# MyQuVigen™ - Streptavidin, emi 635 nm

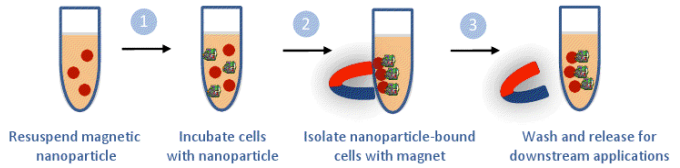
## Cat#41005

v.1810101

## Product Description

MyQuVigen™ nanoparticles are unique combination of superparamagnetic iron oxide and quantum dots. They provide high magnetic moment and bright stable fluorescence, ideal for controllable magnetic manipulation with extensive, multiplexed fluorescence imaging. MyQuVigen™-Streptavidin fluorescent magnetic nanoparticles (emi 635 nm) can universally bind to biotin conjugated antibody. Their maximal fluorescence emission is at 635 nm. Excitation wavelength could be 488 nm or shorter. MyQuVigen™- Streptavidin fluorescent magnetic nanoparticles or the downstream complex is easy to be separated using a magnetic rack (Cat#A20006).

MyQuVigen™- Streptavidin fluorescent magnetic nanoparticles (emi 635 nm) are ideally used together with mouse antibody for isolation or labeling of cells (e.g. CTCs, stem cells) from a mixture of cell population obtained from tissues or organs. The isolated cells are tagged with strong fluorescence and can be directly applied for microscope imaging or other fluorescence-based cell analysis. The isolated cells are also viable and can be further cultured or used for downstream molecular analysis such as mRNA isolation and RT-PCR. Cell separation with MyQuVigen™ nanoparticles eliminates the use of columns, so cells are not exposed to the mechanical stress from passing through the column matrix. Magnetically separated cells are highly purified and retain their viability, ideal for downstream applications.




### Advantages of Streptavidin fluorescent magnetic nanoparticles for cell selection/labeling

- Easy and quick to make nanoparticle-primary mouse antibody conjugates
- Simple and gentle cell separation
- Strong and long-lasting fluorescent signal
- Consistent, high quality results
- High binding capacity
- High biocompatibility
- Low non-specific binding

### Product Contents

- MyQuVigen™- Streptavidin fluorescent magnetic nanoparticles (emi 635 nm) (Cat# 41005) are provided in phosphate buffered saline (PBS), pH 7.4. Each vial contains 1 ml of solution with particle concentration of 1 mg/ml, which is enough for binding 20 million cells.
  Capacity: 5 µg of biotinylated antibody/ml of beads
  Nanoparticle size: 200-500 nm measured using Dynamic Light Scattering.
  Polydispersity index < 0.2.

All materials except the magnet should be stored at 4°C for up to 6 months.

### Protocol

This protocol provides a general guidance for enriching $10^5$ cells using MyQuVigen™- Streptavidin fluorescent magnetic nanoparticles (emi 635 nm). Please adjust the amount of reagents for specific application.

1. Gently vortex or pipette the MyQuVigen™- Streptavidin fluorescent magnetic nanoparticles (emi 635 nm) in the vial before use.
2. Aliquot 50 µl nanoparticle solution for enrichment experiment. ***Note:*** *50 µl is generally sufficient for the enrichment of 1-10x$10^5$ cells. Cell capture efficiency can be affected by factors such as frequency of target cells in the cell population, density of antigen/epitope expressed on the cell surface, and the antibody affinity. Adjust the amount of nanoparticles accordingly.*
3. Wash nanoparticles with 500 µl of Washing Buffer twice. Separate the nanoparticles from the solution by placing the magnet on the side of the tube for 1-2 min and remove the supernatant carefully (with magnet still on the side).
4. Add 500 ng biotin-conjugated antibody (in a volume of 100-200 µl) to the nanoparticle and incubate for 30-60 minutes on a rotator.
   ***Note:*** *50 µl nanoparticles could bind ~200 ng of antibody.*
5. Wash nanoparticle-antibody conjugates with 500 µl Washing Buffer twice to remove unbound antibody.
6. Resuspend the nanoparticle-antibody conjugates in Washing Buffer (50 µl) and add it to the cell sample to a total volume of 0.1-0.5 ml.
7. Incubate the nanoparticles with the cell sample on an orbital shaker for 30 minutes at room temperature.
8. After incubation, use a magnet to separate the nanoparticles (with bound cells) from the solution, and carefully remove the supernatant.
9. Wash the nanoparticle-cell complex with 500 µl cell culture medium twice.
10. Isolated cells can be re-suspended in cell culture medium for downstream applications.

**Note:** Biotin-conjugated antibody can also be directly added to cell suspension, and then apply nanoparticles for cell capturing.

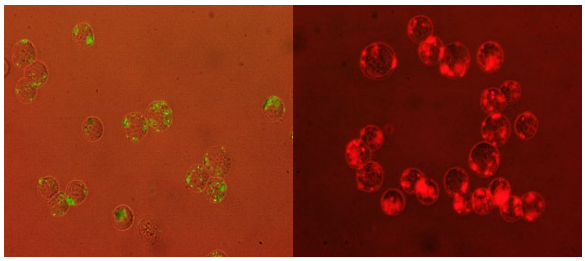


Figure 1. Representative images of human cells captured by MyQuVigen™-anti-EpCAM antibody using biotin-anti-human EpCAM antibody and MyQuVigen™- Streptavidin nanoparticles.