DRAWINGS

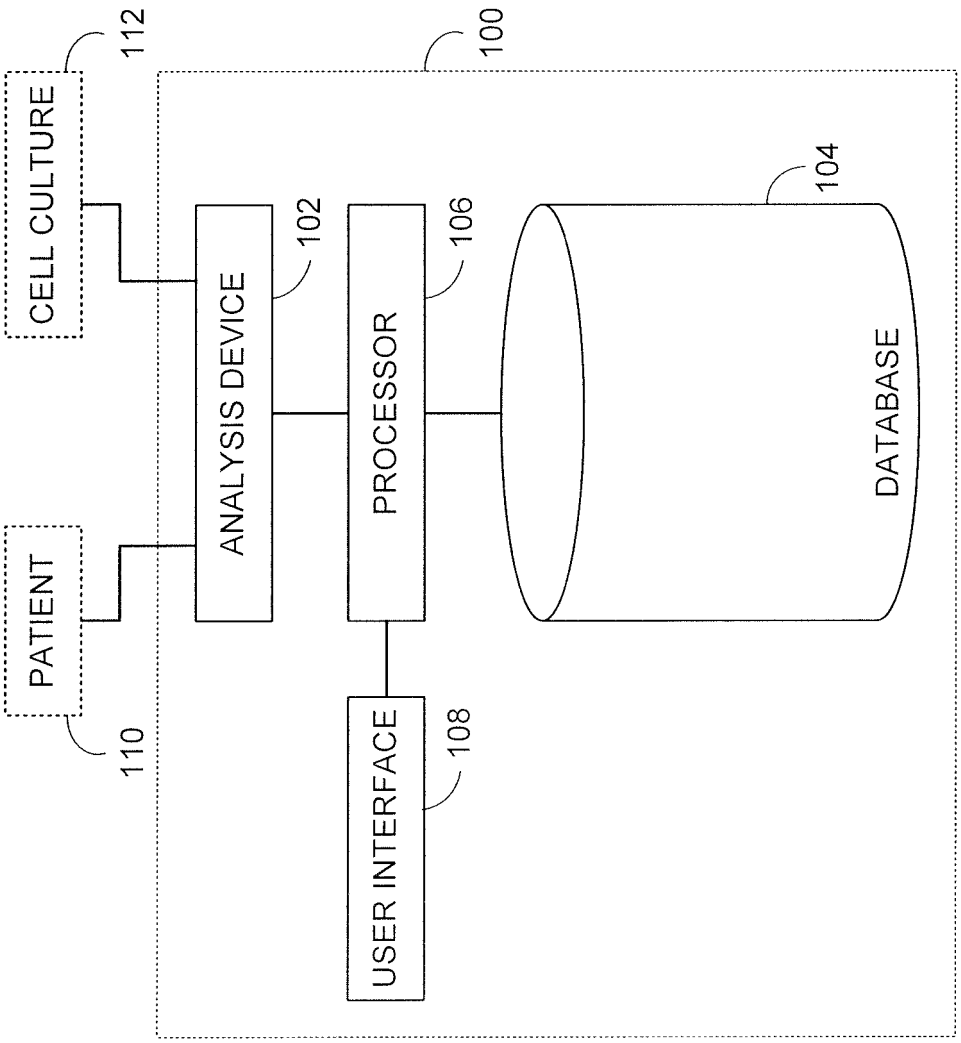

FIG. 1

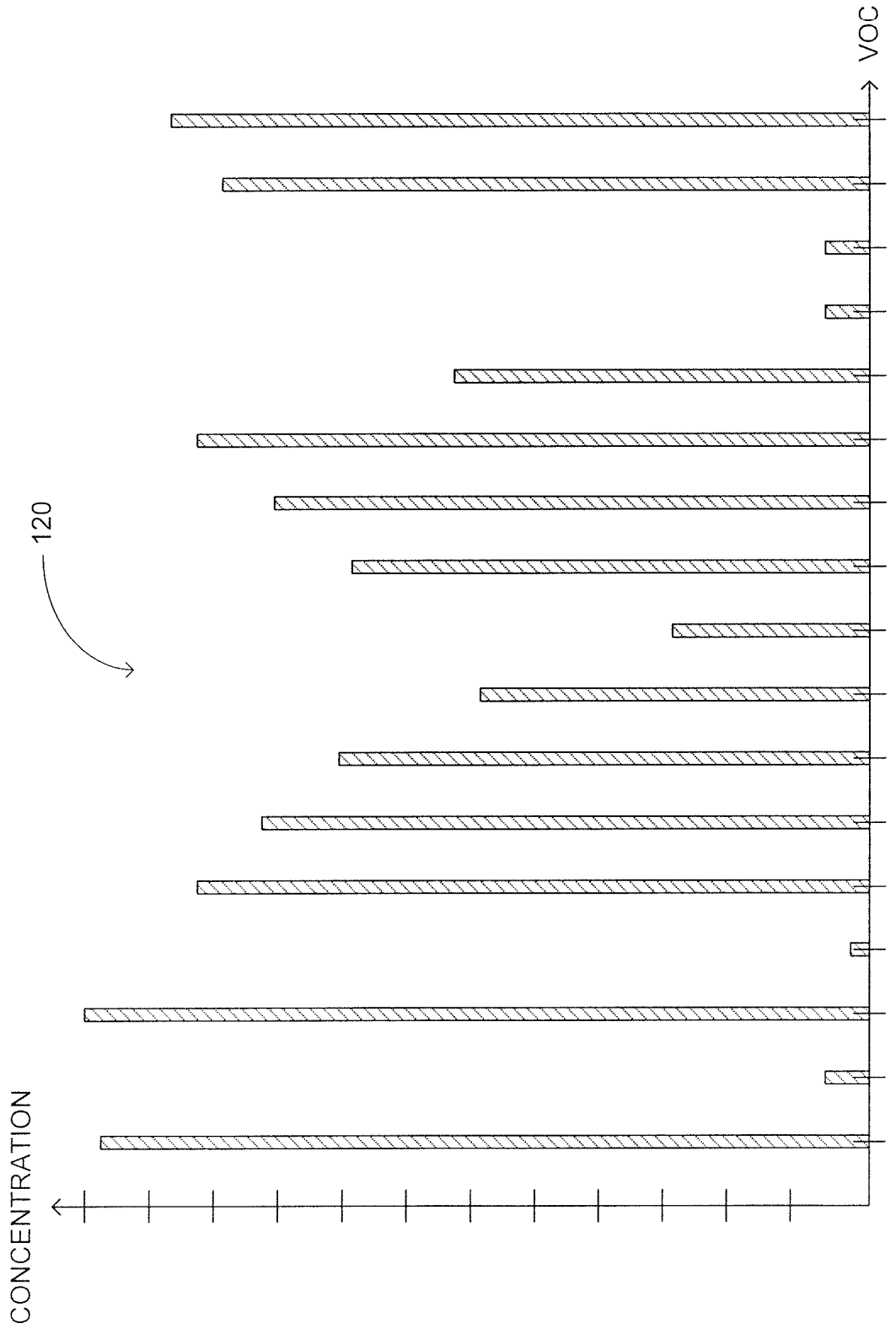

FIG. 2A

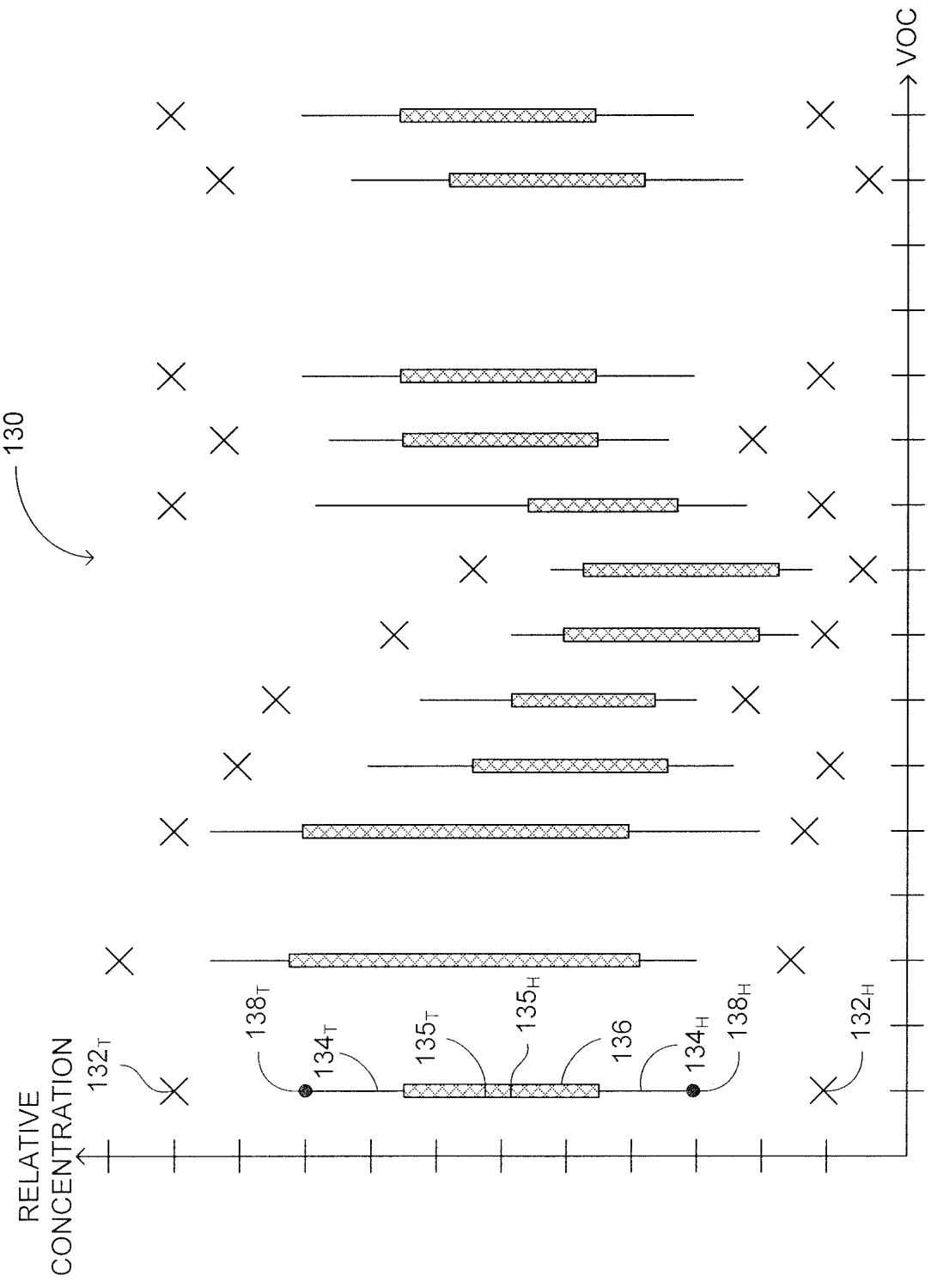
130
RELATIVE CONCENTRATION
VOC
132_T
138_T
134_T
135_T
135_H
136
134_H
138_H
132_H

FIG. 2B

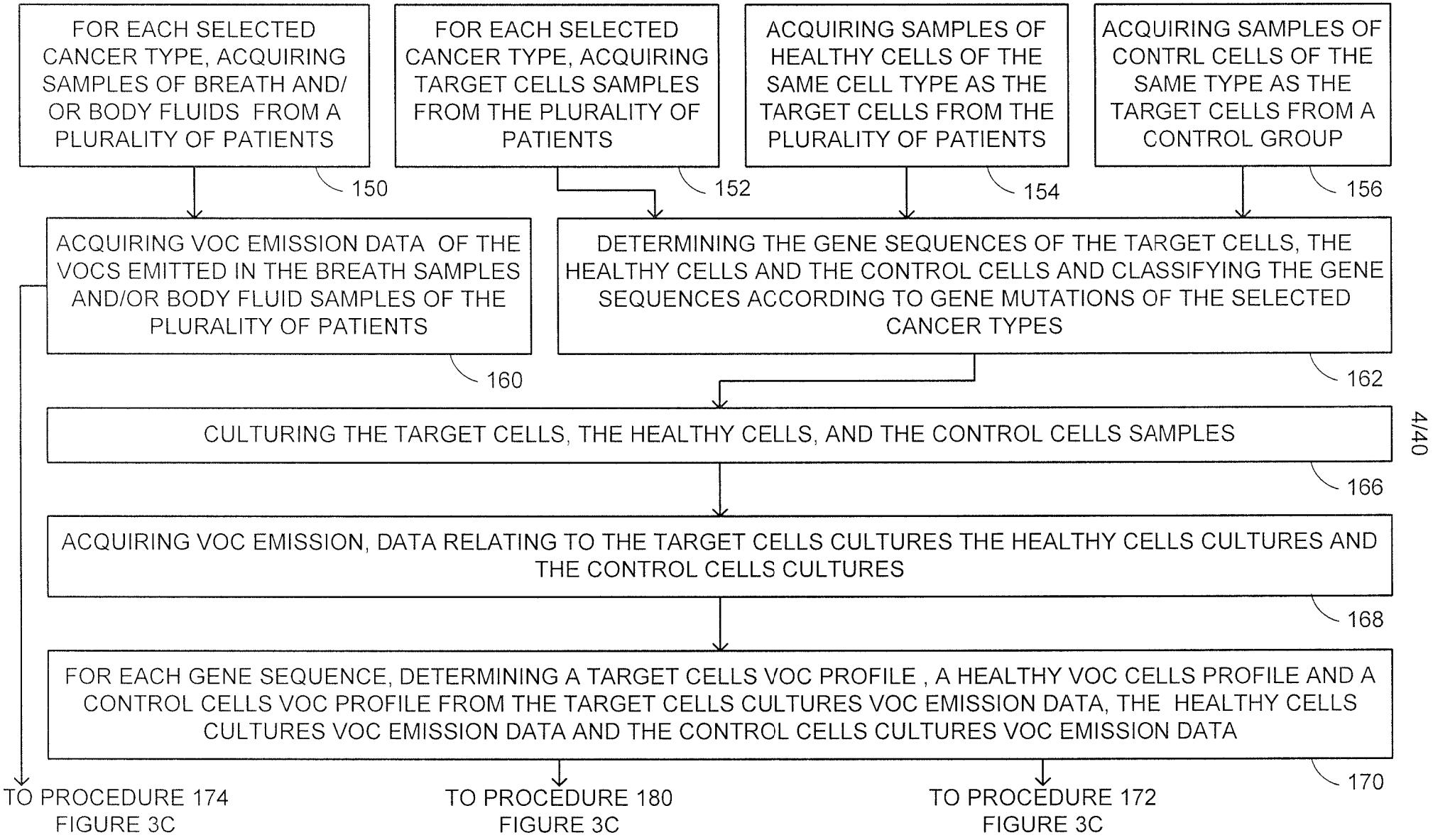
FOR EACH SELECTED CANCER TYPE, ACQUIRING SAMPLES OF BREATH AND/ OR BODY FLUIDS FROM A PLURALITY OF PATIENTS
150
FOR EACH SELECTED CANCER TYPE, ACQUIRING TARGET CELLS SAMPLES FROM THE PLURALITY OF PATIENTS
152
ACQUIRING SAMPLES OF HEALTHY CELLS OF THE SAME CELL TYPE AS THE TARGET CELLS FROM THE PLURALITY OF PATIENTS
154
ACQUIRING SAMPLES OF CONTRL CELLS OF THE SAME TYPE AS THE TARGET CELLS FROM A CONTROL GROUP
156
ACQUIRING VOC EMISSION DATA OF THE VOCS EMITTED IN THE BREATH SAMPLES AND/OR BODY FLUID SAMPLES OF THE PLURALITY OF PATIENTS
160
DETERMINING THE GENE SEQUENCES OF THE TARGET CELLS, THE HEALTHY CELLS AND THE CONTROL CELLS AND CLASSIFYING THE GENE SEQUENCES ACCORDING TO GENE MUTATIONS OF THE SELECTED CANCER TYPES
162
CULTURING THE TARGET CELLS, THE HEALTHY CELLS, AND THE CONTROL CELLS SAMPLES
166
ACQUIRING VOC EMISSION, DATA RELATING TO THE TARGET CELLS CULTURES THE HEALTHY CELLS CULTURES AND THE CONTROL CELLS CULTURES
168
FOR EACH GENE SEQUENCE, DETERMINING A TARGET CELLS VOC PROFILE , A HEALTHY VOC CELLS PROFILE AND A CONTROL CELLS VOC PROFILE FROM THE TARGET CELLS CULTURES VOC EMISSION DATA, THE HEALTHY CELLS CULTURES VOC EMISSION DATA AND THE CONTROL CELLS CULTURES VOC EMISSION DATA
170
TO PROCEDURE 174 FIGURE 3C
TO PROCEDURE 180 FIGURE 3C
TO PROCEDURE 172 FIGURE 3C

FIG. 3A

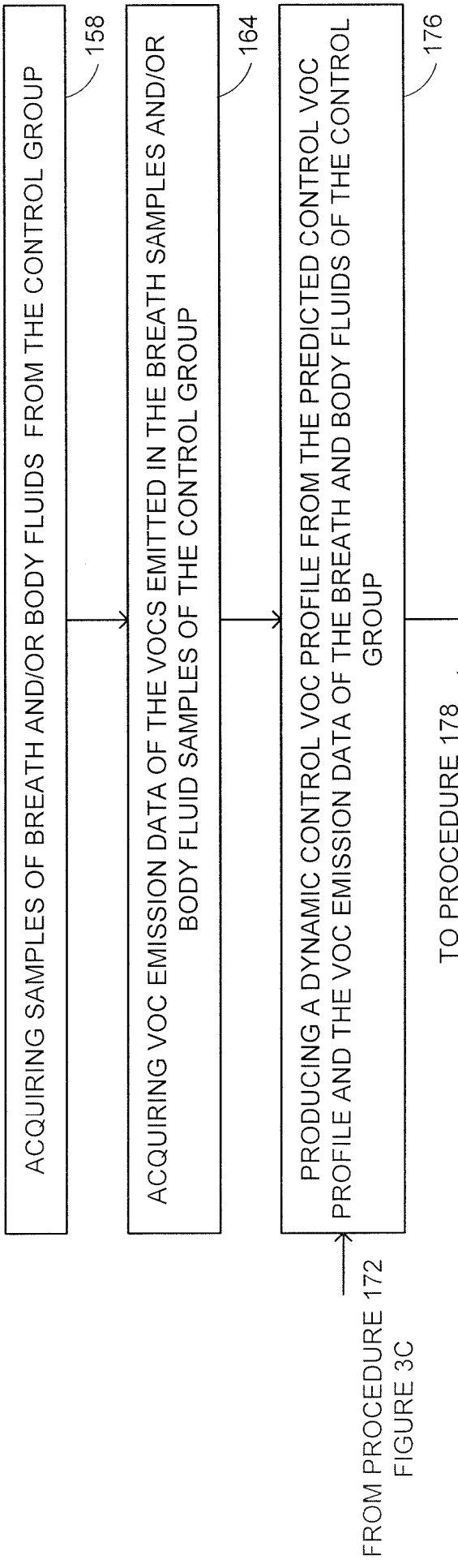
ACQUIRING SAMPLES OF BREATH AND/OR BODY FLUIDS FROM THE CONTROL GROUP
158
ACQUIRING VOC EMISSION DATA OF THE VOCS EMITTED IN THE BREATH SAMPLES AND/OR BODY FLUID SAMPLES OF THE CONTROL GROUP
164
PRODUCING A DYNAMIC CONTROL VOC PROFILE FROM THE PREDICTED CONTROL VOC PROFILE AND THE VOC EMISSION DATA OF THE BREATH AND BODY FLUIDS OF THE CONTROL GROUP
176
FROM PROCEDURE 172 FIGURE 3C
TO PROCEDURE 178 FIGURE 3C

FIG. 3B

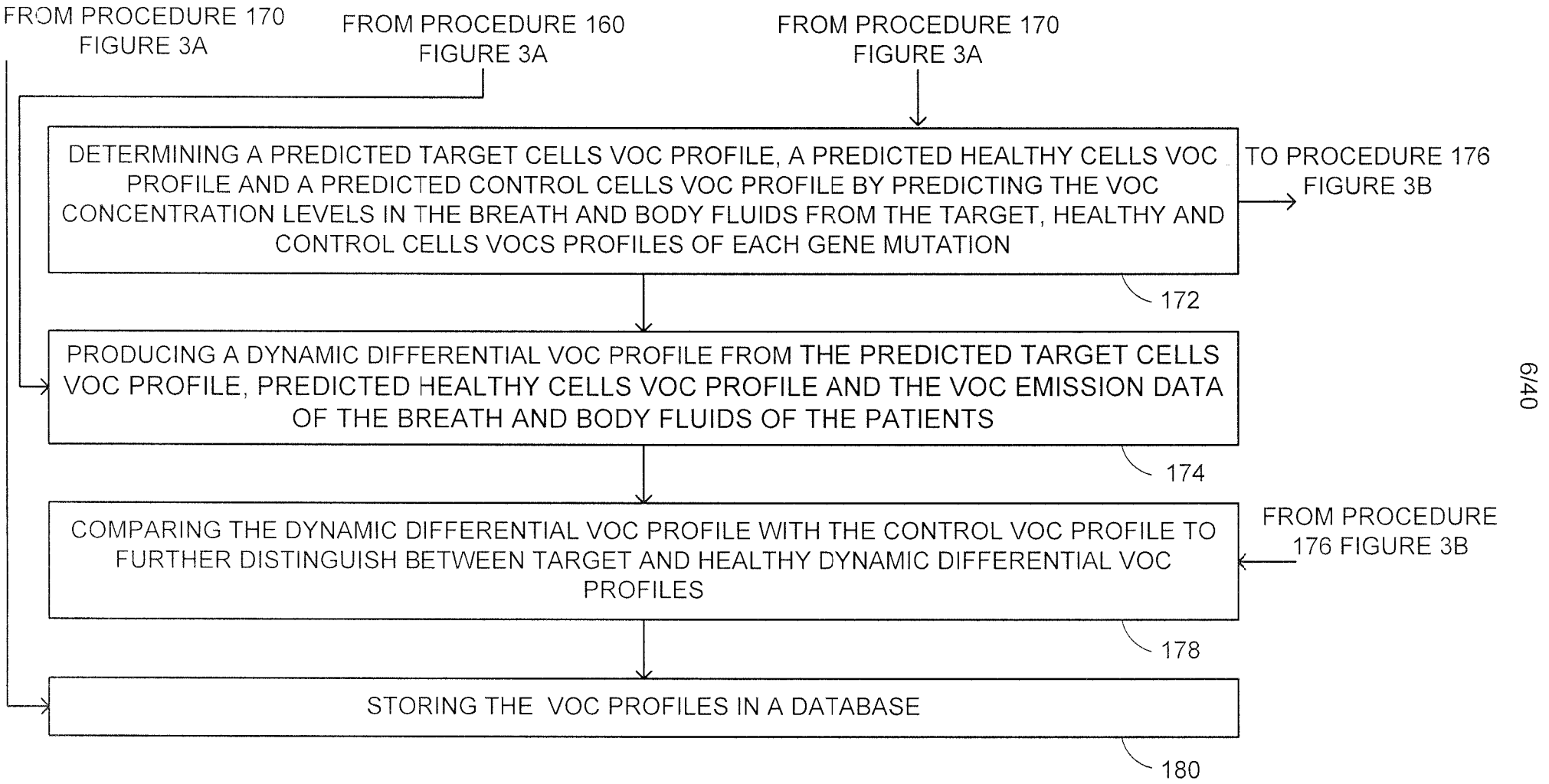
FROM PROCEDURE 170
FIGURE 3A
FROM PROCEDURE 160
FIGURE 3A
FROM PROCEDURE 170
FIGURE 3A
DETERMINING A PREDICTED TARGET CELLS VOC PROFILE, A PREDICTED HEALTHY CELLS VOC PROFILE AND A PREDICTED CONTROL CELLS VOC PROFILE BY PREDICTING THE VOC CONCENTRATION LEVELS IN THE BREATH AND BODY FLUIDS FROM THE TARGET, HEALTHY AND CONTROL CELLS VOCS PROFILES OF EACH GENE MUTATION
TO PROCEDURE 176
FIGURE 3B
172
PRODUCING A DYNAMIC DIFFERENTIAL VOC PROFILE FROM THE PREDICTED TARGET CELLS VOC PROFILE, PREDICTED HEALTHY CELLS VOC PROFILE AND THE VOC EMISSION DATA OF THE BREATH AND BODY FLUIDS OF THE PATIENTS
174
COMPARING THE DYNAMIC DIFFERENTIAL VOC PROFILE WITH THE CONTROL VOC PROFILE TO FURTHER DISTINGUISH BETWEEN TARGET AND HEALTHY DYNAMIC DIFFERENTIAL VOC PROFILES
FROM PROCEDURE
176 FIGURE 3B
178
STORING THE VOC PROFILES IN A DATABASE
180

