Title (en)

FLUOROGENIC PROBES FOR REACTIVE OXYGEN SPECIES

Title (de)

FLUOROGENE SONDEN FÜR REAKTIVE SAUERSTOFFSPEZIES

Title (fr)

SONDES FLUOROGÉNIQUES POUR ESPÈCES OXYGÉNÉES RADICALAIRES

Publication

EP 1948824 A4 20110216 (EN)

Application

EP 06826796 A 20061027

Priority

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Abstract (en)

[origin: WO2007050810A2] The present invention provides a novel class of fluorogenic probes for reactive oxygen species. Exemplary probes of the invention utilize a boronate deprotection mechanism to provide high selectivity and optical dynamic range for detecting H₂O₂ in aqueous solution over similar reactive oxygen species (ROS) including superoxide, nitric oxide, tert-butyl hydroperoxide, and hydroxyl radical; Peroxyresorufin-1 (PRI), Peroxyfluor- 1 (PFI), and Peroxyxanthone-1 (PXI) are first-generation probes that respond to H₂O₂ by an increase in red, green, and blue fluorescence, respectively. The boronate dyes are cell- permeable and can detect micromolar changes in H₂O₂ concentrations in living cells, including hippocampal neurons, using confocal and two-photon microscopy. The unique combination of ROS selectivity, membrane permeability, and a range of available excitation/emission colors establishes the potential value of PRI, PFI, PXI, and related probes for interrogating the physiology and pathology of cellular H₂O₂.

IPC 8 full level

C07D 471/00 (2006.01); **C07D 491/00** (2006.01); **C07F 5/02** (2006.01)

CPC (source: EP)

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Citation (search report)

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