

(43) International Publication Date
28 November 2013 (28.11.2013)

(51) International Patent Classification:

G01N 15/02 (2006.01) G01N 21/64 (2006.01)
G01N 15/06 (2006.01) G01N 21/90 (2006.01)
G01N 21/51 (2006.01)

(21) International Application Number:

PCT/US2013/042481

(22) International Filing Date:

23 May 2013 (23.05.2013)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/651,211 24 May 2012 (24.05.2012) US
13/841,143 15 March 2013 (15.03.2013) US

(71) Applicant: **ABBVIE INC.** [US/US]; 1 North Waukegan Road, North Chicago, IL 60064 (US).(72) Inventors: **MATAYOSHI, Edmund**; 4410 Squires Green, Richmond, IL 60071 (US). **WANG, Jie**; 12889 W. Sanctuary Lane, Bluff, IL 60044 (US).(74) Agents: **HULSEBERG, Daniel J.** et al.; Baker Botts LLP, 30 Rockefeller Plaza, New York, NY 10112-4498 (US).

(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, PA, 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))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(88) Date of publication of the international search report:

30 January 2014

(54) Title: SYSTEMS AND METHODS FOR DETECTION OF PARTICLES IN A BENEFICIAL AGENT

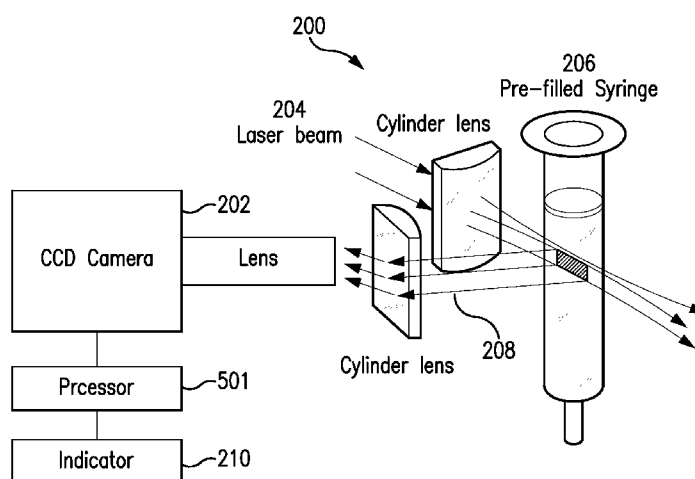


FIG. 13

(57) Abstract: Detection of particles in a liquid beneficial agent contained within a container (206) includes selectively illuminating at least a portion of the liquid beneficial agent, obtaining an image from the illuminated portion of the liquid beneficial agent, analyzing image data representing the image, using a data processor (501), to obtain a particle concentration, measuring an image intensity value of the image data using the data processor (501), and determining a quality level of the liquid beneficial agent using the data processor (501) based on the particle concentration and the measured image intensity value. The liquid beneficial agent can be biologics, small molecule pharmaceuticals, nutritional products, or combinations thereof. The container may be a syringe (206).