FIG. 3C

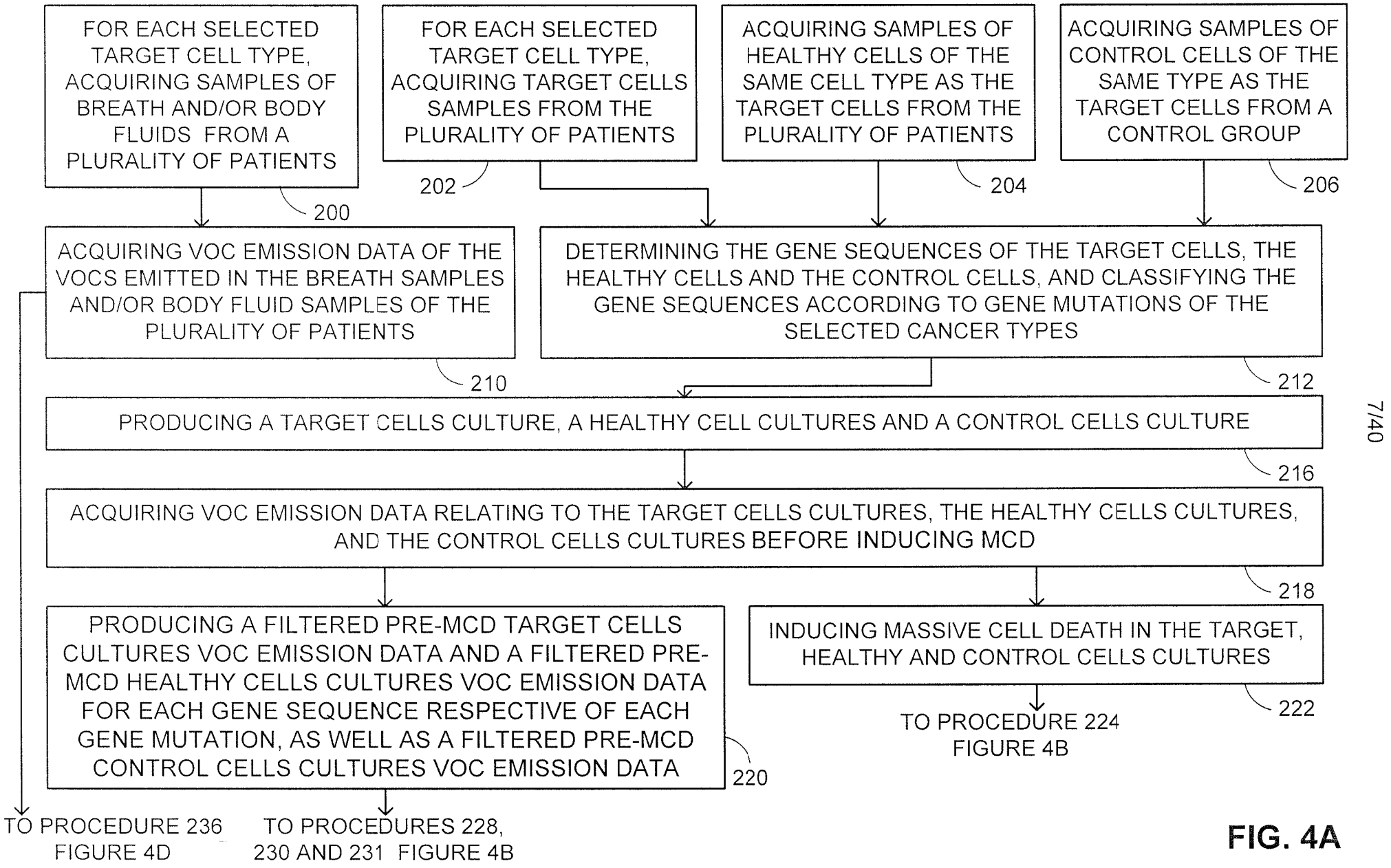
FOR EACH SELECTED TARGET CELL TYPE, ACQUIRING SAMPLES OF BREATH AND/OR BODY FLUIDS FROM A PLURALITY OF PATIENTS
200
FOR EACH SELECTED TARGET CELL TYPE, ACQUIRING TARGET CELLS SAMPLES FROM THE PLURALITY OF PATIENTS
202
ACQUIRING SAMPLES OF HEALTHY CELLS OF THE SAME CELL TYPE AS THE TARGET CELLS FROM THE PLURALITY OF PATIENTS
204
ACQUIRING SAMPLES OF CONTROL CELLS OF THE SAME TYPE AS THE TARGET CELLS FROM A CONTROL GROUP
206
ACQUIRING VOC EMISSION DATA OF THE VOCS EMITTED IN THE BREATH SAMPLES AND/OR BODY FLUID SAMPLES OF THE PLURALITY OF PATIENTS
210
DETERMINING THE GENE SEQUENCES OF THE TARGET CELLS, THE HEALTHY CELLS AND THE CONTROL CELLS, AND CLASSIFYING THE GENE SEQUENCES ACCORDING TO GENE MUTATIONS OF THE SELECTED CANCER TYPES
212
PRODUCING A TARGET CELLS CULTURE, A HEALTHY CELL CULTURES AND A CONTROL CELLS CULTURE
216
ACQUIRING VOC EMISSION DATA RELATING TO THE TARGET CELLS CULTURES, THE HEALTHY CELLS CULTURES, AND THE CONTROL CELLS CULTURES BEFORE INDUCING MCD
218
PRODUCING A FILTERED PRE-MCD TARGET CELLS CULTURES VOC EMISSION DATA AND A FILTERED PRE-MCD HEALTHY CELLS CULTURES VOC EMISSION DATA FOR EACH GENE SEQUENCE RESPECTIVE OF EACH GENE MUTATION, AS WELL AS A FILTERED PRE-MCD CONTROL CELLS CULTURES VOC EMISSION DATA
220
INDUCING MASSIVE CELL DEATH IN THE TARGET, HEALTHY AND CONTROL CELLS CULTURES
222
TO PROCEDURE 224 FIGURE 4B
TO PROCEDURE 236 FIGURE 4D
TO PROCEDURES 228, 230 AND 231 FIGURE 4B

FIG. 4A

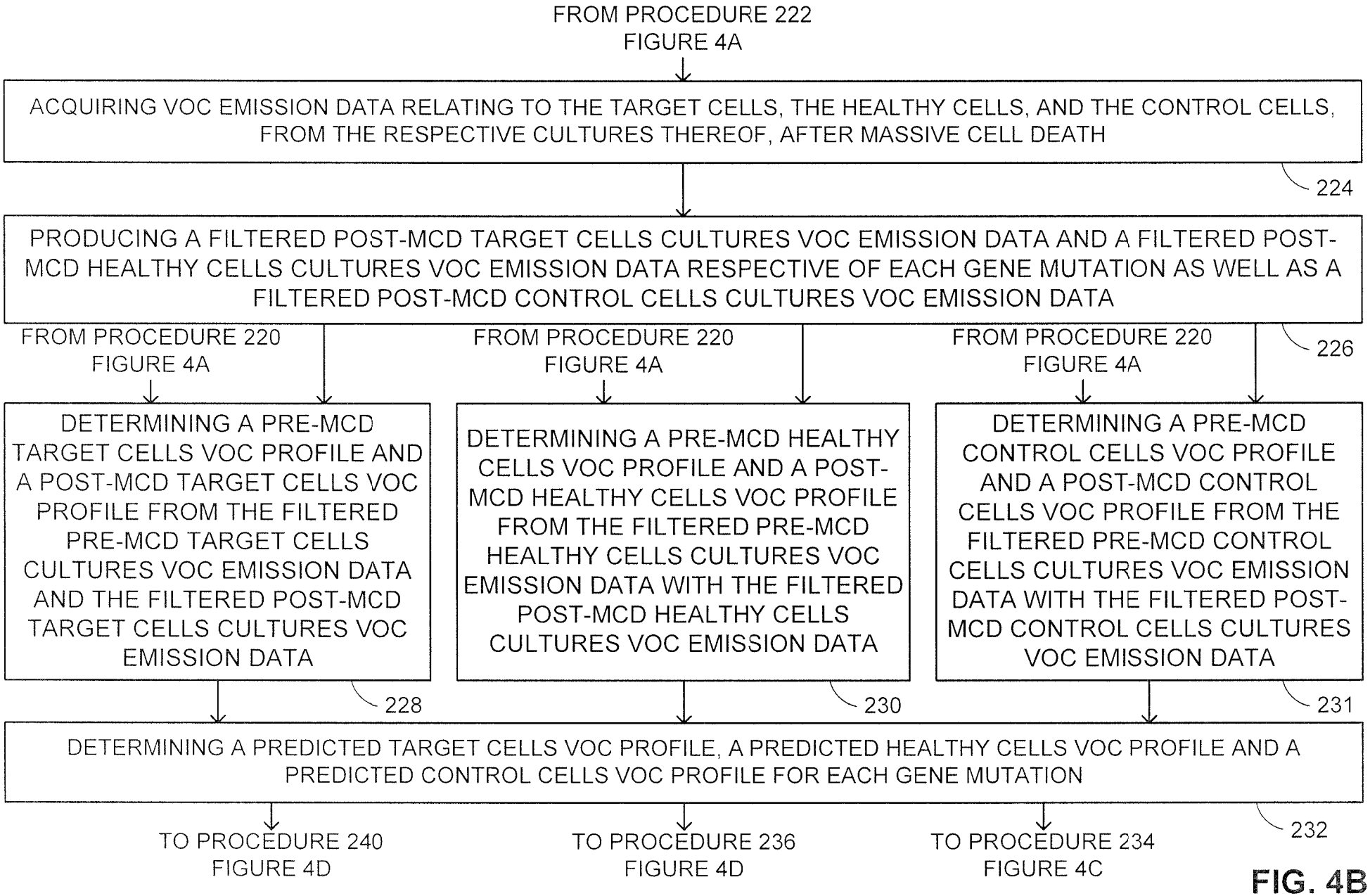
FROM PROCEDURE 222
FIGURE 4A
ACQUIRING VOC EMISSION DATA RELATING TO THE TARGET CELLS, THE HEALTHY CELLS, AND THE CONTROL CELLS, FROM THE RESPECTIVE CULTURES THEREOF, AFTER MASSIVE CELL DEATH
224
PRODUCING A FILTERED POST-MCD TARGET CELLS CULTURES VOC EMISSION DATA AND A FILTERED POST-MCD HEALTHY CELLS CULTURES VOC EMISSION DATA RESPECTIVE OF EACH GENE MUTATION AS WELL AS A FILTERED POST-MCD CONTROL CELLS CULTURES VOC EMISSION DATA
226
FROM PROCEDURE 220
FIGURE 4A
FROM PROCEDURE 220
FIGURE 4A
FROM PROCEDURE 220
FIGURE 4A
DETERMINING A PRE-MCD TARGET CELLS VOC PROFILE AND A POST-MCD TARGET CELLS VOC PROFILE FROM THE FILTERED PRE-MCD TARGET CELLS CULTURES VOC EMISSION DATA AND THE FILTERED POST-MCD TARGET CELLS CULTURES VOC EMISSION DATA
228
DETERMINING A PRE-MCD HEALTHY CELLS VOC PROFILE AND A POST-MCD HEALTHY CELLS VOC PROFILE FROM THE FILTERED PRE-MCD HEALTHY CELLS CULTURES VOC EMISSION DATA WITH THE FILTERED POST-MCD HEALTHY CELLS CULTURES VOC EMISSION DATA
230
DETERMINING A PRE-MCD CONTROL CELLS VOC PROFILE AND A POST-MCD CONTROL CELLS VOC PROFILE FROM THE FILTERED PRE-MCD CONTROL CELLS CULTURES VOC EMISSION DATA WITH THE FILTERED POST-MCD CONTROL CELLS CULTURES VOC EMISSION DATA
231
DETERMINING A PREDICTED TARGET CELLS VOC PROFILE, A PREDICTED HEALTHY CELLS VOC PROFILE AND A PREDICTED CONTROL CELLS VOC PROFILE FOR EACH GENE MUTATION
232
TO PROCEDURE 240
FIGURE 4D
TO PROCEDURE 236
FIGURE 4D
TO PROCEDURE 234
FIGURE 4C

FIG. 4B

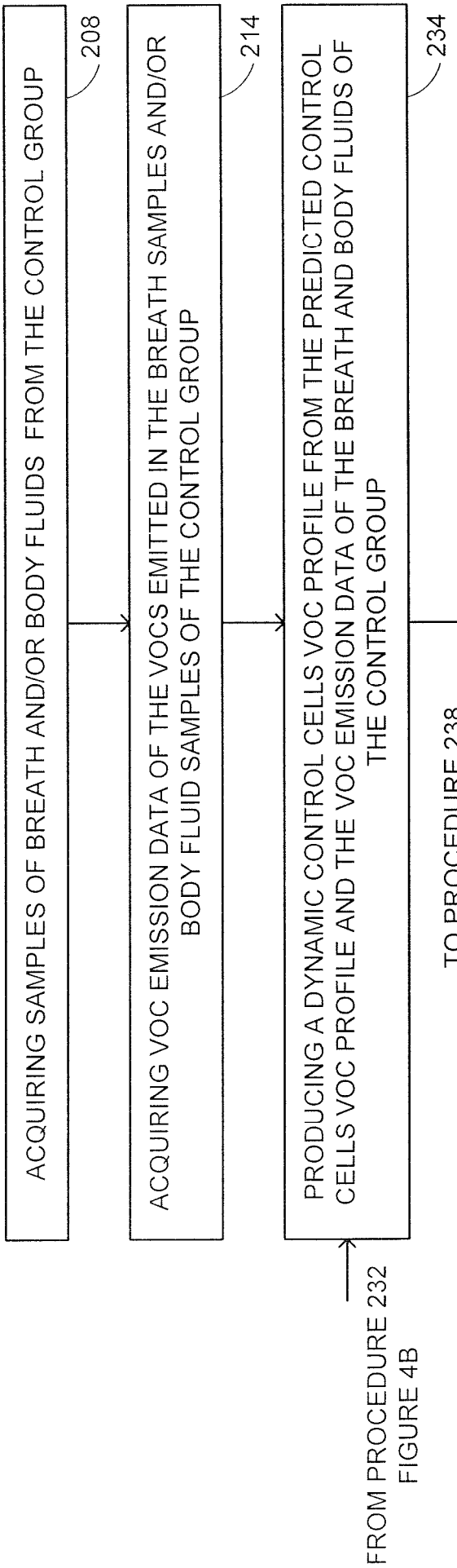
ACQUIRING SAMPLES OF BREATH AND/OR BODY FLUIDS FROM THE CONTROL GROUP
208
ACQUIRING VOC EMISSION DATA OF THE VOCS EMITTED IN THE BREATH SAMPLES AND/OR BODY FLUID SAMPLES OF THE CONTROL GROUP
214
PRODUCING A DYNAMIC CONTROL CELLS VOC PROFILE FROM THE PREDICTED CONTROL CELLS VOC PROFILE AND THE VOC EMISSION DATA OF THE BREATH AND BODY FLUIDS OF THE CONTROL GROUP
234
FROM PROCEDURE 232 FIGURE 4B
TO PROCEDURE 238 FIGURE 4D

FIG. 4C

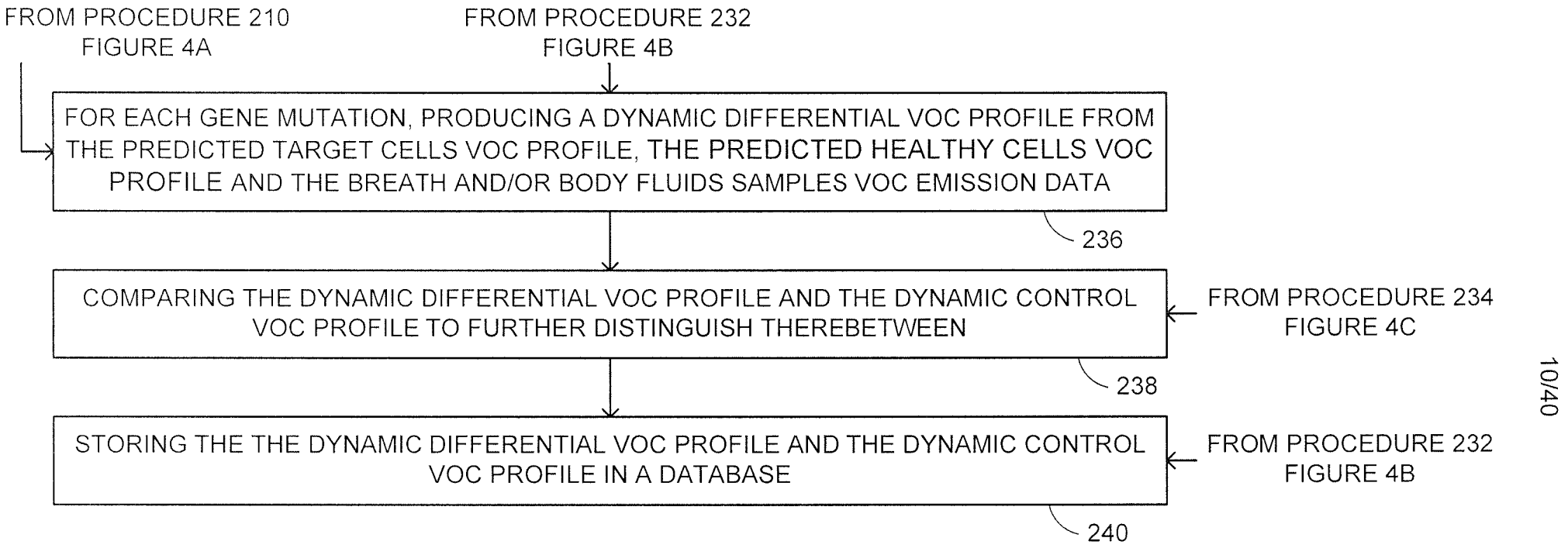
FROM PROCEDURE 210
FIGURE 4A
FROM PROCEDURE 232
FIGURE 4B
FOR EACH GENE MUTATION, PRODUCING A DYNAMIC DIFFERENTIAL VOC PROFILE FROM THE PREDICTED TARGET CELLS VOC PROFILE, THE PREDICTED HEALTHY CELLS VOC PROFILE AND THE BREATH AND/OR BODY FLUIDS SAMPLES VOC EMISSION DATA
236
COMPARING THE DYNAMIC DIFFERENTIAL VOC PROFILE AND THE DYNAMIC CONTROL VOC PROFILE TO FURTHER DISTINGUISH THEREBETWEEN
FROM PROCEDURE 234
FIGURE 4C
238
STORING THE THE DYNAMIC DIFFERENTIAL VOC PROFILE AND THE DYNAMIC CONTROL VOC PROFILE IN A DATABASE
FROM PROCEDURE 232
FIGURE 4B
240

FIG. 4D

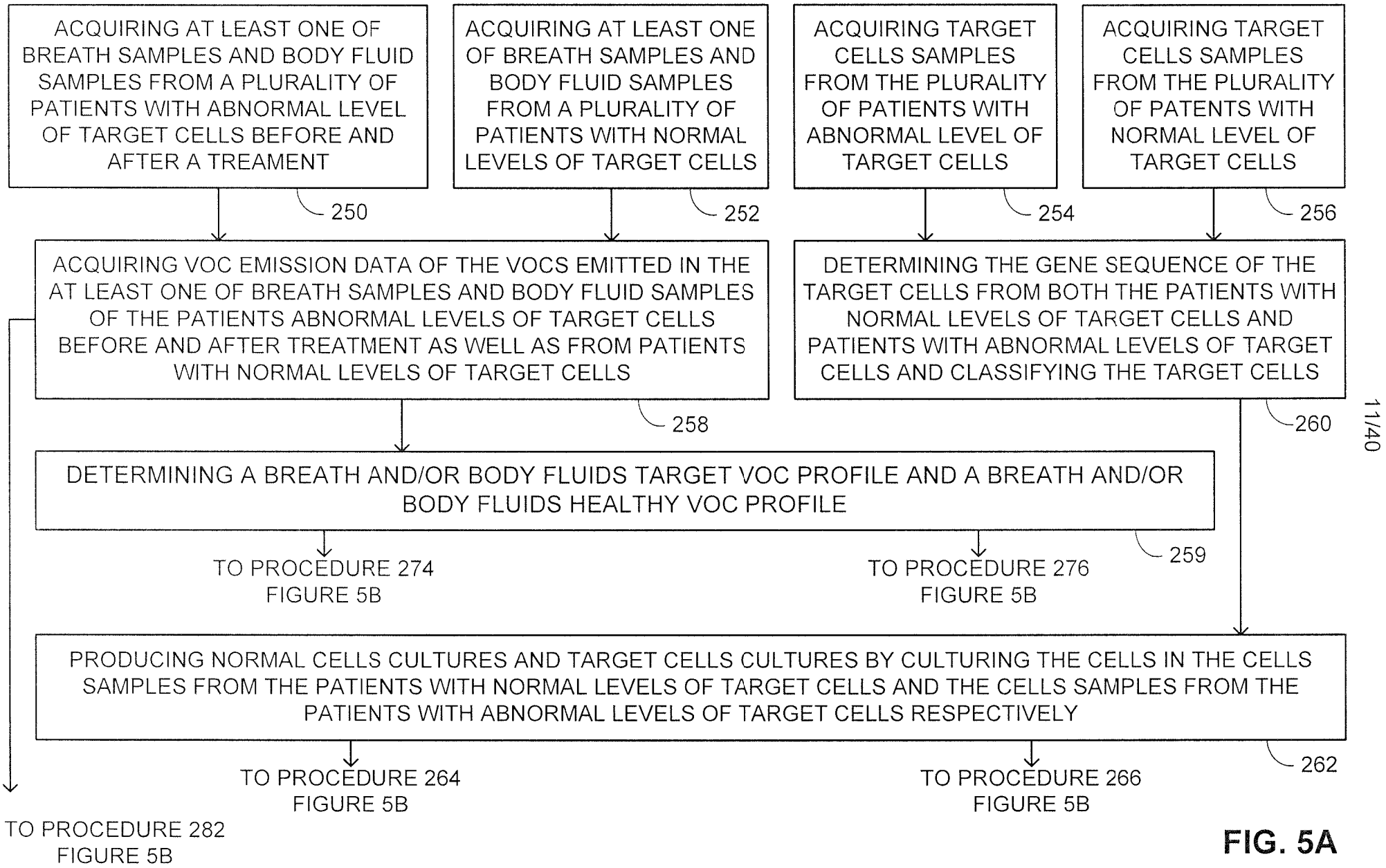
ACQUIRING AT LEAST ONE OF BREATH SAMPLES AND BODY FLUID SAMPLES FROM A PLURALITY OF PATIENTS WITH ABNORMAL LEVEL OF TARGET CELLS BEFORE AND AFTER A TREAMENT
250
ACQUIRING AT LEAST ONE OF BREATH SAMPLES AND BODY FLUID SAMPLES FROM A PLURALITY OF PATIENTS WITH NORMAL LEVELS OF TARGET CELLS
252
ACQUIRING TARGET CELLS SAMPLES FROM THE PLURALITY OF PATIENTS WITH ABNORMAL LEVEL OF TARGET CELLS
254
ACQUIRING TARGET CELLS SAMPLES FROM THE PLURALITY OF PATENTS WITH NORMAL LEVEL OF TARGET CELLS
256
ACQUIRING VOC EMISSION DATA OF THE VOCS EMITTED IN THE AT LEAST ONE OF BREATH SAMPLES AND BODY FLUID SAMPLES OF THE PATIENTS ABNORMAL LEVELS OF TARGET CELLS BEFORE AND AFTER TREATMENT AS WELL AS FROM PATIENTS WITH NORMAL LEVELS OF TARGET CELLS
258
DETERMINING THE GENE SEQUENCE OF THE TARGET CELLS FROM BOTH THE PATIENTS WITH NORMAL LEVELS OF TARGET CELLS AND PATIENTS WITH ABNORMAL LEVELS OF TARGET CELLS AND CLASSIFYING THE TARGET CELLS
260
DETERMINING A BREATH AND/OR BODY FLUIDS TARGET VOC PROFILE AND A BREATH AND/OR BODY FLUIDS HEALTHY VOC PROFILE
259
TO PROCEDURE 274 FIGURE 5B
TO PROCEDURE 276 FIGURE 5B
PRODUCING NORMAL CELLS CULTURES AND TARGET CELLS CULTURES BY CULTURING THE CELLS IN THE CELLS SAMPLES FROM THE PATIENTS WITH NORMAL LEVELS OF TARGET CELLS AND THE CELLS SAMPLES FROM THE PATIENTS WITH ABNORMAL LEVELS OF TARGET CELLS RESPECTIVELY
262
TO PROCEDURE 264 FIGURE 5B
TO PROCEDURE 266 FIGURE 5B
TO PROCEDURE 282 FIGURE 5B

