

FIG. 1

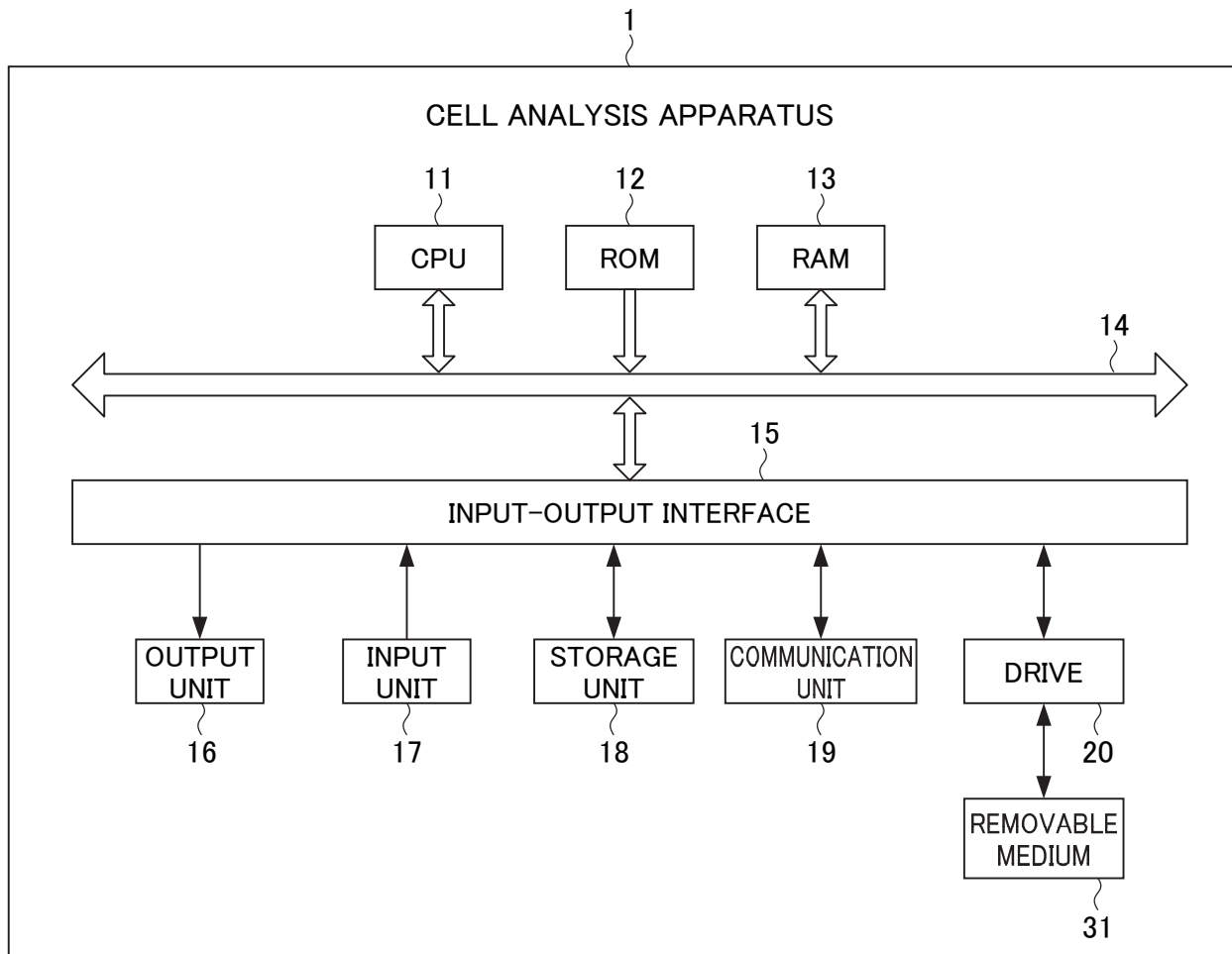


FIG. 2

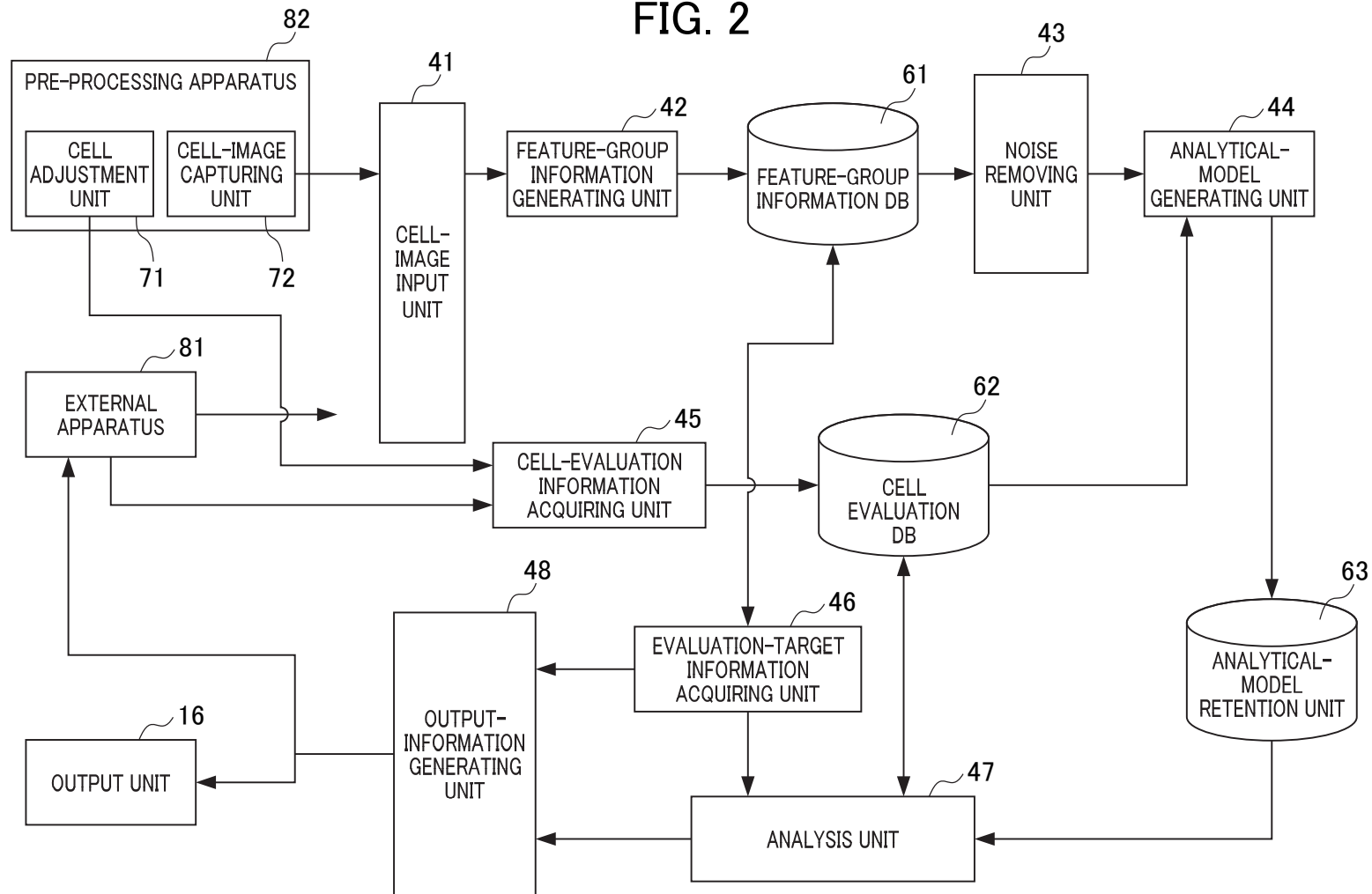


FIG. 3

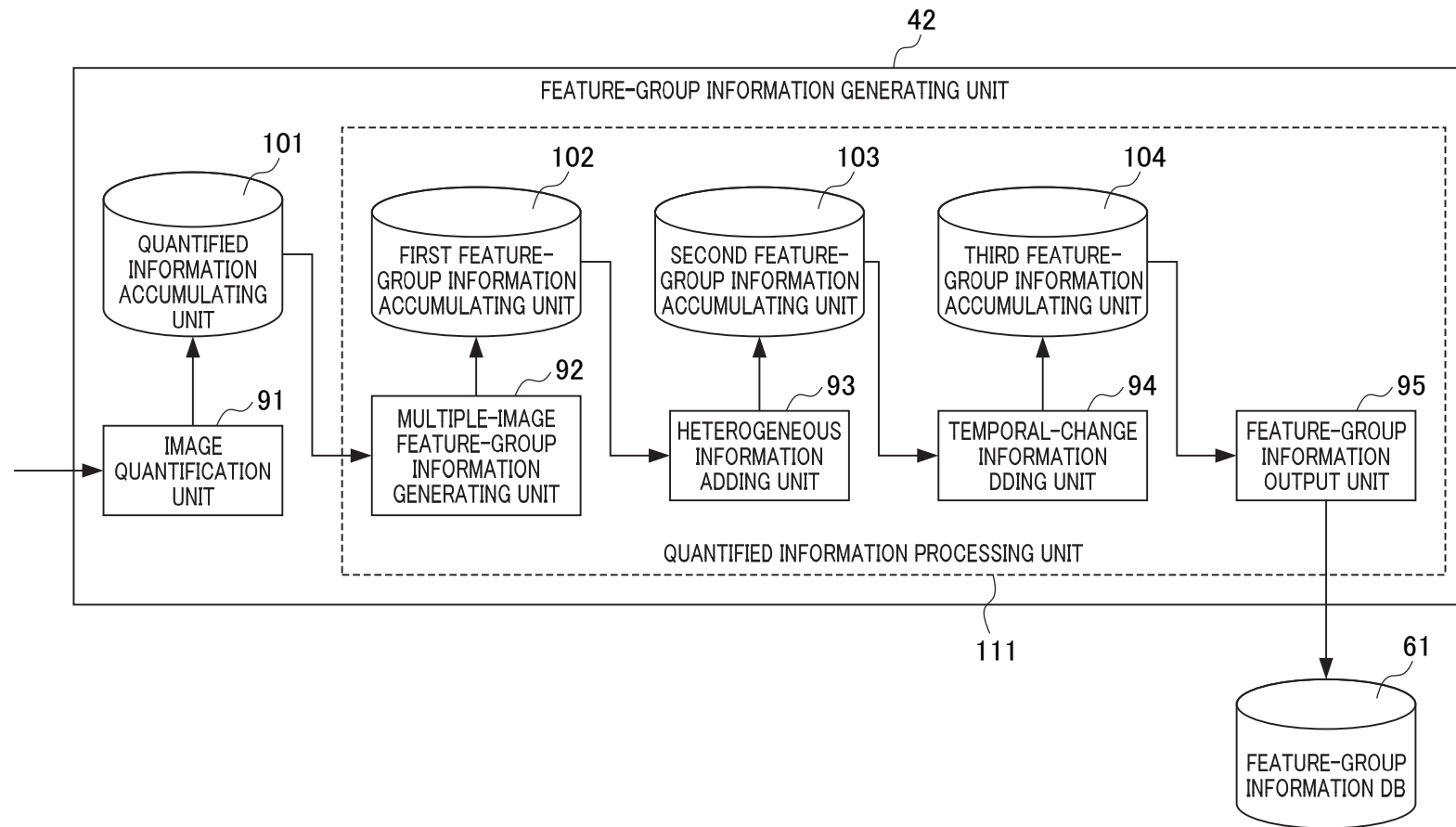


FIG. 4

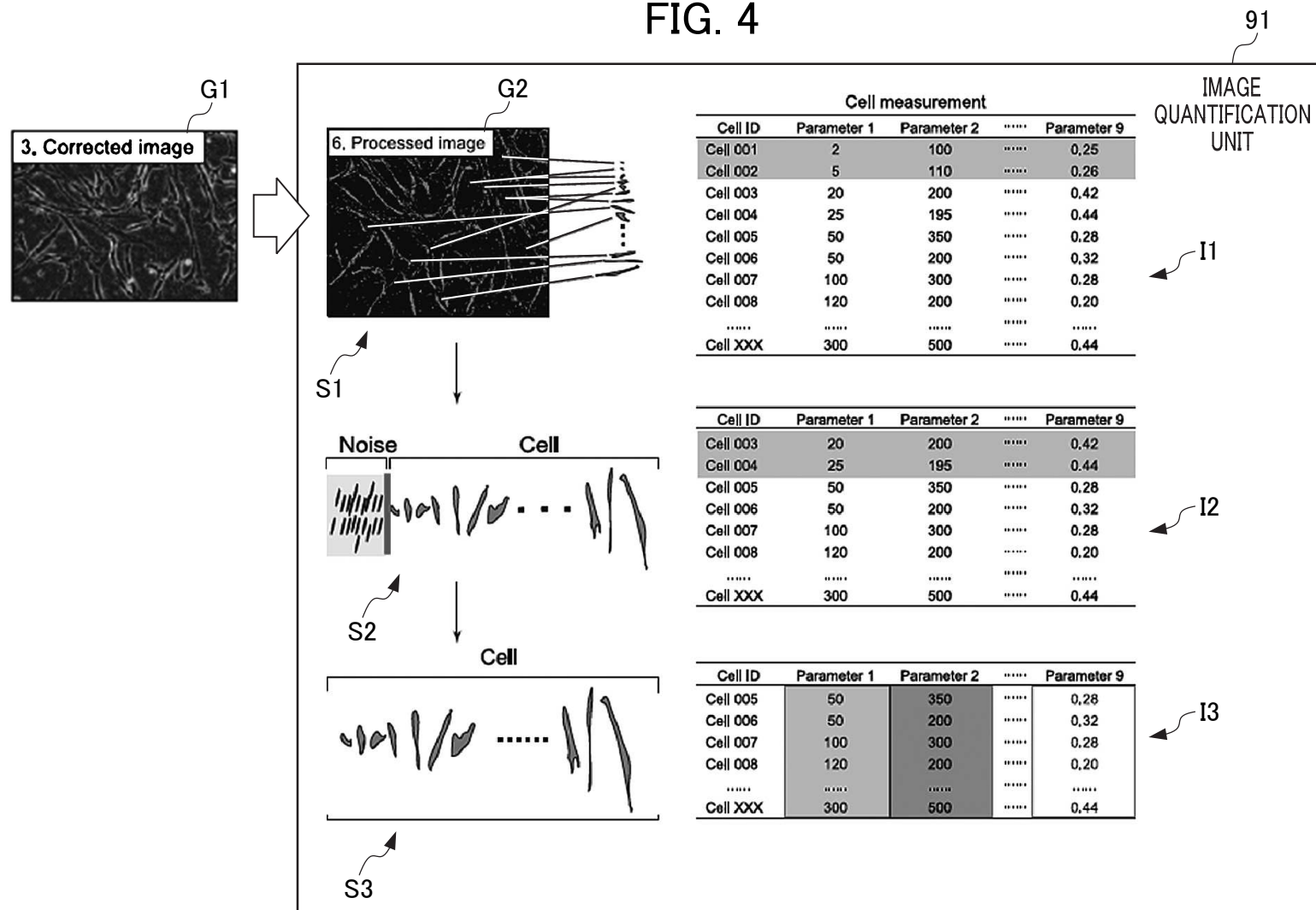


FIG. 5

No.	Original parameter	Example	Description
1	Total area		Area of object including any holes present, regardless of hole-filling.
*	Area		Area of the object without hole area.
*	Perimeter		Perimeter of the object measuring from the mid-points of each pixels around the border.
*	Length		Length of the longest chord through the object.
2	Breadth		Capliper width of the object perpendicular to the longest chord.
3	Inner radius		Distance from the centroid to the nearest point along the edge of the object.
No.	Composite parameter	Formula	Explanation
4	Elliptical form factor	Elliptical form factor = $\frac{\text{Length}}{\text{Breadth}}$	The elliptical from factor; the ratio of the object' s breadth to its length.
5	Fiber breadth	Fiber breadth = $\frac{1}{4} \times (P + \sqrt{P^2 - 16 \times A})$ (where P = Perimeter, A = Area)	Width of the object assuming that it is a fiber.
6	Fiber length	Fiber length = $\frac{1}{4} \times (P - \sqrt{P^2 - 16 \times A})$ (where P = Perimeter, A = Area)	Length of the object assuming that it is a fiber.
7	Shape factor	Shape factor = $\frac{4\pi \times \text{Area}}{\text{Perimeter}^2}$	Value from 0 to 1, representing how closely the object represents a circle. (circle = 1)

FIG. 6

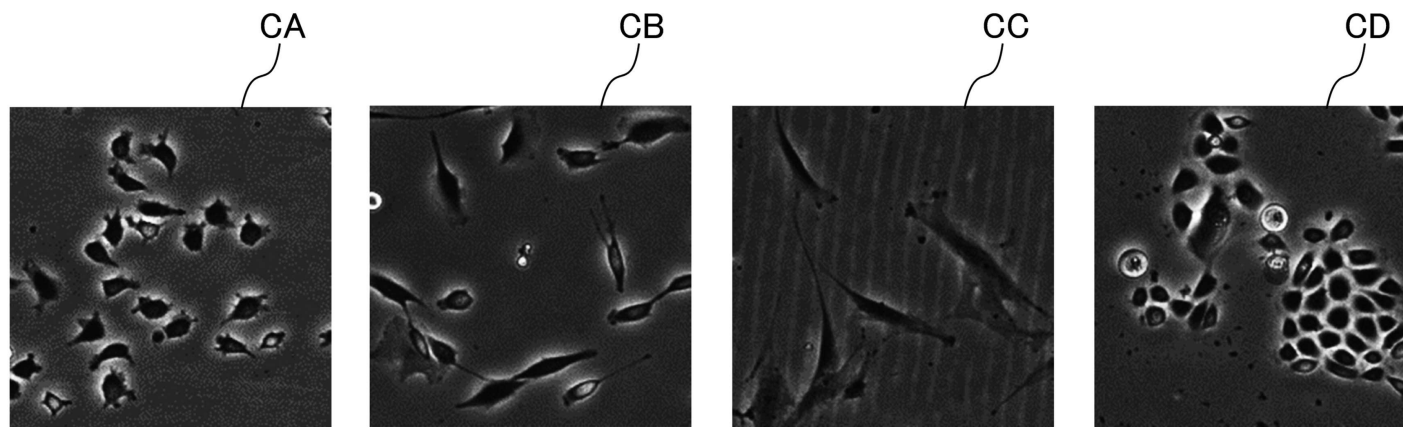


FIG. 7

Cell	CA	CB	CC	CD
Normal Area AVE 01pas	648	677	1368	713
