



(51) International Patent Classification:

G01N 33/48 (2006.01) G01N 15/00 (2006.01)
G01N 1/04 (2006.01) G01N 37/00 (2006.01)

(21) International Application Number:

PCT/SG2013/000442

(22) International Filing Date:

16 October 2013 (16.10.2013)

(25) Filing Language:

English

(26) Publication Language:

English

(71) Applicant: **CLEARBRIDGE BIOMEDICS PTE LTD**
[SG/SG]; 20 Ayer Rajah Crescent, #08-03, Technopreneur
Centre, Singapore 139964 (SG).

(72) Inventors: **BHAGAT, Ali Asgar S.**; 63 Hume Avenue,
#05-02, Singapore 598742 (SG). **GUAN, Guofeng**; Blk
413 Commonwealth Avenue West, #14-3021, Singapore
120413 (SG).

(74) Agent: **PEACOCK, Blayne, Malcolm**; Marks & Clerk
Singapore LLP, Tanjong Pagar, P.O. Box 636, Singapore
910816 (SG).

(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, IR, IS, JP, KE, KG, 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, SA,
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,
KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— of inventorship (Rule 4.17(iv))

Published:

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

(54) Title: MICROFLUIDICS SORTER FOR CELL DETECTION AND ISOLATION

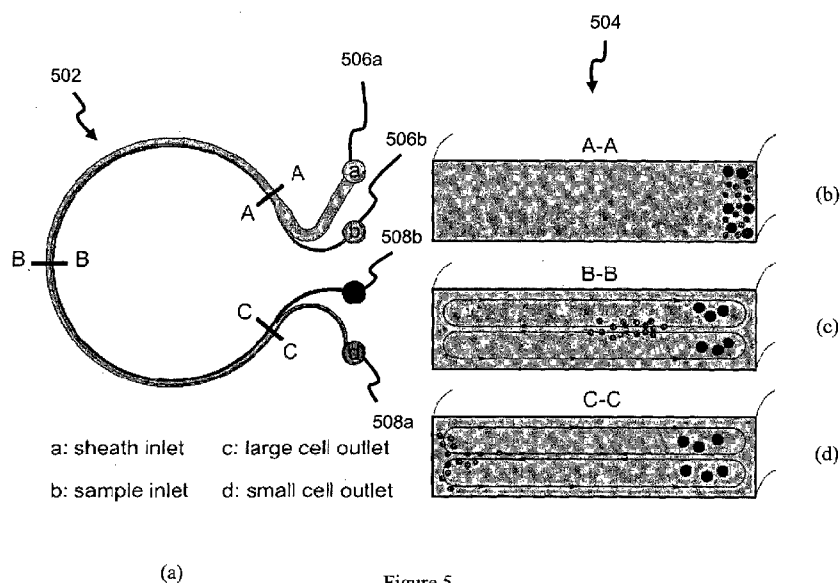


Figure 5

(57) Abstract: A microfluidic device is disclosed. The device comprises at least one inlet for receiving circulating tumor cells and other cells in a sample; at least one curvilinear and/or spiral channel through which the sample is caused to undergo partial or complete Dean cycles to isolate the circulating tumor cells from the other cells; and at least one outlet configured to communicate with the channel for providing the isolated circulating tumor cells. The channel is configured to provide a predetermined Force ratio based on a desired threshold cell size of the circulating tumor cells. A corresponding method of manufacturing of the device, and a related diagnostic system are also disclosed.