



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : A61K 9/44		A1	(11) International Publication Number: WO 99/44593
			(43) International Publication Date: 10 September 1999 (10.09.99)
(21) International Application Number: PCT/US99/03623		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BI, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).	
(22) International Filing Date: 19 February 1999 (19.02.99)			
(30) Priority Data:			
60/077,199	7 March 1998 (07.03.98)	US	
60/077,200	7 March 1998 (07.03.98)	US	
60/077,201	7 March 1998 (07.03.98)	US	
60/077,206	7 March 1998 (07.03.98)	US	
09/249,721	12 February 1999 (12.02.99)	US	
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(54) Title: ANALYSIS OF QUIESCENT ANTICOAGULATED WHOLE BLOOD SAMPLES

(57) Abstract

Formed constituents of a quiescent anticoagulated whole blood sample are optically of visually analyzed in a sample chamber (14) which has a varying through plane thickness due to convergent opposing sample chamber walls (4, 8). At least one of the convergent walls of the chamber is transparent so that the blood sample constituents can be observed. The chamber's varying thickness produces a first lesser thickness region (A) in the chamber wherein a quiescent monolayer of red blood cells in the sample will reside after the sample is introduced into and fills the chamber. Larger formed constituents such as white blood cells in the sample are unable to enter the aforesaid lesser

thickness region of the chamber. The red cells which reside in the greater thickness regions (B, C) will agglomerate to form rouleaux and lacunae. The exact thickness of the chamber at any particular location in the chamber can be predetermined, or can be determined *in situ* as the sample is being analysed. By admixing certain dyes with the blood sample, various characteristics and other information can be derived from the various formed constituents in the sample by means of a scanning instrument (54) which is able to measure various color and other signals emitted from the sample at various locations (1, 3, 5) within the chamber, or by means of visual examination of the sample in the chamber. The thickness of the lacunae areas of the sample can be calculated by the instrument as a function of signal emission strength from the dyes or stains. The emissions can be the result of sample fluorescence or can be the result of signal density through the sample. Particle volumes can be measured as a function of signal emission suppression caused by the particles. Erythrocyte sedimentation rates (ESR) can also be derived from a blood sample disposed in the sampling chamber.