FIG. 5A

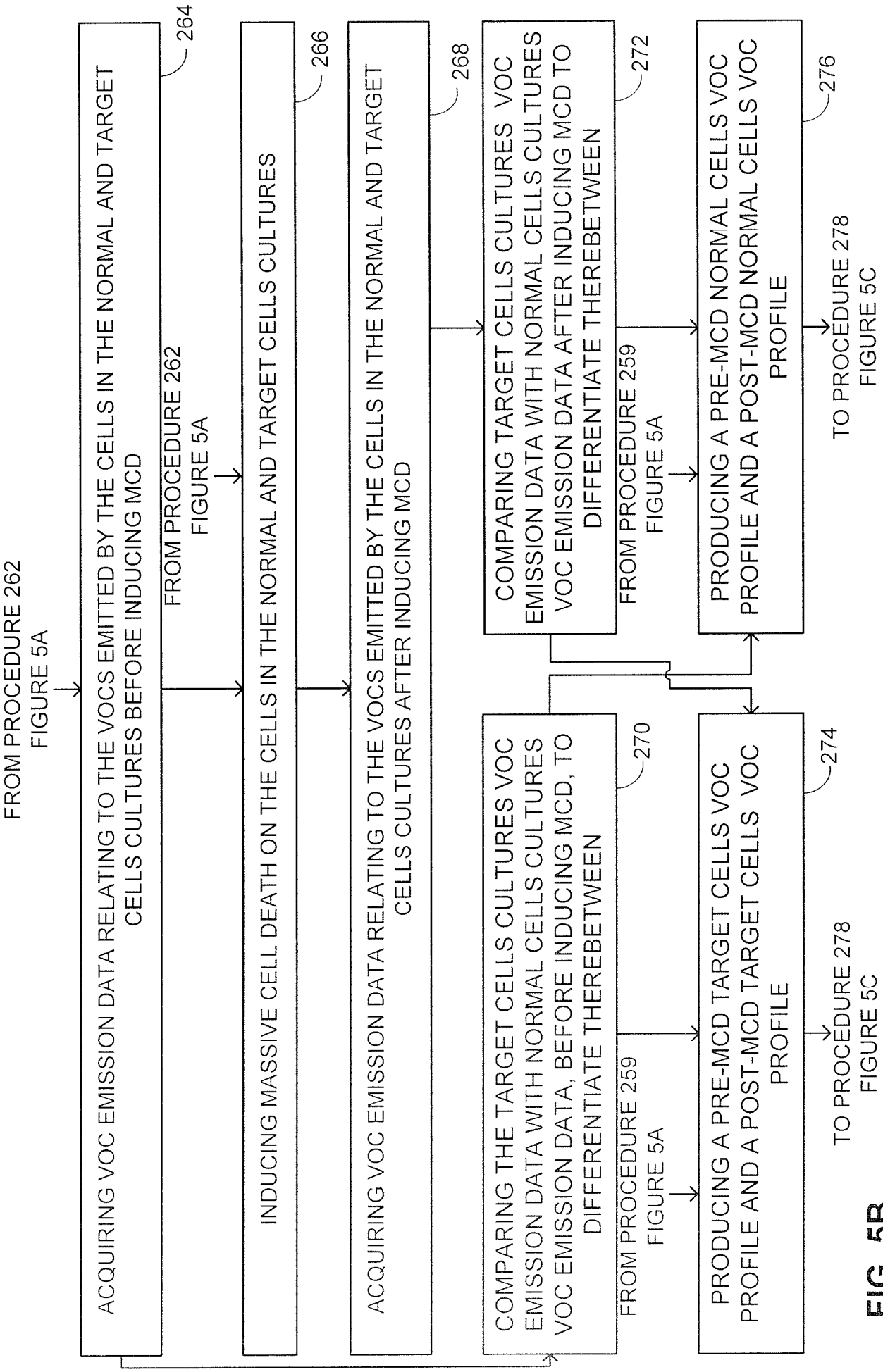
FROM PROCEDURE 262
FIGURE 5A
ACQUIRING VOC EMISSION DATA RELATING TO THE VOCS EMITTED BY THE CELLS IN THE NORMAL AND TARGET CELLS CULTURES BEFORE INDUCING MCD
264
FROM PROCEDURE 262
FIGURE 5A
INDUCING MASSIVE CELL DEATH ON THE CELLS IN THE NORMAL AND TARGET CELLS CULTURES
266
ACQUIRING VOC EMISSION DATA RELATING TO THE VOCS EMITTED BY THE CELLS IN THE NORMAL AND TARGET CELLS CULTURES AFTER INDUCING MCD
268
COMPARING THE TARGET CELLS CULTURES VOC EMISSION DATA WITH NORMAL CELLS CULTURES VOC EMISSION DATA, BEFORE INDUCING MCD, TO DIFFERENTIATE THEREBETWEEN
270
FROM PROCEDURE 259
FIGURE 5A
PRODUCING A PRE-MCD TARGET CELLS VOC PROFILE AND A POST-MCD TARGET CELLS VOC PROFILE
274
TO PROCEDURE 278
FIGURE 5C
COMPARING TARGET CELLS CULTURES VOC EMISSION DATA WITH NORMAL CELLS CULTURES VOC EMISSION DATA AFTER INDUCING MCD TO DIFFERENTIATE THEREBETWEEN
272
FROM PROCEDURE 259
FIGURE 5A
PRODUCING A PRE-MCD NORMAL CELLS VOC PROFILE AND A POST-MCD NORMAL CELLS VOC PROFILE
276
TO PROCEDURE 278
FIGURE 5C

FIG. 5B

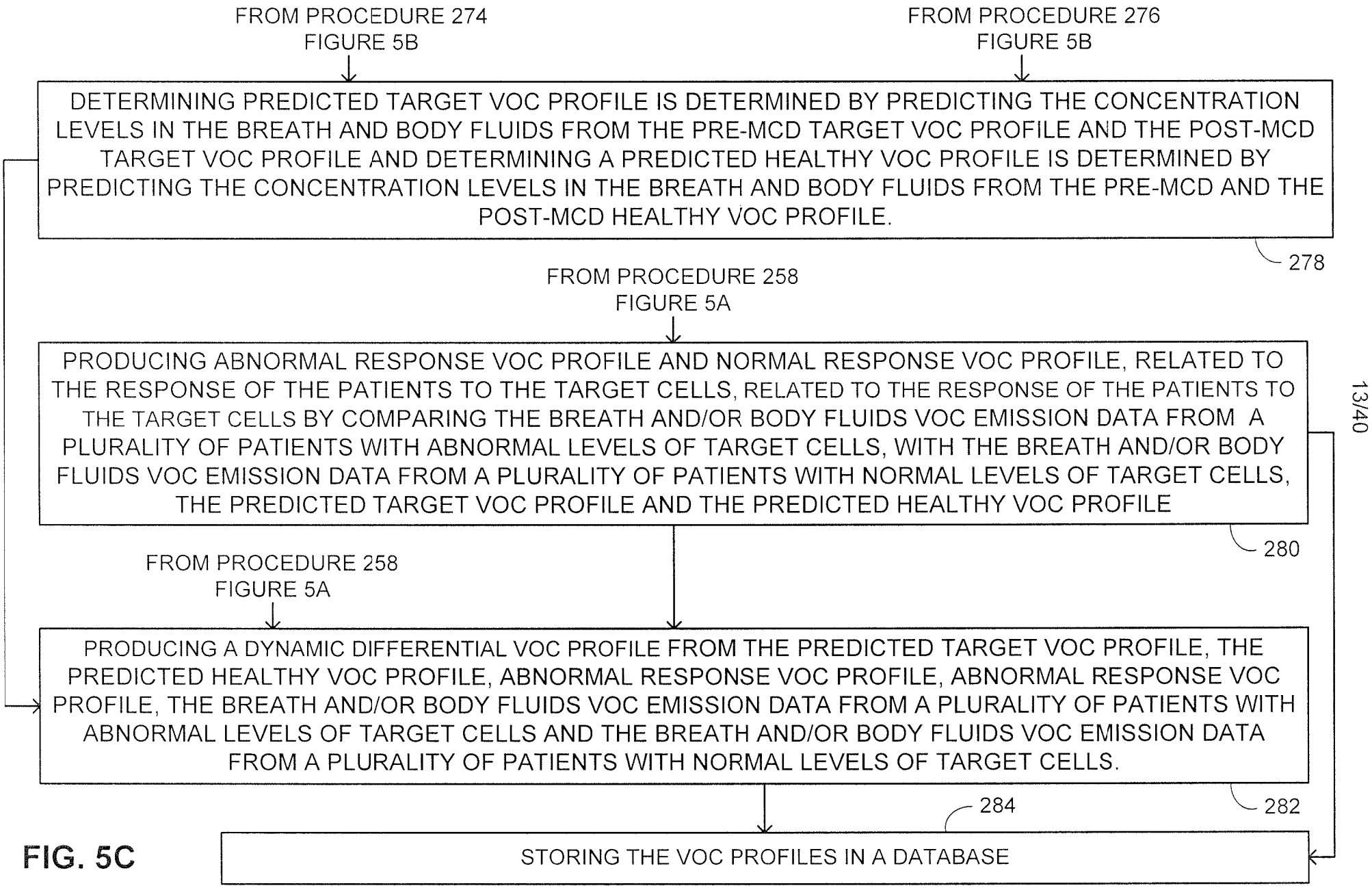
FROM PROCEDURE 274
FIGURE 5B
FROM PROCEDURE 276
FIGURE 5B
DETERMINING PREDICTED TARGET VOC PROFILE IS DETERMINED BY PREDICTING THE CONCENTRATION LEVELS IN THE BREATH AND BODY FLUIDS FROM THE PRE-MCD TARGET VOC PROFILE AND THE POST-MCD TARGET VOC PROFILE AND DETERMINING A PREDICTED HEALTHY VOC PROFILE IS DETERMINED BY PREDICTING THE CONCENTRATION LEVELS IN THE BREATH AND BODY FLUIDS FROM THE PRE-MCD AND THE POST-MCD HEALTHY VOC PROFILE.
278
FROM PROCEDURE 258
FIGURE 5A
PRODUCING ABNORMAL RESPONSE VOC PROFILE AND NORMAL RESPONSE VOC PROFILE, RELATED TO THE RESPONSE OF THE PATIENTS TO THE TARGET CELLS, RELATED TO THE RESPONSE OF THE PATIENTS TO THE TARGET CELLS BY COMPARING THE BREATH AND/OR BODY FLUIDS VOC EMISSION DATA FROM A PLURALITY OF PATIENTS WITH ABNORMAL LEVELS OF TARGET CELLS, WITH THE BREATH AND/OR BODY FLUIDS VOC EMISSION DATA FROM A PLURALITY OF PATIENTS WITH NORMAL LEVELS OF TARGET CELLS, THE PREDICTED TARGET VOC PROFILE AND THE PREDICTED HEALTHY VOC PROFILE
280
FROM PROCEDURE 258
FIGURE 5A
PRODUCING A DYNAMIC DIFFERENTIAL VOC PROFILE FROM THE PREDICTED TARGET VOC PROFILE, THE PREDICTED HEALTHY VOC PROFILE, ABNORMAL RESPONSE VOC PROFILE, ABNORMAL RESPONSE VOC PROFILE, THE BREATH AND/OR BODY FLUIDS VOC EMISSION DATA FROM A PLURALITY OF PATIENTS WITH ABNORMAL LEVELS OF TARGET CELLS AND THE BREATH AND/OR BODY FLUIDS VOC EMISSION DATA FROM A PLURALITY OF PATIENTS WITH NORMAL LEVELS OF TARGET CELLS.
282
284
STORING THE VOC PROFILES IN A DATABASE

FIG. 5C

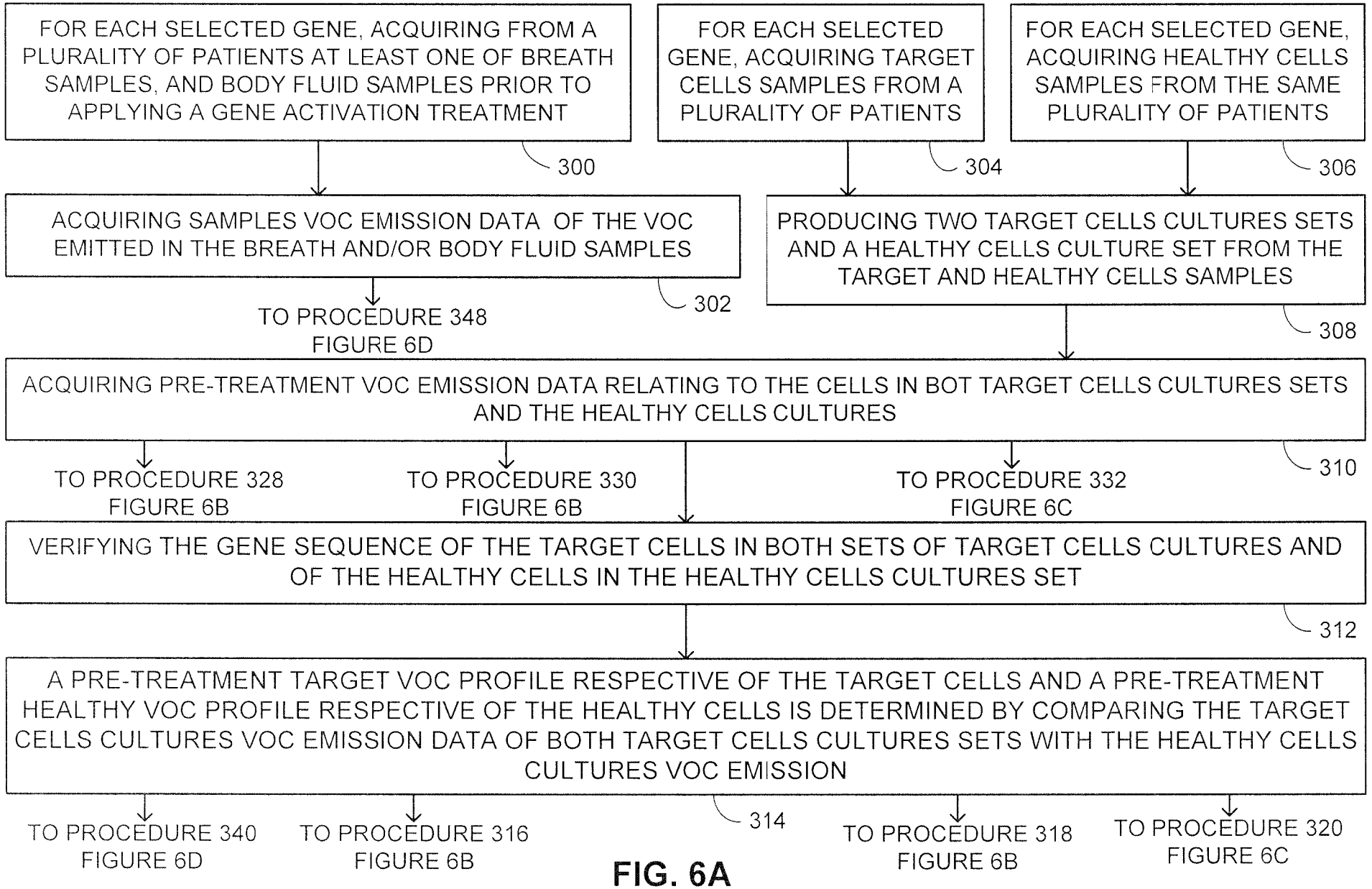
FOR EACH SELECTED GENE, ACQUIRING FROM A PLURALITY OF PATIENTS AT LEAST ONE OF BREATH SAMPLES, AND BODY FLUID SAMPLES PRIOR TO APPLYING A GENE ACTIVATION TREATMENT
300
FOR EACH SELECTED GENE, ACQUIRING TARGET CELLS SAMPLES FROM A PLURALITY OF PATIENTS
304
FOR EACH SELECTED GENE, ACQUIRING HEALTHY CELLS SAMPLES FROM THE SAME PLURALITY OF PATIENTS
306
ACQUIRING SAMPLES VOC EMISSION DATA OF THE VOC EMITTED IN THE BREATH AND/OR BODY FLUID SAMPLES
302
TO PROCEDURE 348 FIGURE 6D
PRODUCING TWO TARGET CELLS CULTURES SETS AND A HEALTHY CELLS CULTURE SET FROM THE TARGET AND HEALTHY CELLS SAMPLES
308
ACQUIRING PRE-TREATMENT VOC EMISSION DATA RELATING TO THE CELLS IN BOT TARGET CELLS CULTURES SETS AND THE HEALTHY CELLS CULTURES
310
TO PROCEDURE 328 FIGURE 6B
TO PROCEDURE 330 FIGURE 6B
TO PROCEDURE 332 FIGURE 6C
VERIFYING THE GENE SEQUENCE OF THE TARGET CELLS IN BOTH SETS OF TARGET CELLS CULTURES AND OF THE HEALTHY CELLS IN THE HEALTHY CELLS CULTURES SET
312
A PRE-TREATMENT TARGET VOC PROFILE RESPECTIVE OF THE TARGET CELLS AND A PRE-TREATMENT HEALTHY VOC PROFILE RESPECTIVE OF THE HEALTHY CELLS IS DETERMINED BY COMPARING THE TARGET CELLS CULTURES VOC EMISSION DATA OF BOTH TARGET CELLS CULTURES SETS WITH THE HEALTHY CELLS CULTURES VOC EMISSION
314
TO PROCEDURE 340 FIGURE 6D
TO PROCEDURE 316 FIGURE 6B
TO PROCEDURE 318 FIGURE 6B
TO PROCEDURE 320 FIGURE 6C

FIG. 6A

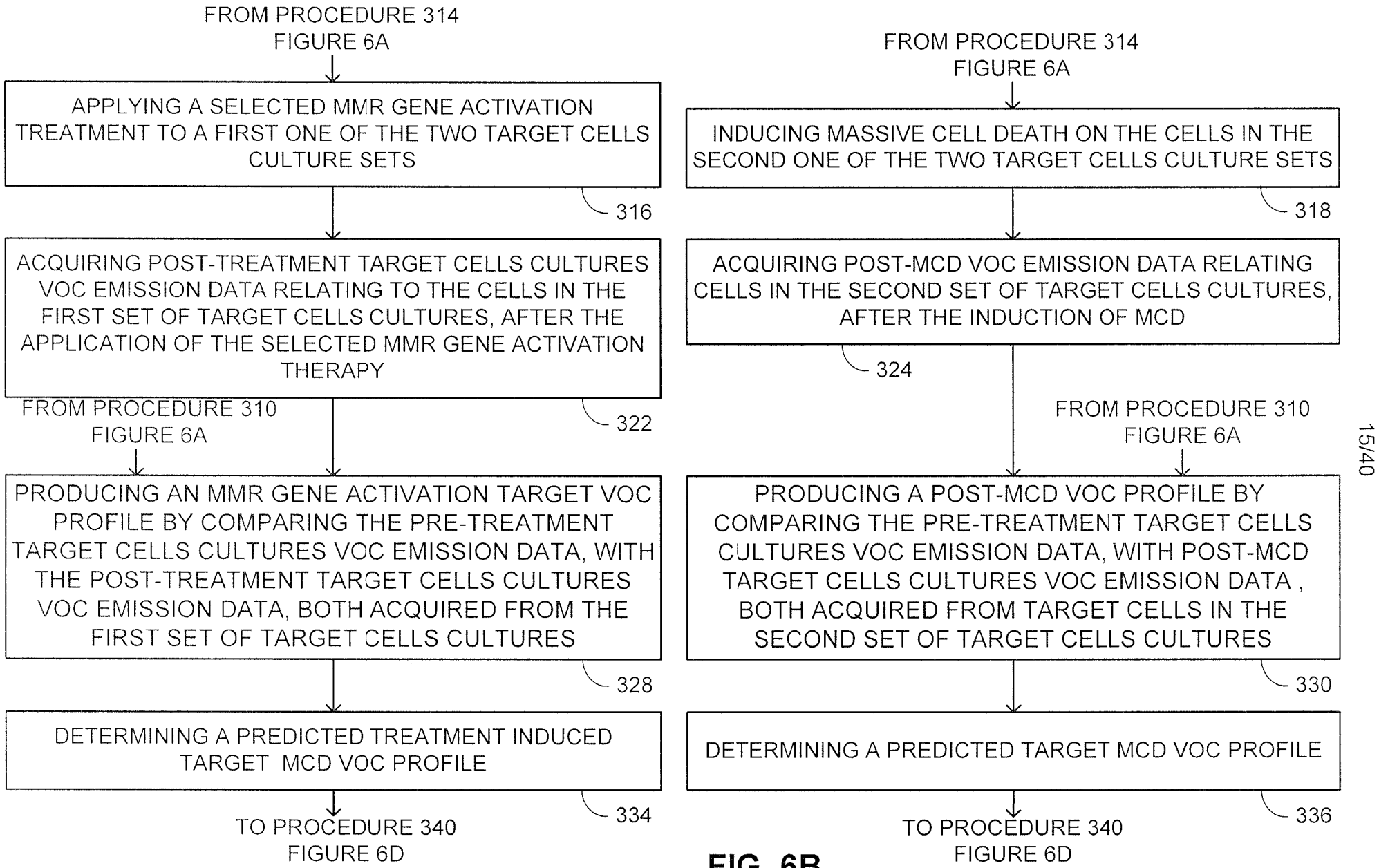
FROM PROCEDURE 314
FIGURE 6A
APPLYING A SELECTED MMR GENE ACTIVATION TREATMENT TO A FIRST ONE OF THE TWO TARGET CELLS CULTURE SETS
316
ACQUIRING POST-TREATMENT TARGET CELLS CULTURES VOC EMISSION DATA RELATING TO THE CELLS IN THE FIRST SET OF TARGET CELLS CULTURES, AFTER THE APPLICATION OF THE SELECTED MMR GENE ACTIVATION THERAPY
322
FROM PROCEDURE 310
FIGURE 6A
PRODUCING AN MMR GENE ACTIVATION TARGET VOC PROFILE BY COMPARING THE PRE-TREATMENT TARGET CELLS CULTURES VOC EMISSION DATA, WITH THE POST-TREATMENT TARGET CELLS CULTURES VOC EMISSION DATA, BOTH ACQUIRED FROM THE FIRST SET OF TARGET CELLS CULTURES
328
DETERMINING A PREDICTED TREATMENT INDUCED TARGET MCD VOC PROFILE
334
TO PROCEDURE 340
FIGURE 6D
FROM PROCEDURE 314
FIGURE 6A
INDUCING MASSIVE CELL DEATH ON THE CELLS IN THE SECOND ONE OF THE TWO TARGET CELLS CULTURE SETS
318
ACQUIRING POST-MCD VOC EMISSION DATA RELATING CELLS IN THE SECOND SET OF TARGET CELLS CULTURES, AFTER THE INDUCTION OF MCD
324
FROM PROCEDURE 310
FIGURE 6A
PRODUCING A POST-MCD VOC PROFILE BY COMPARING THE PRE-TREATMENT TARGET CELLS CULTURES VOC EMISSION DATA, WITH POST-MCD TARGET CELLS CULTURES VOC EMISSION DATA , BOTH ACQUIRED FROM TARGET CELLS IN THE SECOND SET OF TARGET CELLS CULTURES
330
DETERMINING A PREDICTED TARGET MCD VOC PROFILE
336
TO PROCEDURE 340
FIGURE 6D

FIG. 6B

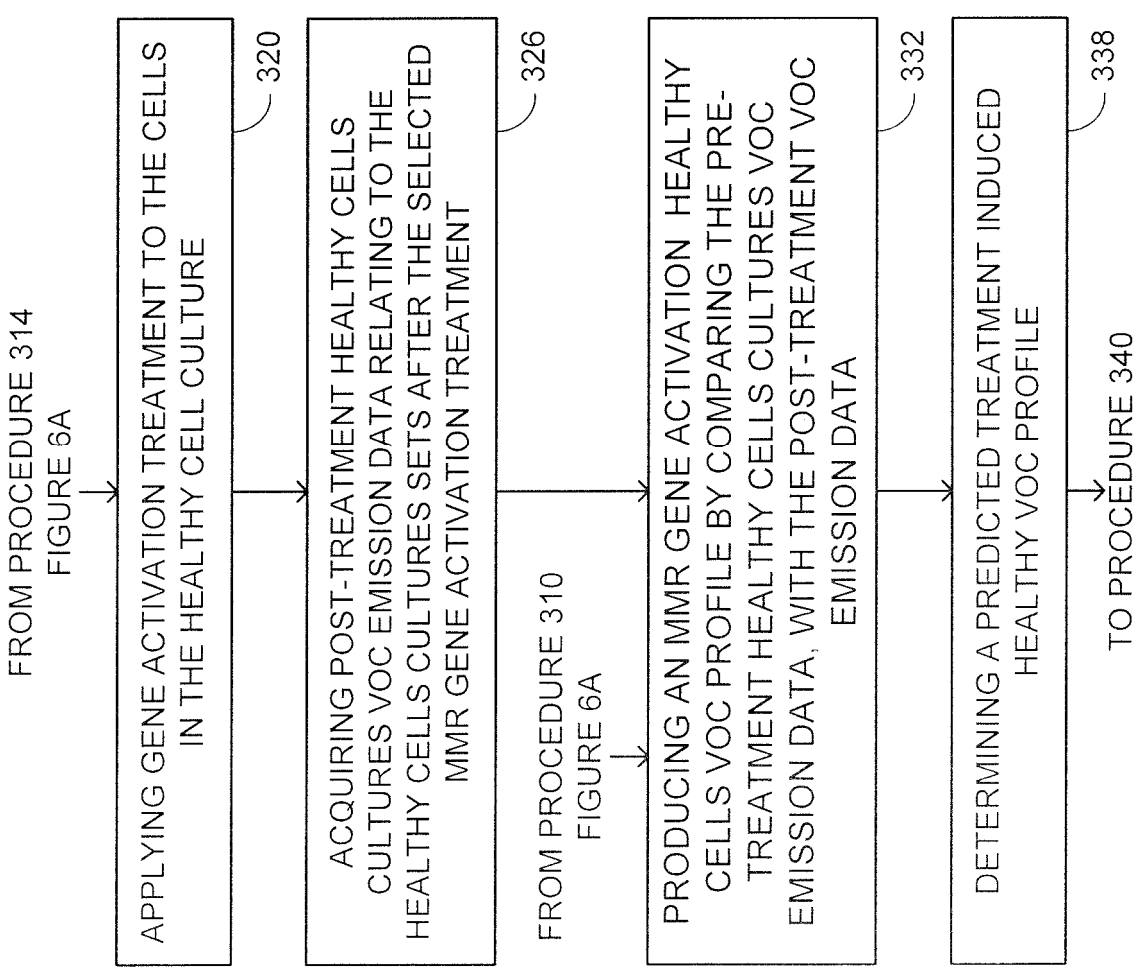
FROM PROCEDURE 314
FIGURE 6A
APPLYING GENE ACTIVATION TREATMENT TO THE CELLS IN THE HEALTHY CELL CULTURE
320
ACQUIRING POST-TREATMENT HEALTHY CELLS CULTURES VOC EMISSION DATA RELATING TO THE HEALTHY CELLS CULTURES SETS AFTER THE SELECTED MMR GENE ACTIVATION TREATMENT
326
FROM PROCEDURE 310
FIGURE 6A
PRODUCING AN MMR GENE ACTIVATION HEALTHY CELLS VOC PROFILE BY COMPARING THE PRE-TREATMENT HEALTHY CELLS CULTURES VOC EMISSION DATA, WITH THE POST-TREATMENT VOC EMISSION DATA
332
DETERMINING A PREDICTED TREATMENT INDUCED HEALTHY VOC PROFILE
338
TO PROCEDURE 340
FIGURE 6D

