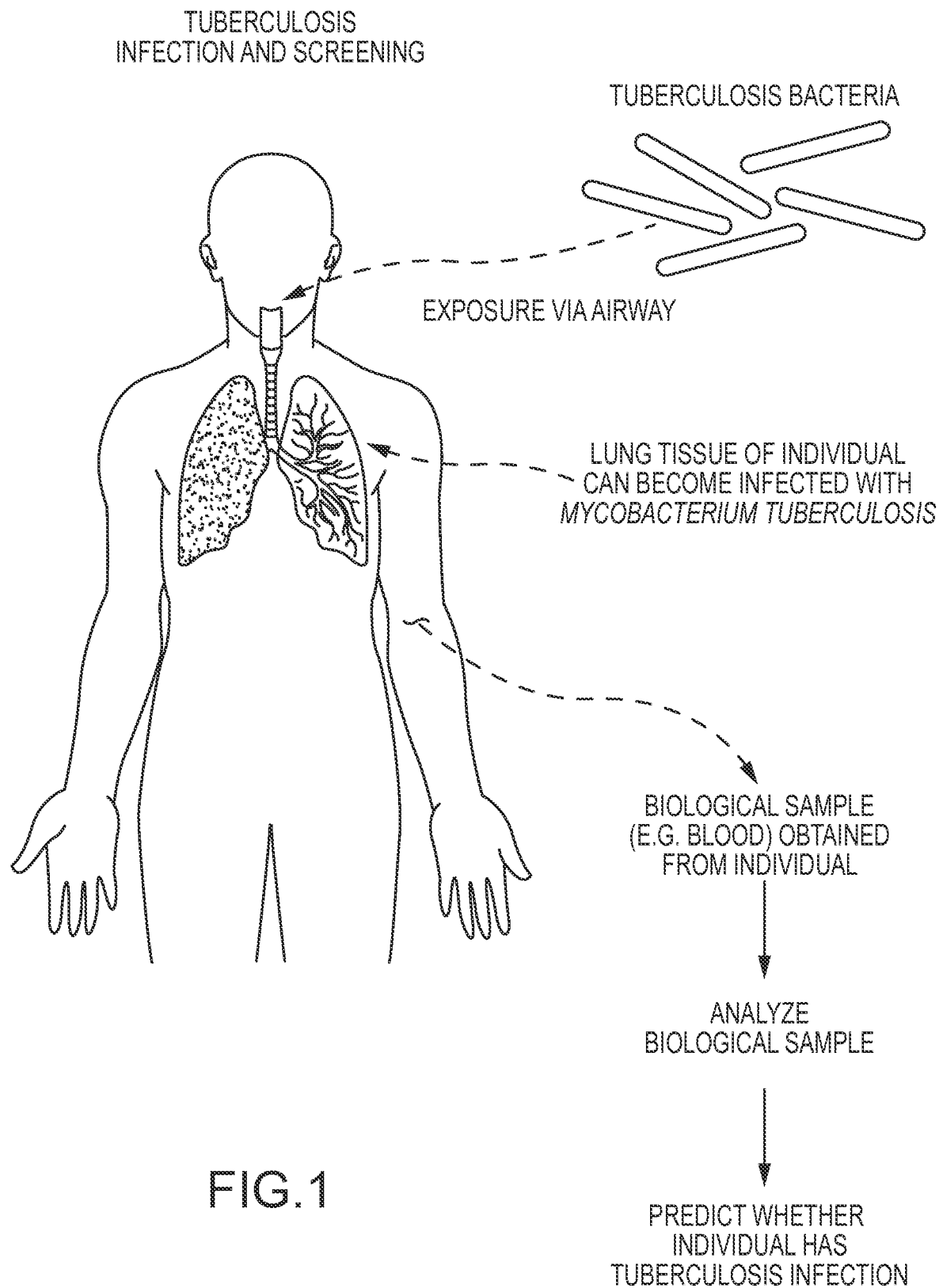


1/33



2/33

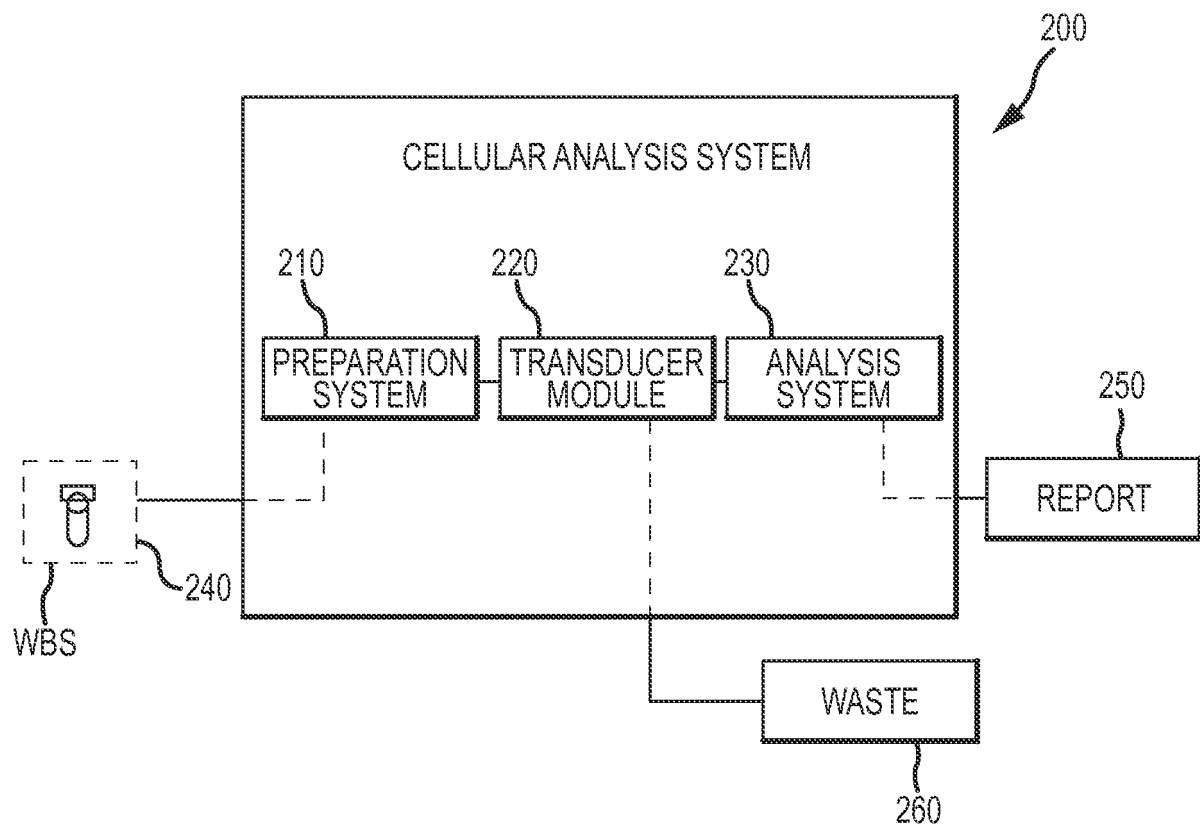


FIG.2

3/33

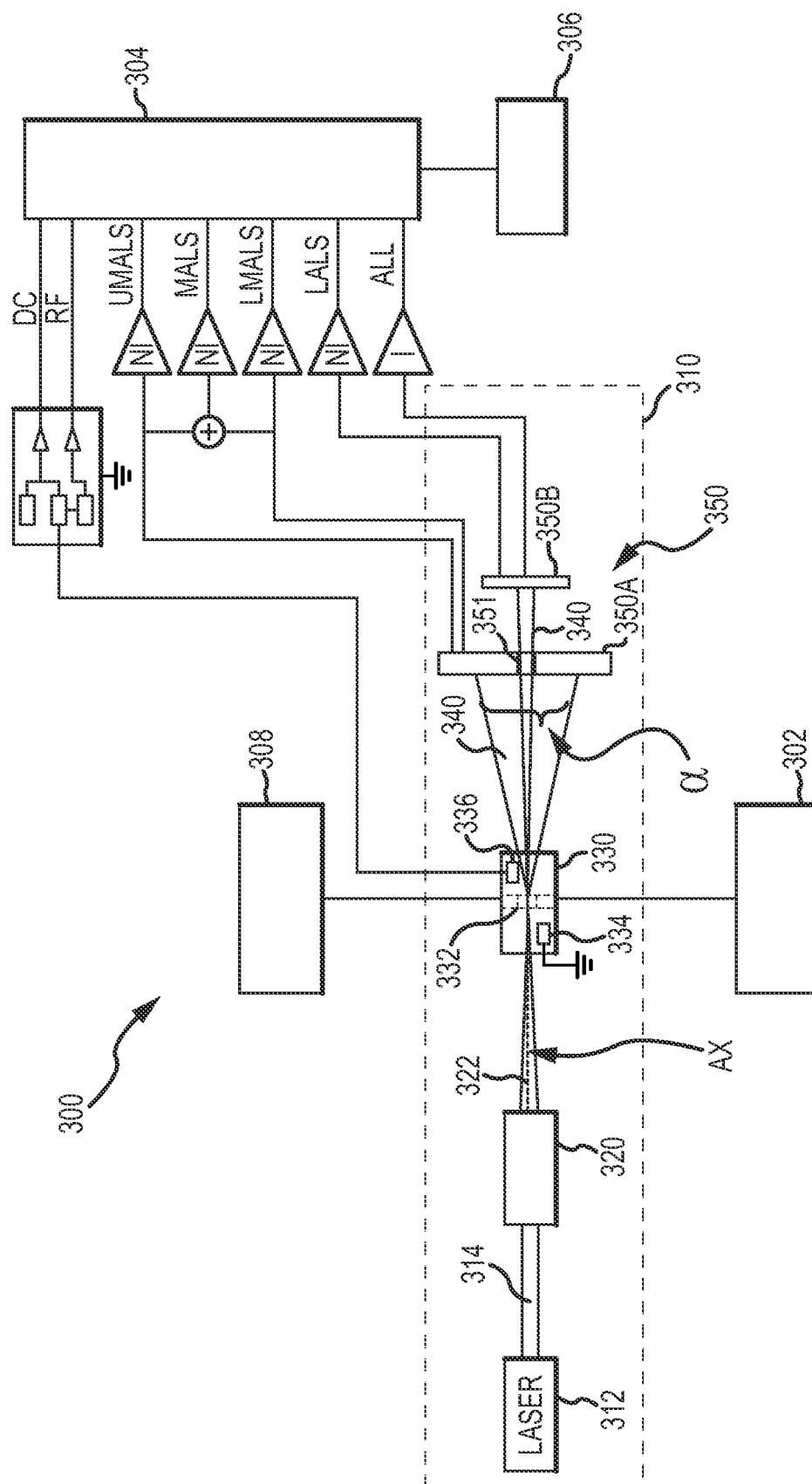


FIG.3

4/33

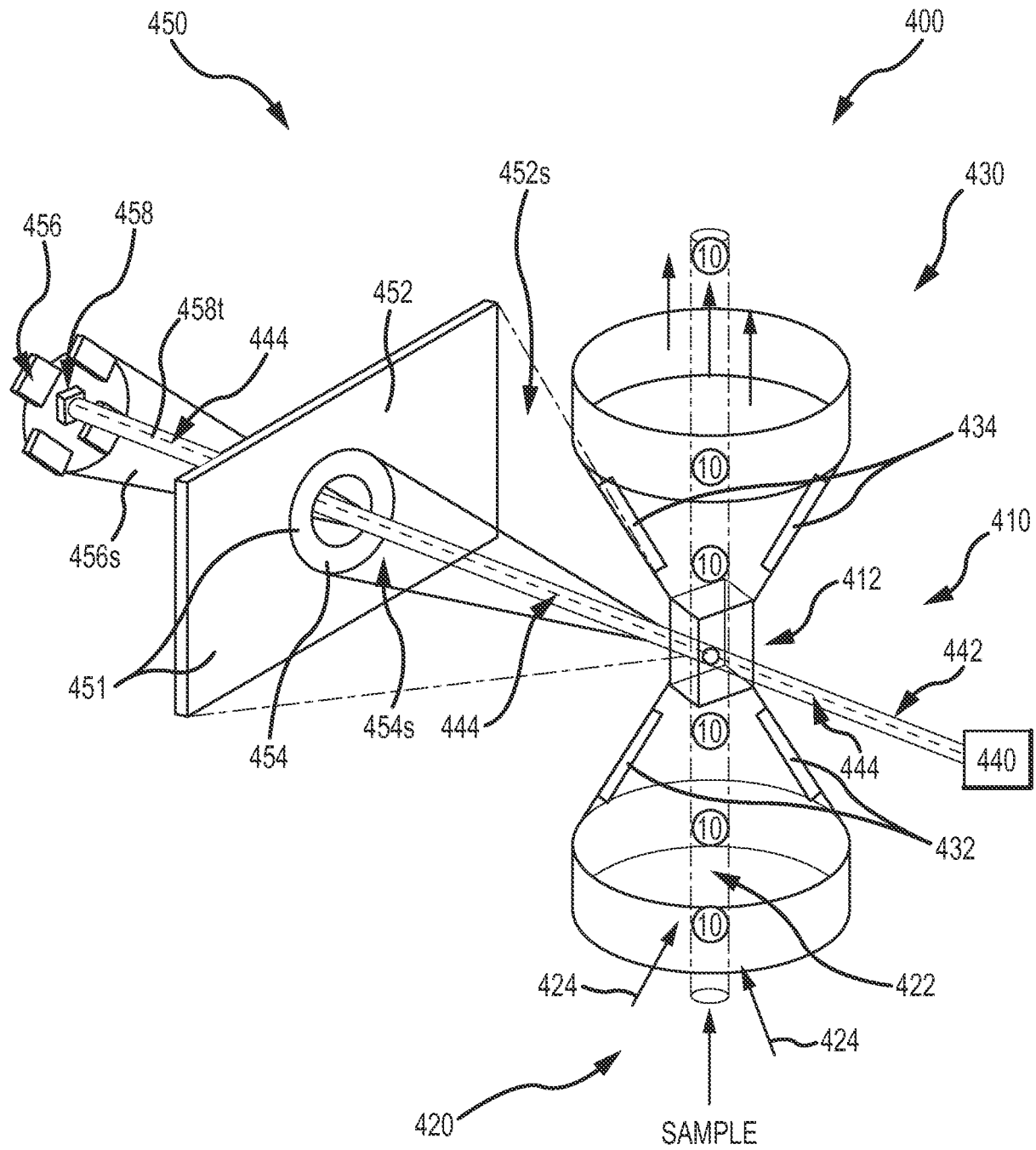


FIG. 4

5/33

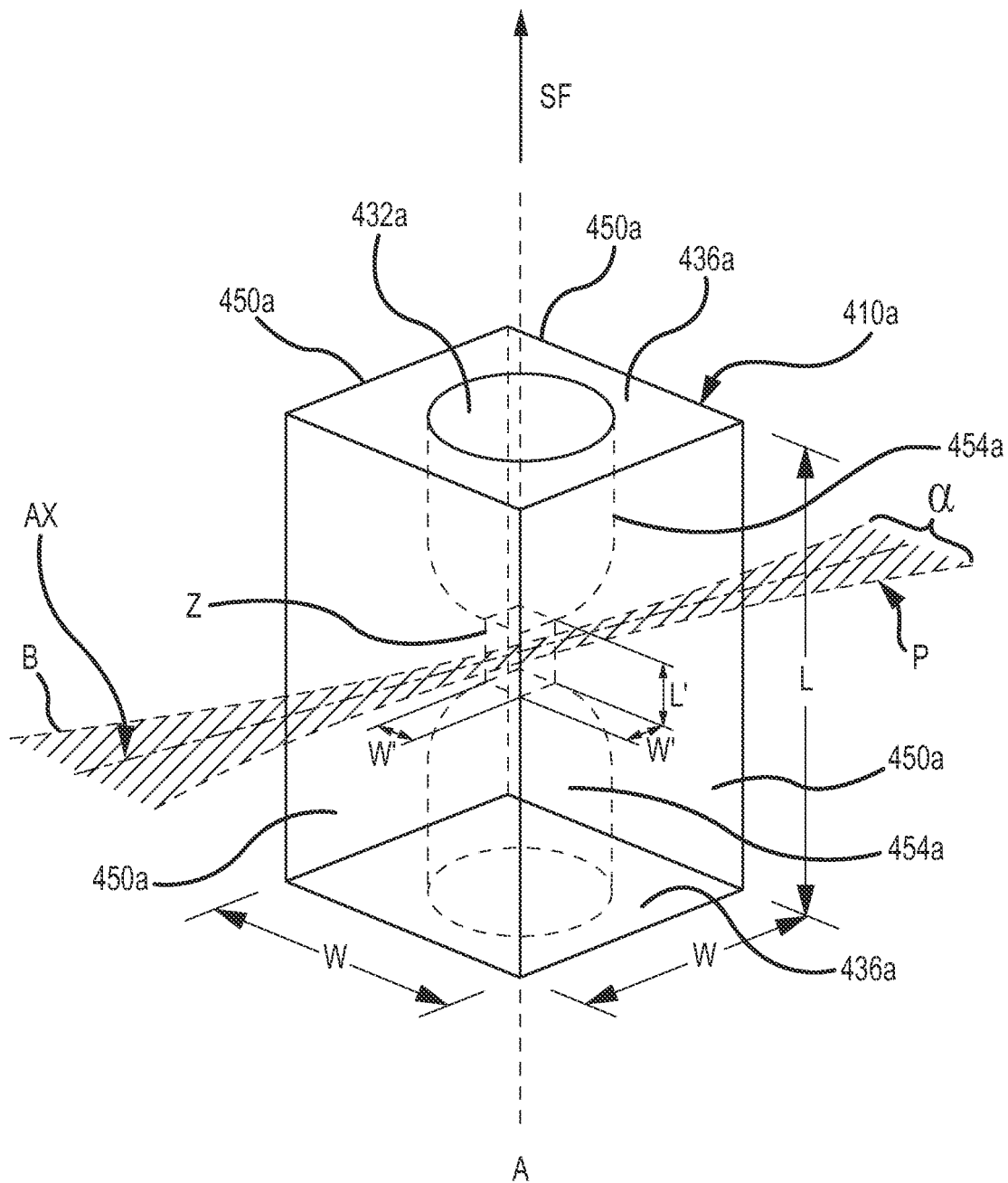


FIG. 4A

6/33

500

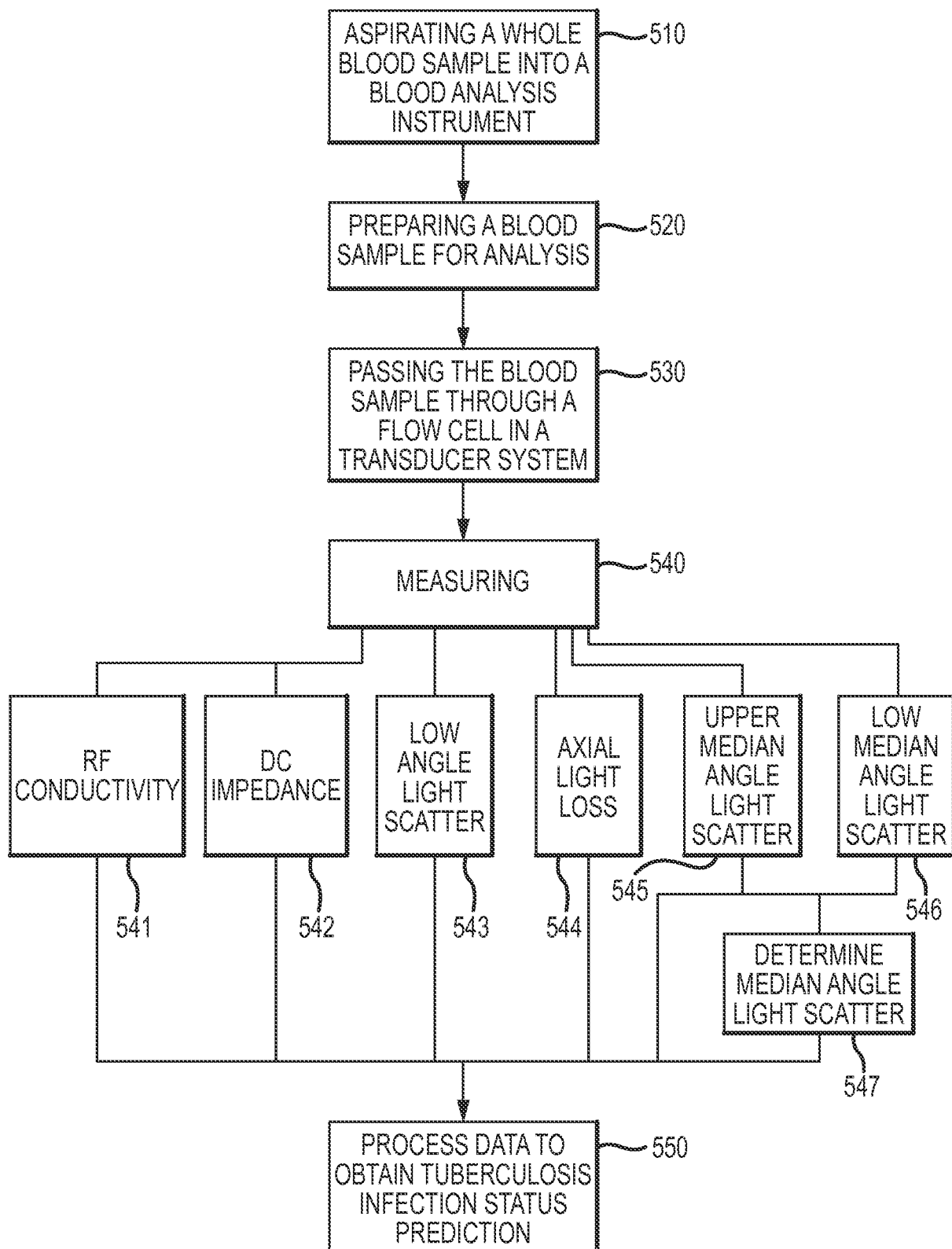


FIG.5

7/33

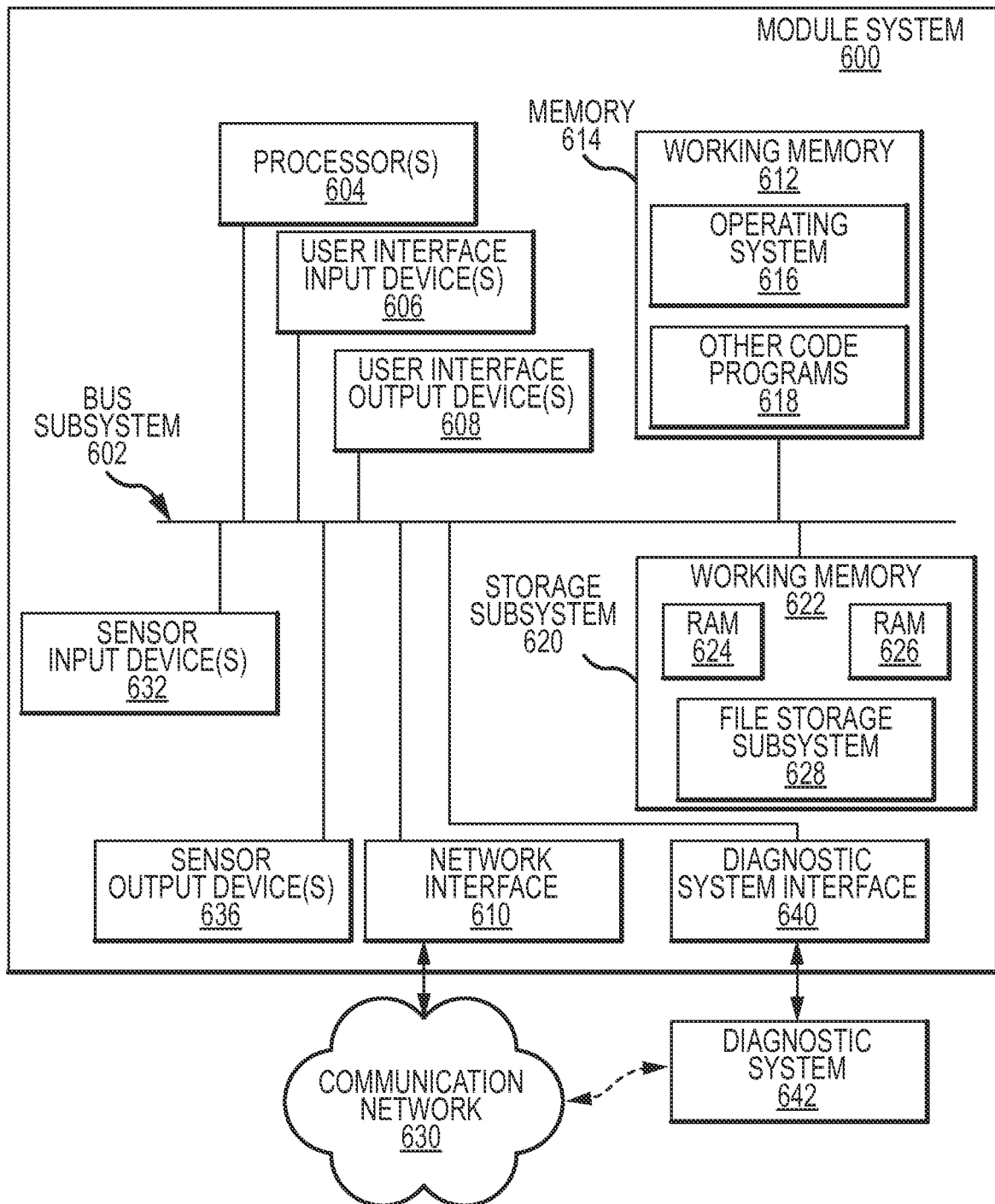


FIG.6

ONLINE			
← MENU		→ PATIENT RESULTS	
