(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
9 March 2006 (09.03.2006)

PCT

(10) International Publication Number
WO 2006/025887 A3

(51) International Patent Classification:
C09B 57/00 (2006.01) *G01N 33/58* (2006.01)
C09B 23/10 (2006.01)

(21) International Application Number:
PCT/US2005/017648

(22) International Filing Date: 20 May 2005 (20.05.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/573,944 21 May 2004 (21.05.2004) US
60/599,514 6 August 2004 (06.08.2004) US

(71) Applicant *(for all designated States except US)*: **BECTON, DICKINSON AND COMPANY** [US/US]; 1 Becton Drive, Franklin Lakes, NJ 07417-1880 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **PITNER, Bruce, J.** [US/US]; 2903 Quincemoor Road, Durham, NC 27712 (US). **SHERMAN, Douglas, B.** [US/US]; 7 Lansgate Court, Durham, NC 27713 (US). **AMBROISE, Arounaguiry** [FR/US]; 1708 Macalpine Circle, Morrisville, NC 27560 (US). **THOMAS, Joseph, K.** [IN/US]; 8522 Eden Park Drive, Raleigh, NC 27613 (US).

(74) Agent: **HIGHET, David, W.**; Becton Dickinson and Company, 1 Becton Drive, Franklin Lakes, NJ 07417-1880 (US).

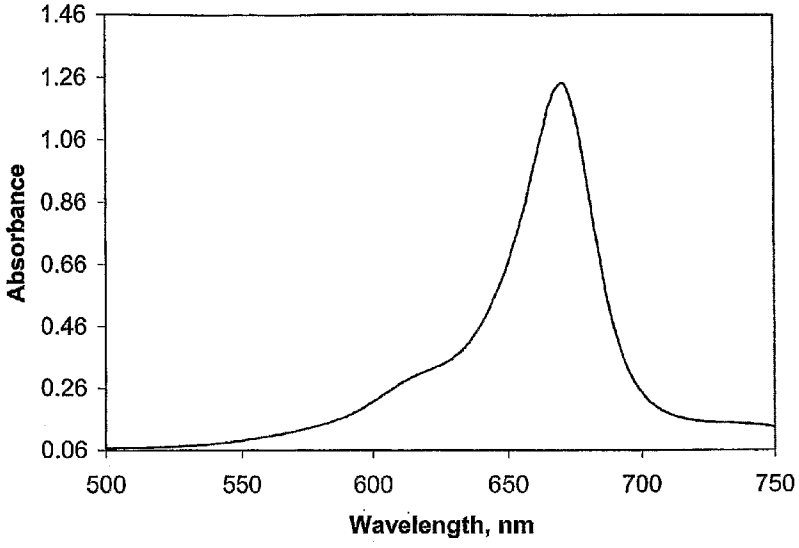
(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:
— *of inventorship (Rule 4.17(iv))*

[Continued on next page]

(54) **Title:** LONG WAVELENGTH THIOL-REACTIVE FLUOROPHORES



(57) **Abstract:** Reactive fluorescent dyes compositions and methods of using same are disclosed. Squaraine nucleus, Nile red nucleus, benzodioxazole nucleus, coumarin nucleus or aza coumarin nucleus dyes are disclosed dyes are disclosed having thiol-reactive groups. Squaraine nucleus, Nile Red nucleus, benzodioxazole nucleus, coumarin nucleus or aza coumarin nucleus dyes are disclosed that exhibit a fluorescence emission of at least about 575 nm. Biosensors are disclosed having a binding protein and a squaraine nucleus, Nile Red nucleus, benzodiaxazole nucleus, coumarin nucleus or aza coumarin nucleus.

WO 2006/025887 A3

Published:
— *with international search report*

(88) Date of publication of the international search report:
10 August 2006

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.