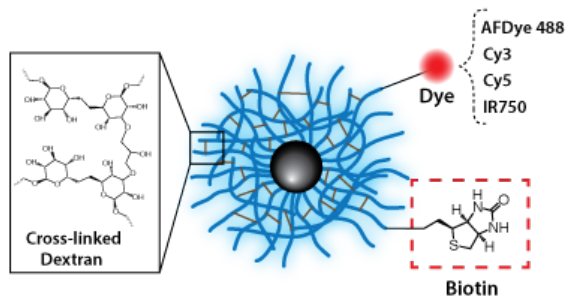


## Magnetic CLIO Nanoparticles: Biotin Functionalized and Fluorescent Dye Labeled

### PRODUCT DATA SHEET



### Features

- Superparamagnetic
- Fluorescently labeled (AF488, Cy3, Cy5, or IR750 dye)
- Highly biocompatible, non-toxic
- Long term stable under physiological conditions
- 40 kDa and 70 kDa dextran coats are available
- Easy loading of biomolecules such as Antibodies through Streptavidin-Biotin interaction

### General Information

Fluorescent, Biotin functionalized Dextran coated crosslinked iron oxide nanoparticles (CLIO-BIOTD) have 1-3 superparamagnetic Fe<sub>3</sub>O<sub>4</sub> iron oxide cores (8-10 nm in diameter) imbedded within the matrix of dextran strands of 40 or 70 kDa in size. Dextran strands are crosslinked to prevent their disassociation, ensuring long-term stability. Biotin and fluorescence dye are covalently conjugated to the nanoparticle surface.

### Applications

- *In vitro* and *in vivo* dual magnetic and fluorescence labels for cells and tissues.
- Magnetic, fluorescence, or dual cell separation.
- Probes for MRI.

### Specifications

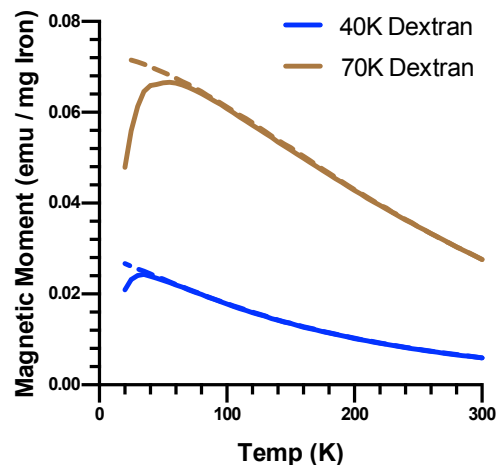
- Iron Oxide Core Diameter: 8 – 10 nm
- Hydrodynamic Diameter: 70 – 100 nm
- Polydispersity Index (PDI): < 0.25
- Magnetization: 5 – 30 emu/g (room temperature)
- Fluorescent Dye: AF488, Cy3, Cy5, or IR750
- Shelf life: > 1 year (4°C storage)
- Supplied as liquid suspension in PBS

### Storage and Handling

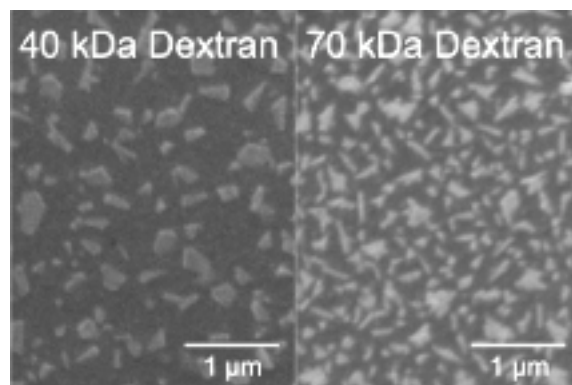
Store the product at 4°C. **DO NOT FREEZE:** freezing will cause nanoparticles to aggregate.

Vortex briefly prior to use to resuspend nanoparticles.