SPECIMEN ID 8932553790	TUBE POS. PATIENT NAME 10337	AGE UNKNOWN	GENDER UNKNOWN
DIAGNOSIS UNKNOWN		LOCATION UNKNOWN	

CDR		RELEASED		DIFF		RELEASED		SUSP/SYS/DEF MSGS		LAB ACTIONS		FILTER: RELEASED	
CBC		10/26/2008 10:24:10AM				10/26/2008 10:24:10AM				NONE			
TEST	RESULT	FLAGS	PREVIOUS DAYS	TEST	RESULT	FLAGS	PREVIOUS DAYS						
WBC	7.8			NE	70.7								
UNWBC	7.8			LY	17.8		L						
RBC	4.67			MO	10.9								
HGB	13.9			EO	0.0		L						
HCT	41.4			BA	0.6								
MCV	88.7			NE#	5.5								
MCH	29.7			LY#	1.4								
MCHC	33.5			MO#	0.9								
RDW	14.2			EO#	0.0								
RDW-SD	43.8			BA#	0.0								
PLT	229			NRBC	0.1								
MPV	8.9			NRBC#	0.0								

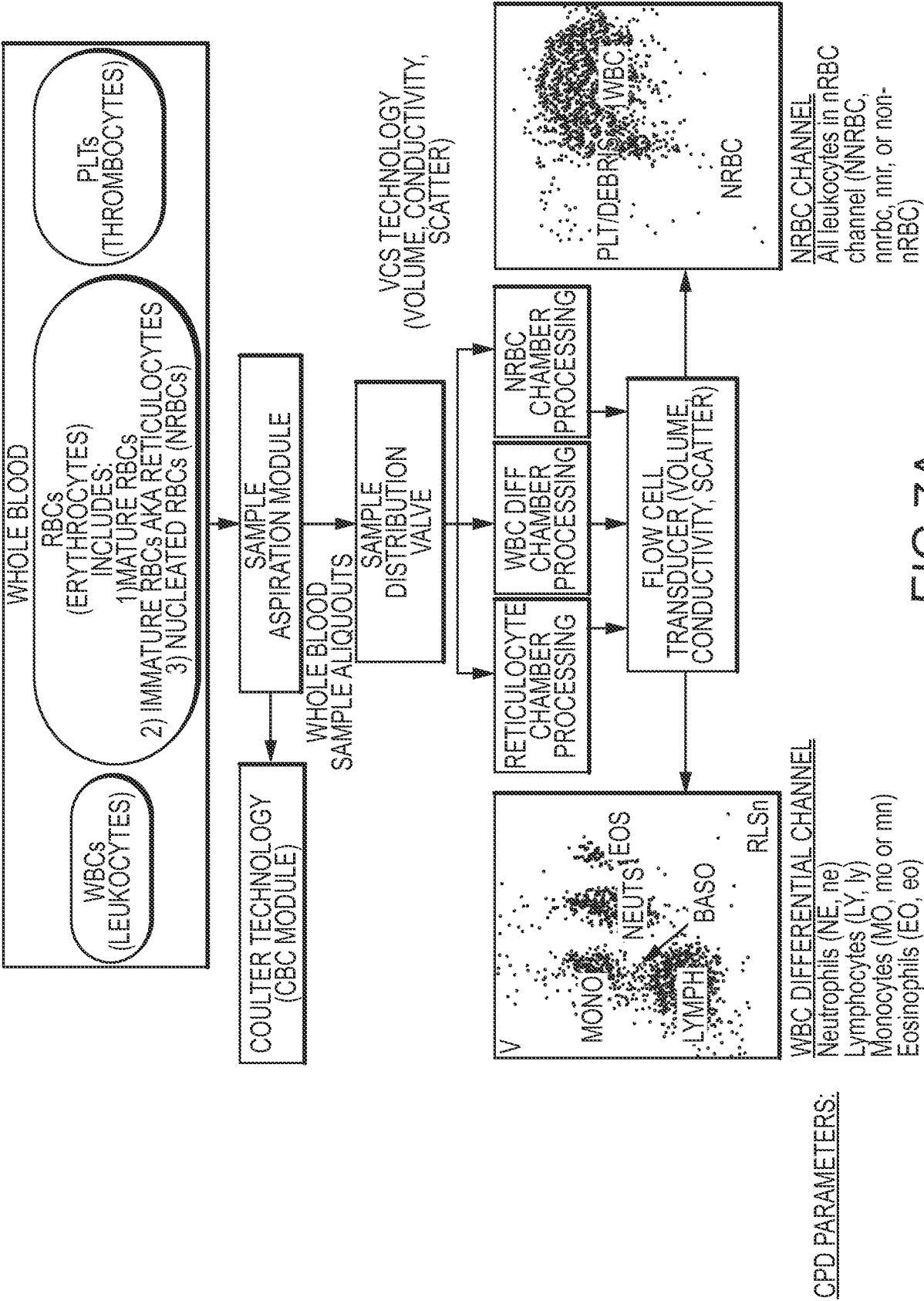
CELL POPULATION DATA

	NE	LY	MO	EO
V	153	18.28	89	15.70
C	162	11.12	128	11.27
MAIS	147	9.47	84	16.41
UNMAIS	159	10.83	107	18.45
LMALS	145	12.87	74	19.26
LALS	151	25.77	34	10.13
AL2	161	13.53	110	14.01

