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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
21 February 2013 (21.02.2013)

WIPO | PCT

(10) International Publication Number
WO 2013/024115 A1

(51) **International Patent Classification**:
G01N 21/64 (2006.01)

(21) **International Application Number**:
PCT/EP2012/065943

(22) **International Filing Date**:
15 August 2012 (15.08.2012)

(25) **Filing Language**: English

(26) **Publication Language**: English

(30) **Priority Data**:
13/211,725 17 August 2011 (17.08.2011) US

(71) **Applicant** *(for all designated States except US)*: **GENERAL ELECTRIC COMPANY** [US/US]; 1 River Road, Schenectady, New York, New York 12345 (US).

(71) **Applicant** *(for MG only)*: **GE HEALTHCARE LIMITED** [GB/GB]; Amersham Place, Little Chalfont, Buckinghamshire HP7 9NA (GB).

(72) **Inventor; and**
(75) **Inventor/Applicant** *(for US only)*: **KENNY, Kevin, Bernard** [US/US]; GE Global Research, One Research Circle, Niskayuna, New York 12309-1027 (US).

(74) **Agents**: **O'BRIEN, Dominic, Paul** et al.; Ge Healthcare Limited, Pollards Wood, Nightingales Lane, Chalfont St Giles Buckinghamshire HP8 4SP (GB).

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

(84) **Designated States** *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*

WO 2013/024115 A1

(54) **Title**: SYSTEM AND METHODS FOR GENERATING A BRIGHTFIELD IMAGE USING FLUORESCENT IMAGES

(57) **Abstract**: A method for generating a brightfield type image, which resembles a brightfield staining protocol of a biological sample, using fluorescent images is provided. The steps comprise acquiring two or more fluorescent images of a fixed area on a biological sample, mapping said fluorescent image into a brightfield color space, generating a brightfield image,and optionally applying a sharpening transformation correction. Also provided is an image analysis system for generating a brightfield type image of a biological sample using fluorescent images.