Normal Area AVE 02pas	575	993	1511	723
Normal Area AVE 03pas	546	1010	1551	706
Normal Area AVE 04pas	559	1157	1483	652
Normal Area AVE 05pas	575	1050	1428	667
Normal Area AVE 06pas	611	973	1471	612
Normal Area AVE 07pas	648	828	1464	594
Normal Area AVE 08pas	717	756	1415	609
Normal Area AVE 09pas	785	766	1465	624
Normal Area AVE 10pas	829	787	1473	649
Normal Area SD 01pas	216	292	543	398
Normal Area SD 02pas	210	555	687	385
Normal Area SD 03pas	212	563	656	371
Normal Area SD 04pas	188	541	652	360
Normal Area SD 05pas	201	551	650	369
Normal Area SD 06pas	218	575	650	339
Normal Area SD 07pas	227	528	661	326
Normal Area SD 08pas	303	524	653	351
Normal Area SD 09pas	406	571	646	363
Normal Area SD 10pas	500	617	632	391
Normal Compactness AVE 01pas	16	16	21	16
Normal Compactness AVE 02pas	15	19	27	17
Normal Compactness AVE 03pas	14	19	28	16
Normal Compactness AVE 04pas	13	20	27	14
Normal Compactness AVE 05pas	14	19	27	14
Normal Compactness AVE 06pas	15	19	27	13
Normal Compactness AVE 07pas	16	17	27	12
Normal Compactness AVE 08pas	18	16	26	12
Normal Compactness AVE 09pas	20	17	26	13
Normal Compactness AVE 10pas	21	18	26	13
Normal Compactness SD 01pas	7	6	10	10
Normal Compactness SD 02pas	6	9	13	11
Normal Compactness SD 03pas	6	9	14	9
Normal Compactness SD 04pas	5	10	14	8
Normal Compactness SD 05pas	5	10	13	7
Normal Compactness SD 06pas	6	10	13	6
Normal Compactness SD 07pas	6	10	13	6
Normal Compactness SD 08pas	9	10	13	6
Normal Compactness SD 09pas	11	11	12	6
Normal Compactness SD 10pas	13	11	12	6

