

Data Sheet

# BioTracker™ CDg16 Activated Macrophage Probe

Live Cell Dye

**SCT242****Pack Size 1 mg****Store at -20 °C**FOR RESEARCH USE ONLY**Not for use in diagnostic procedures. Not for Human or Animal Consumption.**

## Background

The BioTracker™ CDg16 Activated Macrophage Probe is a fluorescent probe used to detect M1 classically-activated macrophages that emits in the green spectrum for imaging and detection.

Macrophages play a critical role in the innate immune response. Classically-activated or M1 macrophages are typically classified as proinflammatory. Identifying macrophages activated to induce inflammatory responses is therefore important when assessing inflammation during research into the progression and treatment of related diseases such as atherosclerosis, hepatitis, and cancer. Unlike many macrophage probes which cannot appropriately distinguish between M1 activated and non-activated cells, the SCT242 CDg16 probe selectively identifies activated macrophages (Mφ\*). Slc18b1/SLC18B1 has been shown to be the novel molecular target of the probe.

## Spectral Properties

Fluorescence images obtained by  $\lambda_{\text{ex}} = 488 \text{ nm}$  and emission at 520 nm.

## Quality Control Testing

Purity:  $\geq 98\%$  confirmed by HPLC, HNMR, LC-MS and elemental analysis. Molar Mass: 597.54 g/mol

## Storage and Handling

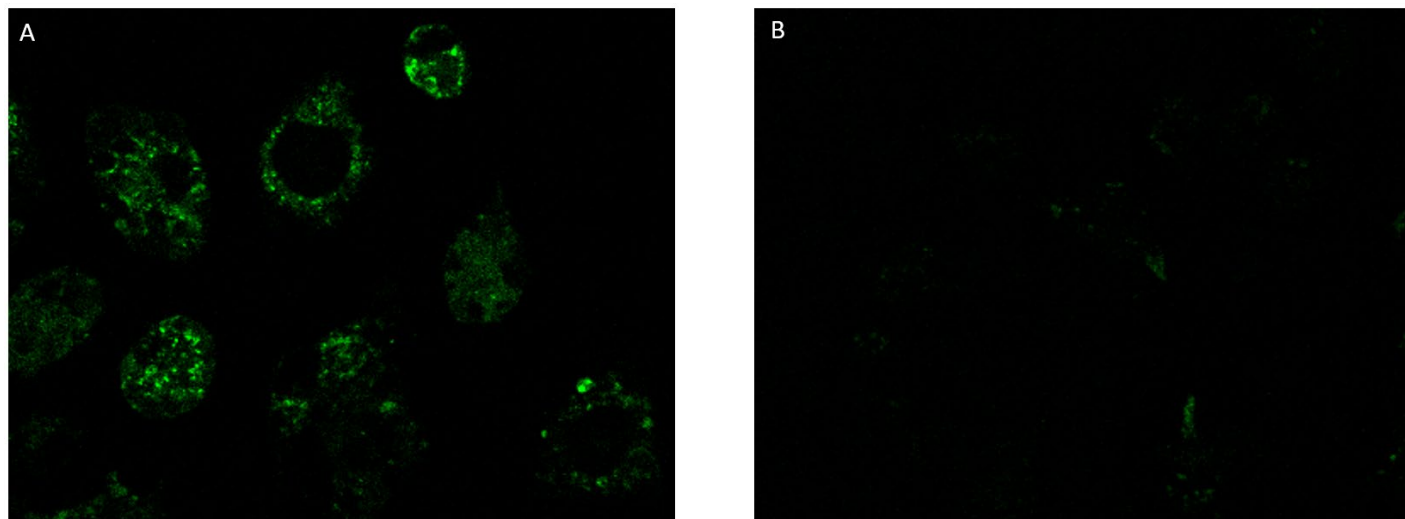
Store BioTracker™ CDg16 Activated Macrophage Probe at -20 °C, desiccated and protected from light.

**Note:** Centrifuge vial briefly to collect contents at bottom of vial before opening.

## Presentation

Lyophilized. Yellow solid.

## Representative Data



**Figure 1:** Confocal microscopy images of CDg16 staining. Raw 264.7 mouse macrophage cells were cultured with or without LPS and IFN-gamma and stained with 200 nM CDg16 dye solution (green). Images show distinct staining in the activated Raw 264.7 cells (**A**) and very little signal in untreated cell samples (**B**).

## Protocols

### Preparing BioTracker™ CDg16 Activated Macrophage Probe stock solution

1. Before opening the vial, spin down the solid to the bottom using a microcentrifuge or a desktop centrifuge.
2. Warm the vial to room temperature. Prepare the CDg16 probe (Molecular Weight: 597.54 g/mol) dye stock solution by dissolving the contents of one vial (1 mg) in 837  $\mu$ L of DMSO to create a 2 mM solution.
3. Aliquot and store stock solution at  $-20^{\circ}\text{C}$  or below for longer storage.

### Labeling cells

1. Culture cells in an appropriate medium and vessel for fluorescence microscopy or flow cytometry.
2. Prepare the CDg16 probe staining solution by diluting the CDg16 probe stock solution 1:20,000 to 1:2,000 in culture medium.
3. Treat cells to induce M1 activation (example: 100 ng/mL LPS and 20 ng/mL IFN-gamma for 24 hours)
4. Remove the cell culture medium from the cells.
5. Add sufficient staining solution to cover the cells.
6. Incubate for 30-60 minutes, protected from light.
7. Observe the cells under fluorescence microscopy for green fluorescence:  $\lambda_{\text{ex}} = 460 \text{ nm}$ ,  $\lambda_{\text{em}} = 530 \text{ nm}$ .

**Note:** Optimal concentration must be determined by end user.

## Reference

Park, Sung-Jin, et al. "Imaging inflammation using an activated macrophage probe with Slc18b1 as the activation-selective gating target." *Nature communications* 10.1 (2019): 1-7.

---

## Notice

We provide information and advice to our customers on application technologies and regulatory matters to the best of our knowledge and ability, but without obligation or liability. Existing laws and regulations are to be observed in all cases by our customers. This also applies in respect to any rights of third parties. Our information and advice do not relieve our customers of their own responsibility for checking the suitability of our products for the envisaged purpose.

The information in this document is subject to change without notice and should not be construed as a commitment by the manufacturing or selling entity, or an affiliate. We assume no responsibility for any errors that may appear in this document.

## Technical Assistance

Visit the tech service page at [SigmaAldrich.com/techservice](https://SigmaAldrich.com/techservice).

## Terms and Conditions of Sale

Warranty, use restrictions, and other conditions of sale may be found at [SigmaAldrich.com/terms](https://SigmaAldrich.com/terms).

## Contact Information

For the location of the office nearest you, go to [SigmaAldrich.com/offices](https://SigmaAldrich.com/offices).

The life science business of Merck operates  
as MilliporeSigma in the U.S. and Canada.

Merck, BioTracker and Sigma-Aldrich are trademarks of Merck KGaA, Darmstadt, Germany or its affiliates. All other trademarks are the property of their respective owners. Detailed information on trademarks is available via publicly accessible resources.

© 2023-2024 Merck KGaA, Darmstadt, Germany and/or its affiliates. All Rights Reserved.

Document Template 20306518 Ver 6.0

20722909 Ver 3.0, Rev 31May2024, CJ

