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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
2 November 2006 (02.11.2006)

PCT

(10) International Publication Number
WO 2006/115844 A1

(51) International Patent Classification:
G01N 33/53 (2006.01) *C12M 3/00* (2006.01)

(21) International Application Number:
PCT/US2006/014136

(22) International Filing Date: 14 April 2006 (14.04.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
11/119,360 28 April 2005 (28.04.2005) US

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(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, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, 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, LV, 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).

Published:
— *with international search report*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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.

WO 2006/115844 A1

(54) **Title:** METHOD AND SYSTEM FOR STABILIZATION OF ARACHIDONIC ACID FOR USE IN PLATELET FUNCTION ASSAY

(57) **Abstract:** Methods and systems for rapidly determining the level of platelet inhibition in whole blood, due to aspirin usage, with a single use arachidonic based assay device that can be stored at room temperature is provided. A lyophilized assay reagent that contains arachidonic acid at sufficient concentration to maximally activate platelets is utilized. An antioxidant within the same lyophilized assay reagent reduces the oxidation rate of arachidonic acid but does not interfere with platelet function. An oxygen absorber within the single use assay device packaging creates an inert environment within a short period of time after package is sealed. The assay device can have a housing with a plurality of channels and a common blood sample introduction port coupled to each of a channel of the plurality of channels. The assay device can also include a lyophilized assay reagent that contains arachidonic acid at sufficient concentration to maximally activate platelets.