FIG. 8

Cell	CA	CB	CC	CD
Area 1pas 1bin	32	100	0	0
Area 1pas 2bin	134	101	32	306
Area 1pas 3bin	141	123	47	170
Area 1pas 4bin	118	118	47	81
Area 1pas 5bin	54	93	89	51
Area 1pas 6bin	20	32	125	32
Area 1pas 7bin	7	14	140	17
Area 1pas 8bin	4	7	119	18
Area 1pas 9bin	1	8	79	6
Area 1pas 10bin	2	2	71	8
Area 1pas 11bin	0	2	67	7
Area 1pas 12bin	0	2	144	26
Compactness 1pas 1bin	3	1	0	4
Compactness 1pas 2bin	167	170	103	343
Compactness 1pas 3bin	130	177	158	134
Compactness 1pas 4bin	75	100	179	49
Compactness 1pas 5bin	46	60	134	37
Compactness 1pas 6bin	34	44	93	37
Compactness 1pas 7bin	22	21	74	24
Compactness 1pas 8bin	8	11	67	25
Compactness 1pas 9bin	9	5	43	20
Compactness 1pas 10bin	8	5	37	6
Compactness 1pas 11bin	6	2	24	8
Compactness 1pas 12bin	5	6	48	35

FIG. 9

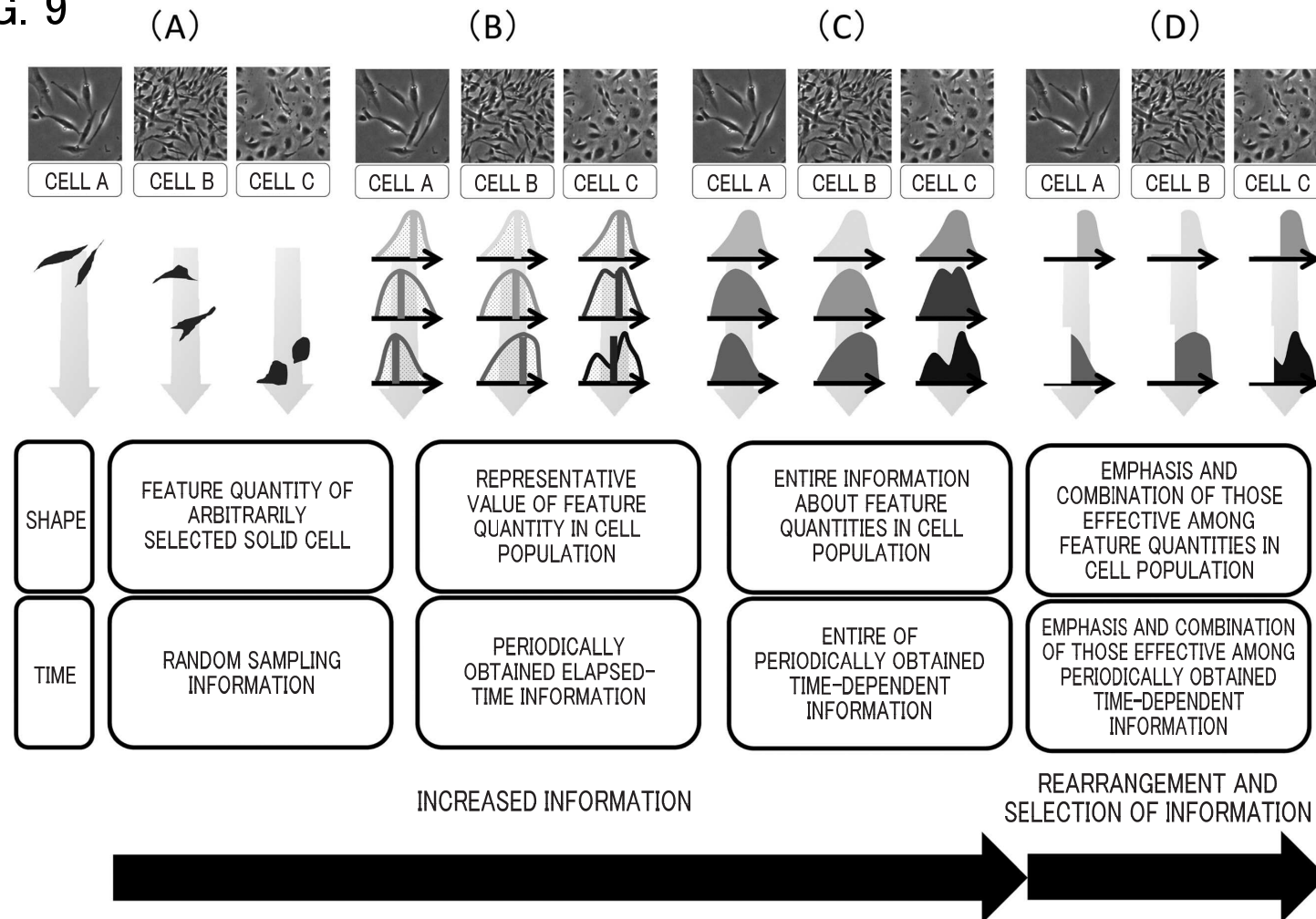


FIG. 10

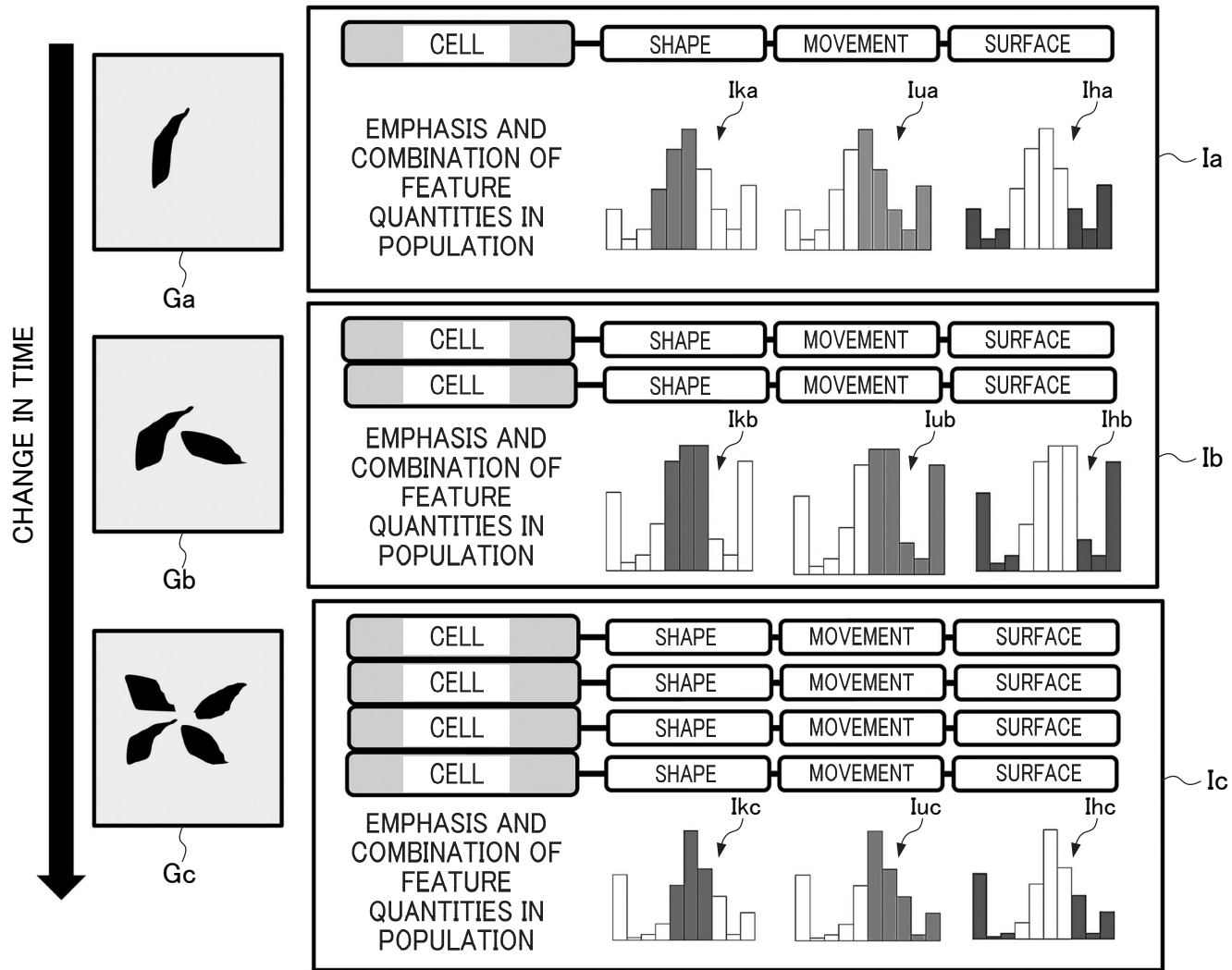


FIG. 11

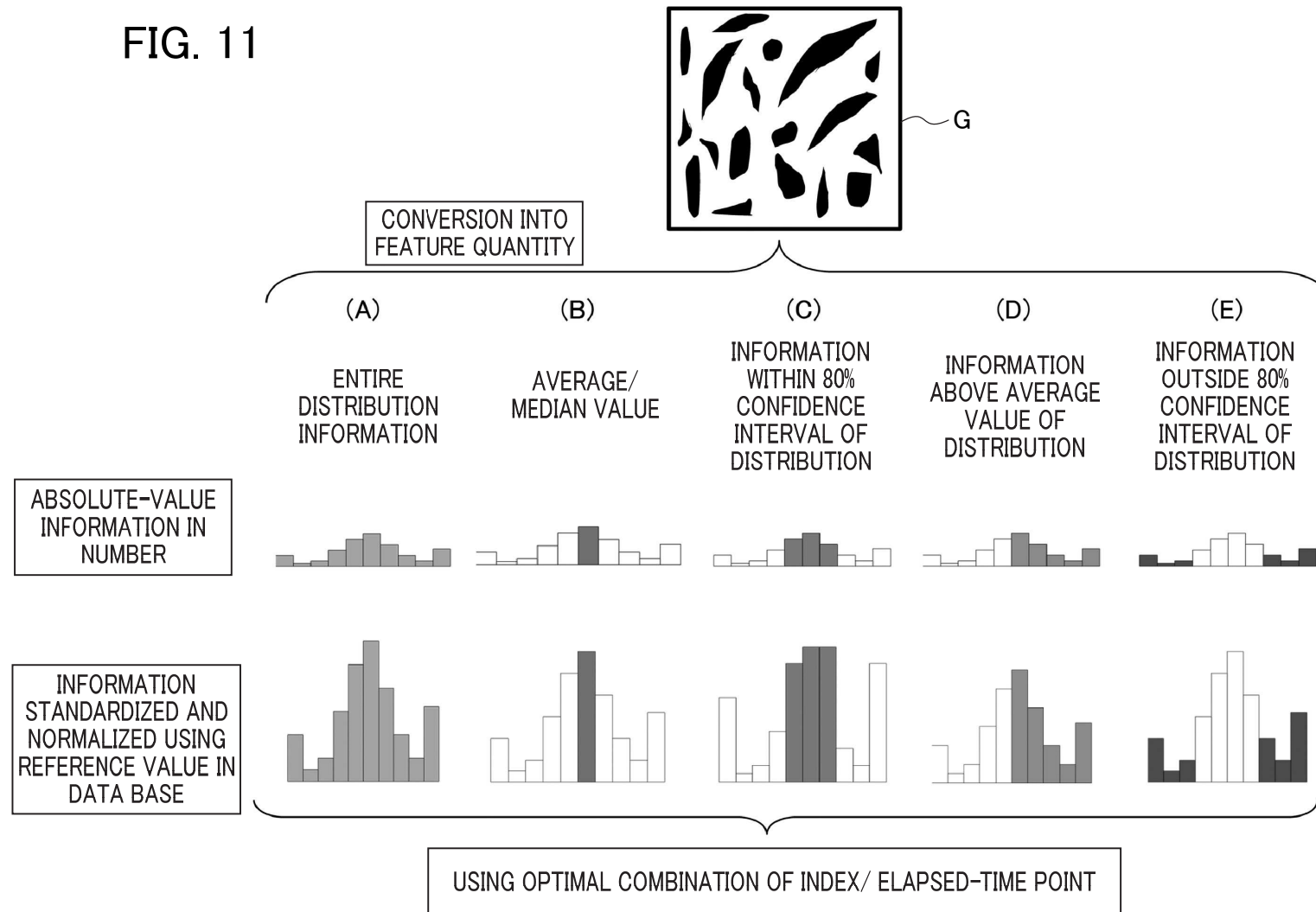
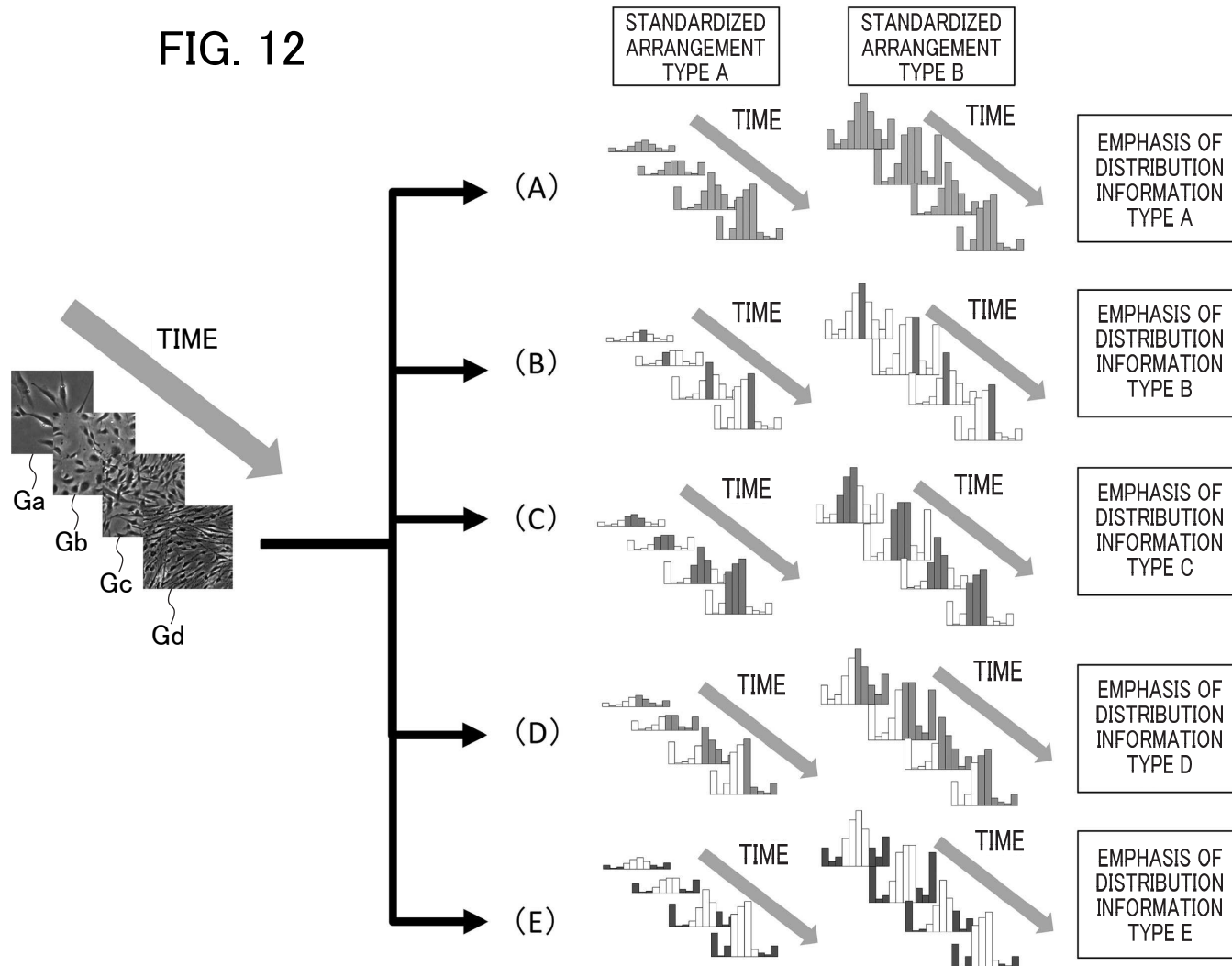