FIG. 6C

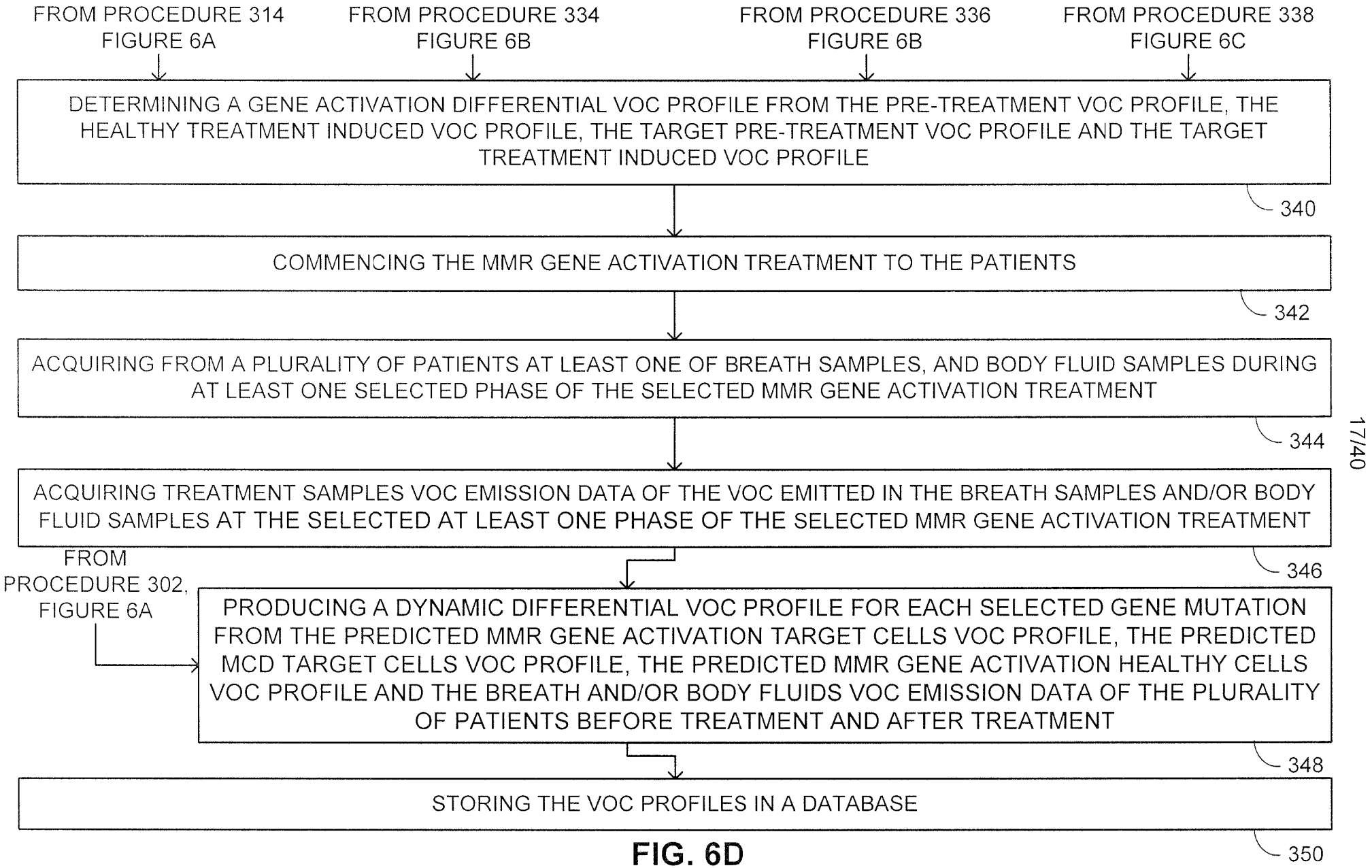
FROM PROCEDURE 314 FIGURE 6A
FROM PROCEDURE 334 FIGURE 6B
FROM PROCEDURE 336 FIGURE 6B
FROM PROCEDURE 338 FIGURE 6C
DETERMINING A GENE ACTIVATION DIFFERENTIAL VOC PROFILE FROM THE PRE-TREATMENT VOC PROFILE, THE HEALTHY TREATMENT INDUCED VOC PROFILE, THE TARGET PRE-TREATMENT VOC PROFILE AND THE TARGET TREATMENT INDUCED VOC PROFILE
340
COMMENCING THE MMR GENE ACTIVATION TREATMENT TO THE PATIENTS
342
ACQUIRING FROM A PLURALITY OF PATIENTS AT LEAST ONE OF BREATH SAMPLES, AND BODY FLUID SAMPLES DURING AT LEAST ONE SELECTED PHASE OF THE SELECTED MMR GENE ACTIVATION TREATMENT
344
ACQUIRING TREATMENT SAMPLES VOC EMISSION DATA OF THE VOC EMITTED IN THE BREATH SAMPLES AND/OR BODY FLUID SAMPLES AT THE SELECTED AT LEAST ONE PHASE OF THE SELECTED MMR GENE ACTIVATION TREATMENT
346
FROM PROCEDURE 302, FIGURE 6A
PRODUCING A DYNAMIC DIFFERENTIAL VOC PROFILE FOR EACH SELECTED GENE MUTATION FROM THE PREDICTED MMR GENE ACTIVATION TARGET CELLS VOC PROFILE, THE PREDICTED MCD TARGET CELLS VOC PROFILE, THE PREDICTED MMR GENE ACTIVATION HEALTHY CELLS VOC PROFILE AND THE BREATH AND/OR BODY FLUIDS VOC EMISSION DATA OF THE PLURALITY OF PATIENTS BEFORE TREATMENT AND AFTER TREATMENT
348
STORING THE VOC PROFILES IN A DATABASE
350

FIG. 6D

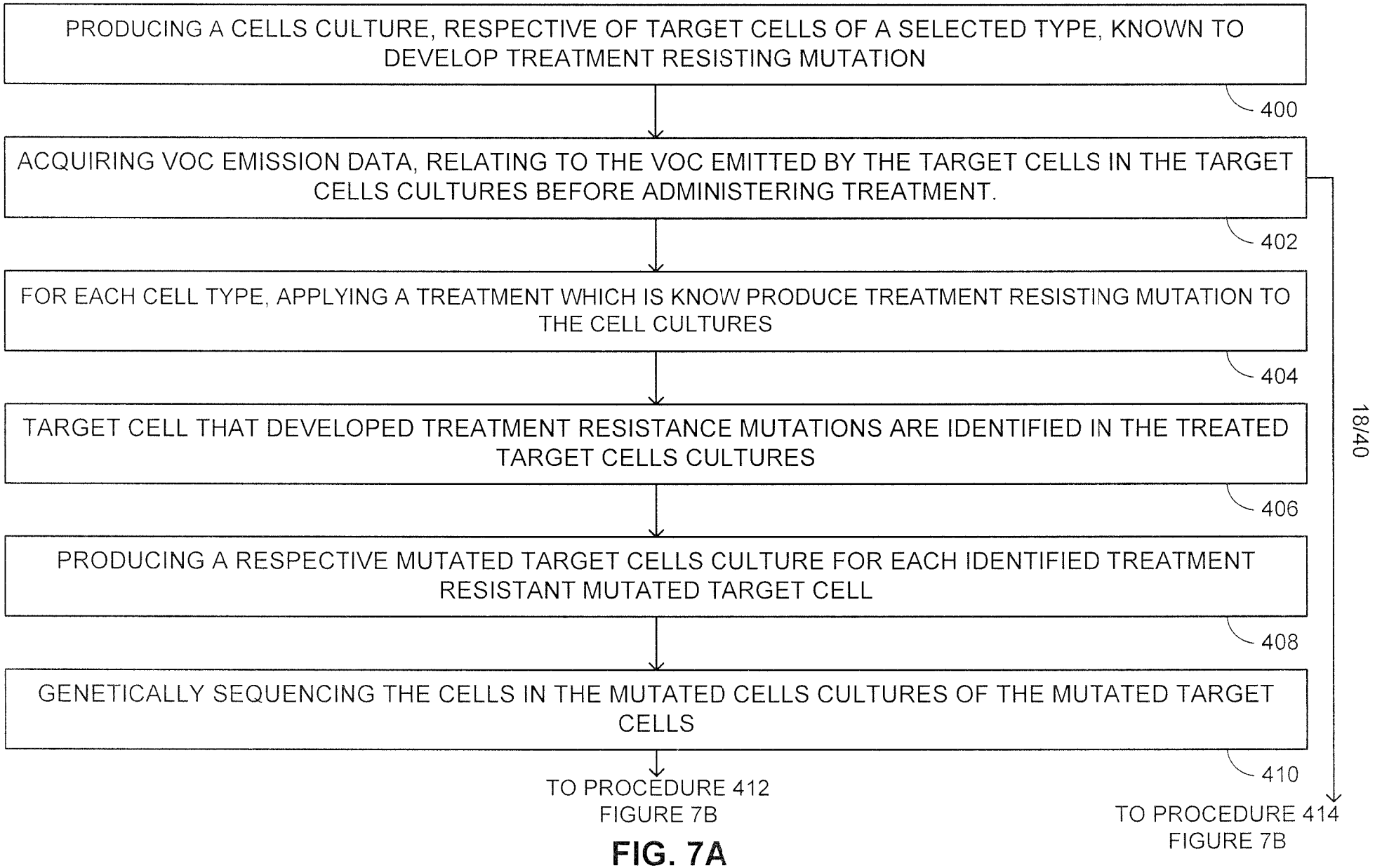
PRODUCING A CELLS CULTURE, RESPECTIVE OF TARGET CELLS OF A SELECTED TYPE, KNOWN TO DEVELOP TREATMENT RESISTING MUTATION
400
ACQUIRING VOC EMISSION DATA, RELATING TO THE VOC EMITTED BY THE TARGET CELLS IN THE TARGET CELLS CULTURES BEFORE ADMINISTERING TREATMENT.
402
FOR EACH CELL TYPE, APPLYING A TREATMENT WHICH IS KNOW PRODUCE TREATMENT RESISTING MUTATION TO THE CELL CULTURES
404
TARGET CELL THAT DEVELOPED TREATMENT RESISTANCE MUTATIONS ARE IDENTIFIED IN THE TREATED TARGET CELLS CULTURES
406
PRODUCING A RESPECTIVE MUTATED TARGET CELLS CULTURE FOR EACH IDENTIFIED TREATMENT RESISTANT MUTATED TARGET CELL
408
GENETICALLY SEQUENCING THE CELLS IN THE MUTATED CELLS CULTURES OF THE MUTATED TARGET CELLS
410
TO PROCEDURE 412
FIGURE 7B
TO PROCEDURE 414
FIGURE 7B

FIG. 7A

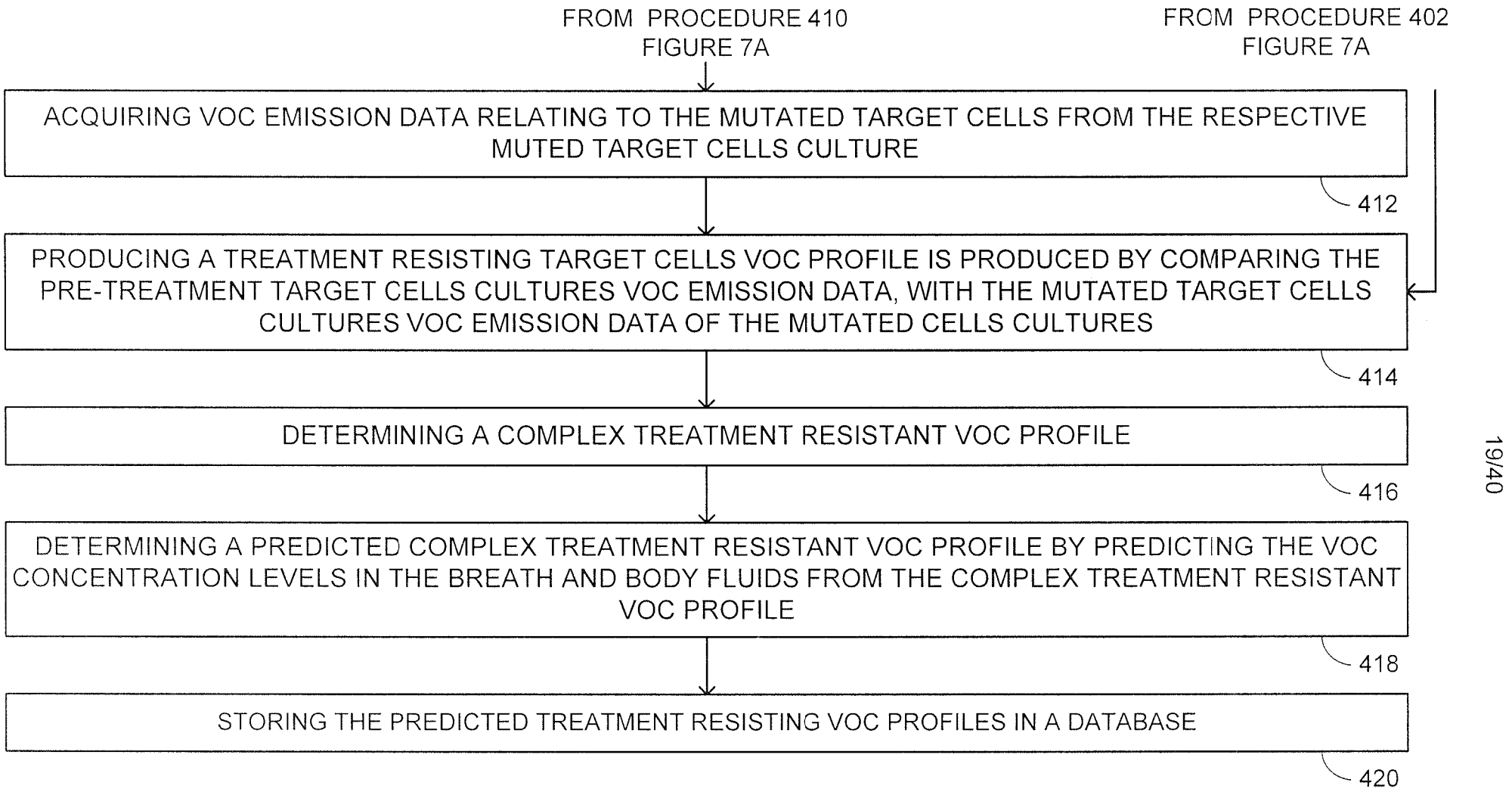
FROM PROCEDURE 410
FIGURE 7A
FROM PROCEDURE 402
FIGURE 7A
ACQUIRING VOC EMISSION DATA RELATING TO THE MUTATED TARGET CELLS FROM THE RESPECTIVE MUTED TARGET CELLS CULTURE
412
PRODUCING A TREATMENT RESISTING TARGET CELLS VOC PROFILE IS PRODUCED BY COMPARING THE PRE-TREATMENT TARGET CELLS CULTURES VOC EMISSION DATA, WITH THE MUTATED TARGET CELLS CULTURES VOC EMISSION DATA OF THE MUTATED CELLS CULTURES
414
DETERMINING A COMPLEX TREATMENT RESISTANT VOC PROFILE
416
DETERMINING A PREDICTED COMPLEX TREATMENT RESISTANT VOC PROFILE BY PREDICTING THE VOC CONCENTRATION LEVELS IN THE BREATH AND BODY FLUIDS FROM THE COMPLEX TREATMENT RESISTANT VOC PROFILE
418
STORING THE PREDICTED TREATMENT RESISTING VOC PROFILES IN A DATABASE
420

FIG. 7B

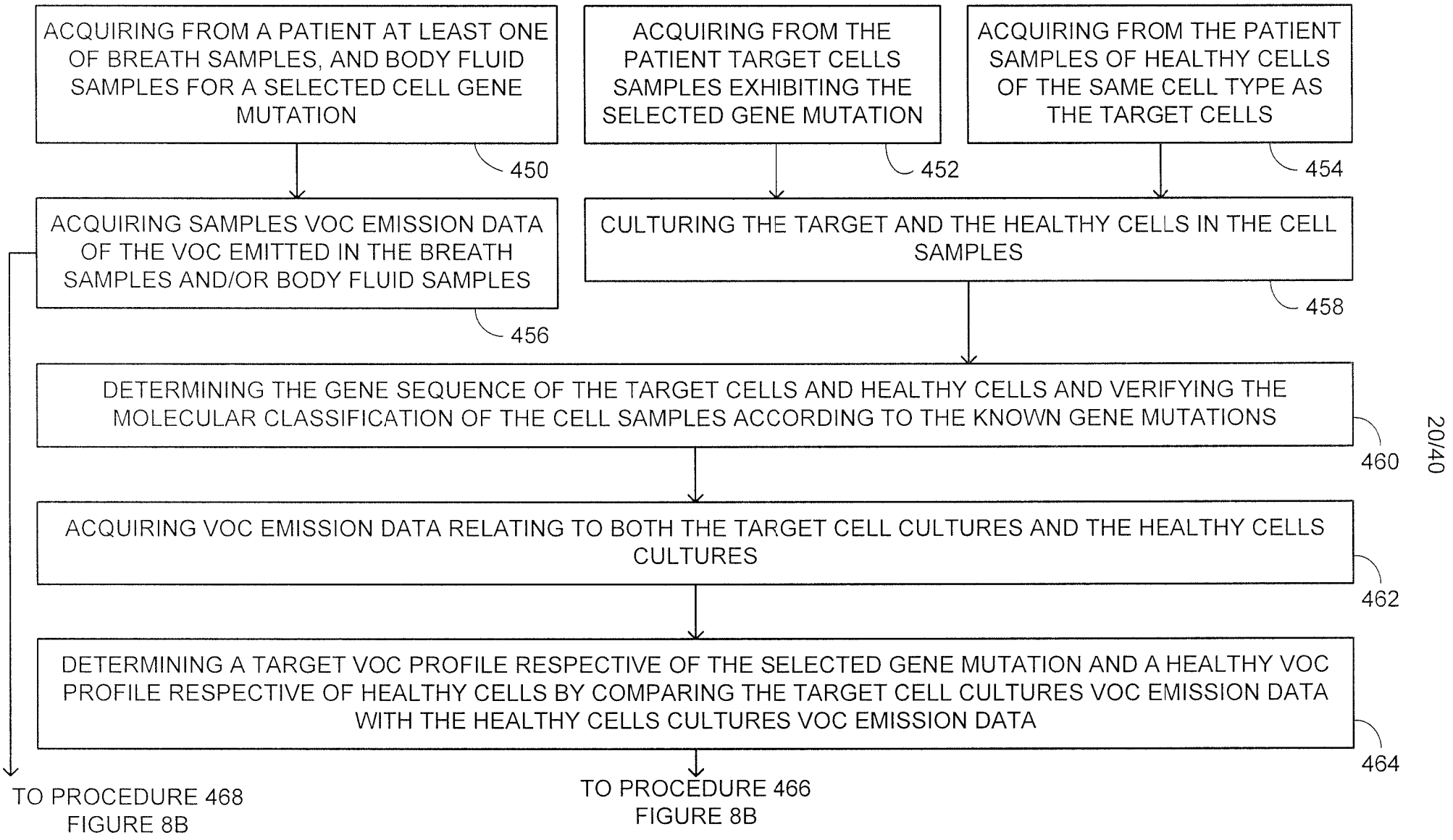
ACQUIRING FROM A PATIENT AT LEAST ONE OF BREATH SAMPLES, AND BODY FLUID SAMPLES FOR A SELECTED CELL GENE MUTATION
450
ACQUIRING FROM THE PATIENT TARGET CELLS SAMPLES EXHIBITING THE SELECTED GENE MUTATION
452
ACQUIRING FROM THE PATIENT SAMPLES OF HEALTHY CELLS OF THE SAME CELL TYPE AS THE TARGET CELLS
454
ACQUIRING SAMPLES VOC EMISSION DATA OF THE VOC EMITTED IN THE BREATH SAMPLES AND/OR BODY FLUID SAMPLES
456
CULTURING THE TARGET AND THE HEALTHY CELLS IN THE CELL SAMPLES
458
DETERMINING THE GENE SEQUENCE OF THE TARGET CELLS AND HEALTHY CELLS AND VERIFYING THE MOLECULAR CLASSIFICATION OF THE CELL SAMPLES ACCORDING TO THE KNOWN GENE MUTATIONS
460
ACQUIRING VOC EMISSION DATA RELATING TO BOTH THE TARGET CELL CULTURES AND THE HEALTHY CELLS CULTURES
462
DETERMINING A TARGET VOC PROFILE RESPECTIVE OF THE SELECTED GENE MUTATION AND A HEALTHY VOC PROFILE RESPECTIVE OF HEALTHY CELLS BY COMPARING THE TARGET CELL CULTURES VOC EMISSION DATA WITH THE HEALTHY CELLS CULTURES VOC EMISSION DATA
464
TO PROCEDURE 468 FIGURE 8B
TO PROCEDURE 466 FIGURE 8B

FIG. 8A

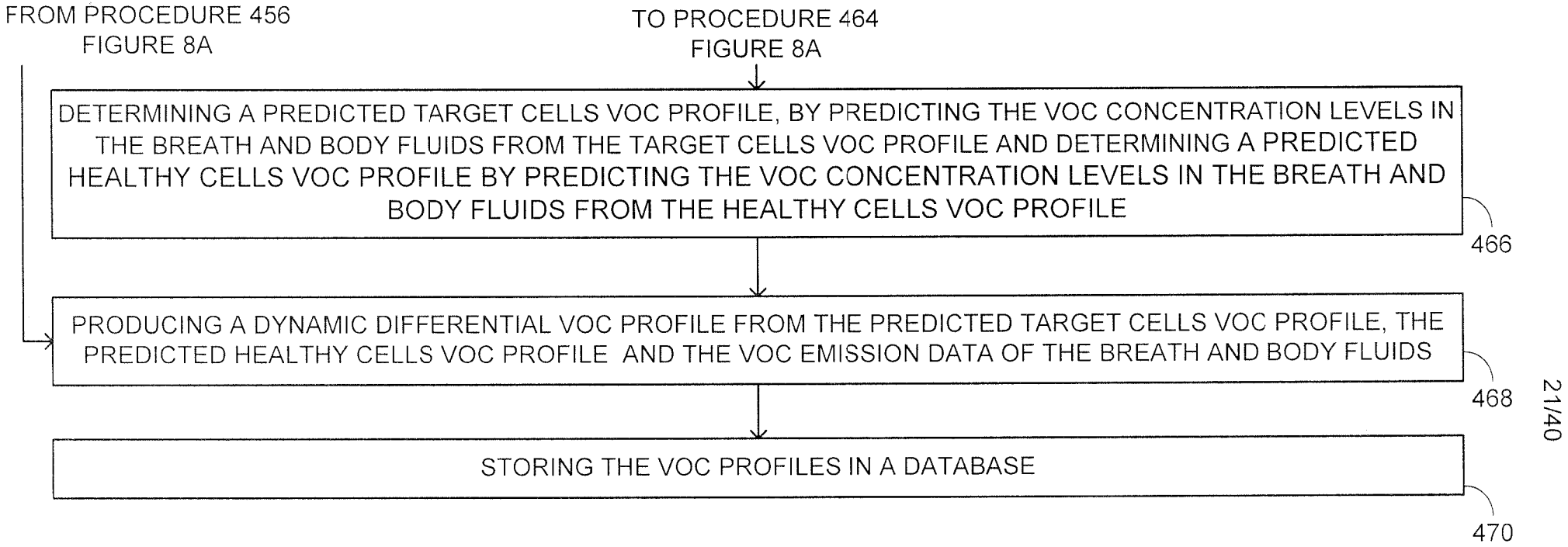
FROM PROCEDURE 456
FIGURE 8A
TO PROCEDURE 464
FIGURE 8A
DETERMINING A PREDICTED TARGET CELLS VOC PROFILE, BY PREDICTING THE VOC CONCENTRATION LEVELS IN THE BREATH AND BODY FLUIDS FROM THE TARGET CELLS VOC PROFILE AND DETERMINING A PREDICTED HEALTHY CELLS VOC PROFILE BY PREDICTING THE VOC CONCENTRATION LEVELS IN THE BREATH AND BODY FLUIDS FROM THE HEALTHY CELLS VOC PROFILE
466
PRODUCING A DYNAMIC DIFFERENTIAL VOC PROFILE FROM THE PREDICTED TARGET CELLS VOC PROFILE, THE PREDICTED HEALTHY CELLS VOC PROFILE AND THE VOC EMISSION DATA OF THE BREATH AND BODY FLUIDS
468
STORING THE VOC PROFILES IN A DATABASE
470