5PD1 NRBC1 RETIC1

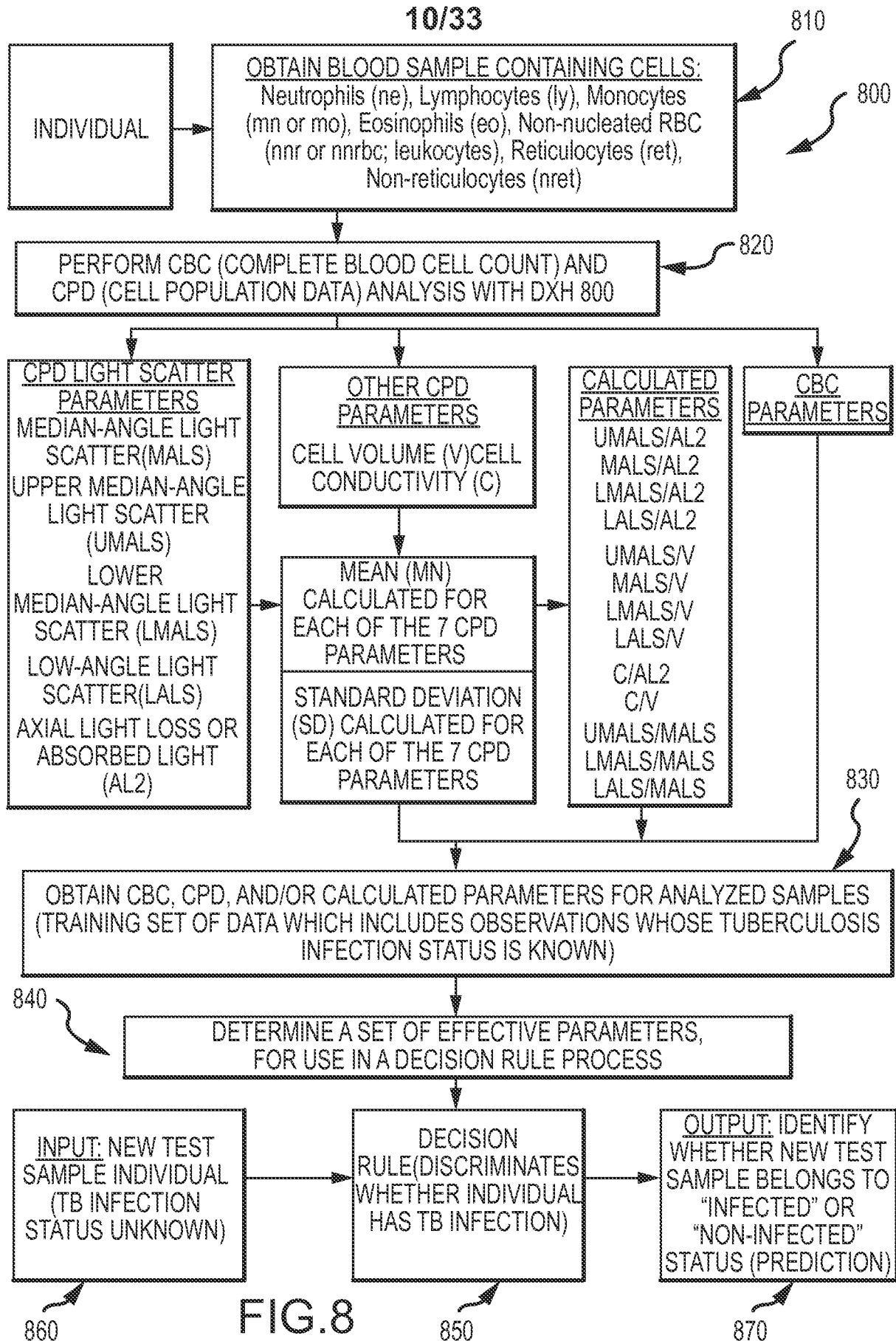
RLSn

VIEW ALL VCSn GRAPHICS



CPD PARAMETERS:

10/33



11/33

LEUKOCYTE CPD PARAMETERS IN INITIAL TB AND OTHER FIVE DISEASE GROUPS

GROUPS		MN-V	SD-V	MN-C	SD-C	MN-MALS	SD-MALS
NEUTROPHIL	INITIAL TB	1.03±0.08	1.20±0.19	1.00±0.04	1.29±0.41	0.93±0.06	1.26±0.24
	NTM	1.03±0.08	1.23±0.17	1.00±0.03	1.33±0.38	0.94±0.04	1.27±0.24
	BACTERIAL SEPSIS	1.08±0.10	1.36±0.27	1.00±0.06	1.18±0.58	0.93±0.06	1.29±0.35
	FUNGAL SEPSIS	1.12±0.12	1.38±0.29	1.00±0.05	1.26±0.40	0.93±0.05	1.20±0.20
	VIRUS	1.03±0.09	1.24±0.26	1.00±0.04	1.21±0.43	0.96±0.06	1.26±0.31
	NORMAL CONTROL	1.00±0.04	1.01±0.11	1.00±0.03	1.01±0.30	1.00±0.03	1.00±0.11
LYMPHOCYTE	INITIAL TB	1.03±0.06	1.23±0.23	1.01±0.04	1.28±0.40	1.03±0.10	1.19±0.19
	NTM	1.01±0.05	1.10±0.22	1.01±0.04	1.22±0.30	1.01±0.11	1.20±0.13
	BACTERIAL SEPSIS	1.06±0.09	1.32±0.37	1.01±0.06	1.50±0.64	1.03±0.12	1.24±0.25
	FUNGAL SEPSIS	1.11±0.08	1.42±0.39	1.03±0.06	1.93±0.69	1.02±0.15	1.49±0.40
	VIRUS	1.04±0.09	1.28±0.33	1.00±0.04	1.31±0.39	1.01±0.12	1.29±0.23
	NORMAL CONTROL	1.00±0.04	1.00±0.09	1.00±0.03	1.00±0.24	1.00±0.06	1.00±0.07
MONOCYTE	INITIAL TB	1.07±0.08	1.33±0.22	1.01±0.05	1.24±0.53	1.00±0.07	1.05±0.23
	NTM	1.04±0.08	1.31±0.25	1.01±0.05	1.28±0.53	0.99±0.06	1.08±0.16
	BACTERIAL SEPSIS	1.12±0.09	1.56±0.28	1.00±0.07	1.48±1.22	0.99±0.09	1.13±0.25
	FUNGAL SEPSIS	1.16±0.11	1.56±0.37	0.99±0.09	1.80±1.17	1.01±0.13	1.19±0.36
	VIRUS	1.05±0.10	1.35±0.23	1.00±0.05	1.16±0.36	1.00±0.08	1.13±0.23
	NORMAL CONTROL	1.00±0.03	1.00±0.11	1.00±0.03	1.01±0.31	1.00±0.04	1.00±0.10
EOSINOPHIL	INITIAL TB	0.99±0.09	1.12±0.19	1.01±0.08	1.26±0.63	0.97±0.05	1.08±0.15
	NTM	0.98±0.07	1.09±0.16	1.00±0.05	0.98±0.37	0.97±0.04	1.04±0.12
	BACTERIAL SEPSIS	0.97±0.10	1.11±0.19	1.03±0.11	1.17±0.09	0.97±0.08	1.08±0.17
	FUNGAL SEPSIS	0.99±0.11	1.37±0.44	1.01±0.07	1.65±1.46	0.94±0.05	1.09±0.28
	VIRUS	0.97±0.08	1.09±0.19	1.02±0.08	1.28±1.05	0.98±0.05	1.05±0.27
	NORMAL CONTROL	1.00±0.04	1.01±0.13	1.00±0.03	0.95±0.47	1.00±0.02	1.00±0.31
NON- η RBC	INITIAL TB	0.98±0.10	0.77±0.15	1.20±0.19	1.24±0.17	0.99±0.11	0.93±0.10
	NTM	1.00±0.13	0.80±0.15	1.25±0.20	1.27±0.17	1.01±0.08	0.94±0.10
	BACTERIAL SEPSIS	1.01±0.21	0.73±0.16	1.17±0.21	1.21±0.18	1.04±0.10	0.90±0.12
	FUNGAL SEPSIS	1.04±0.22	0.74±0.15	1.24±0.26	1.16±0.18	1.08±0.11	0.87±0.10
	VIRUS	0.92±0.22	0.75±0.18	1.12±0.18	1.25±0.21	0.99±0.11	0.93±0.10
	NORMAL CONTROL	1.00±0.10	1.00±0.09	1.00±0.10	1.00±0.13	1.00±0.07	1.00±0.06

CONTINUED ON FIG 9(ii)

A WORD WAS EMPHASIZED WITH BOLD, IF THERE ARE STATISTICAL SIGNIFICANCE BETWEEN INITIAL TB AND OTHER GROUPS, P<0.05

FIG.9(i)

12/33

	MN-UMALS	SD-UMALS	MN-LMALS	SD-LMALS	MN-LALS	SD-LALS	MN-AL2	SD-AL2
	0.99±0.05	1.08±0.18	0.83±0.10	1.33±0.26	0.79±0.11	1.36±0.22	1.00±0.05	1.38±0.31
	0.99±0.04	1.10±0.19	0.89±0.02	1.34±0.27	0.81±0.15	1.40±0.22	1.00±0.06	1.40±0.24
	0.98±0.06	1.19±0.37	0.89±0.09	1.32±0.31	0.85±0.16	1.39±0.25	1.05±0.08	1.40±0.35
	0.98±0.04	1.21±0.35	0.88±0.08	1.19±0.22	0.81±0.17	1.25±0.22	1.04±0.09	1.39±0.28
	1.01±0.05	1.15±0.30	0.92±0.10	1.25±0.29	0.83±0.18	1.30±0.24	0.98±0.06	1.42±0.37
	1.00±0.04	1.00±0.11	1.00±0.06	1.00±0.15	1.00±0.08	1.00±0.11	1.00±0.03	1.01±0.15
	1.06±0.12	1.17±0.20	1.02±0.11	1.17±0.15	1.01±0.09	1.21±0.15	0.99±0.07	1.15±0.18
	1.03±0.12	1.18±0.14	0.99±0.14	1.18±0.10	1.04±0.07	1.25±0.16	0.99±0.06	1.18±0.21
	1.10±0.16	1.18±0.25	0.99±0.12	1.20±0.17	1.03±0.12	1.31±0.27	1.04±0.11	1.28±0.27
	1.08±0.15	1.39±0.35	0.97±0.17	1.36±0.28	1.05±0.11	1.46±0.23	1.08±0.11	1.36±0.23
	1.05±0.14	1.24±0.22	0.97±0.13	1.23±0.17	1.00±0.11	1.27±0.26	0.96±0.08	1.26±0.34
	1.00±0.09	1.00±0.08	1.00±0.06	1.00±0.06	1.00±0.05	1.00±0.11	1.00±0.04	1.00±0.07
	1.03±0.07	1.01±0.27	0.97±0.09	1.08±0.15	0.80±0.16	1.11±0.18	0.98±0.07	1.24±0.35
	1.01±0.08	1.04±0.18	0.97±0.08	1.12±0.14	0.81±0.13	1.10±0.15	0.98±0.05	1.23±0.36
	1.01±0.09	1.13±0.33	0.96±0.10	1.15±0.17	0.85±0.10	1.22±0.19	1.04±0.11	1.5±0.47
	1.00±0.13	1.40±0.49	1.01±0.14	1.08±0.20	0.91±0.22	1.09±0.16	1.02±0.18	1.6±0.58
	1.01±0.08	1.12±0.28	0.99±0.09	1.13±0.15	0.81±0.16	1.41±0.17	0.97±0.09	1.25±0.3
	1.00±0.06	1.00±0.12	1.00±0.06	1.00±0.10	1.00±0.11	1.00±0.14	1.00±0.03	1.00±0.03
	0.98±0.05	1.08±0.18	0.96±0.05	1.11±0.23	0.85±0.15	1.01±0.12	1.05±0.08	1.21±0.27
	0.98±0.05	1.03±0.13	0.96±0.04	1.10±0.22	0.89±0.13	1.02±0.09	1.04±0.07	1.17±0.27
	0.96±0.09	1.18±0.43	0.97±0.08	1.12±0.30	0.88±0.13	0.98±0.10	1.07±0.11	1.17±0.27
	0.94±0.06	1.14±0.49	0.94±0.05	1.15±0.38	0.83±0.12	0.97±0.13	1.11±0.12	1.35±0.52
	0.95±0.05	1.07±0.30	0.98±0.06	1.05±0.30	0.87±0.15	1.00±0.13	1.04±0.07	1.15±0.19
	1.00±0.03	1.00±0.20	1.00±0.04	1.01±0.25	1.00±0.07	1.00±0.07	1.00±0.04	1.00±0.17
	0.99±0.10	0.87±0.10	1.00±0.10	1.04±0.08	0.94±0.14	0.98±0.15	0.98±0.09	0.93±0.12
	1.01±0.08	0.89±0.10	1.01±0.03	1.04±0.07	0.98±0.11	1.01±0.16	0.99±0.08	0.93±0.12
	1.05±0.11	0.83±0.10	1.02±0.10	1.01±0.09	0.97±0.16	0.96±0.15	1.02±0.11	0.87±0.16
	1.07±0.11	0.81±0.10	1.08±0.11	0.97±0.07	1.03±0.23	1.13±0.43	1.03±0.13	0.91±0.13
	0.98±0.12	0.88±0.11	1.01±0.10	1.03±0.08	0.90±0.16	0.97±0.18	0.93±0.11	0.93±0.13
	1.00±0.06	1.00±0.06	1.00±0.07	1.00±0.05	1.00±0.09	1.00±0.1	1.00±0.05	1.00±0.08

