

## Data Sheet

# BioTracker Carbon Monoxide Probe 1 Live Cell Dye

Live Cell Dye

Cat. # SCT051

pack size: 1 mg

FOR RESEARCH USE ONLY  
NOT FOR USE IN DIAGNOSTIC PROCEDURES  
NOT FOR HUMAN OR ANIMAL CONSUMPTION

Store at: -20°C

## Background

Carbon Monoxide (CO) is a colorless, odorless, tasteless gas that is highly toxic and lethal to mammals. However, there is growing evidence that CO can be endogenously produced in our human body during the haem catabolism, and it was proved to be an important cell signaling molecule with substantial therapeutic potential protecting from vascular, inflammatory, or even cancer diseases.

BioTracker™ Carbon Monoxide live cell dye is an allyl fluorescein ether-based probe for detecting CO in living cells. The dye is highly selective for CO and shows no effect with other analytes such as F<sup>-</sup>, Cl<sup>-</sup>, Br<sup>-</sup>, I<sup>-</sup>, AcO<sup>-</sup>, HCO<sub>3</sub><sup>-</sup>, N<sub>3</sub><sup>-</sup>, NO<sub>3</sub><sup>-</sup>, SO<sub>4</sub><sup>2-</sup>, HSO<sub>4</sub><sup>-</sup>, HSO<sub>3</sub><sup>-</sup>, HS<sup>-</sup>, SCN<sup>-</sup>, CN<sup>-</sup>, ClO<sub>4</sub><sup>-</sup>, IO<sub>4</sub><sup>-</sup>, PO<sub>4</sub><sup>3-</sup>, and HPO<sub>4</sub><sup>2-</sup>, biothiols such as Cys, Hcy, and GSH, amino acids such as Ser, Trp, Ala, Phe, Gln, Glu, Lys, Leu, Gly, and Ile, and reactive oxygen/nitrogen species (ROS/RNS) such as ClO<sup>-</sup>, H<sub>2</sub>O<sub>2</sub>, NO<sub>2</sub><sup>-</sup>, NO, HNO, ROO<sup>-</sup>, BuOO<sup>-</sup>, and -OH.

## Spectral Properties

$\lambda_{\text{ex}} = 450\text{-}480 \text{ nm}$ ,  $\lambda_{\text{em}} = 525 \text{ nm}$  (Green)

## Quality Control Testing

Purity:  $\geq 98\%$  confirmed by HPLC, HNMR, LC-MS and elemental analysis. Molar Mass: 412.43 g/mol

## Storage and Handling

Store BioTracker™ Carbon Monoxide Probe 1 Live Cell Dye at -20°C, desiccate and protect from light

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

## Presentation

Lyophilized. White solid.

## Materials Required But Not Supplied

1. PdCl<sub>2</sub> (MilliporeSigma: Cat# 205885-1G or 520659-1G)
2. CROM-3 (MilliporeSigma Cat# SML0496-10mg), a carbon monoxide-releasing molecule

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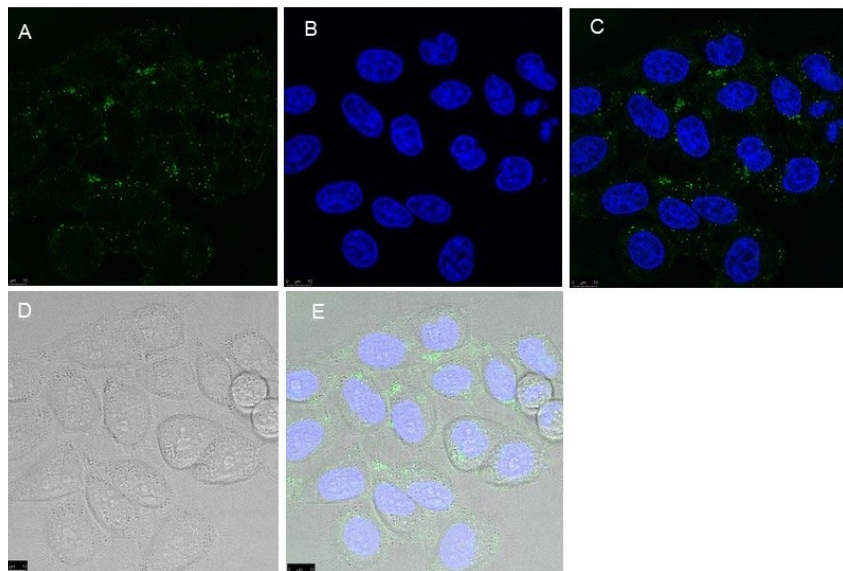
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## Representative Data

Figure: HeLa cells were incubated with SCT051 and PdCl<sub>2</sub> (A), 1 μM each, for 30 minutes. The cells were co-stained with DAPI (B). Merged image with SCT051 and DAPI staining is shown here (C), as well as brightfield image (D) and merged image with SCT051, and DAPI in brightfield view(E). Pre-incubation of cells with CROM-3 is essential for SCT051 staining.



## Protocols

### Reagent Preparation

1. Before opening the vial, spin down the solid to the bottom by a microcentrifuge or by a desktop centrifuge.
2. Warm the vial to the room temperature and add 242 μL of DMSO to prepare a 10 mM stock solution of SCT051 (freeze aliquots at -20°C).

### Live Cell Imaging

1. Plate your cells of interest in a 24-well plate or equivalent plate and culture the cells overnight.
2. Remove the cell culture medium and pre-incubate the cells with 10 μM of CORM-3 in cell culture medium for 30 minutes at 37°C.
3. After 30 minutes remove the pre-incubation medium and add cell culture medium with SCT051 (1 μM) and PdCl<sub>2</sub> (1 μM) at 37°C for 30 min.
4. Replace with cell culture medium and image the cells. Excitation wavelength (450-480 nm), emission wavelength (527 nm, green).

*Note: Optimal concentration of CORM-3, SCT051 and PdCl<sub>2</sub> must be determined by end user.*

*Note: SCT051 staining works only in the presence of CORM-3 and PdCl<sub>2</sub>.*

## References

Feng S et al. *Allyl Fluorescein Ethers as Promising Fluorescent Probes for Carbon Monoxide Imaging in Living Cells*. Anal Chem. 2017, 89, 3754-3760.

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