FIG. 8B

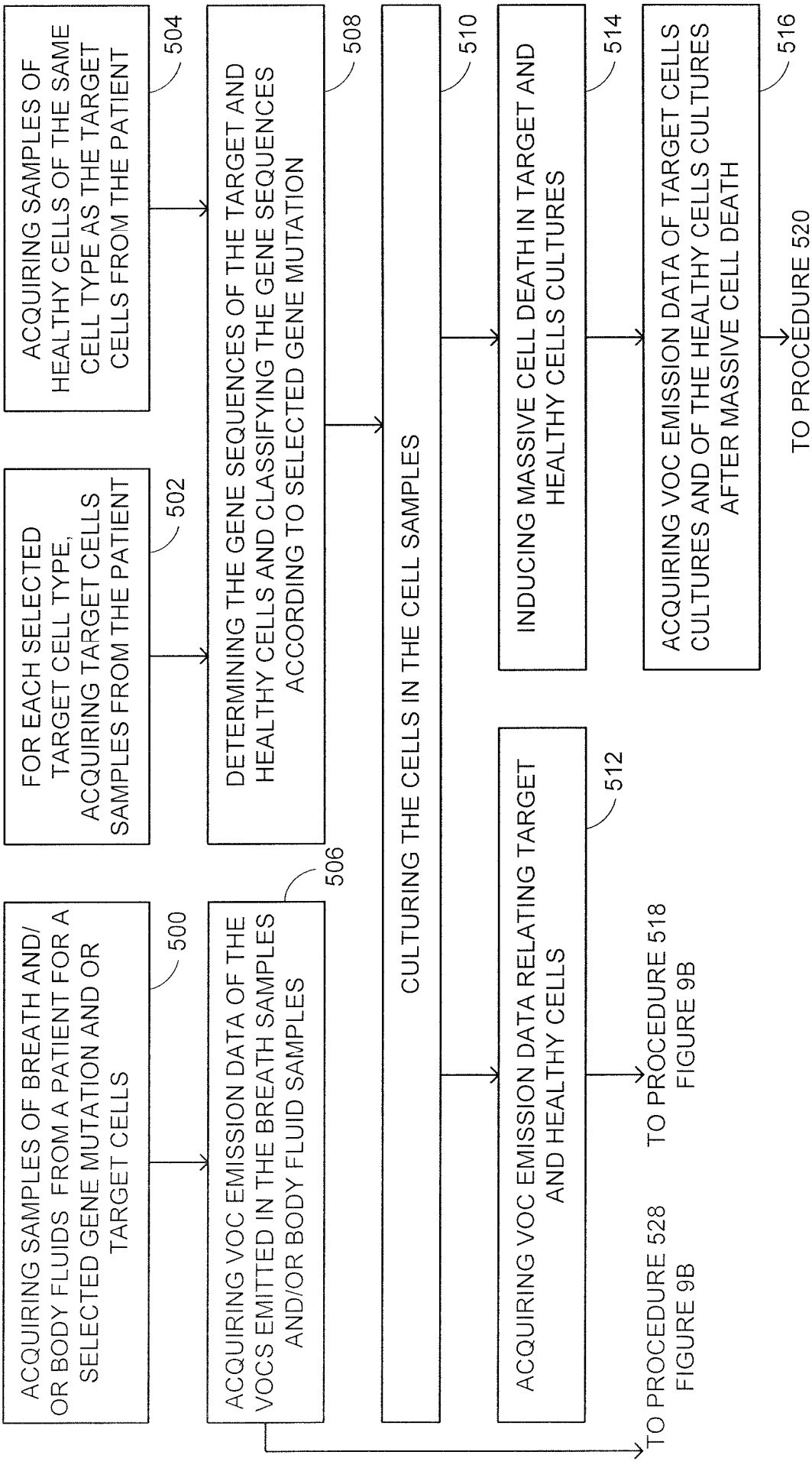
ACQUIRING SAMPLES OF BREATH AND/ OR BODY FLUIDS FROM A PATIENT FOR A SELECTED GENE MUTATION AND OR TARGET CELLS
500
FOR EACH SELECTED TARGET CELL TYPE, ACQUIRING TARGET CELLS SAMPLES FROM THE PATIENT
502
ACQUIRING SAMPLES OF HEALTHY CELLS OF THE SAME CELL TYPE AS THE TARGET CELLS FROM THE PATIENT
504
ACQUIRING VOC EMISSION DATA OF THE VOCS EMITTED IN THE BREATH SAMPLES AND/OR BODY FLUID SAMPLES
506
DETERMINING THE GENE SEQUENCES OF THE TARGET AND HEALTHY CELLS AND CLASSIFYING THE GENE SEQUENCES ACCORDING TO SELECTED GENE MUTATION
508
CULTURING THE CELLS IN THE CELL SAMPLES
510
ACQUIRING VOC EMISSION DATA RELATING TARGET AND HEALTHY CELLS
512
INDUCING MASSIVE CELL DEATH IN TARGET AND HEALTHY CELLS CULTURES
514
ACQUIRING VOC EMISSION DATA OF TARGET CELLS CULTURES AND OF THE HEALTHY CELLS CULTURES AFTER MASSIVE CELL DEATH
516
TO PROCEDURE 520 FIGURE 9B
TO PROCEDURE 518 FIGURE 9B
TO PROCEDURE 528 FIGURE 9B

FIG. 9A

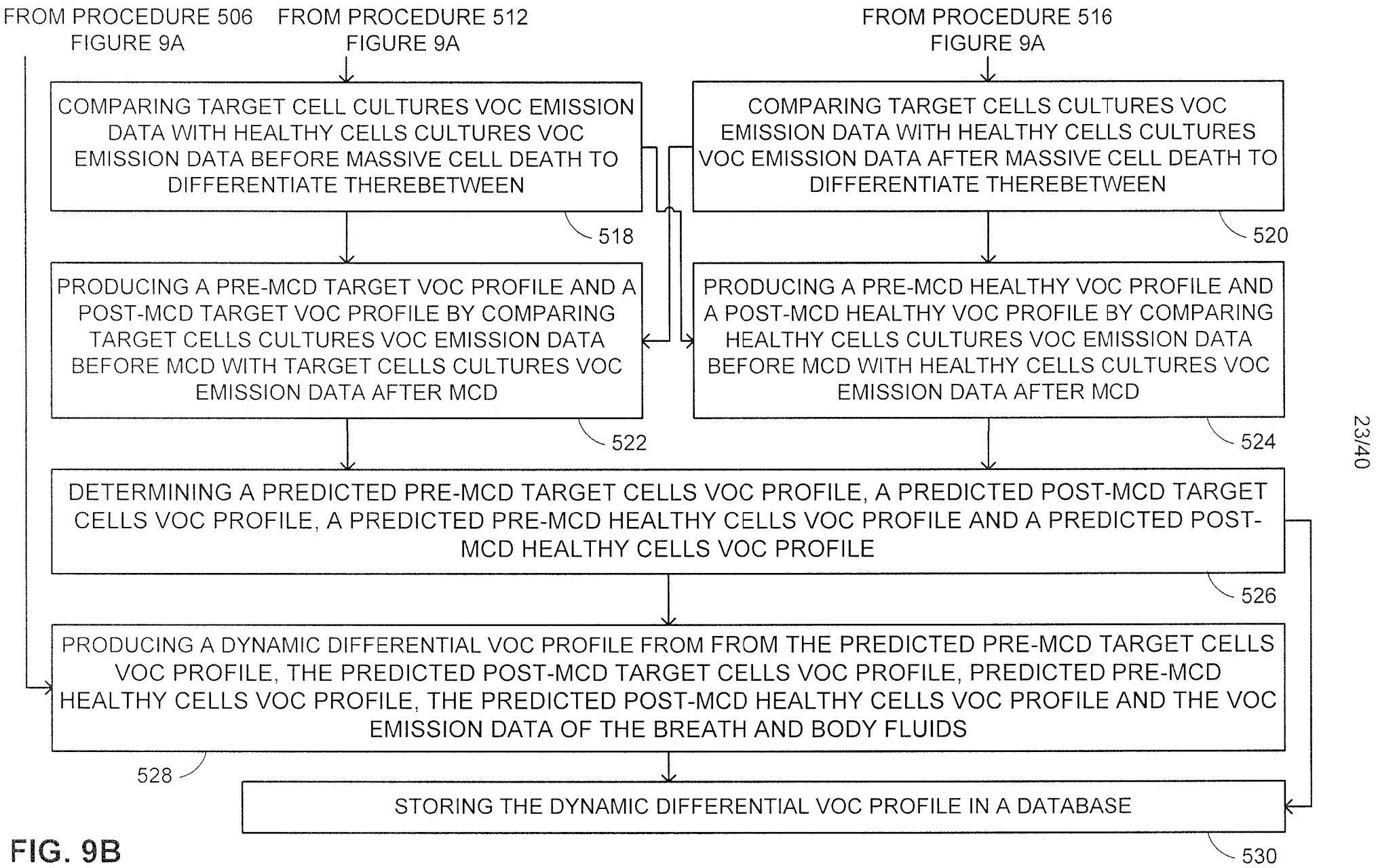
FROM PROCEDURE 506
FIGURE 9A
FROM PROCEDURE 512
FIGURE 9A
FROM PROCEDURE 516
FIGURE 9A
COMPARING TARGET CELL CULTURES VOC EMISSION DATA WITH HEALTHY CELLS CULTURES VOC EMISSION DATA BEFORE MASSIVE CELL DEATH TO DIFFERENTIATE THEREBETWEEN
518
COMPARING TARGET CELLS CULTURES VOC EMISSION DATA WITH HEALTHY CELLS CULTURES VOC EMISSION DATA AFTER MASSIVE CELL DEATH TO DIFFERENTIATE THEREBETWEEN
520
PRODUCING A PRE-MCD TARGET VOC PROFILE AND A POST-MCD TARGET VOC PROFILE BY COMPARING TARGET CELLS CULTURES VOC EMISSION DATA BEFORE MCD WITH TARGET CELLS CULTURES VOC EMISSION DATA AFTER MCD
522
PRODUCING A PRE-MCD HEALTHY VOC PROFILE AND A POST-MCD HEALTHY VOC PROFILE BY COMPARING HEALTHY CELLS CULTURES VOC EMISSION DATA BEFORE MCD WITH HEALTHY CELLS CULTURES VOC EMISSION DATA AFTER MCD
524
DETERMINING A PREDICTED PRE-MCD TARGET CELLS VOC PROFILE, A PREDICTED POST-MCD TARGET CELLS VOC PROFILE, A PREDICTED PRE-MCD HEALTHY CELLS VOC PROFILE AND A PREDICTED POST-MCD HEALTHY CELLS VOC PROFILE
526
PRODUCING A DYNAMIC DIFFERENTIAL VOC PROFILE FROM FROM THE PREDICTED PRE-MCD TARGET CELLS VOC PROFILE, THE PREDICTED POST-MCD TARGET CELLS VOC PROFILE, PREDICTED PRE-MCD HEALTHY CELLS VOC PROFILE, THE PREDICTED POST-MCD HEALTHY CELLS VOC PROFILE AND THE VOC EMISSION DATA OF THE BREATH AND BODY FLUIDS
528
STORING THE DYNAMIC DIFFERENTIAL VOC PROFILE IN A DATABASE
530

FIG. 9B

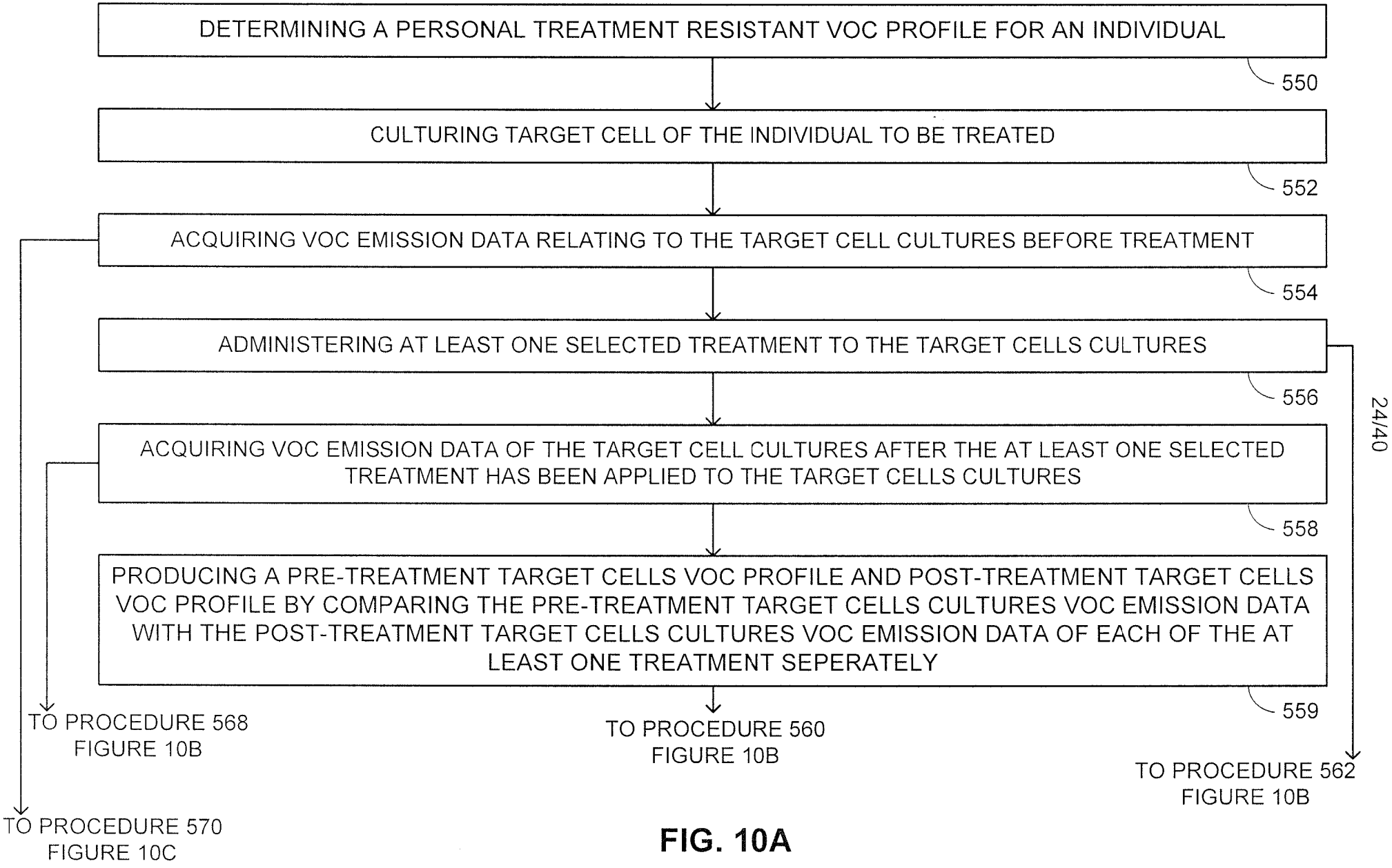
DETERMINING A PERSONAL TREATMENT RESISTANT VOC PROFILE FOR AN INDIVIDUAL
550
CULTURING TARGET CELL OF THE INDIVIDUAL TO BE TREATED
552
ACQUIRING VOC EMISSION DATA RELATING TO THE TARGET CELL CULTURES BEFORE TREATMENT
554
ADMINISTERING AT LEAST ONE SELECTED TREATMENT TO THE TARGET CELLS CULTURES
556
ACQUIRING VOC EMISSION DATA OF THE TARGET CELL CULTURES AFTER THE AT LEAST ONE SELECTED TREATMENT HAS BEEN APPLIED TO THE TARGET CELLS CULTURES
558
PRODUCING A PRE-TREATMENT TARGET CELLS VOC PROFILE AND POST-TREATMENT TARGET CELLS VOC PROFILE BY COMPARING THE PRE-TREATMENT TARGET CELLS CULTURES VOC EMISSION DATA WITH THE POST-TREATMENT TARGET CELLS CULTURES VOC EMISSION DATA OF EACH OF THE AT LEAST ONE TREATMENT SEPERATELY
559
TO PROCEDURE 568 FIGURE 10B
TO PROCEDURE 560 FIGURE 10B
TO PROCEDURE 562 FIGURE 10B
TO PROCEDURE 570 FIGURE 10C

FIG. 10A

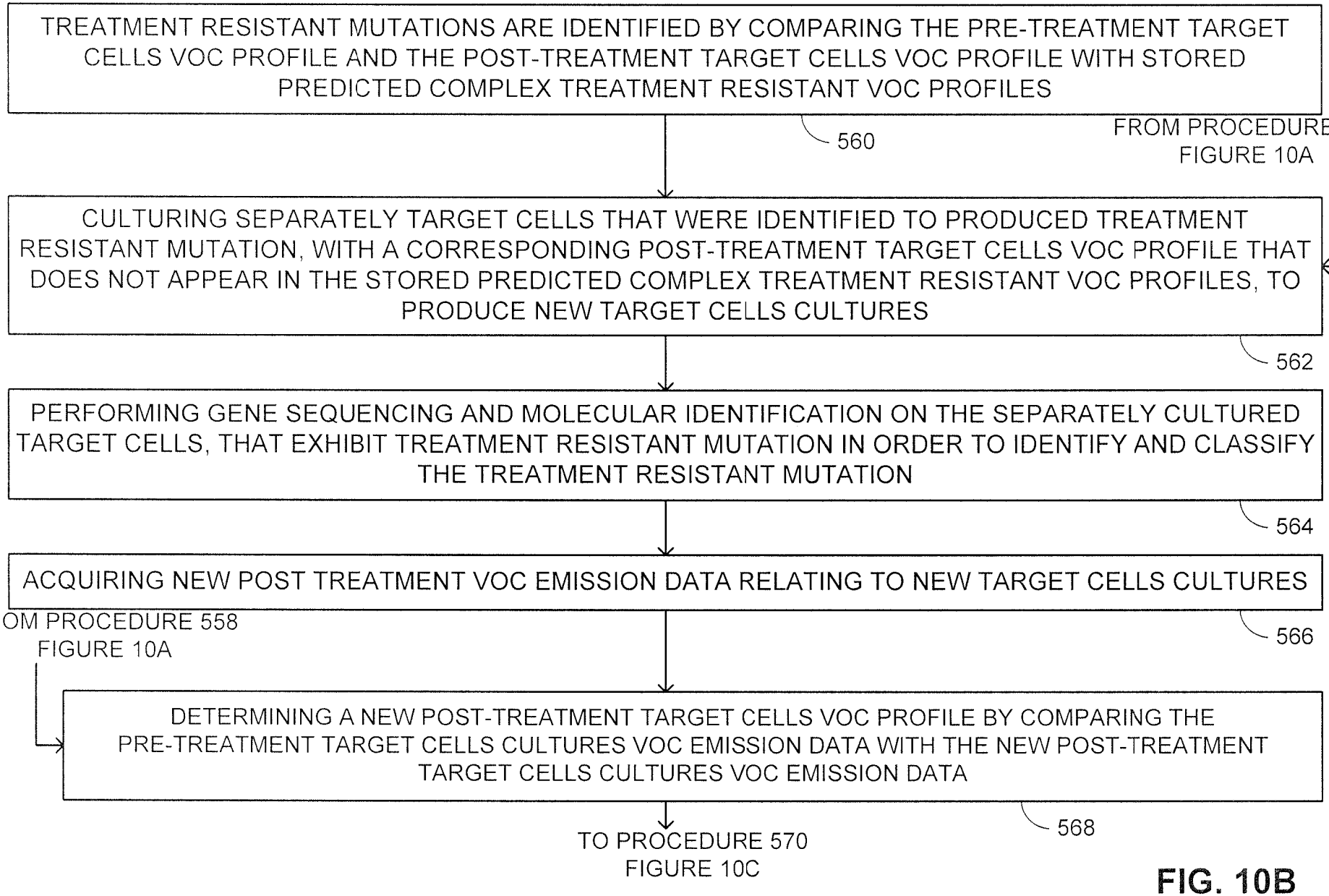
TREATMENT RESISTANT MUTATIONS ARE IDENTIFIED BY COMPARING THE PRE-TREATMENT TARGET CELLS VOC PROFILE AND THE POST-TREATMENT TARGET CELLS VOC PROFILE WITH STORED PREDICTED COMPLEX TREATMENT RESISTANT VOC PROFILES
560
FROM PROCEDURE 556
FIGURE 10A
CULTURING SEPARATELY TARGET CELLS THAT WERE IDENTIFIED TO PRODUCED TREATMENT RESISTANT MUTATION, WITH A CORRESPONDING POST-TREATMENT TARGET CELLS VOC PROFILE THAT DOES NOT APPEAR IN THE STORED PREDICTED COMPLEX TREATMENT RESISTANT VOC PROFILES, TO PRODUCE NEW TARGET CELLS CULTURES
562
PERFORMING GENE SEQUENCING AND MOLECULAR IDENTIFICATION ON THE SEPARATELY CULTURED TARGET CELLS, THAT EXHIBIT TREATMENT RESISTANT MUTATION IN ORDER TO IDENTIFY AND CLASSIFY THE TREATMENT RESISTANT MUTATION
564
ACQUIRING NEW POST TREATMENT VOC EMISSION DATA RELATING TO NEW TARGET CELLS CULTURES
566
FROM PROCEDURE 558
FIGURE 10A
DETERMINING A NEW POST-TREATMENT TARGET CELLS VOC PROFILE BY COMPARING THE PRE-TREATMENT TARGET CELLS CULTURES VOC EMISSION DATA WITH THE NEW POST-TREATMENT TARGET CELLS CULTURES VOC EMISSION DATA
568
TO PROCEDURE 570
FIGURE 10C