CONTINUED FROM FIG.9(i)

FIG.9(ii)

COMPLETE BLOOD CELL COUNTS IN 12 GROUPS

GROUPS	WBC (x10 ³ /μl)	WBC DIFFERENTIAL (%)				RBC (x10 ⁶ /μl)	Hb (g/dL)	PLATELET (x10 ⁹ /L)
		NEU	LYM	MON	EOS			
INITIAL TB (n=226)	7.4±3.9	69.7±14.6	18.3±11	8.7±4.5	2.5±3.3	3.8±0.6	11.6±1.9	259.2±128
NTM (n=36)	7.4±3.7	71±13.4	16.5±9.7	8.1±3.2	3.6±5.2	3.6±0.6	11.7±1.6	204±116.5
TB WITH MEDICATION (n=709)	6.2±4.3	60.3±15.4	25.7±13.5	9.3±5.2	3.3±3.3	3.9±0.7	12.2±2.2	222.7±106.2
BACTERIAL SEPSIS (n=429)	10.2±6.4	75±18.8	14.6±16.1	8.3±7.6	1.4±2	3.2±0.6	10.2±1.7	136.3±96.9
FUNGAL SEPSIS (n=29)	14.3±9.4	80.4±15.2	12±11.5	5.7±4.4	1.1±1.3	3.1±0.6	9.6±0.1.7	115.4±94.7
MALARIA (n=80)	5.4±2	60.2±18.7	27±14.7	10.8±6.1	1±1	4±0.6	12.5±1.9	91±76.7
AFB-NEGATIVE (n=526)	8.9±6.1	69.3±17.8	19.3±14.9	8.4±6.7	2.1±2.6	3.6±0.7	11.4±2.1	201.9±109.9
INFLUENZA A (n=25)	5.8±2.3	59.8±21.8	29±19.9	9.2±4.8	1.1±2.3	4.1±0.8	12.4±2	211.2±131.7
CMV (n=59)	10.6±9.4	70.9±21.1	18.8±19	7.9±6.2	1.4±2.5	3.2±0.7	10.4±2.1	148±100.2
EBV (n=45)	9.1±10.3	57.2±25.2	31.3±23.7	8.7±6.4	1.7±2	3.6±0.9	10.9±2.6	190.9±113.6
HIV (n=3)	6.6±0.5	61.7±29.2	25.2±21.7	8.3±2.9	3.8±5	4.2±1	13.2±2.6	259.6±114.1
NORMAL CONTROL (n=1574)	5.9±1.1	55.1±8.2	34.1±7.4	7±1.7	3±2.5	4.6±0.4	14.6±1.3	232±42.5

A WORD WAS EMPHASIZED WITH BOLD, IF THERE ARE STATISTICAL SIGNIFICANCE BETWEEN INITIAL TB AND OTHER GROUPS, P<0.05

FIG.9A

14/33

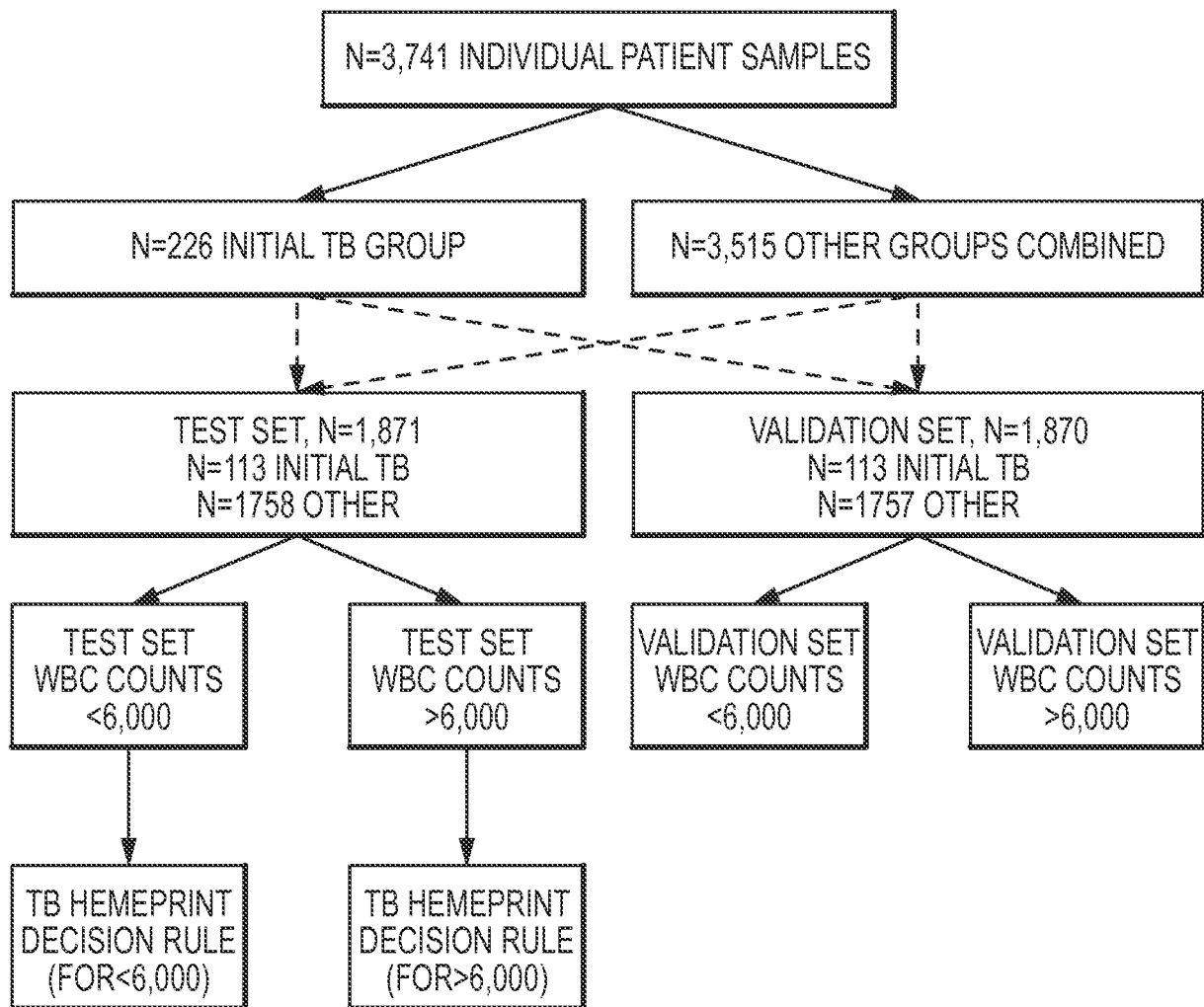


FIG.10

15/33

PARAMETERS SELECTED IN A DECISION RULE
FOR SCREENING OF INITIAL TB ACCORDING TO WBC COUNT

WBC≤6,000 GROUP		WBC>6,000 GROUP	
PARAMETER	RANGE	PARAMETER	RANGE
HEMOGLOBIN (g/dL)	<15	WBC ($\times 10^3/\mu\text{L}$)	<16.5
nec/al2	0.85-1.3	RBC ($\times 10^6/\mu\text{L}$)	<5.1
neumals/v	0.65<	PLATELET ($\times 10^9/\text{L}$)	100<
nelals/v	0.4-1.2	NEUTROPHIL (%)	40<
nec/v	<1.15	neumals/al2	0.7-1.17
lyumals/al2	<1.8	nemals/al2	<1.1
lylmals/al2	0.65-1.35	nelals/al2	0.5-1.152
lyc/al2	1.28<	nec/al2	<1.3
mnmals/al2	0.52-0.93	nelals/v	<1.18
mnlmals/al2	<0.75	nec/v	<1.12
@SD-V-NE	<1.9	neumal/mal	0.963<
@SD-LMALS-NE	1<	lylmal/mal	<1.014
@SD-LALS-NE	1.15<	mnumals/al2	0.53<
@SD-V-LY	0.95-2.3	mnumals/v	0.43<
@SD-C-LY	0.8<	euomals/al2	1.25-2.1
@MN-LMALS-LY	<1.25	nnmals/al2	0.76-1.4
@SD-LMALS-LY	0.96<	nnrV/AL2	0.51<
@MN-AL2-LY	<1.2	nnrc/al2	0.36<
@SD-AL2-LY	0.96-2.3	nnmals/v	<1.7
@MN-V-MO	0.94<	nnrlmal/mal	0.95<
@SD-V-MO	1.03<	@MN-UMALS-NE	0.895-1.09
@SD-LMALS-MO	0.84<	@SD-LALS-NE	1.06-1.76
@SD-AL2-MO	0.94<	@SD-LALS-LY	0.96-1.6
@SD-V-EO	0.8-1.75	@SD-V-MO	1.01-1.9
@SD-C-EO	0.5<	@MN-MALS-MO	<1.14
@MN-MALS-EO	<1.06	@SD-MALS-MO	0.73-1.34
@SD-UMALS-EO	0.8<	@SD-UMALS-MO	<1.3
@SD-LMALS-EO	<1.78	@MN-AL2-MO	<1.2
@SD-LALS-EO	<1.36	@SD-AL2-MO	0.9<
@MN-V-NNRBC	0.66<	@SD-V-EO	<1.8
@SD-V-NNRBC	<1	@MN-MALS-EO	0.87<
@MN-C-NNRBC	0.8-1.7	@SD-MALS-EO	0.91-1.4
@SD-C-NNRBC	0.95-1.8	@SD-UMALS-EO	<1.4
@MN-MALS-NNRBC	<1.13	@MN-AL2-EO	<1.25
@MN-AL2-NNRBC	<1.12	@SD-AL2-EO	0.89<
		@SD-C-NNRBC	0.95-1.6
		@MN-UMALS-NNRBC	0.8<
		@SD-UMALS-NNRBC	<1.1