FIG. 12



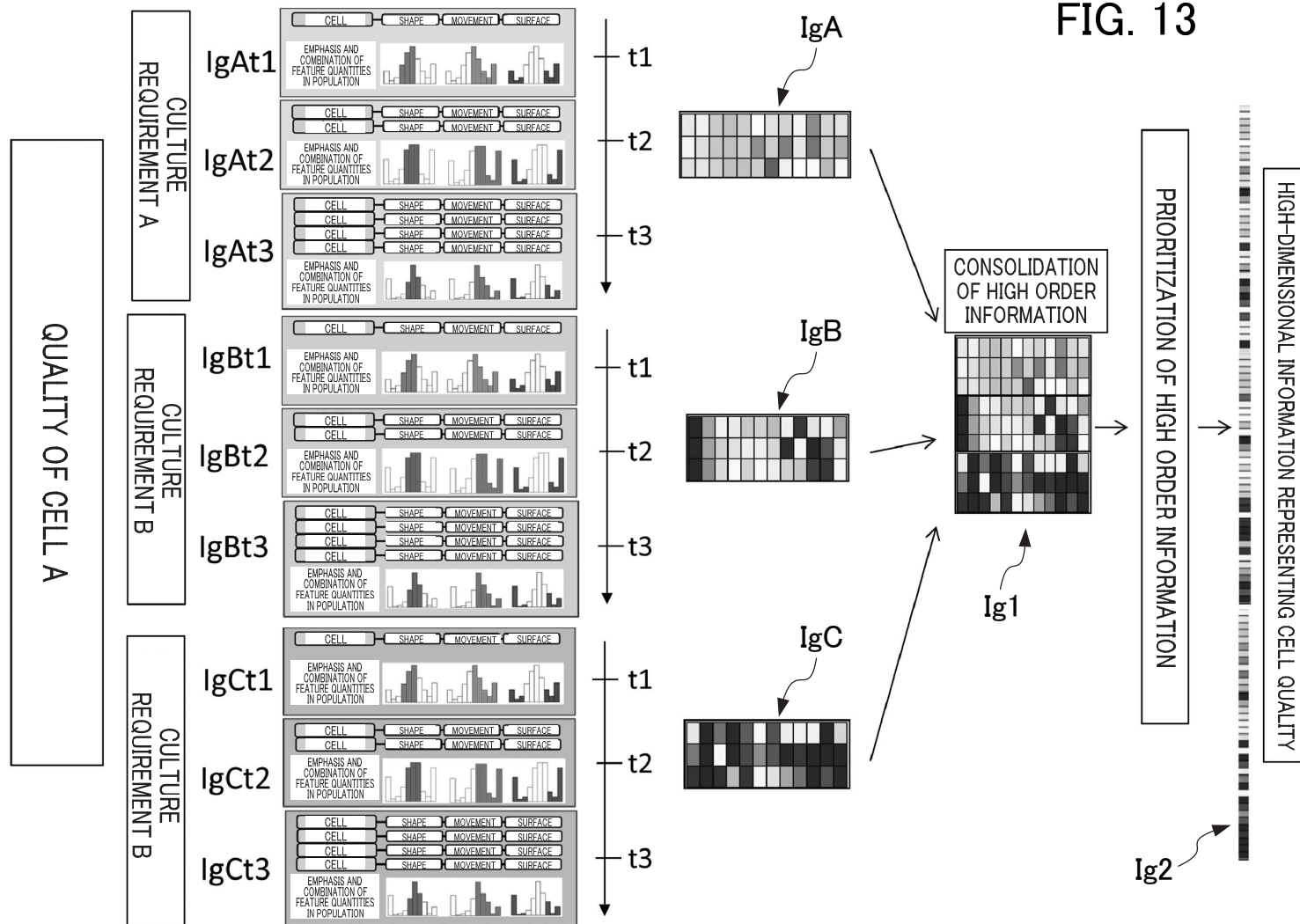


FIG. 13

FIG. 14

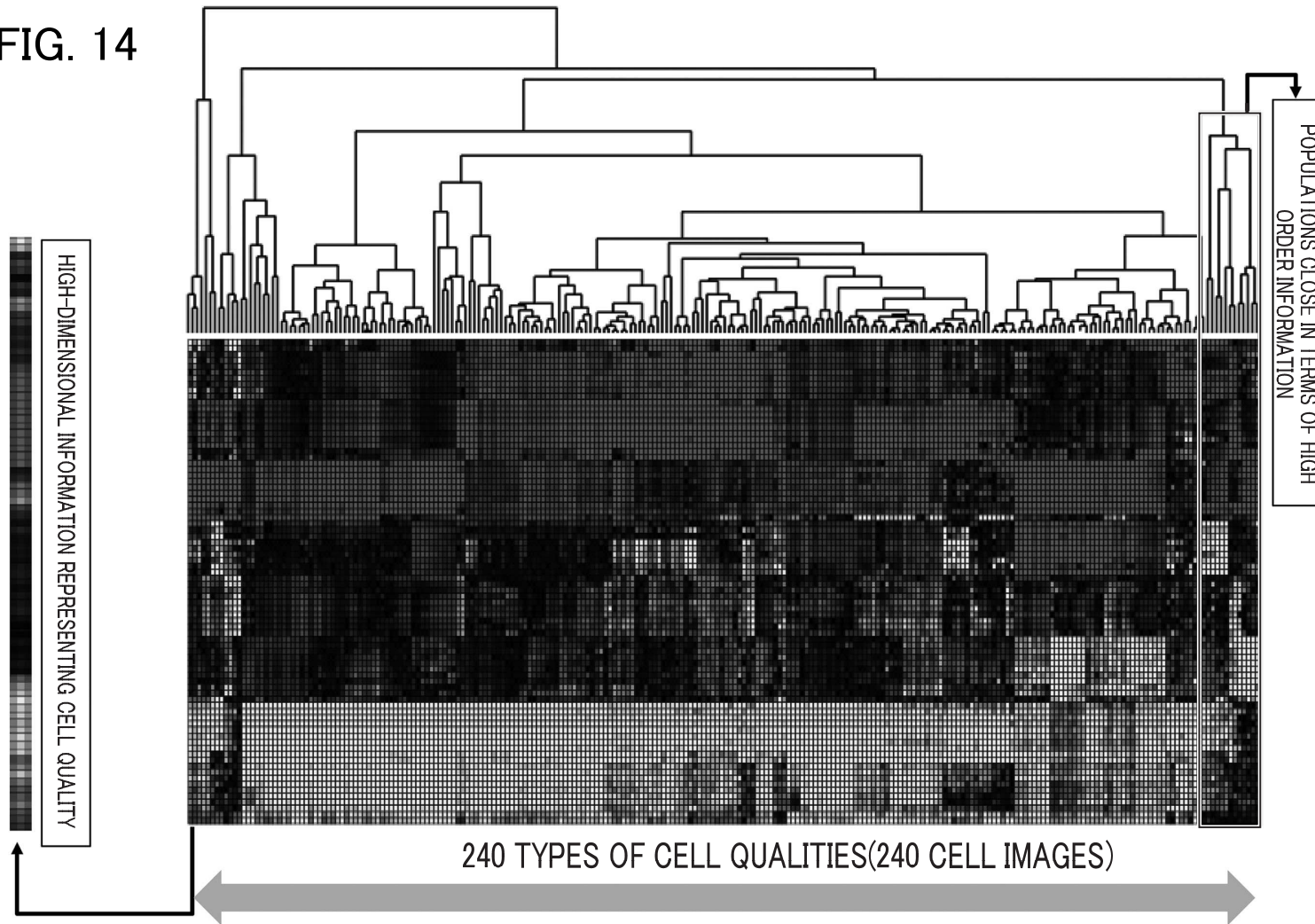


FIG. 15

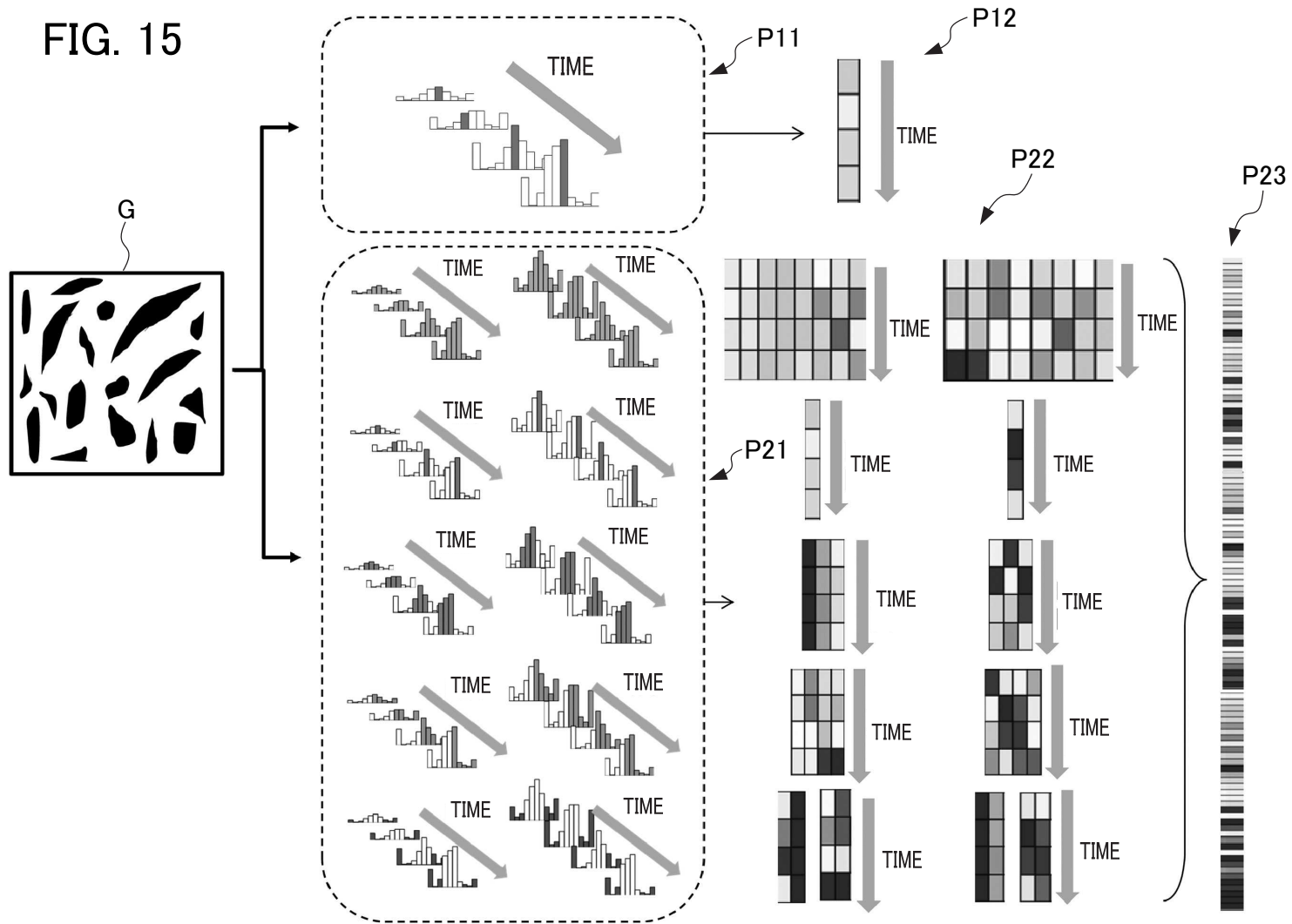


FIG. 16

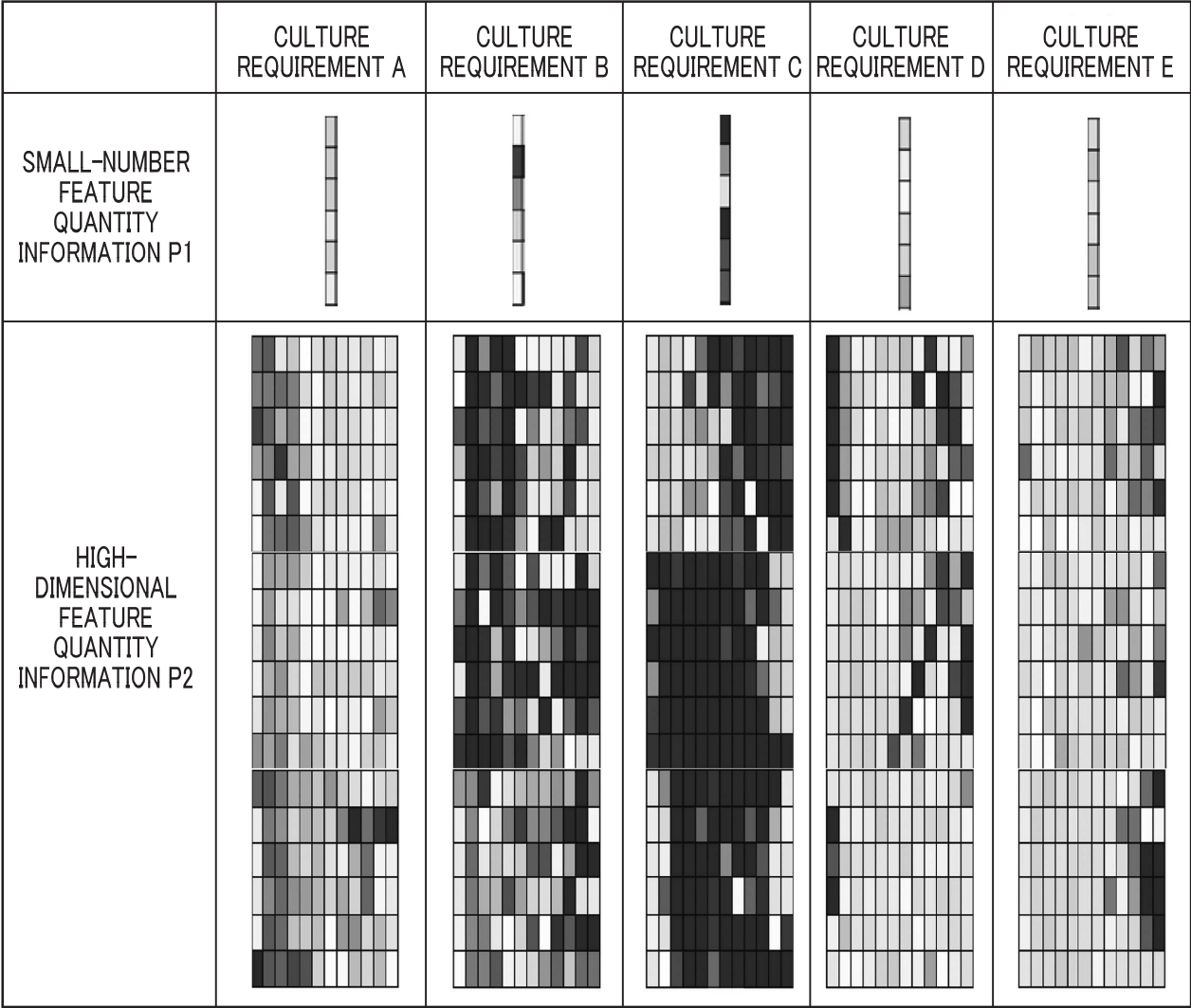


FIG. 17

PREDICTIVE ACCURACY OF CHANGES IN CELL QUALITY					
label	QUALITY A	QUALITY B	QUALITY C	QUALITY D	QUALITY E
AVERAGE OF CELL MORPHOLOGY	87.5	79.2	75.0	75.0	100.0
STANDARDIZED TYPE A	79.2	75.0	81.3	93.8	100.0
STANDARDIZED TYPE B	87.5	75.0	93.8	93.8	100.0
STANDARDIZED TYPE C	87.5	75.0	87.5	87.5	100.0
STANDARDIZED TYPE D	83.3	45.8	87.5	87.5	100.0
STANDARDIZED TYPE F	91.7	66.7	93.8	93.8	100.0