FIG. 10B

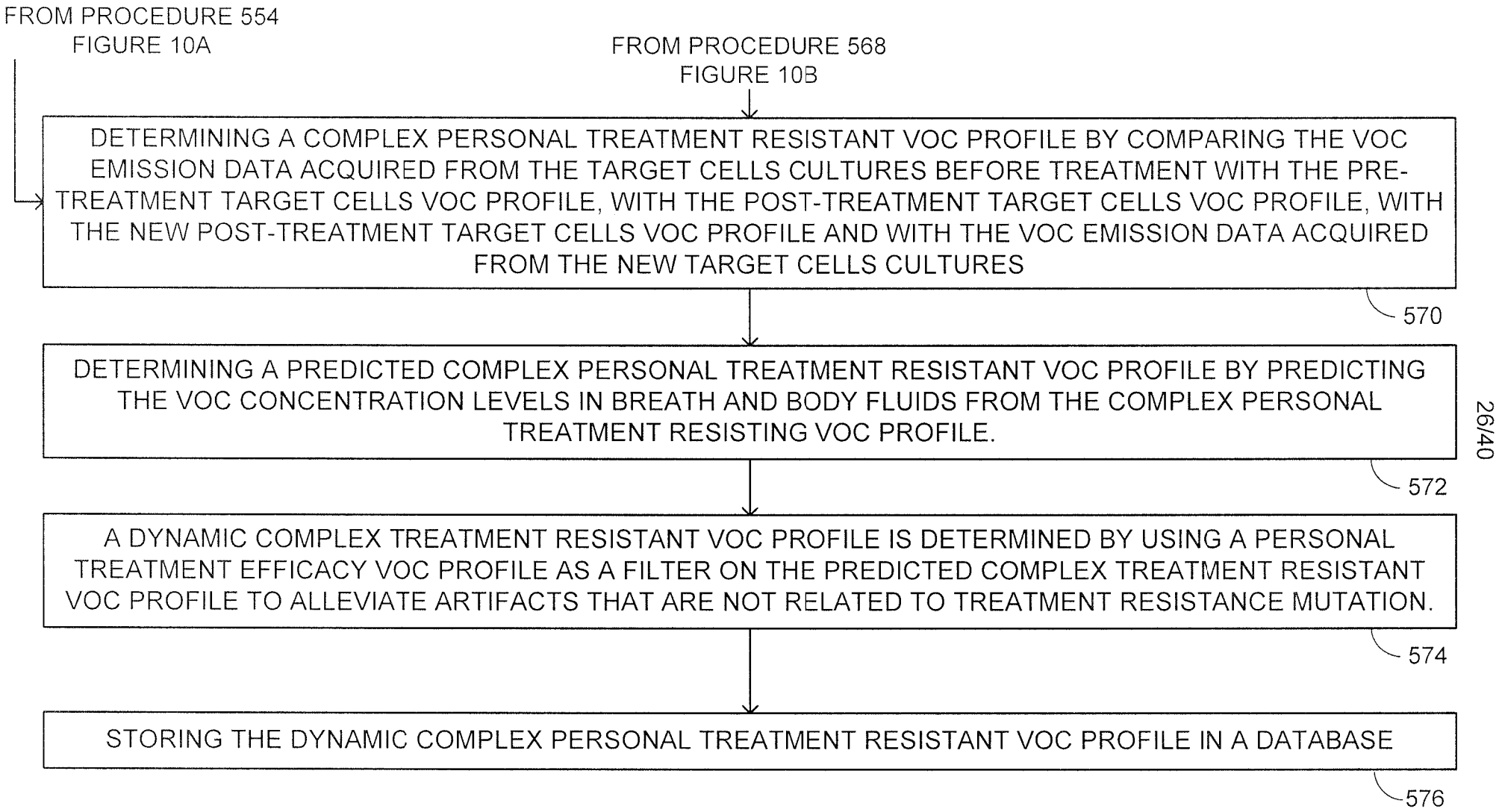
FROM PROCEDURE 554
FIGURE 10A
FROM PROCEDURE 568
FIGURE 10B
DETERMINING A COMPLEX PERSONAL TREATMENT RESISTANT VOC PROFILE BY COMPARING THE VOC EMISSION DATA ACQUIRED FROM THE TARGET CELLS CULTURES BEFORE TREATMENT WITH THE PRE-TREATMENT TARGET CELLS VOC PROFILE, WITH THE POST-TREATMENT TARGET CELLS VOC PROFILE, WITH THE NEW POST-TREATMENT TARGET CELLS VOC PROFILE AND WITH THE VOC EMISSION DATA ACQUIRED FROM THE NEW TARGET CELLS CULTURES
570
DETERMINING A PREDICTED COMPLEX PERSONAL TREATMENT RESISTANT VOC PROFILE BY PREDICTING THE VOC CONCENTRATION LEVELS IN BREATH AND BODY FLUIDS FROM THE COMPLEX PERSONAL TREATMENT RESISTING VOC PROFILE.
572
A DYNAMIC COMPLEX TREATMENT RESISTANT VOC PROFILE IS DETERMINED BY USING A PERSONAL TREATMENT EFFICACY VOC PROFILE AS A FILTER ON THE PREDICTED COMPLEX TREATMENT RESISTANT VOC PROFILE TO ALLEVIATE ARTIFACTS THAT ARE NOT RELATED TO TREATMENT RESISTANCE MUTATION.
574
STORING THE DYNAMIC COMPLEX PERSONAL TREATMENT RESISTANT VOC PROFILE IN A DATABASE
576

FIG. 10C

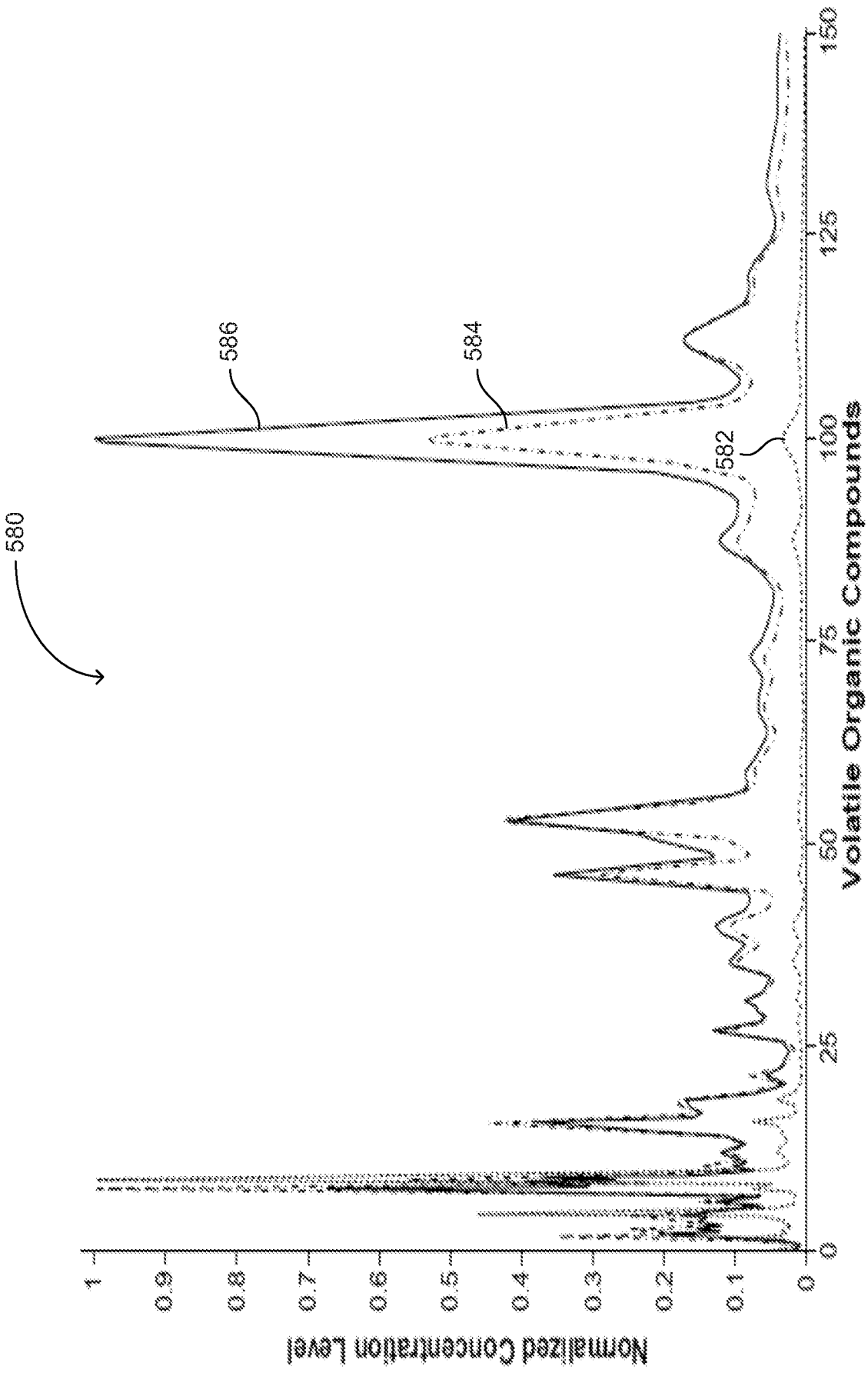
580
582
584
586
Normalized Concentration Level
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
25
50
75
100
125
150
Volatile Organic Compounds

FIG. 11

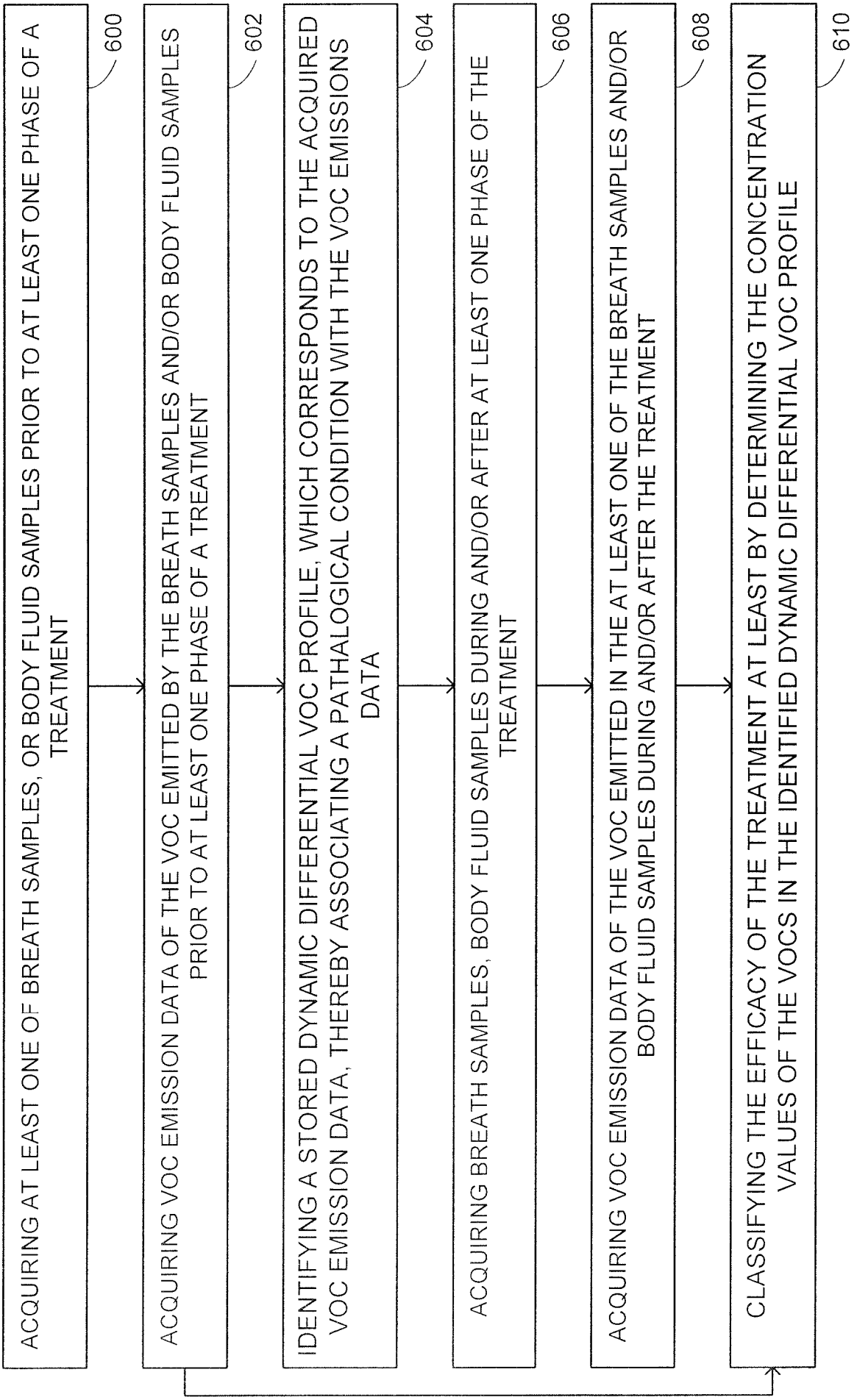
ACQUIRING AT LEAST ONE OF BREATH SAMPLES, OR BODY FLUID SAMPLES PRIOR TO AT LEAST ONE PHASE OF A TREATMENT
600
ACQUIRING VOC EMISSION DATA OF THE VOC EMITTED BY THE BREATH SAMPLES AND/OR BODY FLUID SAMPLES PRIOR TO AT LEAST ONE PHASE OF A TREATMENT
602
IDENTIFYING A STORED DYNAMIC DIFFERENTIAL VOC PROFILE, WHICH CORRESPONDS TO THE ACQUIRED VOC EMISSION DATA, THEREBY ASSOCIATING A PATHALOGICAL CONDITION WITH THE VOC EMISSIONS DATA
604
ACQUIRING BREATH SAMPLES, BODY FLUID SAMPLES DURING AND/OR AFTER AT LEAST ONE PHASE OF THE TREATMENT
606
ACQUIRING VOC EMISSION DATA OF THE VOC EMITTED IN THE AT LEAST ONE OF THE BREATH SAMPLES AND/OR BODY FLUID SAMPLES DURING AND/OR AFTER THE TREATMENT
608
CLASSIFYING THE EFFICACY OF THE TREATMENT AT LEAST BY DETERMINING THE CONCENTRATION VALUES OF THE VOCS IN THE IDENTIFIED DYNAMIC DIFFERENTIAL VOC PROFILE
610

FIG. 12

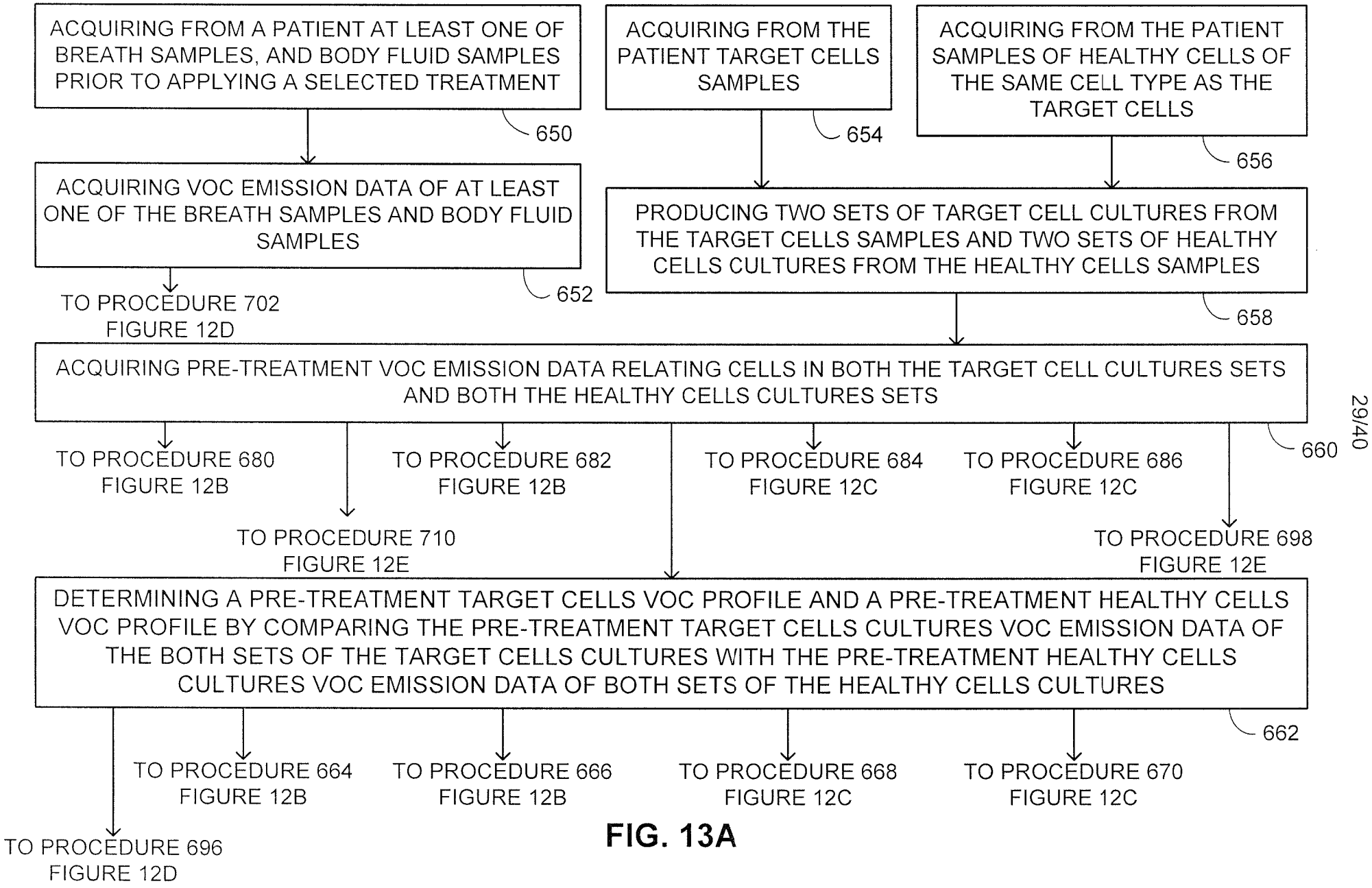
ACQUIRING FROM A PATIENT AT LEAST ONE OF BREATH SAMPLES, AND BODY FLUID SAMPLES PRIOR TO APPLYING A SELECTED TREATMENT
650
ACQUIRING FROM THE PATIENT TARGET CELLS SAMPLES
654
ACQUIRING FROM THE PATIENT SAMPLES OF HEALTHY CELLS OF THE SAME CELL TYPE AS THE TARGET CELLS
656
ACQUIRING VOC EMISSION DATA OF AT LEAST ONE OF THE BREATH SAMPLES AND BODY FLUID SAMPLES
652
TO PROCEDURE 702 FIGURE 12D
PRODUCING TWO SETS OF TARGET CELL CULTURES FROM THE TARGET CELLS SAMPLES AND TWO SETS OF HEALTHY CELLS CULTURES FROM THE HEALTHY CELLS SAMPLES
658
ACQUIRING PRE-TREATMENT VOC EMISSION DATA RELATING CELLS IN BOTH THE TARGET CELL CULTURES SETS AND BOTH THE HEALTHY CELLS CULTURES SETS
660
TO PROCEDURE 680 FIGURE 12B
TO PROCEDURE 682 FIGURE 12B
TO PROCEDURE 684 FIGURE 12C
TO PROCEDURE 686 FIGURE 12C
TO PROCEDURE 710 FIGURE 12E
TO PROCEDURE 698 FIGURE 12E
DETERMINING A PRE-TREATMENT TARGET CELLS VOC PROFILE AND A PRE-TREATMENT HEALTHY CELLS VOC PROFILE BY COMPARING THE PRE-TREATMENT TARGET CELLS CULTURES VOC EMISSION DATA OF THE BOTH SETS OF THE TARGET CELLS CULTURES WITH THE PRE-TREATMENT HEALTHY CELLS CULTURES VOC EMISSION DATA OF BOTH SETS OF THE HEALTHY CELLS CULTURES
662
TO PROCEDURE 664 FIGURE 12B
TO PROCEDURE 666 FIGURE 12B
TO PROCEDURE 668 FIGURE 12C
TO PROCEDURE 670 FIGURE 12C
TO PROCEDURE 696 FIGURE 12D

FIG. 13A

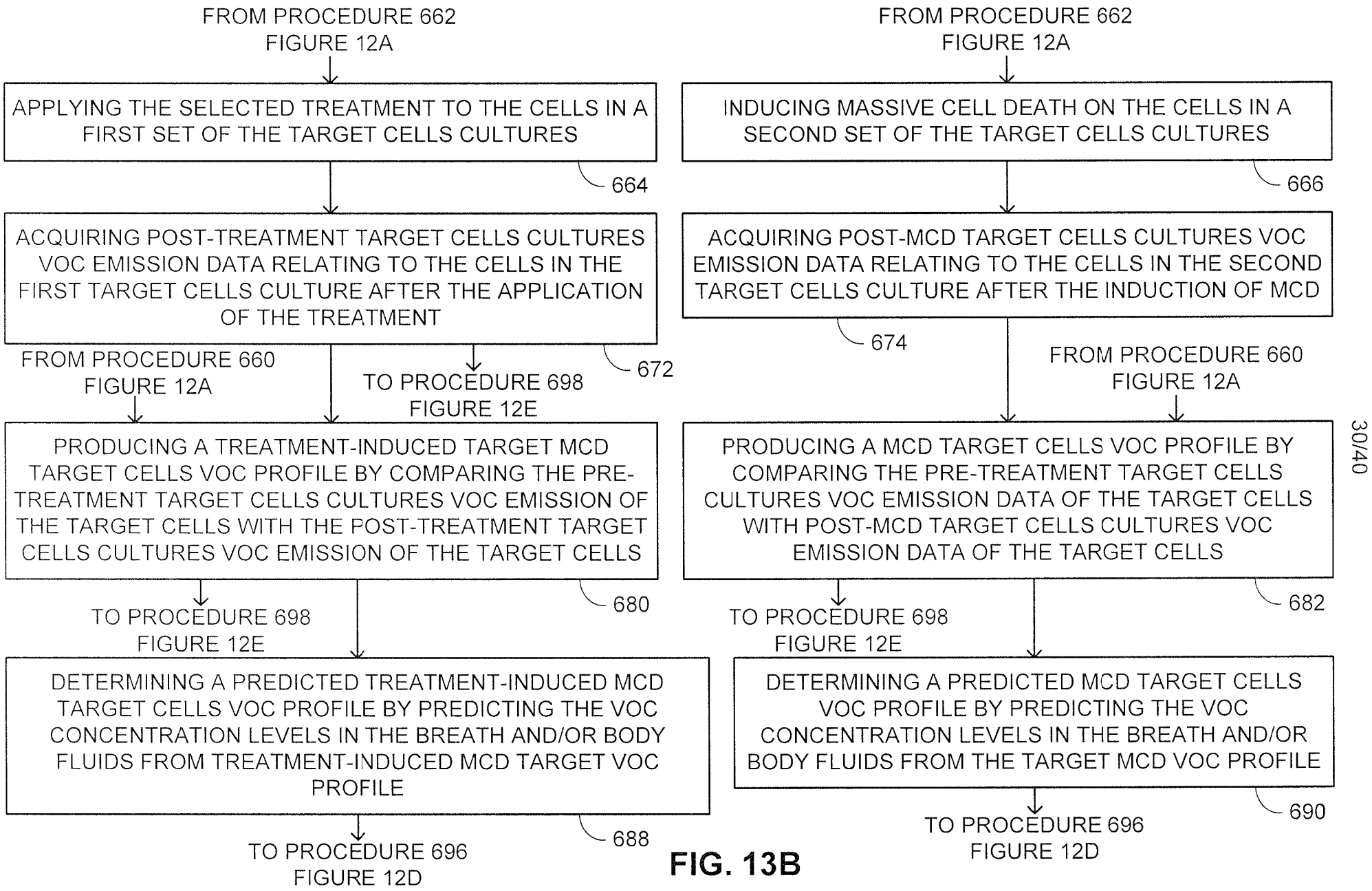
FROM PROCEDURE 662
FIGURE 12A
APPLYING THE SELECTED TREATMENT TO THE CELLS IN A FIRST SET OF THE TARGET CELLS CULTURES
664
ACQUIRING POST-TREATMENT TARGET CELLS CULTURES VOC EMISSION DATA RELATING TO THE CELLS IN THE FIRST TARGET CELLS CULTURE AFTER THE APPLICATION OF THE TREATMENT
672
FROM PROCEDURE 660
FIGURE 12A
TO PROCEDURE 698
FIGURE 12E
PRODUCING A TREATMENT-INDUCED TARGET MCD TARGET CELLS VOC PROFILE BY COMPARING THE PRE-TREATMENT TARGET CELLS CULTURES VOC EMISSION OF THE TARGET CELLS WITH THE POST-TREATMENT TARGET CELLS CULTURES VOC EMISSION OF THE TARGET CELLS
680
TO PROCEDURE 698
FIGURE 12E
DETERMINING A PREDICTED TREATMENT-INDUCED MCD TARGET CELLS VOC PROFILE BY PREDICTING THE VOC CONCENTRATION LEVELS IN THE BREATH AND/OR BODY FLUIDS FROM TREATMENT-INDUCED MCD TARGET VOC PROFILE
688
TO PROCEDURE 696
FIGURE 12D
FROM PROCEDURE 662
FIGURE 12A
INDUCING MASSIVE CELL DEATH ON THE CELLS IN A SECOND SET OF THE TARGET CELLS CULTURES
666
ACQUIRING POST-MCD TARGET CELLS CULTURES VOC EMISSION DATA RELATING TO THE CELLS IN THE SECOND TARGET CELLS CULTURE AFTER THE INDUCTION OF MCD
674
FROM PROCEDURE 660
FIGURE 12A
PRODUCING A MCD TARGET CELLS VOC PROFILE BY COMPARING THE PRE-TREATMENT TARGET CELLS CULTURES VOC EMISSION DATA OF THE TARGET CELLS WITH POST-MCD TARGET CELLS CULTURES VOC EMISSION DATA OF THE TARGET CELLS
682
TO PROCEDURE 698
FIGURE 12E
DETERMINING A PREDICTED MCD TARGET CELLS VOC PROFILE BY PREDICTING THE VOC CONCENTRATION LEVELS IN THE BREATH AND/OR BODY FLUIDS FROM THE TARGET MCD VOC PROFILE
690
TO PROCEDURE 696
FIGURE 12D

