

ActiveMax[®] Streptavidin coupled- μ beads, premium grade

Cat. No. MBS-C009

● Product Information

Product	Size	Amount
ActiveMax [®] Streptavidin coupled- μ beads, premium grade (for cells)	10 mg	1.0×10^8 beads

● Product Description

ActiveMax[®] Streptavidin coupled μ beads, premium grade (for cells) are uniform, superparamagnetic beads of 5.5 μ m with streptavidin on the surface. Streptavidin is a tetrameric protein providing 4 high-affinity biotin binding sites, which make it possible to quickly produce and customize your own sterile protein/antibody coupled beads for cell based assay, cell sorting, cell therapy process development and manufacturing use.

ActiveMax[®] Streptavidin coupled- μ beads, 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[®] Streptavidin coupled- μ beads, premium grade (for cells) can be used for coupling of any biotinylated proteins or antibodies, and are ideal for numerous applications as follows:

- When coupled with biotinylated CAR target proteins, it can be used to stimulate or isolate CAR-T cells or UCAR-T cells.
- When coupled with biotinylated antibodies, it can be used to isolate antigen specific cells, including immune cells, tumor cells, etc.
- When coupled with biotinylated drug targets, it can be used for screening target specific antibodies by FACS.
- It can also be used for other cell based experiments that you need.

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

The Product performance has been carefully validated and tested for compatibility for cell culture, cell based assays and any other applications in the early preclinical stage. For use in clinical phases, we also offer a custom GMP product 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.

● 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 6 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 vitro* diagnostic use.

● General guidelines

It is recommended to reconstitute the lyophilized ActiveMax[®] Streptavidin coupled μ beads, 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 μ beads are dense and will settle very quickly. Be sure that any μ beads mixture is homogenous before use or aliquoting.

● Required materials

1. Magnet (It is recommended that the magnetic field strength of magnet is ≥ 2400 gs).
2. Biotinylated molecule (proteins or antibodies) (sterile filtered under ISO 5 condition)
3. Sterile PBS buffer pH 7.2.
4. Sterile tubes.

● Preparing μ beads for use

Washing the ActiveMax[®] Streptavidin coupled μ beads, premium grade (for cells) to remove trehalose from the formulation buffer before use.

1. Resuspend the μ beads in the vial (i.e. vortex for >30 sec, or tilt and rotate for 5 min).
2. Calculate the amount of μ beads required based on their binding capacity (see Table 1), and transfer the beads to a sterile tube (optimally using low retention tube).
3. Add an equal volume of sterile PBS buffer (pH7.2), 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 more than 1 min and let the μ beads settle, then discard the supernatant.
5. Remove the tube from the magnet and repeat Step 3 and 4 again.
6. The μ beads are now ready to be coupled with the biotinylated molecule of your choice.

● Conjugation procedure

1. Dilute the biotinylated molecule to an appropriate concentration referring to the quantity in **Table 1**.
2. Add the desired biotinylated molecule (proteins or antibodies) to the washed beads.
3. Incubate for 60 mins at room temperature with gentle rotation of the tube.
4. Place the tube in a magnet for 2–3 min and discard the supernatant.
5. Wash the coupled μ beads 3–4 times in sterile PBS buffer (pH7.2) to remove unbound biotinylated molecule in supernatant.
6. Resuspend to desired concentration in a suitable buffer for your downstream use.

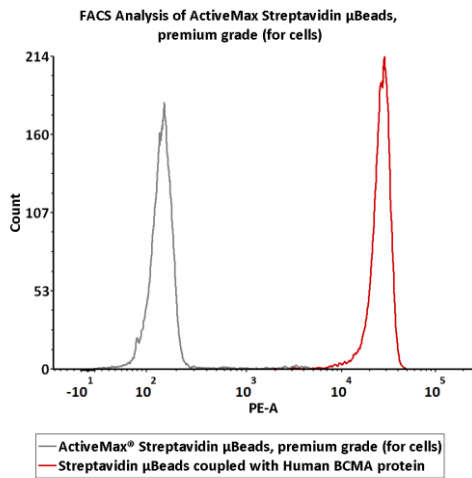
Table 1. Capacities for per mg of ActiveMax[®] Streptavidin coupled μ beads

Biotinylated target	Binding capacities	Recommended usage of biotinylated molecule	Recommended concentration in reaction
Biotinylated protein (μ g)	≥ 15 ug/mg of μ beads	40~100 ug /mg of μ beads	80~100ug/ml
Biotinylated antibody (μ g)	≥ 25 ug/mg of μ beads	40~100ug/mg of μ beads	40~80ug/ml

The binding capacity above in table 1 are obtained with representative proteins and antibodies under recommended conditions at ACRObiosystems, and the recommended usage of biotinylated molecule and reaction concentration can be used as starting coupling conditions.