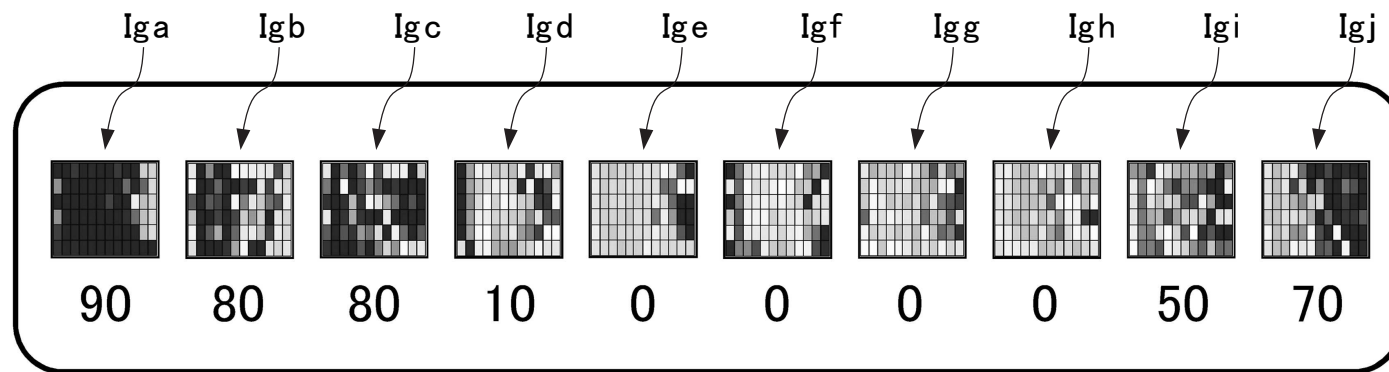
UNIT : [%]

FIG. 18

RESULTS FROM PROFILING OF CELL QUALITY/CELL CULTURE REQUIREMENTS USING HIGH ORDER INFORMATION
(RESULTS FROM 55 TIMES OF DETERMINATION TRIALS DISPLAYS ARE SHOWN BY ■)

True label \ Predicted label	CELL A MEDIUM A			CELL B MEDIUM B			CELL C MEDIUM A			CELL C MEDIUM B			CELL C MEDIUM C			CELL D MEDIUM B		
	1 well	2 well	3 well	1 well	2 well	3 well	1 well	2 well	3 well	1 well	2 well	3 well	1 well	2 well	3 well	1 well	2 well	3 well
CELL A MEDIUM A	■																	
CELL B MEDIUM B				■														■
CELL C MEDIUM A				■		■	■											■
CELL C MEDIUM B										■								
CELL C MEDIUM C													■			■		
CELL D MEDIUM B																■		