FIG. 13B

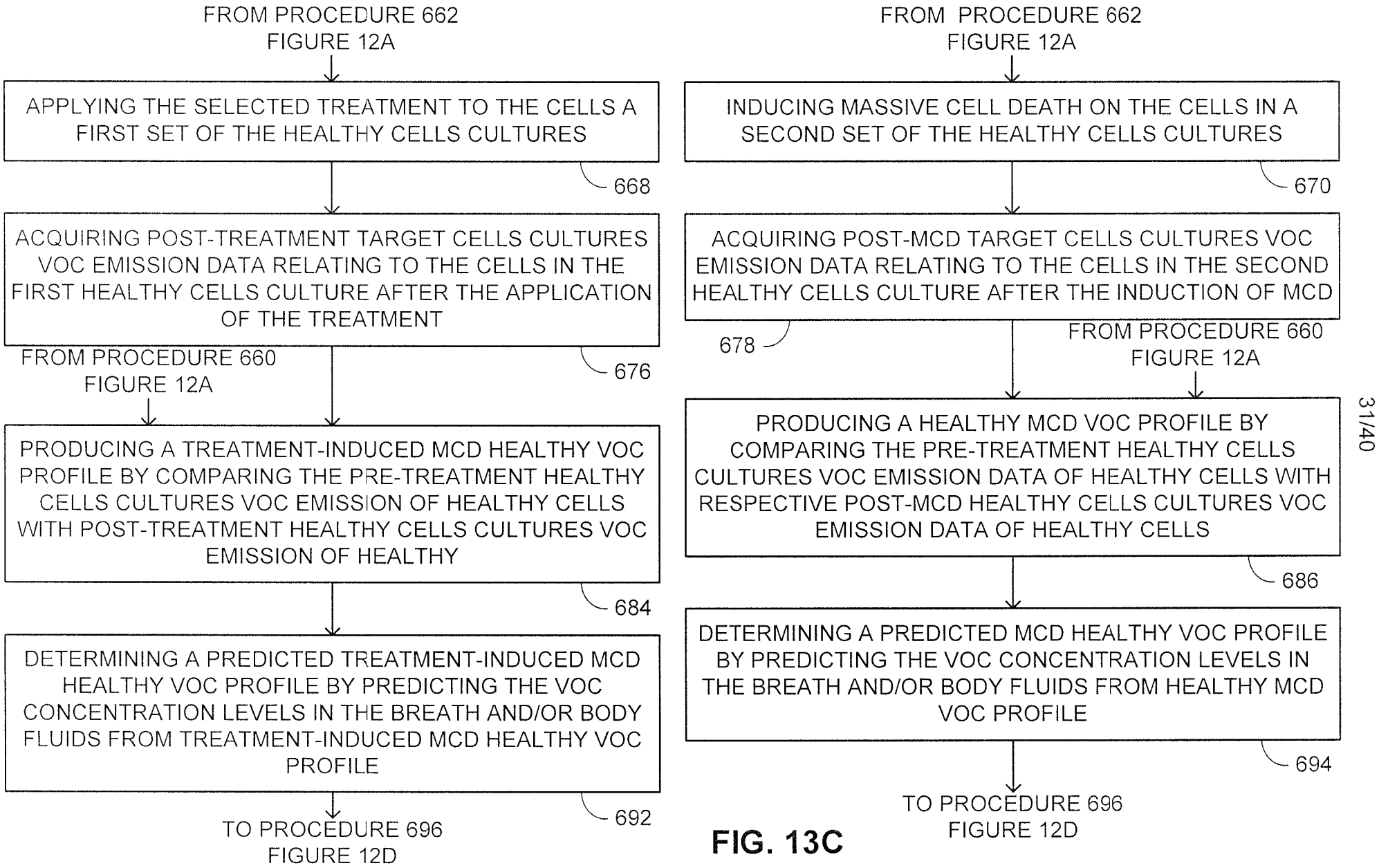
FROM PROCEDURE 662
FIGURE 12A
APPLYING THE SELECTED TREATMENT TO THE CELLS A FIRST SET OF THE HEALTHY CELLS CULTURES
668
ACQUIRING POST-TREATMENT TARGET CELLS CULTURES VOC EMISSION DATA RELATING TO THE CELLS IN THE FIRST HEALTHY CELLS CULTURE AFTER THE APPLICATION OF THE TREATMENT
676
FROM PROCEDURE 660
FIGURE 12A
PRODUCING A TREATMENT-INDUCED MCD HEALTHY VOC PROFILE BY COMPARING THE PRE-TREATMENT HEALTHY CELLS CULTURES VOC EMISSION OF HEALTHY CELLS WITH POST-TREATMENT HEALTHY CELLS CULTURES VOC EMISSION OF HEALTHY
684
DETERMINING A PREDICTED TREATMENT-INDUCED MCD HEALTHY VOC PROFILE BY PREDICTING THE VOC CONCENTRATION LEVELS IN THE BREATH AND/OR BODY FLUIDS FROM TREATMENT-INDUCED MCD HEALTHY VOC PROFILE
692
TO PROCEDURE 696
FIGURE 12D
FROM PROCEDURE 662
FIGURE 12A
INDUCING MASSIVE CELL DEATH ON THE CELLS IN A SECOND SET OF THE HEALTHY CELLS CULTURES
670
ACQUIRING POST-MCD TARGET CELLS CULTURES VOC EMISSION DATA RELATING TO THE CELLS IN THE SECOND HEALTHY CELLS CULTURE AFTER THE INDUCTION OF MCD
678
FROM PROCEDURE 660
FIGURE 12A
PRODUCING A HEALTHY MCD VOC PROFILE BY COMPARING THE PRE-TREATMENT HEALTHY CELLS CULTURES VOC EMISSION DATA OF HEALTHY CELLS WITH RESPECTIVE POST-MCD HEALTHY CELLS CULTURES VOC EMISSION DATA OF HEALTHY CELLS
686
DETERMINING A PREDICTED MCD HEALTHY VOC PROFILE BY PREDICTING THE VOC CONCENTRATION LEVELS IN THE BREATH AND/OR BODY FLUIDS FROM HEALTHY MCD VOC PROFILE
694
TO PROCEDURE 696
FIGURE 12D

FIG. 13C

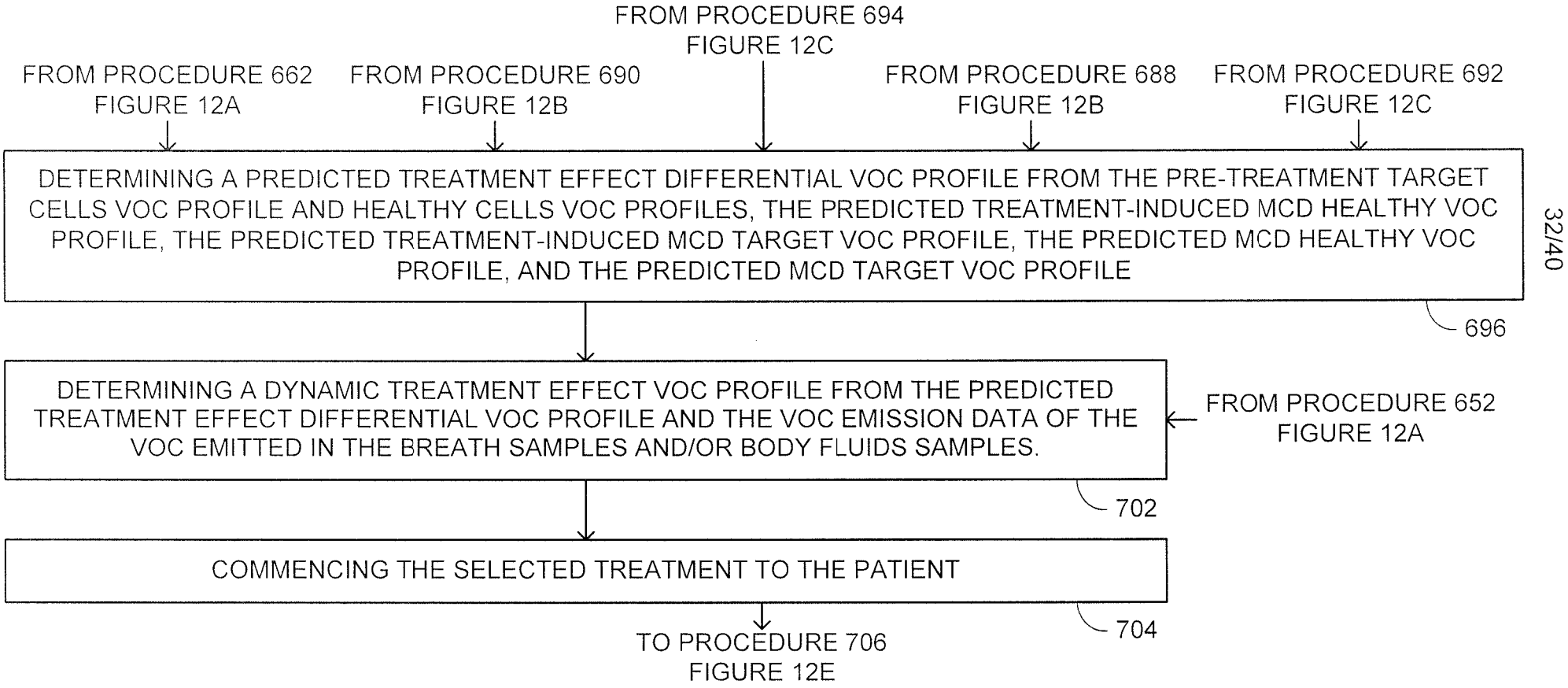
FROM PROCEDURE 694
FIGURE 12C
FROM PROCEDURE 662
FIGURE 12A
FROM PROCEDURE 690
FIGURE 12B
FROM PROCEDURE 688
FIGURE 12B
FROM PROCEDURE 692
FIGURE 12C
DETERMINING A PREDICTED TREATMENT EFFECT DIFFERENTIAL VOC PROFILE FROM THE PRE-TREATMENT TARGET CELLS VOC PROFILE AND HEALTHY CELLS VOC PROFILES, THE PREDICTED TREATMENT-INDUCED MCD HEALTHY VOC PROFILE, THE PREDICTED TREATMENT-INDUCED MCD TARGET VOC PROFILE, THE PREDICTED MCD HEALTHY VOC PROFILE, AND THE PREDICTED MCD TARGET VOC PROFILE
696
DETERMINING A DYNAMIC TREATMENT EFFECT VOC PROFILE FROM THE PREDICTED TREATMENT EFFECT DIFFERENTIAL VOC PROFILE AND THE VOC EMISSION DATA OF THE VOC EMITTED IN THE BREATH SAMPLES AND/OR BODY FLUIDS SAMPLES.
FROM PROCEDURE 652
FIGURE 12A
702
COMMENCING THE SELECTED TREATMENT TO THE PATIENT
704
TO PROCEDURE 706
FIGURE 12E

FIG. 13D

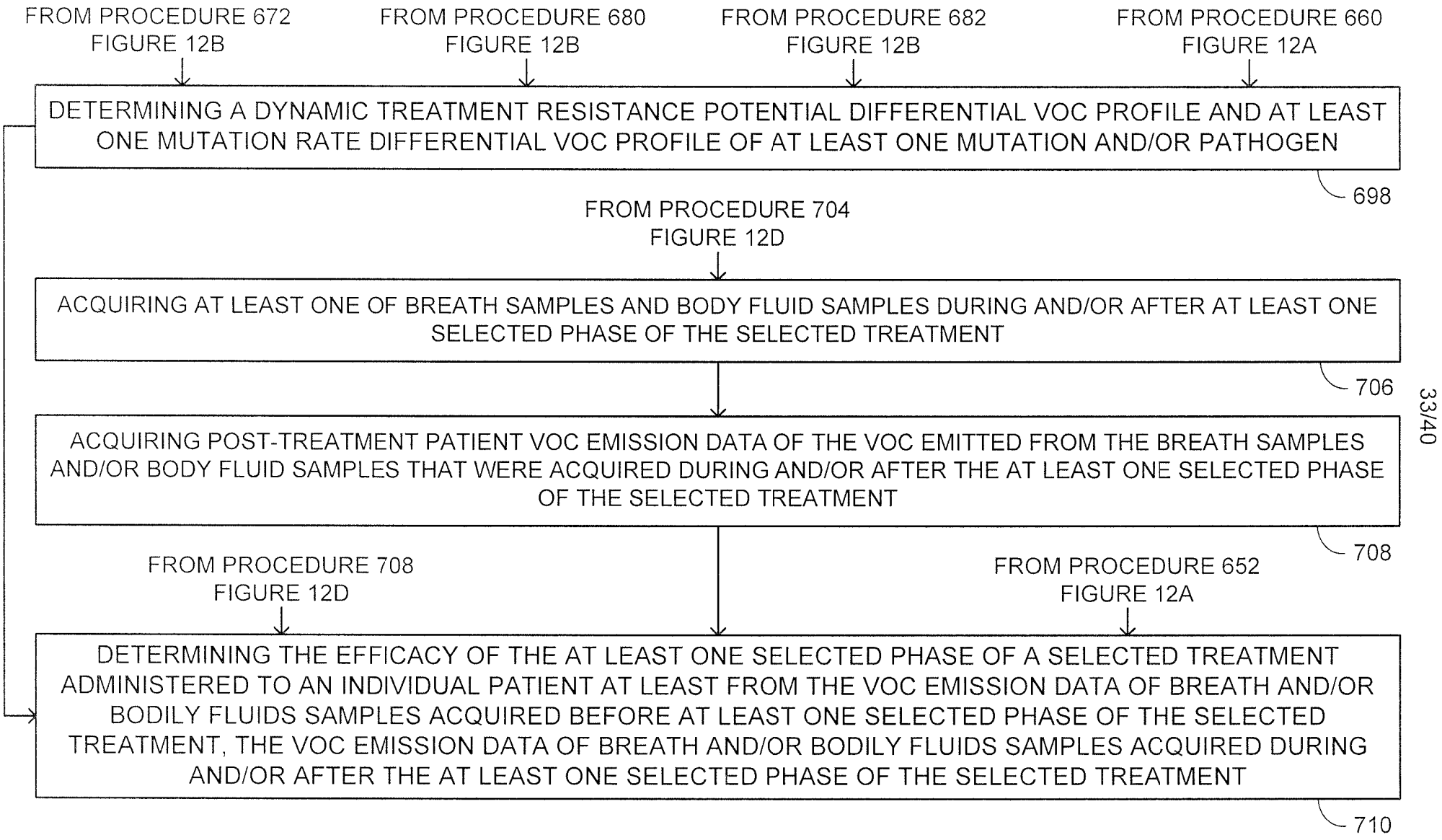
FROM PROCEDURE 672
FIGURE 12B
FROM PROCEDURE 680
FIGURE 12B
FROM PROCEDURE 682
FIGURE 12B
FROM PROCEDURE 660
FIGURE 12A
DETERMINING A DYNAMIC TREATMENT RESISTANCE POTENTIAL DIFFERENTIAL VOC PROFILE AND AT LEAST ONE MUTATION RATE DIFFERENTIAL VOC PROFILE OF AT LEAST ONE MUTATION AND/OR PATHOGEN
698
FROM PROCEDURE 704
FIGURE 12D
ACQUIRING AT LEAST ONE OF BREATH SAMPLES AND BODY FLUID SAMPLES DURING AND/OR AFTER AT LEAST ONE SELECTED PHASE OF THE SELECTED TREATMENT
706
ACQUIRING POST-TREATMENT PATIENT VOC EMISSION DATA OF THE VOC EMITTED FROM THE BREATH SAMPLES AND/OR BODY FLUID SAMPLES THAT WERE ACQUIRED DURING AND/OR AFTER THE AT LEAST ONE SELECTED PHASE OF THE SELECTED TREATMENT
708
FROM PROCEDURE 708
FIGURE 12D
FROM PROCEDURE 652
FIGURE 12A
DETERMINING THE EFFICACY OF THE AT LEAST ONE SELECTED PHASE OF A SELECTED TREATMENT ADMINISTERED TO AN INDIVIDUAL PATIENT AT LEAST FROM THE VOC EMISSION DATA OF BREATH AND/OR BODILY FLUIDS SAMPLES ACQUIRED BEFORE AT LEAST ONE SELECTED PHASE OF THE SELECTED TREATMENT, THE VOC EMISSION DATA OF BREATH AND/OR BODILY FLUIDS SAMPLES ACQUIRED DURING AND/OR AFTER THE AT LEAST ONE SELECTED PHASE OF THE SELECTED TREATMENT
710

FIG. 13E

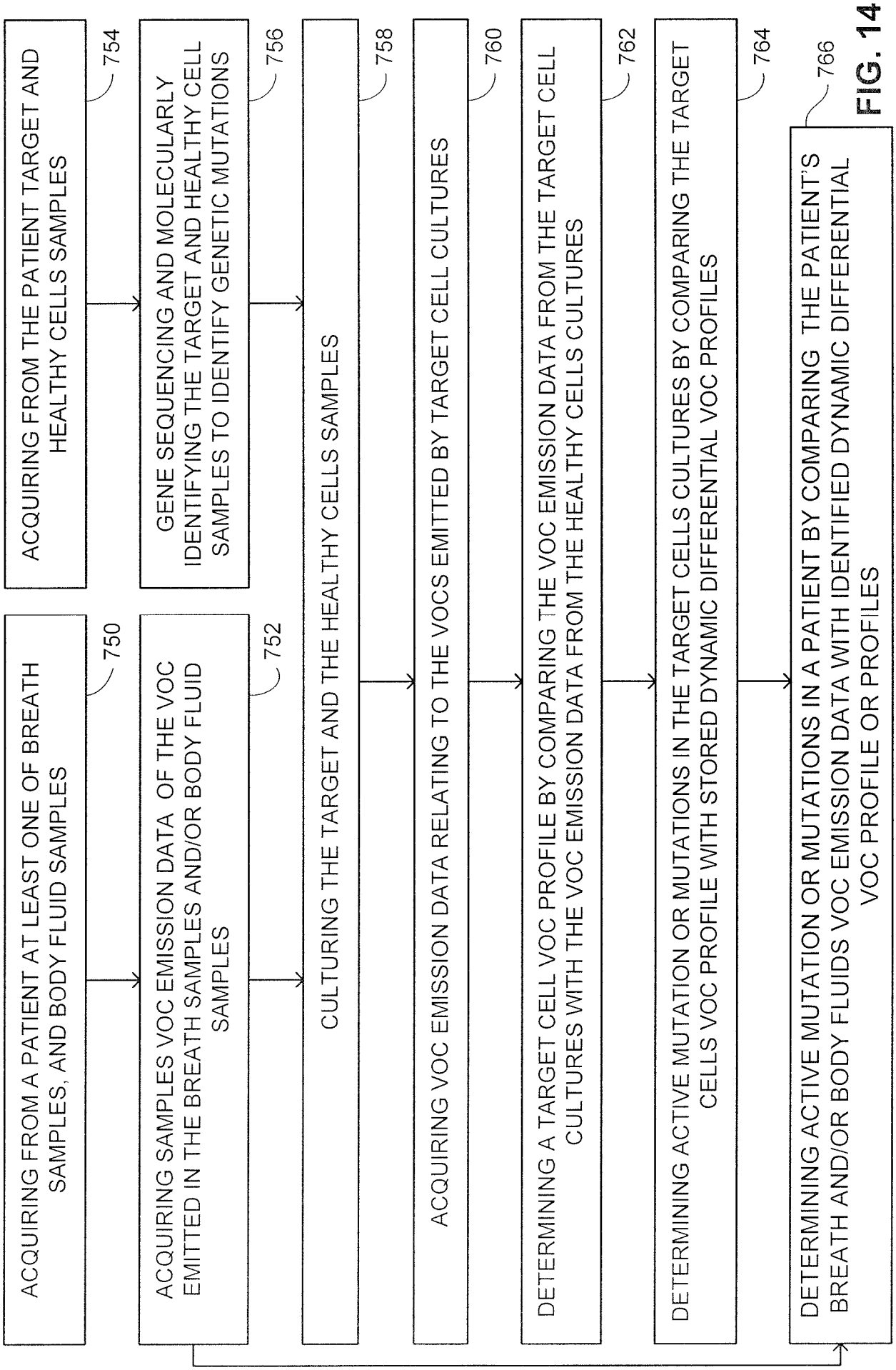
ACQUIRING FROM A PATIENT AT LEAST ONE OF BREATH SAMPLES, AND BODY FLUID SAMPLES
750
ACQUIRING SAMPLES VOC EMISSION DATA OF THE VOC EMITTED IN THE BREATH SAMPLES AND/OR BODY FLUID SAMPLES
752
CULTURING THE TARGET AND THE HEALTHY CELLS SAMPLES
758
ACQUIRING VOC EMISSION DATA RELATING TO THE VOCS EMITTED BY TARGET CELL CULTURES
760
DETERMINING A TARGET CELL VOC PROFILE BY COMPARING THE VOC EMISSION DATA FROM THE TARGET CELL CULTURES WITH THE VOC EMISSION DATA FROM THE HEALTHY CELLS CULTURES
762
DETERMINING ACTIVE MUTATION OR MUTATIONS IN THE TARGET CELLS CULTURES BY COMPARING THE TARGET CELLS VOC PROFILE WITH STORED DYNAMIC DIFFERENTIAL VOC PROFILES
764
DETERMINING ACTIVE MUTATION OR MUTATIONS IN A PATIENT BY COMPARING THE PATIENT'S BREATH AND/OR BODY FLUIDS VOC EMISSION DATA WITH IDENTIFIED DYNAMIC DIFFERENTIAL VOC PROFILE OR PROFILES
766
ACQUIRING FROM THE PATIENT TARGET AND HEALTHY CELLS SAMPLES
754
GENE SEQUENCING AND MOLECULARLY IDENTIFYING THE TARGET AND HEALTHY CELL SAMPLES TO IDENTIFY GENETIC MUTATIONS
756

FIG. 14

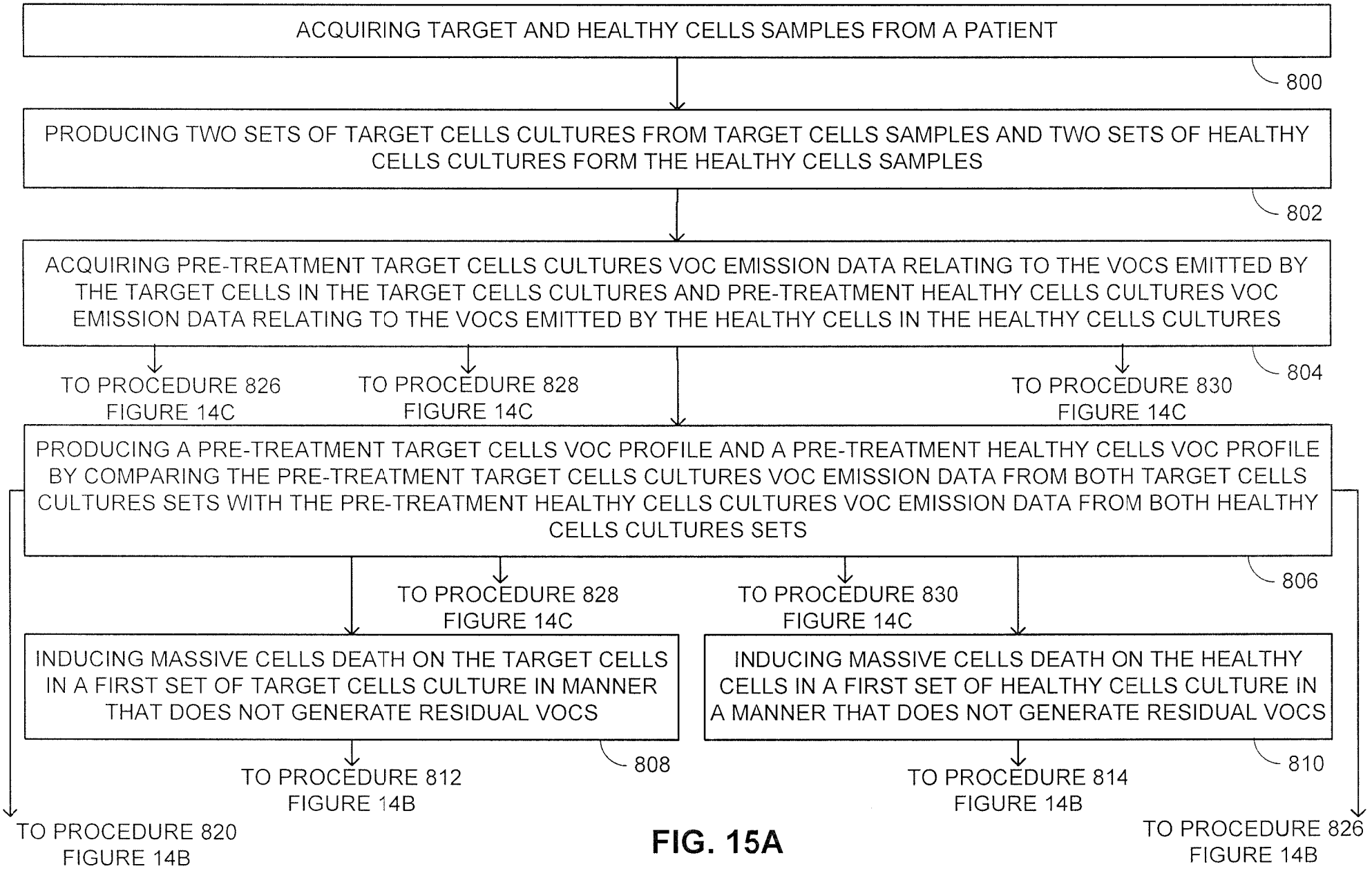
ACQUIRING TARGET AND HEALTHY CELLS SAMPLES FROM A PATIENT
800
PRODUCING TWO SETS OF TARGET CELLS CULTURES FROM TARGET CELLS SAMPLES AND TWO SETS OF HEALTHY CELLS CULTURES FORM THE HEALTHY CELLS SAMPLES
802
ACQUIRING PRE-TREATMENT TARGET CELLS CULTURES VOC EMISSION DATA RELATING TO THE VOCS EMITTED BY THE TARGET CELLS IN THE TARGET CELLS CULTURES AND PRE-TREATMENT HEALTHY CELLS CULTURES VOC EMISSION DATA RELATING TO THE VOCS EMITTED BY THE HEALTHY CELLS IN THE HEALTHY CELLS CULTURES
804
TO PROCEDURE 826 FIGURE 14C
TO PROCEDURE 828 FIGURE 14C
TO PROCEDURE 830 FIGURE 14C
PRODUCING A PRE-TREATMENT TARGET CELLS VOC PROFILE AND A PRE-TREATMENT HEALTHY CELLS VOC PROFILE BY COMPARING THE PRE-TREATMENT TARGET CELLS CULTURES VOC EMISSION DATA FROM BOTH TARGET CELLS CULTURES SETS WITH THE PRE-TREATMENT HEALTHY CELLS CULTURES VOC EMISSION DATA FROM BOTH HEALTHY CELLS CULTURES SETS
806
TO PROCEDURE 828 FIGURE 14C
TO PROCEDURE 830 FIGURE 14C
INDUCING MASSIVE CELLS DEATH ON THE TARGET CELLS IN A FIRST SET OF TARGET CELLS CULTURE IN MANNER THAT DOES NOT GENERATE RESIDUAL VOCS
808
INDUCING MASSIVE CELLS DEATH ON THE HEALTHY CELLS IN A FIRST SET OF HEALTHY CELLS CULTURE IN A MANNER THAT DOES NOT GENERATE RESIDUAL VOCS
810
TO PROCEDURE 812 FIGURE 14B
TO PROCEDURE 814 FIGURE 14B
TO PROCEDURE 820 FIGURE 14B
TO PROCEDURE 826 FIGURE 14B

