# NIR-H2O2

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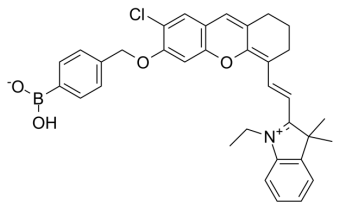
| **Cat. No.:** | HY-D1065 |
| **CAS No.:** | 1392488-04-8 |
| **Molecular Formula:** | $C_{34}H_{33}BClNO_4$ |
| **Molecular Weight:** | 565.89 |
| **Target:** | Fluorescent Dye |
| **Pathway:** | Others |
| **Storage:** | Please store the product under the recommended conditions in the Certificate of Analysis. |




## BIOLOGICAL ACTIVITY

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| **Description** | NIR-H2O2 is a cell-permeable near-infrared (NIR) fluorescent turn-on sensor. NIR-H2O2 has both absorption and emission in the NIR region. NIR-H2O2 responds to $H_2O_2$ with a large turn-on NIR fluorescence signal upon excitation in the NIR region. NIR-H2O2 is capable of imaging endogenously produced $H_2O_2$ in living cells and mice[1]. |
| **In Vitro** | NIR-H2O2 is highly selective to $H_2O_2$ over other typical ROS and biorelevant species[1].<br>HeLa cells incubated with NIR-H2O2 (5 μM) for 30 min at 37 °C provide almost no fluorescence. However, when the living HeLa cells loaded with NIR-H2O2 are further treated with $H_2O_2$, they give strong fluorescence. NIR-$H_2O_2$ is cell membrane permeable and responsive to $H_2O_2$ in the living cells. When stimulated by phorbol myristate acetate (PMA), macrophage cells may produce endogenous $H_2O_2$. The living RAW264.7 macrophage cells loaded with only the NIR sensor NIR-H2O2 (1 μM) display almost no fluorescence. However, the macrophage cells coincubated with PMA (3.0 μg/mL) and the sensor NIR-H2O2 (1 μM) exhibit a dramatic enhancement in the red emission. NIR-H2O2 is capable of fluorescent imaging of endogenously produced $H_2O_2$ in the living RAW264.7 macrophage cells. The mitochondria staining experiments suggest that the sensor mainly associates with the mitochondria of RAW264.7 macrophage cells[1].<br>MCE has not independently confirmed the accuracy of these methods. They are for reference only. |
| **In Vivo** | The $H_2O_2$ production in vivo was generated by activated macrophages and neutrophils in a lipopolysaccharide (LPS) model of acute inflammation. The mice treated with both LPS and NIR-H2O2 exhibit a significantly higher fluorescence readout than the mice untreated or treated with only NIR-H2O2. The mice loaded with LPS and NIR-H2O2 have approximately 10- and 20-fold higher fluorescence intensity than the mice loaded with saline and the sensor and the mice loaded with saline, respectively[1].<br>MCE has not independently confirmed the accuracy of these methods. They are for reference only. |

## REFERENCES

[1]. Yuan L, et al. A unique approach to development of near-infrared fluorescent sensors for in vivo imaging. J Am Chem Soc. 2012 Aug 15;134(32):13510-23.

**Caution: Product has not been fully validated for medical applications. For research use only.**

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