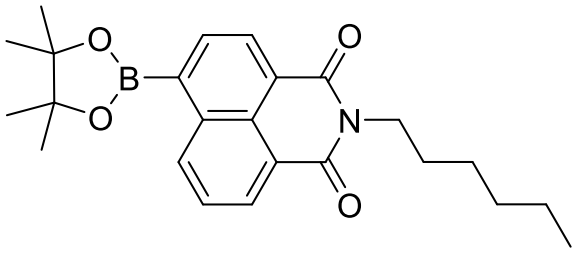
C6NIB (H_2O_2 detector)

Catalog number: D-0020



Molecular Formula: $C_{24}H_{30}BNO_4$

MW: 407.31

CAS: 1493790-75-2

Alternate Name: 2-hexyl-6-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)-1H-benzo[de]isoquinoline-1,3(2H)-dione

Solubility: $CHCl_3$, CH_2Cl_2, DMF, DMSO (>1 mg/mL)

Storage and Handling: Store dry at room temperature. Stock solutions should be stored frozen (-20 °C or below).

Background: C6NIB is a fluorescence turn-on sensor that is suited for trace vapor detection of hydrogen peroxide (H_2O_2). The sensor mechanism is based on H_2O_2-mediated oxidation of the boronate fluorophore C6NIB, which is nonfluorescent in the ICT band but is strongly fluorescent upon conversion to the phenol (C6NIO). The fluorescence turn-on reaction is extremely sensitive towards H_2O_2 with no sensor response to other common reagents. The negligible fluorescence background of C6NIB, combined with the high fluorescent emission of C6NIO makes it an ideal candidate for efficient sensing. Dispersing C6NIB with TBAH into a silica gel matrix produces a highly efficient sensor for vapor detection of H_2O_2 in terms of detection limit (2.9 ppb) and response time (1 sec. under 1 ppm H_2O_2).

References: M. Xu, J-M. Han, *et al.* "A selective fluorescence turn-on sensor for trace vapor detection of hydrogen peroxide" *Chem. Commun., 2013, 49*, 11779-11781.

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