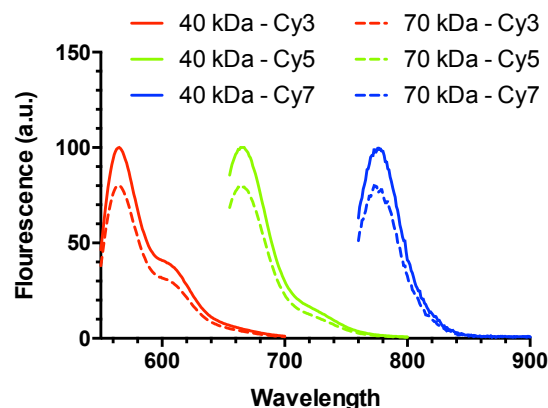
### Magnetic Momentum vs Temperature



### Scanning Electron Microscopy



### Fluorescence Spectra



**This product is for R&D uses only.**  
**MSDS is available at [www.lunanano.com](http://www.lunanano.com).**

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### **Physicochemical properties**

| <b>Dextran MW (kDa)</b> | <b>Iron Core Size (nm)</b> | <b>Hydrodynamic Diameter (nm)</b> | <b>PDI</b>  | <b>Z-Potential (mV)</b> | <b>Blocking Temperature, T<sub>b</sub> (K)</b> | <b>Conc. Iron (mg/mL)</b> | <b>% Iron (by weight)</b> |
|-------------------------|----------------------------|-----------------------------------|-------------|-------------------------|--|---------------------------|---------------------------|
| <b>40</b>               | 8.2 (±1)                   | 71 (±10)                          | 0.19 (±0.5) | - 2.4 (±6)              | 35 (±5)  | 5                         | 15 – 25 %                 |
| <b>70</b>               | 9.5 (±1)                   | 74 (±10)                          | 0.15 (±0.5) | - 1.5 (±6)              | 55 (±5)  | 5                         | 5 – 15 %                  |

### **Ordering Information**

- Order through our website at [www.lunanano.com](http://www.lunanano.com), by calling 1-800-474-4055, or by e-mail at [sales@lunanano.com](mailto:sales@lunanano.com).
- Please contact us for custom quantities, nanoparticle sizes, or surface modifications.
- More information is available at [www.lunanano.com](http://www.lunanano.com).

| <b>Catalog Number</b>     | <b>Product Description</b>   | <b>Dextran MW</b> | <b>Iron Conc.</b> | <b>Volume</b> | <b>Iron Amount</b> |
|---------------------------|--|-------------------|-------------------|---------------|--------------------|
| <b>CLIO-BIOTD-40-05-X</b> | Biotin-functionalized, Fluorescent Dye Labeled Magnetic CLIO Nanoparticles | 40 kDa            | 5 mg/mL           | 0.5 mL        | 2.5 mg             |
| <b>CLIO-BIOTD-40-1-X</b>  | Biotin-functionalized, Fluorescent Dye Labeled Magnetic CLIO Nanoparticles | 40 kDa            | 5 mg/mL           | 1 mL          | 5 mg               |
| <b>CLIO-BIOTD-40-2-X</b>  | Biotin-functionalized, Fluorescent Dye Labeled Magnetic CLIO Nanoparticles | 40 kDa            | 5 mg/mL           | 2 mL          | 10 mg              |
| <b>CLIO-BIOTD-70-05-X</b> | Biotin-functionalized, Fluorescent Dye Labeled Magnetic CLIO Nanoparticles | 70 kDa            | 5 mg/mL           | 0.5 mL        | 2.5 mg             |
| <b>CLIO-BIOTD-70-1-X</b>  | Biotin-functionalized, Fluorescent Dye Labeled Magnetic CLIO Nanoparticles | 70 kDa            | 5 mg/mL           | 1 mL          | 5 mg               |
| <b>CLIO-BIOTD-70-2-X</b>  | Biotin-functionalized, Fluorescent Dye Labeled Magnetic CLIO Nanoparticles | 70 kDa            | 5 mg/mL           | 2 mL          | 10 mg              |

*X = 'AF4' – AFDye 488, 'C3' – Cy3, 'C5' – Cy5, 'IR7' – IR750*