a custom GMP protein service that tailors to your needs. We will work with you to customize and develop a GMP-grade product in accordance with your requests that also meets the requirements for raw and ancillary materials use in cell manufacturing of cell-based therapies.

Formulation

Lyophilized in PBS with 0.1% HSA, pH 7.4. Trehalose is added as protectant before lyophilization.

Reconstitution

Please see Certificate of Analysis for specific instructions.
For best performance, we strongly recommend you to follow the reconstitution protocol provided in the Certificate of Analysis.

Storage

This product is stable in storage under the following conditions:

- -20˚C for 12 months in lyophilized state.
- -70°C for 3 months under sterile conditions after reconstitution.

Please avoid repeated freeze-thaw cycles after reconstitution. Immediate use after reconstitution is highly recommended.

Important Note

This product is for research use only and not intended for therapeutic or in vivo diagnostic use.

General guidelines

It is recommended to reconstitute the lyophilized ActiveMax® Human DLL4 µBeads, premium grade (for cells) with sterile deionized water to a stock solution of 5 mg/mL (5×10^7 beads/mL) under ISO 5 clean conditions. Separate into working aliquots and store at -70°C immediately. Upon reconstitution, immediate use is recommended for best performance.

Use a magnetic separator that is suitable for your equipment and application. Allow the beads to separate for at least 1 minute before removing supernatant. The µBeads are dense and will settle very quickly. Be sure that any µBeads mixture is homogenous before use or aliquoting.

Preparing µBeads for use

Washing the ActiveMax® Human DLL4 µBeads, premium grade (for cells) to remove trehalose from the formulation buffer before use.

1. Resuspend the Magnetic Beads in the vial (i.e. vortex for >30 sec, or tilt and rotate for 5 min).
2. Transfer the desired volume of Magnetic Beads to a sterile tube.
3. Add an equal volume of sterile PBS buffer, or at least 1 mL, and mix (vortex for 5 sec, or keep on a roller for at least 2 min).
4. Place the tube on a magnet for 1 min and let the beads settle before discarding the supernatant.
5. Remove the tube from the magnet and resuspend the washed µBeads in the same volume of desired cell culture medium as the initial volume of added µBeads in **step 2**.

Inducing T cell lineage differentiation

1. Seed CD34+ CD45+ hematopoietic stem cells with suitable cell density on culture plates.
2. Add the prepared ActiveMax® Human DLL4 µBeads with optimizing quantity and ratio for co-culture with the cells.
3. After 7-day culture intervals, the cells are counted and subjected to a full media change, including re-addition of DL4-µbeads to modulate Notch-1 signaling.
4. Harvest the cells for flow cytometric analysis of the expression of T-cell progenitor markers, CD7 and CD5 on day 14.
   For use in vitro*, ActiveMax® Human DLL4 µBeads, premium grade (for cells) need to be optimized by the user according to their own experiments.*

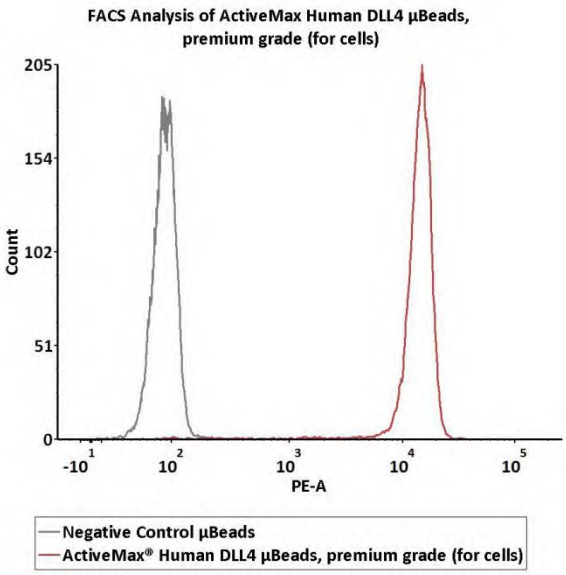
Removing µBeads from cells

1. Collect the mixture of the cells and µBeads after co-culturing, before centrifuging and discarding the supernatant.
2. Resuspend the pellet in suitable volume of the relevant medium, and then transfer the mixture of cells and µBeads into a new tube.
3. Place the tube next to a magnet for 1–2 minutes until the µBeads have moved to the side of the tube.
4. Transfer the supernatant containing the cells to a new tube for use.

Contact Information

If you have any questions, please contact our technical support team at: **TechSupport@acrobiosystems.com**

- **Conjugated human DLL4 analyzed by FACS**



Assay of human DLL4 protein on the µBeads surface by Flow cytomtry. ActiveMax® Human DLL4 µBeads, premium grade (for cells) (Cat. No. MBS-C013) were stained with DLL4 antibody, and then followed by PE-anti-Mouse IgG1 Antibody and analyzed by flow cytometry (QC tested).

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