FIG. 19



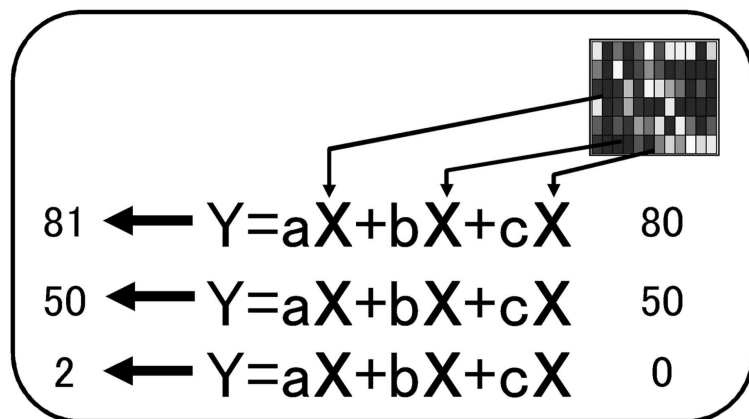


FIG. 20A

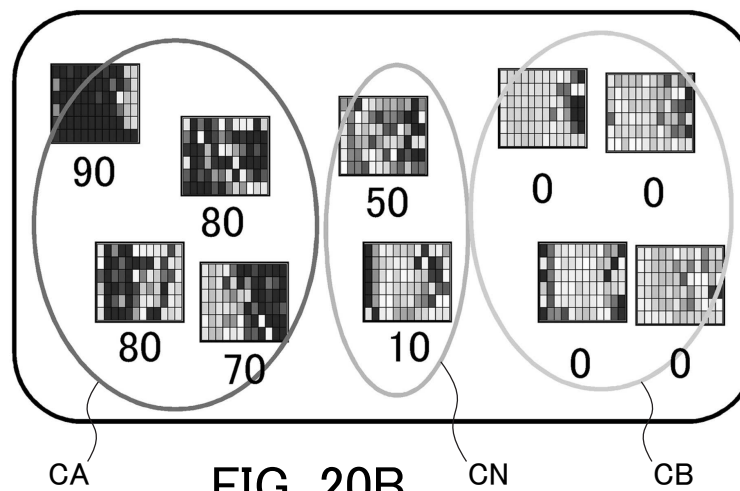


FIG. 21

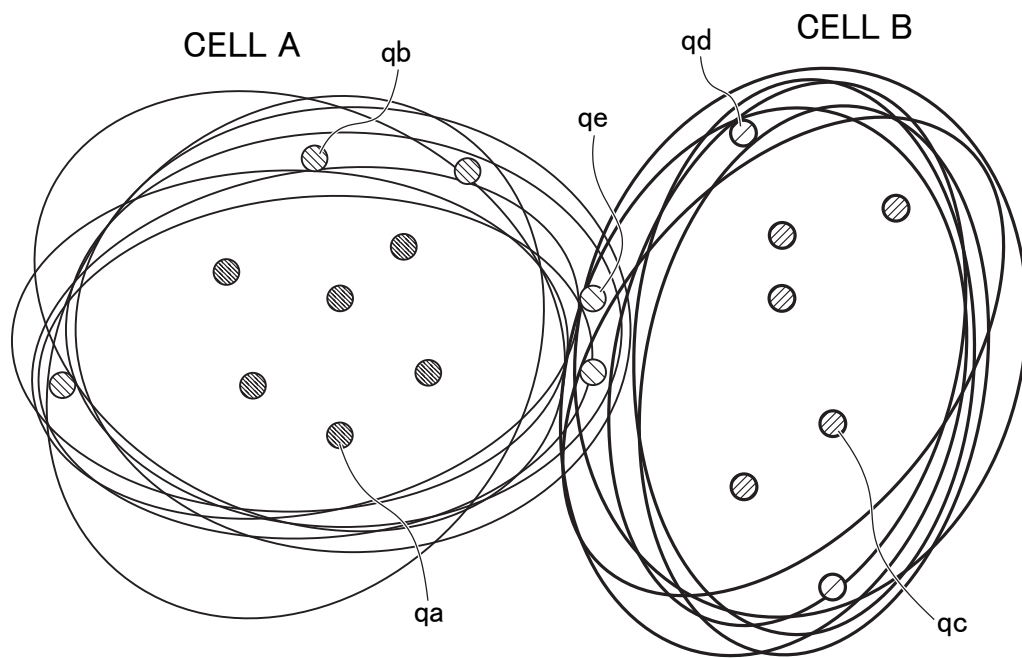


FIG. 22

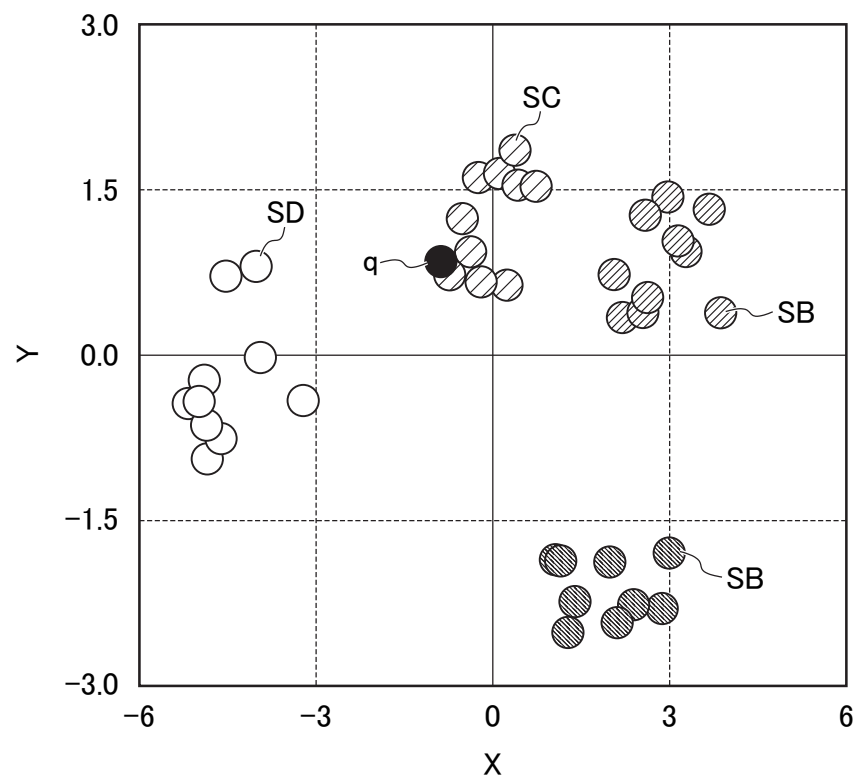


FIG. 23

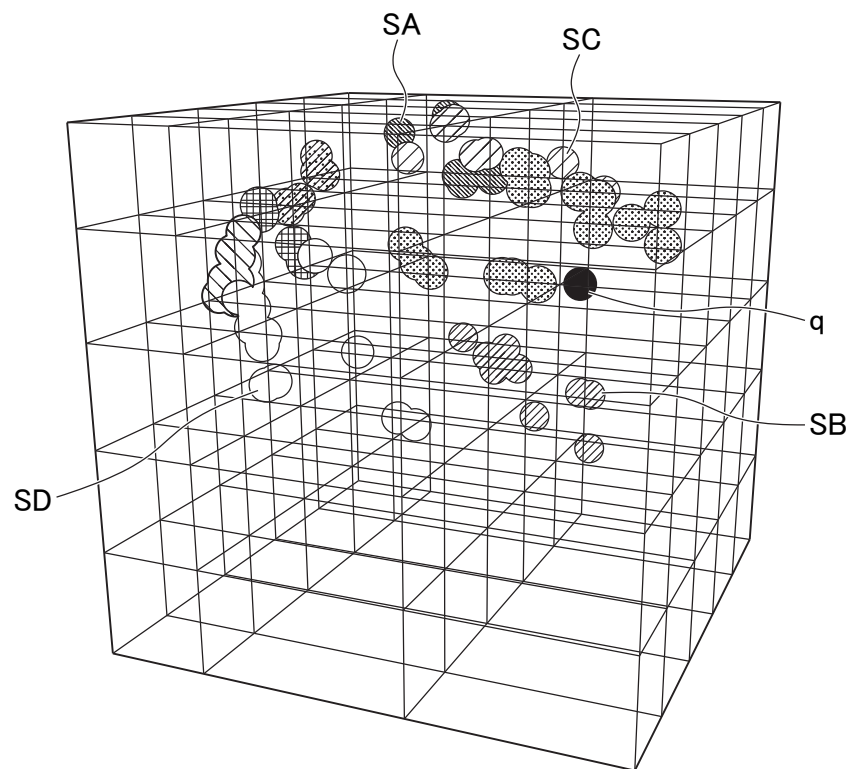


FIG. 24

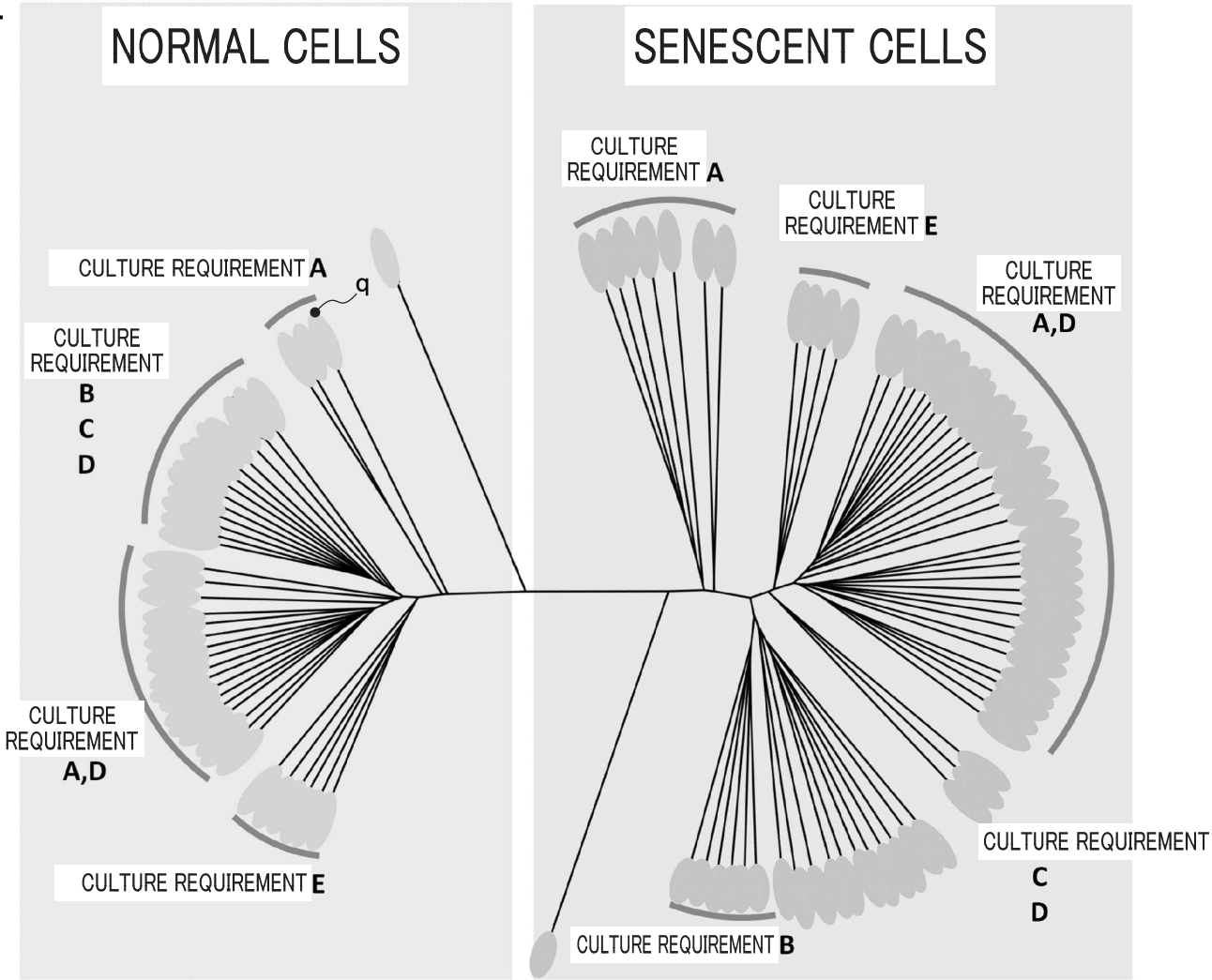


FIG. 25

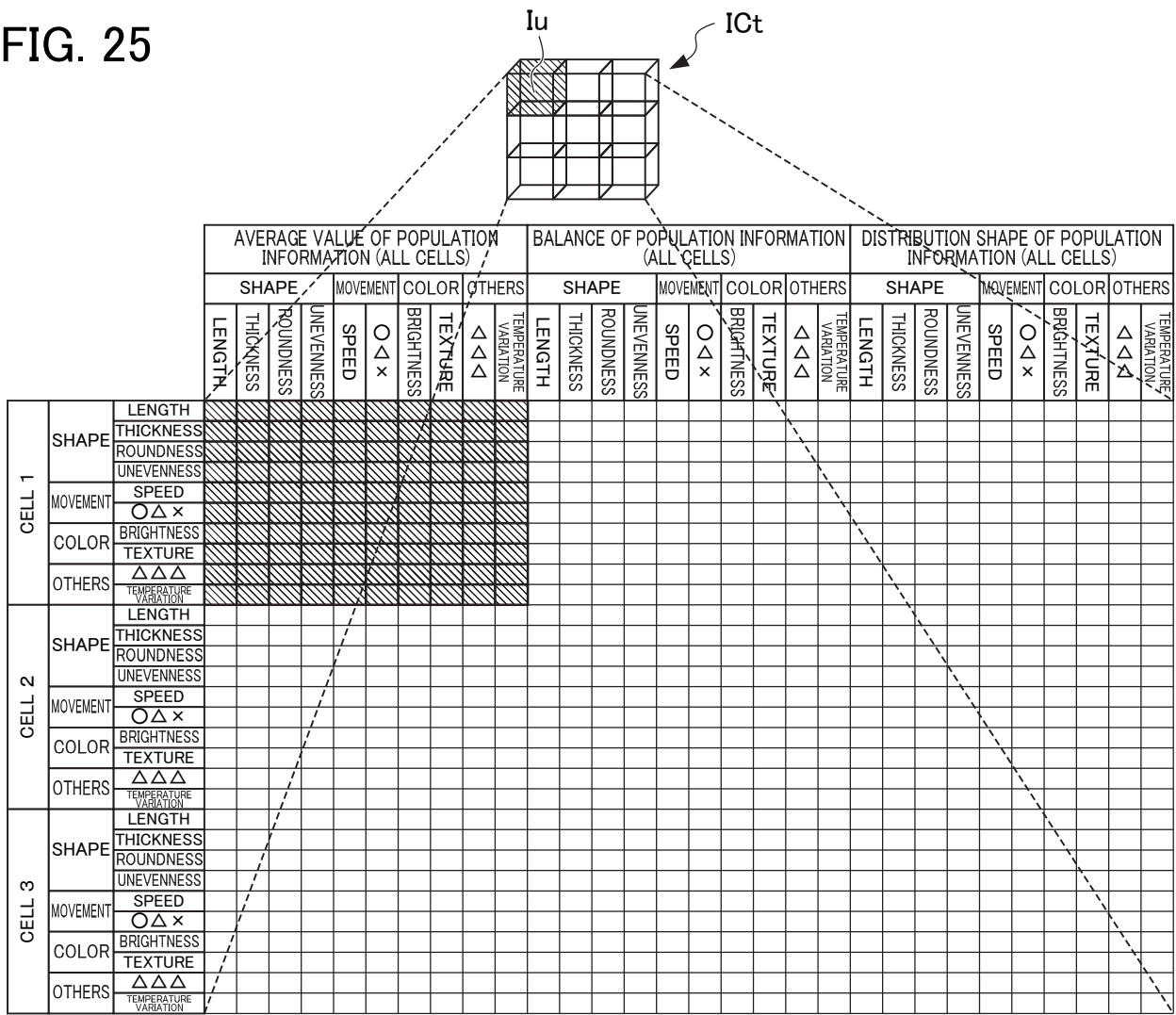


FIG. 26

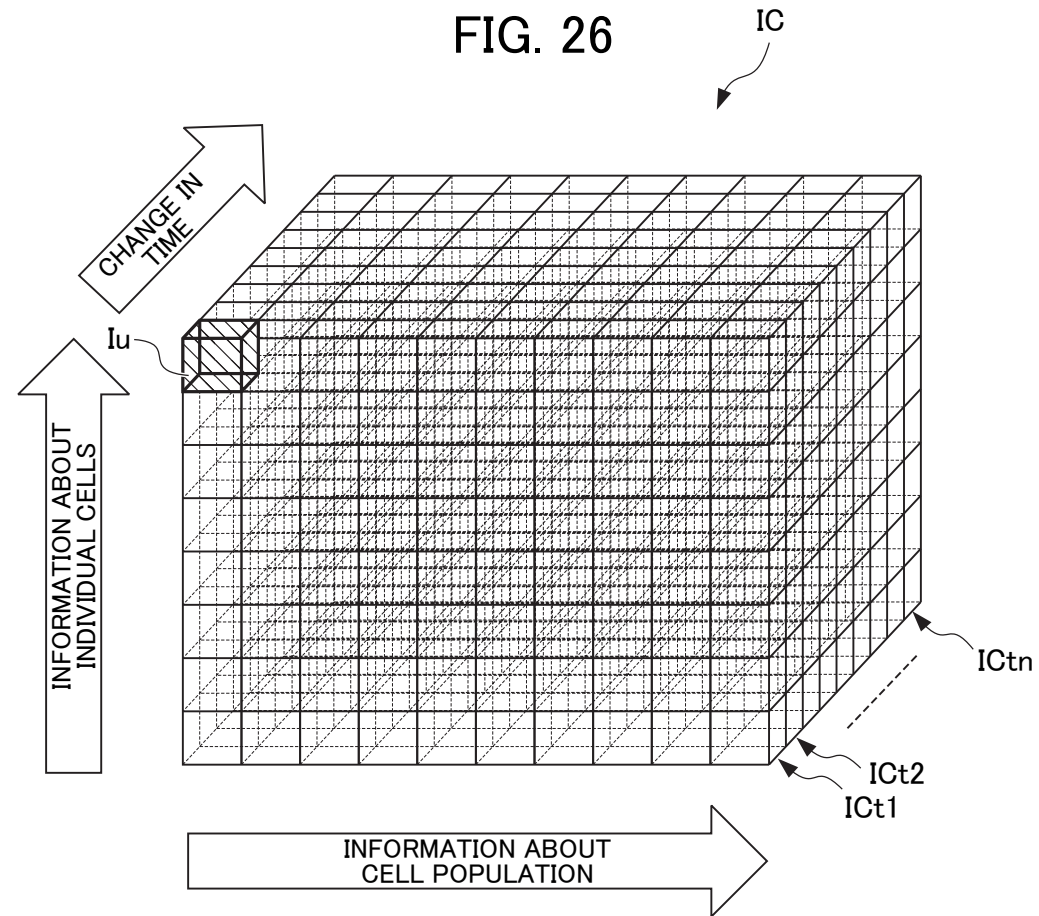


FIG. 27

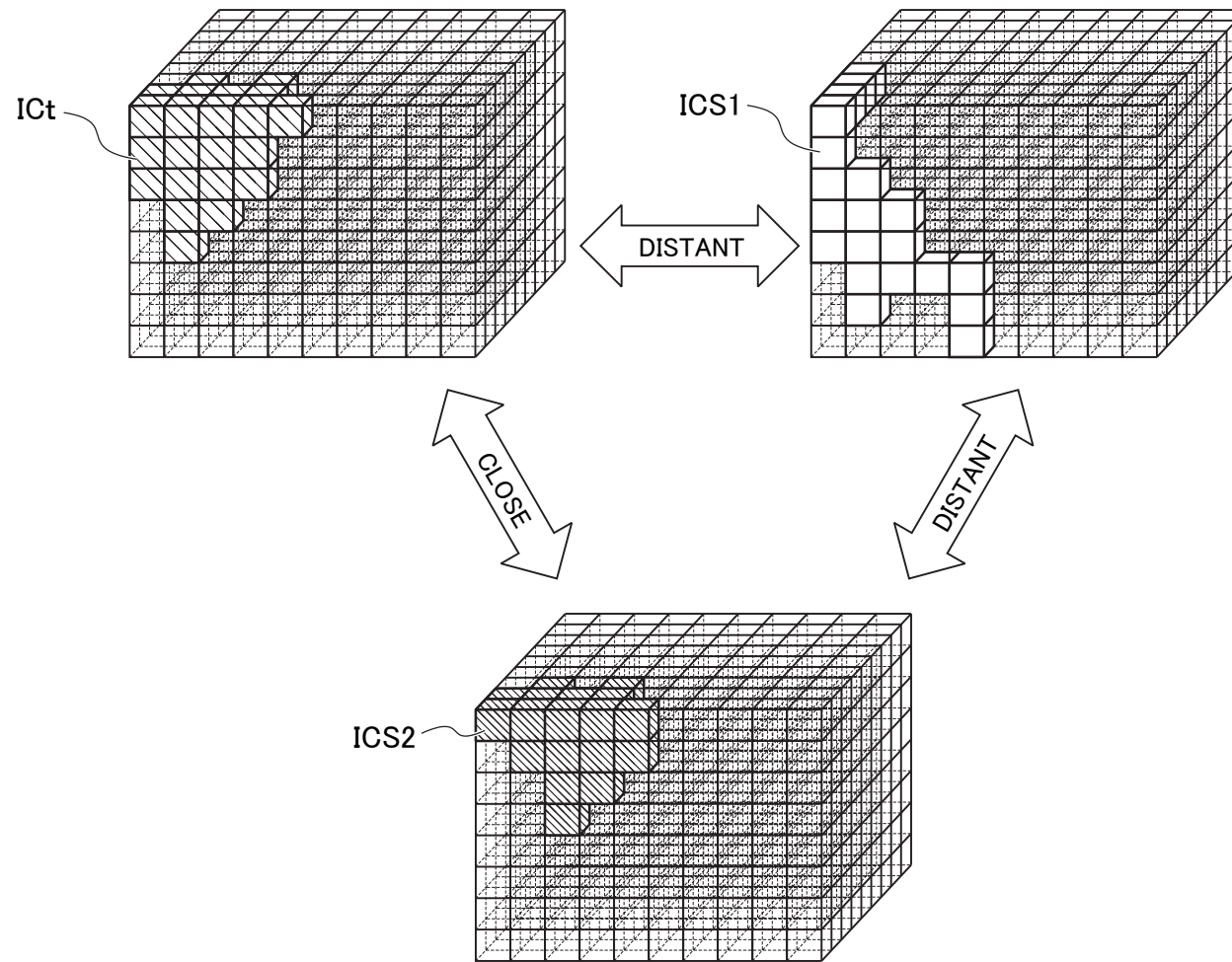


FIG. 28

G0

<EVALUATION RESULTS>

PROBABILITY OF A CELL IN CULTURE BEING A MESENCHYMAL STEM CELL
(FROM BONE MARROW) IS : 80%

RANKING	HOMOLOGY SCORE	EVALUATION CRITERIA	Sample ID	CELL TYPE	ORIGIN	PASSAGE NUMBER	AGE	SEX	MEDIUM
1	99	80	AD0023	MESENCHYMAL STEM CELL	BONE MARROW	3	42	F	MSCGM
2	80	78	AFPI1002	MESENCHYMAL STEM CELL	BONE MARROW	3	34	F	DMEM+10%FBS