FIG.11

16/33

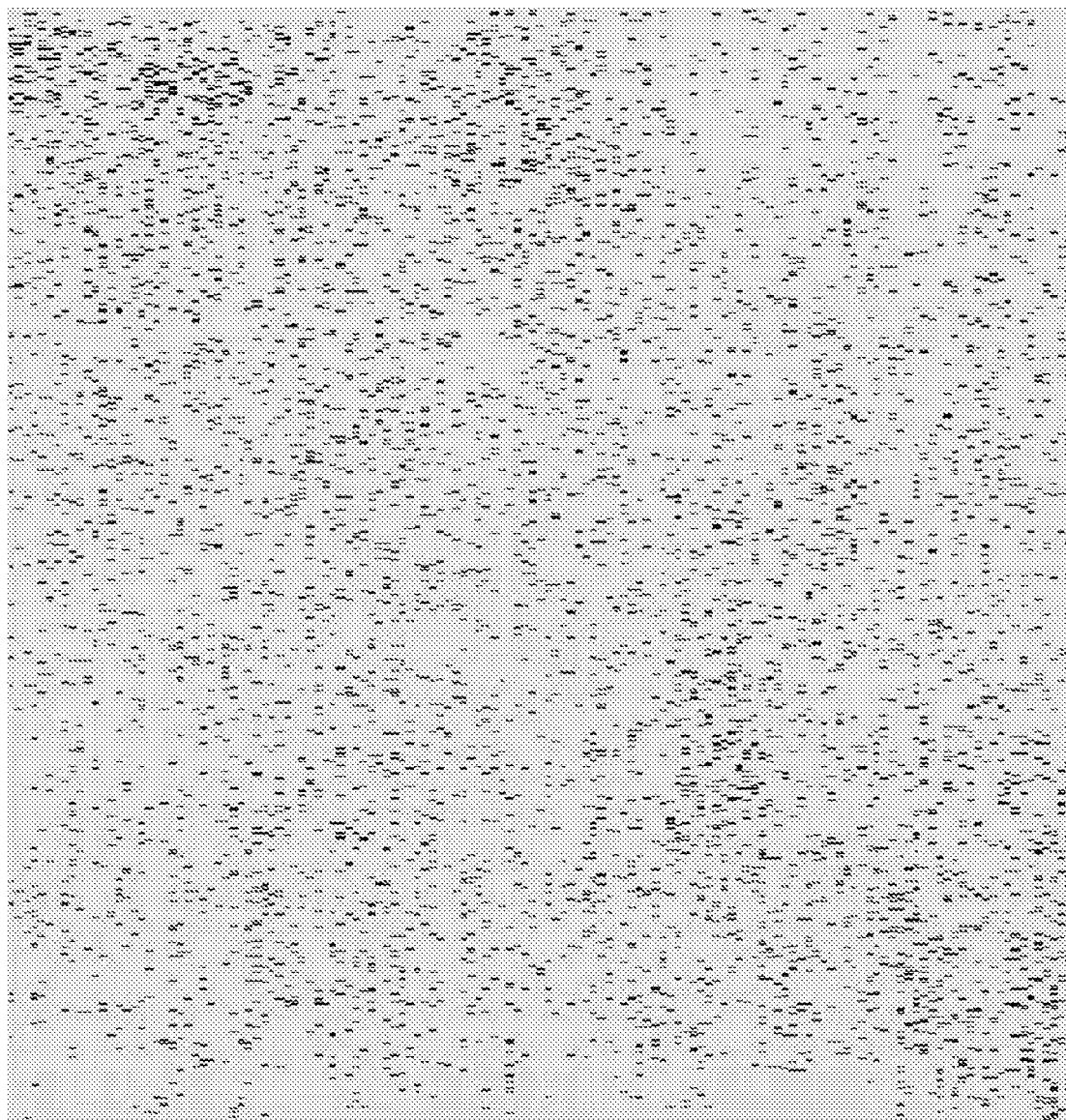


FIG.12A

18/33

1	STEP 1110				
2	OBTAIN ORIGINAL TRAINING SET OF DATA FOR TB PARAMETERS. SORT, HILO ASSIGNMENT	DETERMINE RANGE			
3	(TB ASSIGNMENT DETERMINED USING STANDARD TECHNIQUES)				
4					
5	TB CBC SAMPLES	CPD-A	CPD-B	CALC-A	CALC-B
6	PATIENT 1 (NORMAL)				
7	PATIENT 2 (NORMAL)				
8	PATIENT 3 (OTHER DISEASE)				
9	PATIENT 4 (OTHER DISEASE)				
10	PATIENT 5 (TB)				
11	PATIENT 6 (OTHER DISEASE)				
12	PATIENT 7 (OTHER DISEASE)				
13	PATIENT 8 (NORMAL)				
14	PATIENT 9 (TB)				
15	PATIENT 10 (TB)				
16	PATIENT 11 (OTHER DISEASE)				
17	PATIENT 12 (OTHER DISEASE)				
18	PATIENT 13 (OTHER DISEASE)				
19	PATIENT 14 (NORMAL)				
20	PATIENT 15 (OTHER DISEASE)				
21	PATIENT 16 (TB)				
22	PATIENT 17 (OTHER DISEASE)				
23	PATIENT 18 (TB)				
24	PATIENT 19 (OTHER DISEASE)				
25	PATIENT 20 (OTHER DISEASE)				

CONTINUED ON FIG. 13A(II)

FIG. 13A)

19/33

CONTINUED FROM FIG. 13A(i)

27	STEP 110A-1 (FOR CPD-A)			
28	FOR FIRST PARAMETER (CPD-A), SORT VALUES			
29	SELECT TB, DETERMINE HILO VALUES TO SET RANGE, DELETE TB OTHER CASES	SORT ASCENDING		
30		CPD-A		
31	PATIENT 1 (NORMAL)		DELETE-	
32	PATIENT 4 (OTHER DISEASE)		DELETE-	
33	PATIENT 3 (OTHER DISEASE)		DELETE-	
34	PATIENT 5 (TB) (TARGET)	LOW END OF RANGE	LOW TB (KEEP)	
35	PATIENT 2 (NORMAL)	WITHIN RANGE	(KEEP)	
36	PATIENT 6 (OTHER DISEASE)	WITHIN RANGE	(KEEP)	
37	PATIENT 7 (OTHER DISEASE)	WITHIN RANGE	(KEEP)	
38	PATIENT 8 (NORMAL)	WITHIN RANGE	(KEEP)	
39	PATIENT 9 (TB) (TARGET)	WITHIN RANGE	(KEEP)	
40	PATIENT 10 (TB) (TARGET)	WITHIN RANGE	(KEEP)	
41	PATIENT 11 (OTHER DISEASE)	WITHIN RANGE	(KEEP)	
42	PATIENT 12 (OTHER DISEASE)	WITHIN RANGE	(KEEP)	
43	PATIENT 13 (OTHER DISEASE)	WITHIN RANGE	(KEEP)	
44	PATIENT 14 (NORMAL)	WITHIN RANGE	(KEEP)	
45	PATIENT 15 (OTHER DISEASE)	WITHIN RANGE	(KEEP)	
46	PATIENT 16 (TB) (TARGET)	WITHIN RANGE	(KEEP)	
47	PATIENT 17 (OTHER DISEASE)	WITHIN RANGE	(KEEP)	
48	PATIENT 19 (OTHER DISEASE)	WITHIN RANGE	(KEEP)	
49	PATIENT 18 (TB) (TARGET)	HIGH END OF RANGE	HIGH TB (KEEP)	
50	PATIENT 20 (OTHER DISEASE)		DELETE-	
51				
52	RESULT: VALUE RANGE (BETWEEN PAT. 5 AND PAT. 18) FOR CPD-A PARAMETER	TB RANGE FOR CPD-A (RESULT OF CPD-A OF PATIENT 5 ~ PATIENT 18)		

CONTINUED ON FIG. 13A(iii)

FIG. 13A(ii)

20/33

CONTINUED FROM FIG. 13A(ii)

54	STEP 110A-2 (FOR CPD-B)			
55	AGAIN, FOR NEXT PARAMETER (CPD-B), SORT VALUES, DETERMINE TARGET (TB) RANGE		SORT ASCENDING	
56			CPD-B	
57	PATIENT 2 (NORMAL)			DELETE-
58	PATIENT 1 (NORMAL)			DELETE-
59	PATIENT 4 (OTHER DISEASE)			DELETE-
60	PATIENT 9 (TB) (TARGET)		LOW END OF RANGE	LOW TB (KEEP)
61	PATIENT 3 (OTHER DISEASE)		WITHIN RANGE	(KEEP)
62	PATIENT 5 (TB) (TARGET)		WITHIN RANGE	(KEEP)
63	PATIENT 6 (OTHER DISEASE)		WITHIN RANGE	(KEEP)
64	PATIENT 7 (OTHER DISEASE)		WITHIN RANGE	(KEEP)
65	PATIENT 10 (TB) (TARGET)		WITHIN RANGE	(KEEP)
66	PATIENT 8 (NORMAL)		WITHIN RANGE	(KEEP)
67	PATIENT 11 (OTHER DISEASE)		WITHIN RANGE	(KEEP)
68	PATIENT 12 (OTHER DISEASE)		WITHIN RANGE	(KEEP)
69	PATIENT 13 (OTHER DISEASE)		WITHIN RANGE	(KEEP)
70	PATIENT 14 (NORMAL)		WITHIN RANGE	(KEEP)
71	PATIENT 16 (TB) (TARGET)		WITHIN RANGE	(KEEP)
72	PATIENT 15 (OTHER DISEASE)		WITHIN RANGE	(KEEP)
73	PATIENT 17 (OTHER DISEASE)		WITHIN RANGE	(KEEP)
74	PATIENT 18 (TB) (TARGET)		HIGH END OF RANGE	HIGH TB (KEEP)
75	PATIENT 20 (OTHER DISEASE)			DELETE-
76	PATIENT 19 (OTHER DISEASE)			DELETE-
77				
78	RESULT: VALUE RANGE (BETWEEN PAT. 9 AND PAT. 18) FOR CPD-B PARAMETER		TB RANGE FOR CPD-B (RESULT OF CPD-B OF PATIENT 9 ~ PATIENT 18)	

FIG. 13A(iii)

21/33

80	STEP 1110A-3 (FOR CALCA)			SORT ASCENDING	
81	AGAIN, FOR NEXT PARAMETER (CALCA), SORT VALUES, DETERMINE TARGET (TB) RANGE			CALCA	
82					
83	PATIENT 1 (NORMAL)				-DELETE
84	PATIENT 2 (NORMAL)				-DELETE
85	PATIENT 3 (OTHER DISEASE)				-DELETE
86	PATIENT 4 (OTHER DISEASE)				-DELETE
87	PATIENT 5 (TB) {TARGET}			LOW END OF RANGE	LOW TB (KEEP)
88	PATIENT 6 (OTHER DISEASE)			WITHIN RANGE	(KEEP)
89	PATIENT 7 (OTHER DISEASE)			WITHIN RANGE	(KEEP)
90	PATIENT 8 (NORMAL)			WITHIN RANGE	(KEEP)
91	PATIENT 9 (TB) {TARGET}			WITHIN RANGE	(KEEP)
92	PATIENT 10 (TB) {TARGET}			WITHIN RANGE	(KEEP)
93	PATIENT 11 (OTHER DISEASE)			WITHIN RANGE	(KEEP)
94	PATIENT 12 (OTHER DISEASE)			WITHIN RANGE	(KEEP)
95	PATIENT 13 (OTHER DISEASE)			WITHIN RANGE	(KEEP)
96	PATIENT 14 (NORMAL)			WITHIN RANGE	(KEEP)
97	PATIENT 15 (OTHER DISEASE)			WITHIN RANGE	(KEEP)
98	PATIENT 18 (TB) {TARGET}			WITHIN RANGE	(KEEP)
99	PATIENT 17 (OTHER DISEASE)			WITHIN RANGE	(KEEP)
100	PATIENT 16 (TB) {TARGET}			HIGH END OF RANGE	HIGH TB (KEEP)
101	PATIENT 19 (OTHER DISEASE)				-DELETE
102	PATIENT 20 (OTHER DISEASE)				-DELETE
103					
104	RESULT: VALUE RANGE (BETWEEN PAT. 5 AND PAT.16) FOR CALCA: PARAMETER IT			TB RANGE FOR CALCA: RESULT OF CALCA OF PATIENT 5 ~ PATIENT 16)	

