

Title (en)

CHEMICALLY REACTIVE PLANE-RIGIDIZED CYANINE DYES AND THEIR DERIVATIVES

Title (de)

CHEMISCH REAKTIVE IN EINER EBENE ERSTARRTE CYANINFARBSTOFFE SOWIE DERIVATE

Title (fr)

COLORANTS A BASE DE CYANINE RIGIDIFIES DANS UN PLAN ET CHIMIQUEMENT REACTIFS, ET DERIVES DE CES DERNIERS

Publication

**EP 1163372 A4 20021002 (EN)**

Application

**EP 00919582 A 20000323**

Priority

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Abstract (en)

[origin: WO0056933A1] The invention describes novel plane-rigidized cyanine near-infrared (NIR) fluorescent dyes, their methods of preparation and use in the non-isotopic labeling of biological molecules. Such dyes contain a central cyclic hydroanthraquinone framework which provides for a stable and rigid structure to ensure low reactivity with neighboring molecules, a sharp absorption band, a high quantum yield, and emissions in a region largely devoid of natural background auto-fluorescence. Such dyes further comprise variable end groups flanking the central cyclic framework, allowing formation of a number of different plane-rigidized dyes, each having a slightly different emission wavelength. Functional groups are provided for attachment to target biological molecules. Moreover, hydrophilic functional groups are provided where necessary to significantly increase the water solubility of the dye molecules.

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Citation (search report)

- [Y] US 5739318 A 19980414 - FRANTZEN FRANK [NO], et al
- [Y] WO 9600902 A1 19960111 - BIOMETRIC IMAGING INC [US], et al
- [Y] DE 4326466 A1 19950209 - BOEHRINGER MANNHEIM GMBH [DE]
- [Y] US 5453505 A 19950926 - LEE LINDA G [US], et al
- [Y] US 4783401 A 19881108 - HORAN PAUL K [US], et al
- [X] BREITUNG ET AL.: "Structure-property relationships in organic nonlinear optical materials", MATER. RES. SOC. SYMP. PROC., vol. 561, 1999, pages 39 - 43, XP001070058
- [X] LAWRENTZ ET AL.: "Bond-length alternation in rigidized merocyanines", ACTA CRYSTALLOGR., vol. C55, no. 3, 1999, pages 446 - 450, XP001069566
- [X] HEILIG ET AL.: "Synthese planar fixierter Heptamethin-Cyaninfarbstoffe", CHEM. BER., vol. 120, no. 11, 1987, pages 1863 - 1866, XP001069535
- [Y] MELBY ET AL.: "The Behavior of 4-Methoxyphthalic Anhydride in Grignard Condensations", J. AM. CHEM. SOC., vol. 78, 1956, pages 3816 - 3817, XP001094406
- [Y] HEILIG ET AL.: "Synthese planar fixierter Heptamethin-Cyaninfarbstoffe", CHEM. BER., vol. 120, 1987, pages 1863 - 1866, XP001084484
- See references of WO 0056933A1

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