3	70	75	DJ3002	MESENCHYMAL STEM CELL	ADIPOCYTE	4	45	F	F-media
4	20	64	FD1003	FIBROCYTE	DERMIS	2	32	M	DMEM+10%FBS
5	20	55	JT10034	MESENCHYMAL STEM CELL	ADIPOCYTE	3	26	M	MSCGM
6	15	50	JS100002	FIBROCYTE	DERMIS	2	25	F	DMEM+10%FBS

THE QUALITY OF A CELL IN CULTURE IS : **GRADE A**
PROBABILITY OF BELONGING TO A MESENCHYMAL STEM CELL
(FROM BONE MARROW) WITH HIGH GROWTH RATE /DEGREE OF
DIFFERENTIATION IS 80%

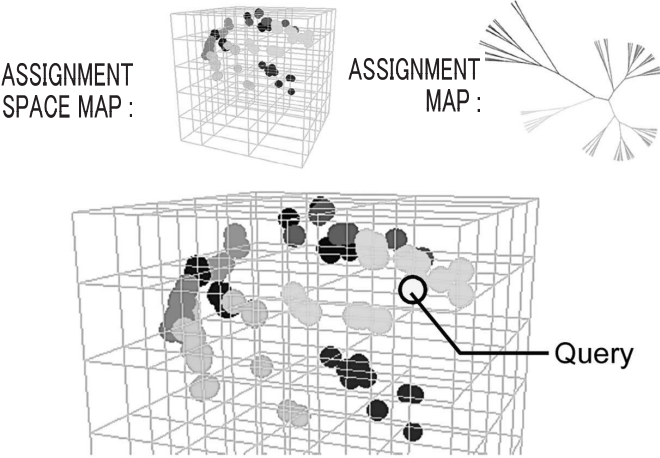
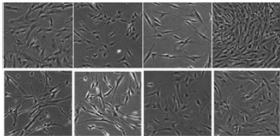


IMAGE DB LINK :



Images:



Movies:



Omics DB LINK :



Option DB LINK :



CLINICAL DB LINK :



FIG. 29

G0

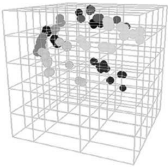
<EVALUATION RESULTS>

PROBABILITY OF A CELL IN CULTURE BEING A MESENCHYMAL STEM CELL
(FROM BONE MARROW) IS : 80%