CONTINUED ON FIG. 13B (ii)

FILED

22/33

CONTINUED FROM FIG. 13B(i)

106	STEP 1110A-4 (FOR CALC-B)			SORT ASCENDING	
107	AGAIN, FOR NEXT PARAMETER (CALC-B), SORT VALUES, DETERMINE TARGET (TB) RANGE			CALC-B	
108					
109	PATIENT 17 (OTHER DISEASE)				DELETE
110	PATIENT 9 (TB) {TARGET}			LOW END OF RANGE	LOW TB (KEEP)
111	PATIENT 6 (OTHER DISEASE)			WITHIN RANGE	(KEEP)
112	PATIENT 11 (OTHER DISEASE)			WITHIN RANGE	(KEEP)
113	PATIENT 12 (OTHER DISEASE)			WITHIN RANGE	(KEEP)
114	PATIENT 13 (OTHER DISEASE)			WITHIN RANGE	(KEEP)
115	PATIENT 5 (TB) {TARGET}			WITHIN RANGE	(KEEP)
116	PATIENT 1 (NORMAL)			WITHIN RANGE	(KEEP)
117	PATIENT 2 (NORMAL)			WITHIN RANGE	(KEEP)
118	PATIENT 4 (OTHER DISEASE)			WITHIN RANGE	(KEEP)
119	PATIENT 10 (TB) {TARGET}			WITHIN RANGE	(KEEP)
120	PATIENT 19 (OTHER DISEASE)			WITHIN RANGE	(KEEP)
121	PATIENT 20 (OTHER DISEASE)			WITHIN RANGE	(KEEP)
122	PATIENT 14 (NORMAL)			WITHIN RANGE	(KEEP)
123	PATIENT 15 (OTHER DISEASE)			WITHIN RANGE	(KEEP)
124	PATIENT 7 (OTHER DISEASE)			WITHIN RANGE	(KEEP)
125	PATIENT 8 (NORMAL)			WITHIN RANGE	(KEEP)
126	PATIENT 16 (TB) {TARGET}			WITHIN RANGE	(KEEP)
127	PATIENT 3 (OTHER DISEASE)			WITHIN RANGE	(KEEP)
128	PATIENT 18 (TB) {TARGET}			HIGH END OF RANGE	HIGH TB (KEEP)
129					
130	RESULT: VALUE RANGE (BETWEEN PAT. 9 AND PAT.18) FOR CALC-B PARAMETER			TB RANGE FOR CALC-B RESULT OF CALC-B OF PATIENT 9 ~ PATIENT 18)	



133	STEP 1110B								
134	RESULT FROM STEPS 1110A-1, 1110A-2, 1110A-3, 1110A-4	TB RANGE FOR CPD-A	TB RANGE FOR CPD-B	TB RANGE FOR CALCA	TB RANGE FOR CALC-B				
135	A TARGET (E.G. TB) VALUE RANGE FOR EACH PARAMETER								
136									
137	STEP 1110B-1								
138	PROCESS DATA FROM EACH INDIVIDUAL DETERMINE IF PARAMETERS ARE WITHIN STEP 1110B RANGES								
139	YES = PATIENT PARAMETER VALUE WITHIN TARGET (E.G. TB) RANGE; NO = OUTSIDE OF TARGET RANGE								
140	KEEP PATIENTS WHERE EVERY PARAMETER IS WITHIN THE STEP 1110B-1 RANGE; DELETE THE OTHER PATIENTS								
141		TB RANGE FOR CPD-A	TB RANGE FOR CPD-B	TB RANGE FOR CALCA	TB RANGE FOR CALC-B				
142	PATIENT 1 (NORMAL)	NO(OUTSIDE OF RANGE)	NO(OUTSIDE OF RANGE)	NO(OUTSIDE OF RANGE)	YES				
143	PATIENT 2 (NORMAL)	YES(WITHIN RANGE)	NO(OUTSIDE OF RANGE)	NO(OUTSIDE OF RANGE)	YES				
144	PATIENT 3 (OTHER DISEASE)	NO(OUTSIDE OF RANGE)	YES	NO(OUTSIDE OF RANGE)	YES				
145	PATIENT 4 (OTHER DISEASE)	NO(OUTSIDE OF RANGE)	NO(OUTSIDE OF RANGE)	NO(OUTSIDE OF RANGE)	YES				
146	PATIENT 5 (TB)	YES	YES	YES	YES				
147	PATIENT 6 (OTHER DISEASE)	YES	YES	YES	YES				
148	PATIENT 7 (OTHER DISEASE)	YES	YES	YES	YES				
149	PATIENT 8 (NORMAL)	YES	YES	YES	YES				
150	PATIENT 9 (TB)	YES	YES	YES	YES				
151	PATIENT 10 (TB)	YES	YES	YES	YES				
152	PATIENT 11 (OTHER DISEASE)	YES	YES	YES	YES				
153	PATIENT 12 (OTHER DISEASE)	YES	YES	YES	YES				
154	PATIENT 13 (OTHER DISEASE)	YES	YES	YES	YES				
155	PATIENT 14 (NORMAL)	YES	YES	YES	YES				
156	PATIENT 15 (OTHER DISEASE)	YES	YES	YES	YES				
157	PATIENT 16 (TB)	YES	YES	YES	YES				
158	PATIENT 17 (OTHER DISEASE)	YES	YES	YES	YES				
159	PATIENT 18 (TB)	YES	YES	YES	YES				
160	PATIENT 19 (OTHER DISEASE)	YES	NO(OUTSIDE OF RANGE)	NO(OUTSIDE OF RANGE)	YES				
161	PATIENT 20 (OTHER DISEASE)	NO(OUTSIDE OF RANGE)	NO(OUTSIDE OF RANGE)	NO(OUTSIDE OF RANGE)	YES				

CONTINUED ON FIG. 13C(I)

FIG. 13C)

24/33

CONTINUED FROM FIG. 13C(i)

[illegible]


 UNIVERSITY OF THE PACIFIC
 300 CALIFORNIA AVENUE
 STOCKTON, CALIF. 95211-8800
 TEL: (209) 941-6000
 FAX: (209) 941-6001
 WWW: WWW.UOPACIFIC.EDU

25/33

184	STEP 1110D-1.0		
185	TO INCREASE SPECIFICITY WITH SACRIFICING SENSITIVITY, FIND OUT WHICH PATIENT COULD BE FALSELY NEGATIVE TO INCREASE SPECIFICITY		
186			
187	STEP 1110D-1.1		
188	SET GOAL SENSITIVITY FOR TRAINING RULE		
189	% PATIENT HAVING TARGET, CORRECTLY ID'D AS HAVING TARGET)		
190	EXAMPLE: 80% = 4 CASES (TB) OUT OF 5 CASES		
191			
192	STEP 1110D-1.2		
193	USING THE STEP 1110C PATIENT SUB-SET, FOR TARGET (E.G. TB), FOR EACH PARAMETER, SORT		
194	DELETE EXTREME TARGET (E.G. TB) PATIENT CASE		
195	COUNT AND DELETE "OTHER" CASES BETWEEN EXTREME TARGET (E.G. TB) AND NEXT-TO EXTREME TARGET	SORT ASCENDING	
196		CPD-A	
197	PATIENT 5 (TB) {TARGET}	LOW TB (KEEP)	EXTREME CASE : NEGATIVE
198	PATIENT 6 (OTHER DISEASE)	(KEEP)	DELETE
199	PATIENT 7 (OTHER DISEASE)	(KEEP)	DELETE
200	PATIENT 8 (NORMAL)	(KEEP)	DELETE
201	PATIENT 9 (TB) {TARGET}	(KEEP)	
202	PATIENT 10 (TB) {TARGET}	(KEEP)	
203	PATIENT 11 (OTHER DISEASE)	(KEEP)	
204	PATIENT 12 (OTHER DISEASE)	(KEEP)	
205	PATIENT 13 (OTHER DISEASE)	(KEEP)	
206	PATIENT 14 (NORMAL)	(KEEP)	
207	PATIENT 15 (OTHER DISEASE)	(KEEP)	
208	PATIENT 16 (TB) {TARGET}	(KEEP)	
209	PATIENT 18 (TB) {TARGET}	HIGH TB (KEEP)	
210			PATIENT 5 > 3 MORE CASES WILL BE DELETED

CONTINUED ON FIG. 13D(ii)

FIG. 13D(i)

26/33

CONTINUED FROM FIG. 13D(i)		
212 (FOR CPD-8)		
213		
214 PATIENT 9 (TB) (TARGET)		
215 PATIENT 5 (TB) (TARGET)		EXTREME CASE - NEGATIVE
216 PATIENT 6 (OTHER DISEASE)		
217 PATIENT 7 (OTHER DISEASE)		
218 PATIENT 10 (TB) (TARGET)		
219 PATIENT 8 (NORMAL)		
220 PATIENT 11 (OTHER DISEASE)		
221 PATIENT 12 (OTHER DISEASE)		
222 PATIENT 13 (OTHER DISEASE)		
223 PATIENT 14 (NORMAL)		
224 PATIENT 16 (TB) (TARGET)		
225 PATIENT 15 (OTHER DISEASE)		
226 PATIENT 18 (TB) (TARGET)		
227		PATIENT 9 -> 0 CASES WILL BE DELETED
CONTINUED ON FIG. 13D(iii)		

FIG. 13D(ii)

27/33

CONTINUED FROM FIG. 13D(ii)

229	{FOR CALCA}					
230						
231	PATIENT 5 (TB) {TARGET}					
232	PATIENT 6 (OTHER DISEASE)					
233	PATIENT 7 (OTHER DISEASE)					
234	PATIENT 8 (NORMAL)					
235	PATIENT 9 (TB) {TARGET}					
236	PATIENT 10 (TB) {TARGET}					
237	PATIENT 11 (OTHER DISEASE)					
238	PATIENT 12 (OTHER DISEASE)					
239	PATIENT 13 (OTHER DISEASE)					
240	PATIENT 14 (NORMAL)					
241	PATIENT 15 (OTHER DISEASE)					
242	PATIENT 16 (TB) {TARGET}					
243	PATIENT 18 (TB) {TARGET}					
244						