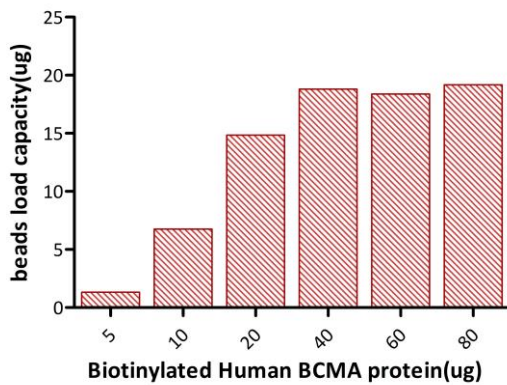
Please kindly note that each biotinylated molecule itself has its specific characteristics, especially in biotinylation level and molecular weight, etc, which might result in different coupling amount and efficiency. So you need to optimize the biotinylated protein-beads ratio and the final reaction concentration of biotinylated molecules to get optimal results, before you scale up the coupling.

● **Conjugation Example I**



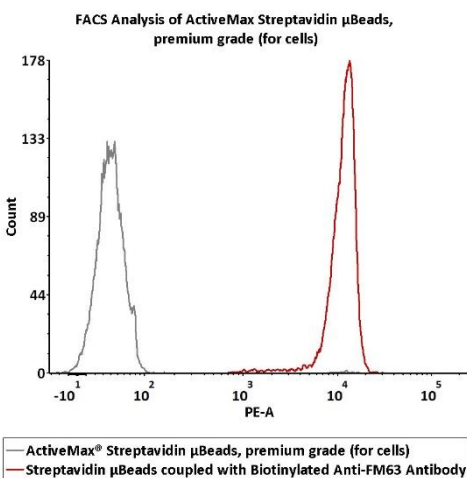
ActiveMax® Streptavidin coupled μbeads, premium grade coupled with protein. 40ug of the biotinylated human BCMA protein (Cat. No. BCA-H82E4) was added to 1mg of ActiveMax® Streptavidin coupled μbeads, premium grade (for cells) (Cat. No. MBS-C009), mix well and incubate for 60 mins at room temperature. And then the coupled μbeads were fluorescently stained using PE labeled anti-human BCMA antibody and analyzed by flow cytometry.

Streptavidin μ beads coupled with Biotinylated Human BCMA protein



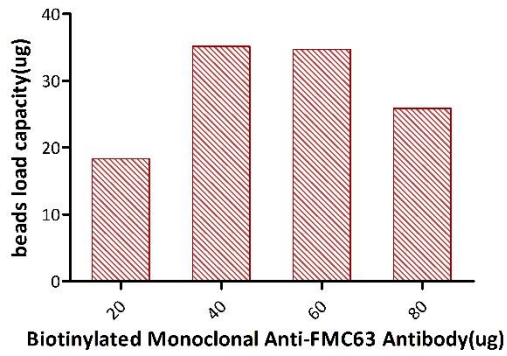
ActiveMax® Streptavidin coupled μbeads, premium grade coupled with human BCMA protein. The biotinylated human BCMA protein (Cat. No. BCA-H82E4) in serial dose was added to 1mg of ActiveMax® Streptavidin coupled μbeads, premium grade (for cells) (Cat. No. MBS-C009), mix well and incubate for 60 mins at room temperature. And then the unbound protein in supernatant measured by Micro BCA Protein Assay Kit was subtracted to calculate the BCMA protein coupled amount on the μbeads (loaded capacity).

● **Conjugation Example II**



ActiveMax® Streptavidin coupled μbeads, premium grade coupled with antibody. 50ug of the biotinylated anit-FM63 Antibody (Cat. No. FM3-BY54) was added to 1mg of ActiveMax® Streptavidin coupled μbeads, premium grade (for cells) (Cat. No. MBS-C009), mix well and incubate for 60 mins at room temperature. And then the coupled μbeads were fluorescently stained using PE labeled anti-mouse Fc antibody and analyzed by flow cytometry.

Streptavidin μ beads coupled with Biotinylated Monoclonal Anti-FMC63 Antibody



ActiveMax[®] Streptavidin coupled μ beads, premium grade coupled with Antibody. The anti-FMC63 Antibody (Cat. No. FM3-BY54) in serial dose was added to 1mg of ActiveMax[®] Streptavidin coupled μ beads, premium grade (for cells) (Cat. No. MBS-C009), mix well and incubate for 60 mins at room temperature. And then the unbound protein in supernatant measured by Micro BCA Protein Assay Kit was subtracted to calculate the antibody coupled amount on the μ beads (loaded capacity).

● **Contact Information**

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