FIG. 15A

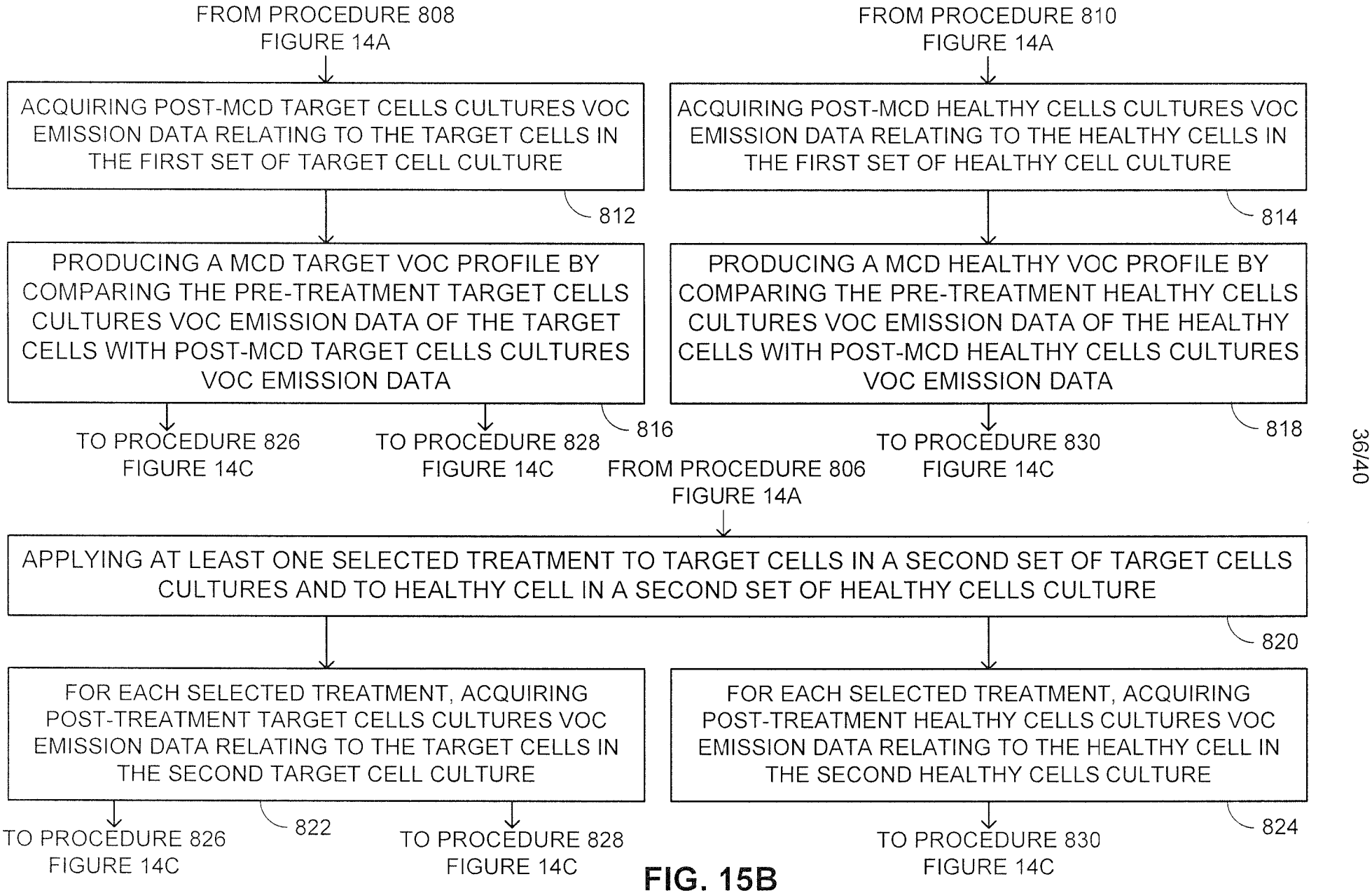
FROM PROCEDURE 808
FIGURE 14A
FROM PROCEDURE 810
FIGURE 14A
ACQUIRING POST-MCD TARGET CELLS CULTURES VOC EMISSION DATA RELATING TO THE TARGET CELLS IN THE FIRST SET OF TARGET CELL CULTURE
812
ACQUIRING POST-MCD HEALTHY CELLS CULTURES VOC EMISSION DATA RELATING TO THE HEALTHY CELLS IN THE FIRST SET OF HEALTHY CELL CULTURE
814
PRODUCING A MCD TARGET VOC PROFILE BY COMPARING THE PRE-TREATMENT TARGET CELLS CULTURES VOC EMISSION DATA OF THE TARGET CELLS WITH POST-MCD TARGET CELLS CULTURES VOC EMISSION DATA
816
PRODUCING A MCD HEALTHY VOC PROFILE BY COMPARING THE PRE-TREATMENT HEALTHY CELLS CULTURES VOC EMISSION DATA OF THE HEALTHY CELLS WITH POST-MCD HEALTHY CELLS CULTURES VOC EMISSION DATA
818
TO PROCEDURE 826
FIGURE 14C
TO PROCEDURE 828
FIGURE 14C
TO PROCEDURE 830
FIGURE 14C
FROM PROCEDURE 806
FIGURE 14A
APPLYING AT LEAST ONE SELECTED TREATMENT TO TARGET CELLS IN A SECOND SET OF TARGET CELLS CULTURES AND TO HEALTHY CELL IN A SECOND SET OF HEALTHY CELLS CULTURE
820
FOR EACH SELECTED TREATMENT, ACQUIRING POST-TREATMENT TARGET CELLS CULTURES VOC EMISSION DATA RELATING TO THE TARGET CELLS IN THE SECOND TARGET CELL CULTURE
822
FOR EACH SELECTED TREATMENT, ACQUIRING POST-TREATMENT HEALTHY CELLS CULTURES VOC EMISSION DATA RELATING TO THE HEALTHY CELL IN THE SECOND HEALTHY CELLS CULTURE
824
TO PROCEDURE 826
FIGURE 14C
TO PROCEDURE 828
FIGURE 14C
TO PROCEDURE 830
FIGURE 14C

FIG. 15B

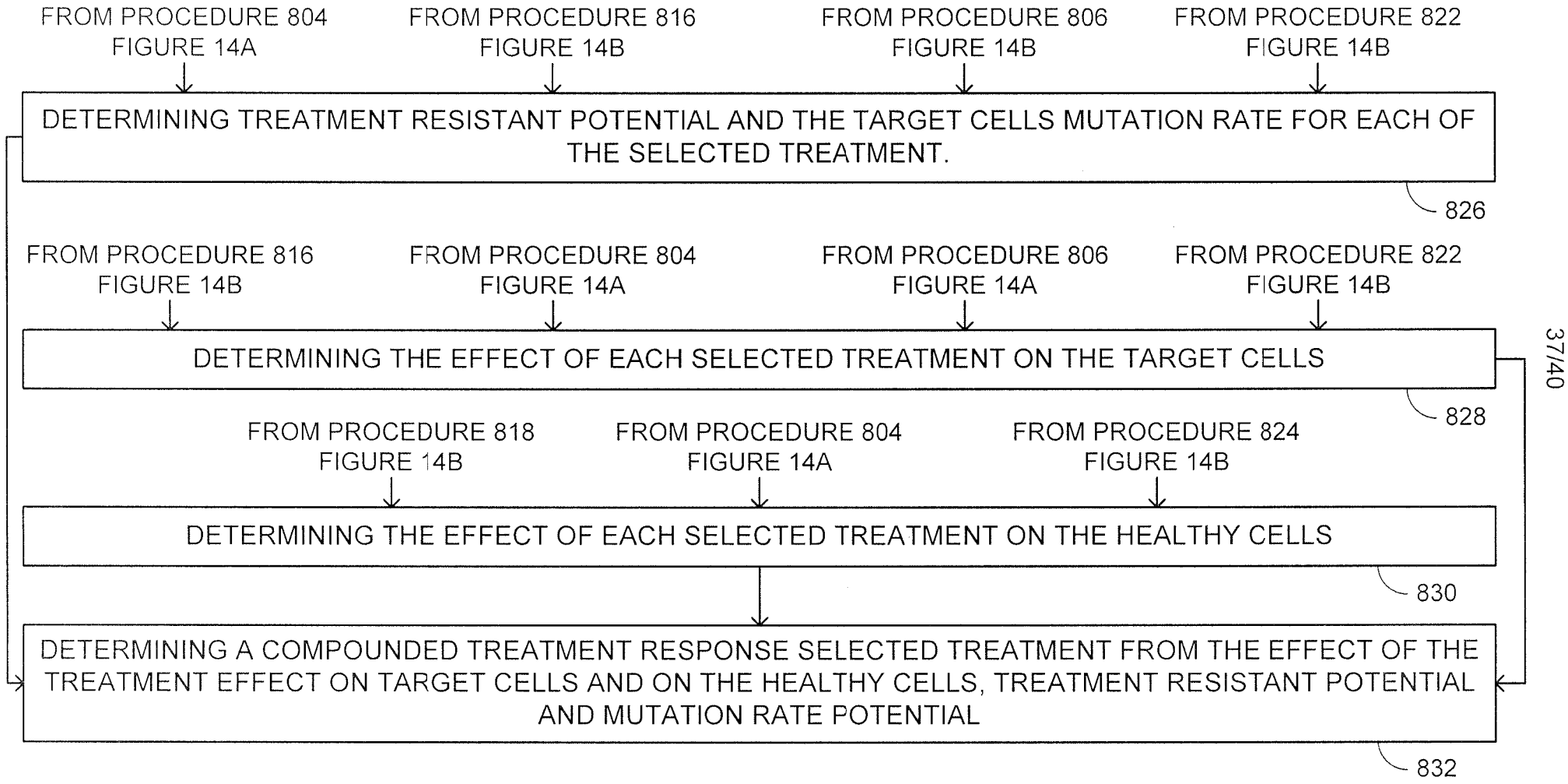
FROM PROCEDURE 804
FIGURE 14A
FROM PROCEDURE 816
FIGURE 14B
FROM PROCEDURE 806
FIGURE 14B
FROM PROCEDURE 822
FIGURE 14B
DETERMINING TREATMENT RESISTANT POTENTIAL AND THE TARGET CELLS MUTATION RATE FOR EACH OF THE SELECTED TREATMENT.
826
FROM PROCEDURE 816
FIGURE 14B
FROM PROCEDURE 804
FIGURE 14A
FROM PROCEDURE 806
FIGURE 14A
FROM PROCEDURE 822
FIGURE 14B
DETERMINING THE EFFECT OF EACH SELECTED TREATMENT ON THE TARGET CELLS
828
FROM PROCEDURE 818
FIGURE 14B
FROM PROCEDURE 804
FIGURE 14A
FROM PROCEDURE 824
FIGURE 14B
DETERMINING THE EFFECT OF EACH SELECTED TREATMENT ON THE HEALTHY CELLS
830
DETERMINING A COMPOUNDED TREATMENT RESPONSE SELECTED TREATMENT FROM THE EFFECT OF THE TREATMENT EFFECT ON TARGET CELLS AND ON THE HEALTHY CELLS, TREATMENT RESISTANT POTENTIAL AND MUTATION RATE POTENTIAL
832

FIG. 15C

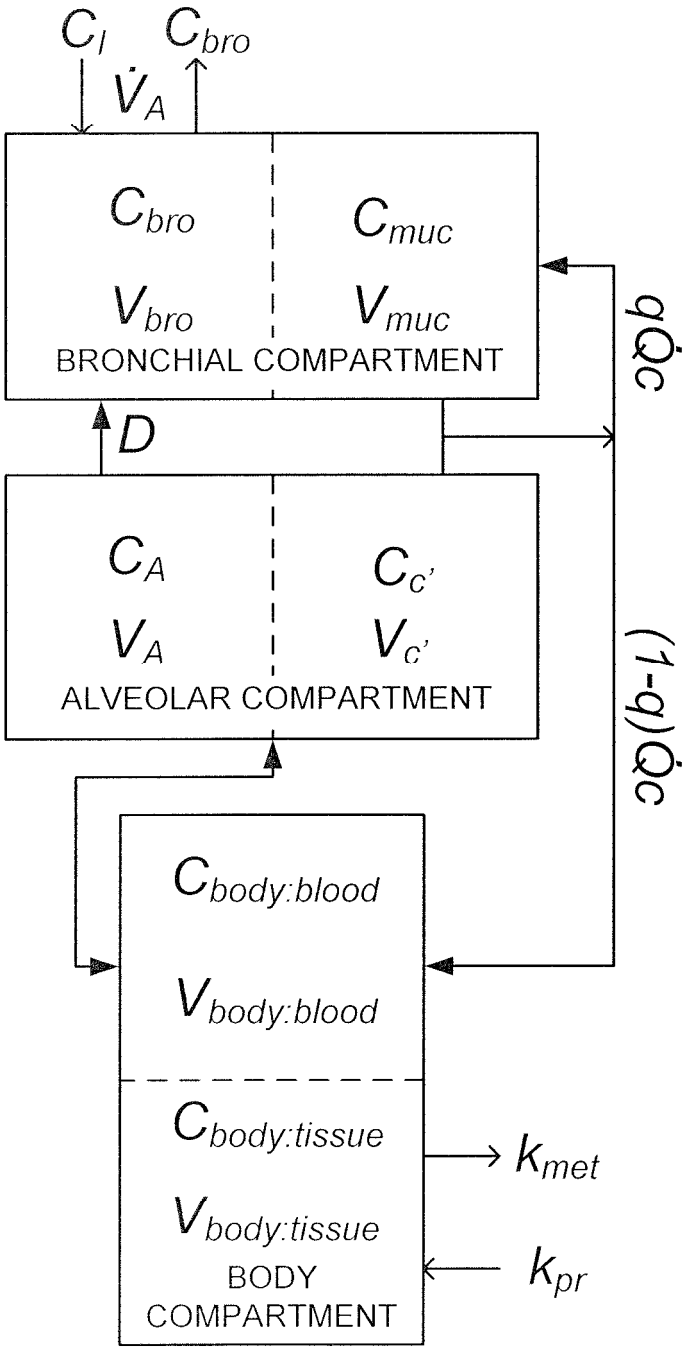
C_I
C_{bro}
$\dot{V}_A$
C_{bro}
C_{muc}
V_{bro}
V_{muc}
BRONCHIAL COMPARTMENT
qQc
D
C_A
$C_{c'}$
V_A
$V_{c'}$
ALVEOLAR COMPARTMENT
$(1-q)Qc$
$C_{body:blood}$
$V_{body:blood}$
$C_{body:tissue}$
$V_{body:tissue}$
BODY
COMPARTMENT
k_{met}
k_{pr}

FIG. 16

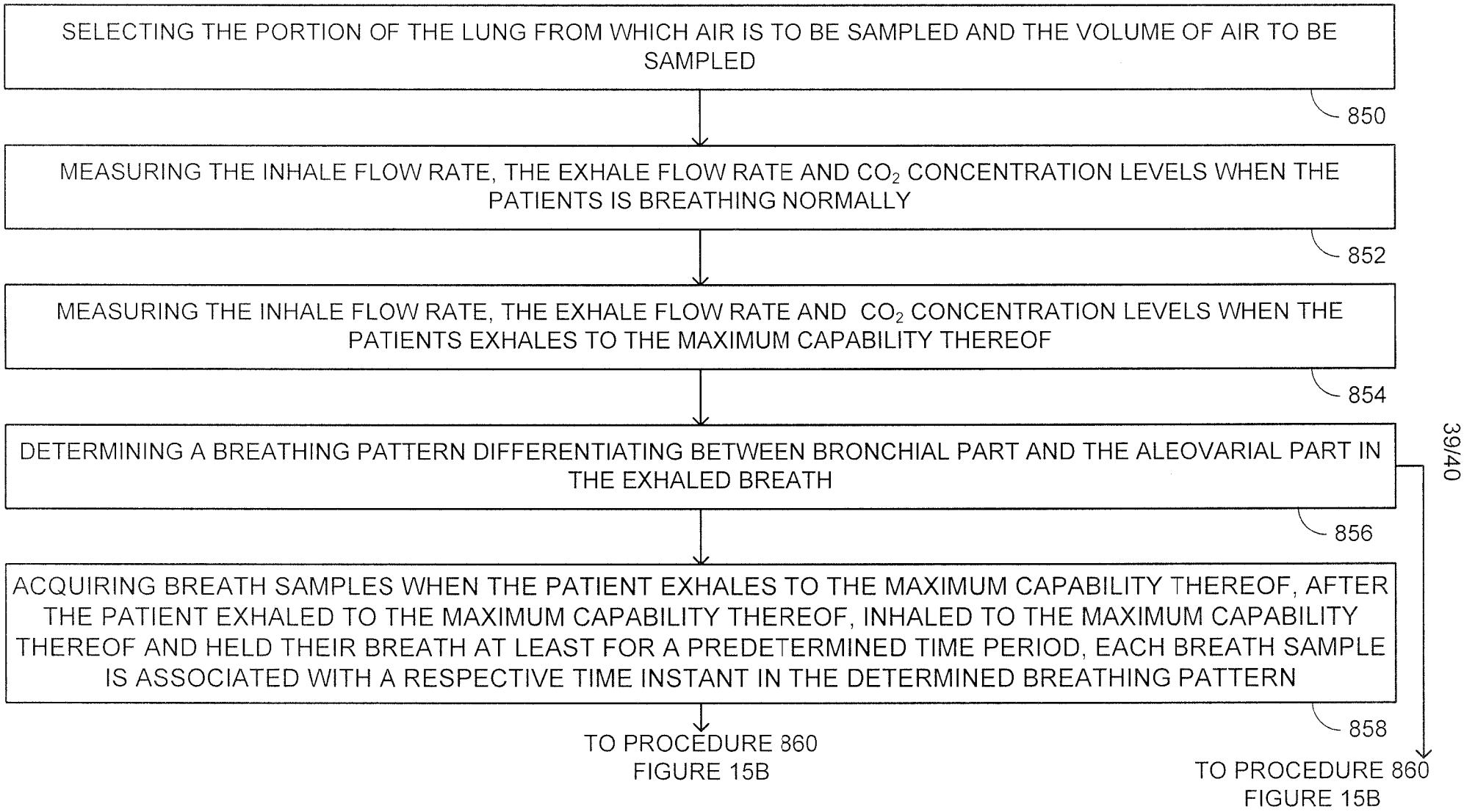
SELECTING THE PORTION OF THE LUNG FROM WHICH AIR IS TO BE SAMPLED AND THE VOLUME OF AIR TO BE SAMPLED
850
MEASURING THE INHALE FLOW RATE, THE EXHALE FLOW RATE AND CO_2 CONCENTRATION LEVELS WHEN THE PATIENTS IS BREATHING NORMALLY
852
MEASURING THE INHALE FLOW RATE, THE EXHALE FLOW RATE AND CO_2 CONCENTRATION LEVELS WHEN THE PATIENTS EXHALES TO THE MAXIMUM CAPABILITY THEREOF
854
DETERMINING A BREATHING PATTERN DIFFERENTIATING BETWEEN BRONCHIAL PART AND THE ALEOVARIAL PART IN THE EXHALED BREATH
856
ACQUIRING BREATH SAMPLES WHEN THE PATIENT EXHALES TO THE MAXIMUM CAPABILITY THEREOF, AFTER THE PATIENT EXHALED TO THE MAXIMUM CAPABILITY THEREOF, INHALED TO THE MAXIMUM CAPABILITY THEREOF AND HELD THEIR BREATH AT LEAST FOR A PREDETERMINED TIME PERIOD, EACH BREATH SAMPLE IS ASSOCIATED WITH A RESPECTIVE TIME INSTANT IN THE DETERMINED BREATHING PATTERN
858
TO PROCEDURE 860 FIGURE 15B
TO PROCEDURE 860 FIGURE 15B

FIG. 17A

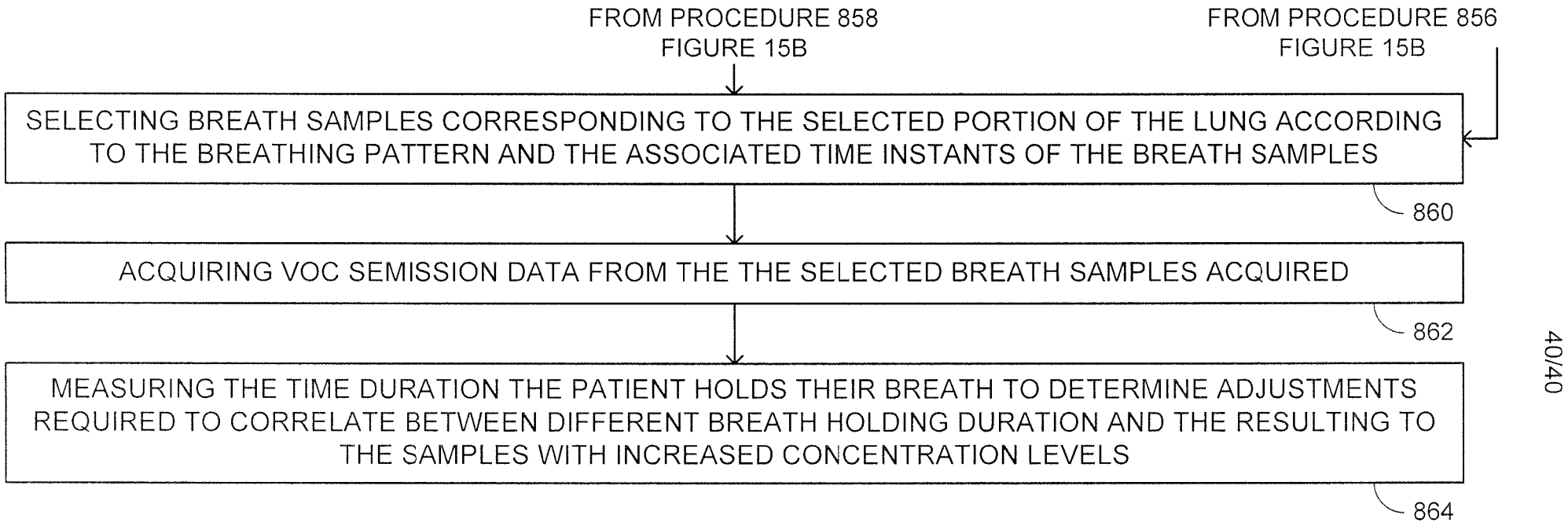
FROM PROCEDURE 858
FIGURE 15B
FROM PROCEDURE 856
FIGURE 15B
SELECTING BREATH SAMPLES CORRESPONDING TO THE SELECTED PORTION OF THE LUNG ACCORDING TO THE BREATHING PATTERN AND THE ASSOCIATED TIME INSTANTS OF THE BREATH SAMPLES
860
ACQUIRING VOC SEMISSION DATA FROM THE THE SELECTED BREATH SAMPLES ACQUIRED
862
MEASURING THE TIME DURATION THE PATIENT HOLDS THEIR BREATH TO DETERMINE ADJUSTMENTS REQUIRED TO CORRELATE BETWEEN DIFFERENT BREATH HOLDING DURATION AND THE RESULTING TO THE SAMPLES WITH INCREASED CONCENTRATION LEVELS
864

FIG. 17B