FIG. 13D (c)

28/33

246	{FOR CALC-B}				SORT ASCENDING	
247					CALC-B	
248	PATIENT 9 {TB} {TARGET}				LOW TB (KEEP)	EXTREME CASE-NEGATIVE
249	PATIENT 6 {OTHER DISEASE}				(KEEP)	DELETE
250	PATIENT 11 {OTHER DISEASE}				(KEEP)	DELETE
251	PATIENT 12 {OTHER DISEASE}				(KEEP)	DELETE
252	PATIENT 13 {OTHER DISEASE}				(KEEP)	DELETE
253	PATIENT 5 {TB} {TARGET}				(KEEP)	
254	PATIENT 10 {TB} {TARGET}				(KEEP)	
255	PATIENT 14 {NORMAL}				(KEEP)	
256	PATIENT 15 {OTHER DISEASE}				(KEEP)	
257	PATIENT 7 {OTHER DISEASE}				(KEEP)	
258	PATIENT 8 {NORMAL}				(KEEP)	
259	PATIENT 16 {TB} {TARGET}				(KEEP)	
260	PATIENT 18 {TB} {TARGET}				HIGH TB (KEEP)	
261						PATIENT 9 -> 4 MORE CASES WILL BE DELETED
262	RESULT: PATIENT 9 WOULD BE MOST EFFECTIVE TO DELETE MORE OTHER CASES FROM SET. SO FOR THE RANGE FOR CALC-B IS FROM DATA OF "PATIENT 5" TO DATA OF "PATIENT 18"					

CONTINUED ON FIG. 13E(II)

FIG. 13E

29/33

264	STEP 1110D-1.3						
265	RESULT IS A SUB-SET OF REMAINING PATIENT CASES						
266	SUB-SET INCLUDES MOST OF TARGET (E.G. TB) PATIENT, AND LESS 'OTHER PATIENTS' (E.G. OTHER DISEASE, NORMAL)						
267		CPD-A	CPD-B	CALCA	CALC-B		
268	PATIENT 5 (TB) {TARGET}	YES	YES	YES	YES		
269	PATIENT 7 (OTHER DISEASE)	YES	YES	YES	YES		
270	PATIENT 8 (NORMAL)	YES	YES	YES	YES		
271	PATIENT 10 (TB) {TARGET}	YES	YES	YES	YES		
272	PATIENT 14 (NORMAL)	YES	YES	YES	YES		
273	PATIENT 15 (OTHER DISEASE)	YES	YES	YES	YES		
274	PATIENT 16 (TB) {TARGET}	YES	YES	YES	YES		
275	PATIENT 18 (TB) {TARGET}	YES	YES	YES	YES		
276							
277	RESULT: 80% OF SENSITIVITY AND 73.3% SPECIFICITY OF RANGE						

CONTINUED ON FIG. 13E(iii)

30/33

CONTINUED FROM FIG. 13E(ii)

279	STEP 1110E-1				
280	FIND OUT WHICH PARAMETER IS EFFECTIVE TO THIS DISEASE CASE AND WHICH IS INEFFECTIVE TO THIS DISEASE CASE				
281	INEFFECTIVE PARAMETER: IF THE PARAMETER IS NOT USED IN THIS SET, THE NUMBER OF FINAL REMAINING 'OTHER' CASE IS SAME AS STEP 1110D-1.3				
282	EFFECTIVE PARAMETER: IF THE PARAMETER IS NOT USED IN THIS SET, THE NUMBER OF FINAL REMAINING 'OTHER' CASE IS INCREASED FROM STEP 1110D-1.3				
283					
284	STEP 1110E-1.1 : WITHOUT CPD-A				
285					
286	PATIENT 2 (NORMAL)			DELETE	
287	PATIENT 1 (NORMAL)			DELETE	
288	PATIENT 4 (OTHER DISEASE)			DELETE	
289	PATIENT 3 (OTHER DISEASE)			DELETE	
290	PATIENT 5 (TB) (TARGET)		LOW END OF RANGE	(KEEP)	
291	PATIENT 6 (OTHER DISEASE)		WITHIN RANGE	(KEEP)	
292	PATIENT 7 (OTHER DISEASE)		WITHIN RANGE	(KEEP)	
293	PATIENT 10 (TB) (TARGET)		WITHIN RANGE	(KEEP)	
294	PATIENT 8 (NORMAL)		WITHIN RANGE	(KEEP)	
295	PATIENT 11 (OTHER DISEASE)		WITHIN RANGE	(KEEP)	
296	PATIENT 12 (OTHER DISEASE)		WITHIN RANGE	(KEEP)	
297	PATIENT 13 (OTHER DISEASE)		WITHIN RANGE	(KEEP)	
298	PATIENT 14 (NORMAL)		WITHIN RANGE	(KEEP)	
299	PATIENT 16 (TB) (TARGET)		WITHIN RANGE	(KEEP)	
300	PATIENT 15 (OTHER DISEASE)		WITHIN RANGE	(KEEP)	
301	PATIENT 17 (OTHER DISEASE)		WITHIN RANGE	(KEEP)	
302	PATIENT 18 (TB) (TARGET)		HIGH END OF RANGE	HIGH TB (KEEP)	
303	PATIENT 20 (OTHER DISEASE)			DELETE	
304	PATIENT 19 (OTHER DISEASE)			DELETE	

FIG. 13E(iii)

31/33

306	AGAIN, FOR NEXT PARAMETER (CALC-A), SORT VALUES, DETERMINE TARGET RANGE					
307						
308	PATIENT 1 (NORMAL)					DELETE
309	PATIENT 2 (NORMAL)					DELETE
310	PATIENT 3 (OTHER DISEASE)					DELETE
311	PATIENT 4 (OTHER DISEASE)					DELETE
312	PATIENT 5 (TB) (TARGET)				LOW END OF RANGE	(KEEP)
313	PATIENT 6 (OTHER DISEASE)				WITHIN RANGE	(KEEP)
314	PATIENT 7 (OTHER DISEASE)				WITHIN RANGE	(KEEP)
315	PATIENT 8 (NORMAL)				WITHIN RANGE	(KEEP)
316	PATIENT 10 (TB) (TARGET)				WITHIN RANGE	(KEEP)
317	PATIENT 11 (OTHER DISEASE)				WITHIN RANGE	(KEEP)
318	PATIENT 12 (OTHER DISEASE)				WITHIN RANGE	(KEEP)
319	PATIENT 13 (OTHER DISEASE)				WITHIN RANGE	(KEEP)
320	PATIENT 14 (NORMAL)				WITHIN RANGE	(KEEP)
321	PATIENT 15 (OTHER DISEASE)				WITHIN RANGE	(KEEP)
322	PATIENT 16 (TB) (TARGET)				WITHIN RANGE	(KEEP)
323	PATIENT 17 (OTHER DISEASE)				WITHIN RANGE	(KEEP)
324	PATIENT 18 (TB) (TARGET)				HIGH END OF RANGE	HIGH TB (KEEP)
325	PATIENT 19 (OTHER DISEASE)					DELETE
326	PATIENT 20 (OTHER DISEASE)					DELETE

CONTINUED ON FIG. 13F(ii)

FIG. 13F(i)

32/33

CONTINUED FROM FIG. 13F(i)

328	AGAIN, FOR NEXT PARAMETER (CALC-B), SORT VALUES, DETERMINE TARGET RANGE					CALC-B	
329							
330	PATIENT 17 (OTHER DISEASE)						DELETE
331	PATIENT 6 (OTHER DISEASE)						DELETE
332	PATIENT 11 (OTHER DISEASE)						DELETE
333	PATIENT 12 (OTHER DISEASE)						DELETE
334	PATIENT 13 (OTHER DISEASE)						DELETE
335	PATIENT 5 (TB) (TARGET)					LOW END OF RANGE	(KEEP)
336	PATIENT 1 (NORMAL)					WITHIN RANGE	(KEEP)
337	PATIENT 2 (NORMAL)					WITHIN RANGE	(KEEP)
338	PATIENT 4 (OTHER DISEASE)					WITHIN RANGE	(KEEP)
339	PATIENT 10 (TB) (TARGET)					WITHIN RANGE	(KEEP)
340	PATIENT 19 (OTHER DISEASE)					WITHIN RANGE	(KEEP)
341	PATIENT 20 (OTHER DISEASE)					WITHIN RANGE	(KEEP)
342	PATIENT 14 (NORMAL)					WITHIN RANGE	(KEEP)
343	PATIENT 15 (OTHER DISEASE)					WITHIN RANGE	(KEEP)
344	PATIENT 7 (OTHER DISEASE)					WITHIN RANGE	(KEEP)
345	PATIENT 8 (NORMAL)					WITHIN RANGE	(KEEP)
346	PATIENT 16 (TB) (TARGET)					WITHIN RANGE	(KEEP)
347	PATIENT 3 (OTHER DISEASE)					WITHIN RANGE	(KEEP)
348	PATIENT 18 (TB) (TARGET)					WITHIN RANGE	(KEEP)
349	RESULT: PATIENTS 5, 10, 16, 18, 7, 8, 14, 15 REMAIN -> THAT MEANS CPD-A IS INEFFECTIVE TO SORT OUT THIS DISEASE CASE					HIGH END OF RANGE	HIGH TB (KEEP)

CONTINUED ON FIG. 13F(iii)

FIG. 13F(ii)

33/33

CONTINUED FROM FIG. 13F(ii)

351	STEP 1110E.12 REPEAT THIS PROCEDURE WITHOUT CPD-A AND CPD-B	
352	RESULT: PATIENTS 5,10,16,18,7,8,14,15 REMAIN -> THAT MEANS CPD-B ALSO IS INEFFECTIVE TO SORT OUT THIS DISEASE CASE	
353		
354	STEP 1110E.13 REPEAT THIS PROCEDURE WITHOUT CPD-A, CPD-B AND CALC-A	
355	RESULT: PATIENTS 5,10,16,1,2,3,4,7,8,14,15,19,20 REMAIN -> THAT MEANS CALC-A IS EFFECTIVE	
356		
357	STEP 1110E.14 REPEAT THIS PROCEDURE WITHOUT CPD-A, CPD-B AND CALC-B	
358	RESULT: PATIENTS 5,10,16,18,6,7,8,11,12,13,14,15,17 REMAIN -> THAT MEANS CALC-B IS EFFECTIVE	
359		
360	STEP 1110E.2	
361	DETERMINE RANGE FOR STEP 1110E EFFECTIVE PARAMETERS: CALC-A AND CALC-B	
362		
363	STEP 1110F	
364	SETUP THE DECISION RULE FOR THIS DISEASE CASE	
365	RANGE FOR CALC-A : DATA OF PATIENT 5 ~ DATA OF PATIENT 18	
366	RANGE FOR CALC-B : DATA OF PATIENT 5 ~ DATA OF PATIENT 18	
367	THIS PROVIDES A FINAL COMBINATION OF PARAMETERS, EACH HAVING A RANGE	

FIG. 13F(iii)