RANKING	HOMOLOGY SCORE	EVALUATION CRITERIA	Sample ID	CELL TYPE	ORIGIN	PASSAGE NUMBER	AGE	SEX	MEDIUM
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2	80	78	AFP11002	MESENCHYMAL STEM CELL	BONE MARROW	3	34	F	DMEM+10%FBS
3	70	75	DJ3002	MESENCHYMAL STEM CELL	ADIPOCYTE	4	45	F	F-media
4	20	64	FD1003	FIBROCYTE	DERMIS	2	32	M	DMEM+10%FBS
5	20	55	JT10034	MESENCHYMAL STEM CELL	ADIPOCYTE	3	26	M	MSCGM
6	15	50	JS100002	FIBROCYTE	DERMIS	2	25	F	DMEM+10%FBS

THE QUALITY OF A CELL IN CULTURE IS : **GRADE A**
PROBABILITY OF BELONGING TO A MESENCHYMAL STEM CELL
(FROM BONE MARROW) WITH HIGH GROWTH RATE /DEGREE OF
DIFFERENTIATION IS 80%

ASSIGNMENT
SPACE MAP :



ASSIGNMENT
MAP :

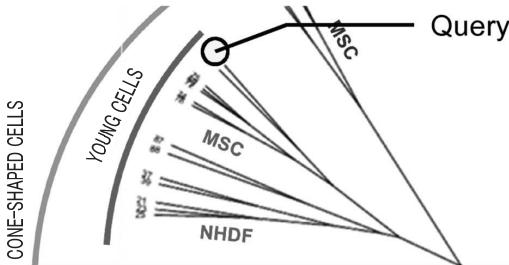
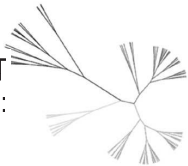


IMAGE DB LINK :



Omics DB LINK :



Option DB LINK :



CLINICAL DB LINK :



Clinical results:

