FIG.1

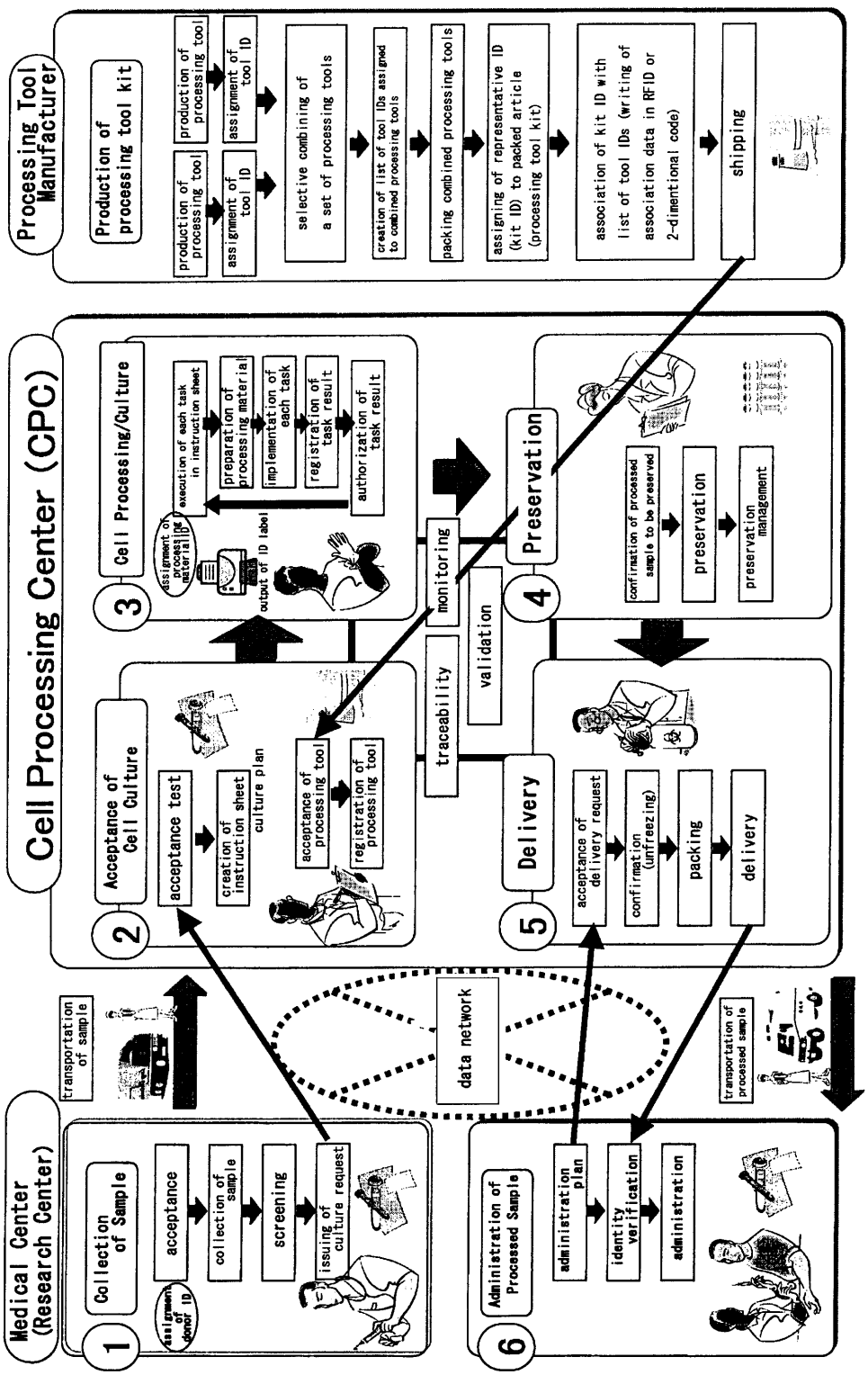
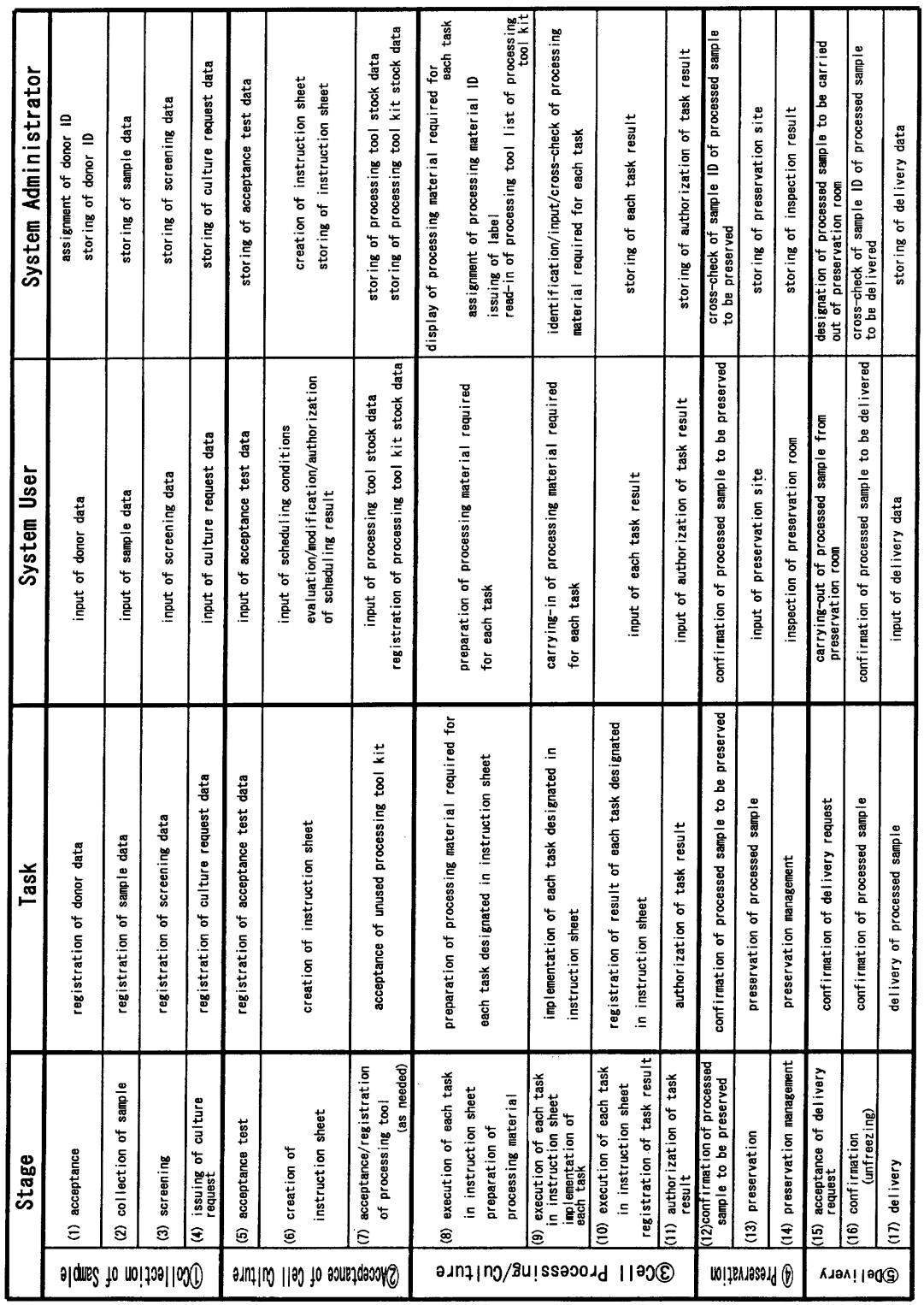

Medical Center (Research Center)
Collection of Sample
assignment of donor ID
acceptance
collection of sample
screening
issuing of culture request
transportation of sample
data network
Cell Processing Center (CPC)
Acceptance of Cell Culture
acceptance test
creation of instruction sheet
culture plan
acceptance of processing tool
registration of processing tool
Cell Processing/Culture
assignment of processing material ID
execution of each task in instruction sheet
preparation of processing material
implementation of each task
registration of task result
authorization of task result
output of ID label
traceability
monitoring
validation
Preservation
confirmation of processed sample to be preserved
preservation
preservation management
Delivery
acceptance of delivery request
confirmation (unfreezing)
packing
delivery
Administration of Processed Sample
administration plan
identity verification
administration
transportation of processed sample
Processing Tool Manufacturer
Production of processing tool kit
production of processing tool
assignment of tool ID
production of processing tool
assignment of tool ID
selective combining of a set of processing tools
creation of list of tool IDs assigned to combined processing tools
packing combined processing tools
assigning of representative ID (kit ID) to packed article (processing tool kit)
association of kit ID with list of tool IDs (writing of association data in RFID or 2-dimentional code)
shipping

FIG.2



Stage		Task	System User	System Administrator
①Collection of Sample	(1) acceptance	registration of donor data	input of donor data	assignment of donor ID storing of donor ID
	(2) collection of sample	registration of sample data	input of sample data	storing of sample data
	(3) screening	registration of screening data	input of screening data	storing of screening data
	(4) issuing of culture request	registration of culture request data	input of culture request data	storing of culture request data
②Acceptance of Cell Culture	(5) acceptance test	registration of acceptance test data	input of acceptance test data	storing of acceptance test data
	(6) creation of instruction sheet	creation of instruction sheet	input of scheduling conditions evaluation/modification/authorization of scheduling result	creation of instruction sheet storing of instruction sheet
	(7) acceptance/registration of processing tool (as needed)	acceptance of unused processing tool kit	input of processing tool stock data registration of processing tool kit stock data	storing of processing tool stock data storing of processing tool kit stock data
③Cell Processing/Culture	(8) execution of each task in instruction sheet preparation of processing material	preparation of processing material required for each task designated in instruction sheet	preparation of processing material required for each task	display of processing material required for each task assignment of processing material ID issuing of label read-in of processing tool list of processing tool kit
	(9) execution of each task in instruction sheet implementation of each task	implementation of each task designated in instruction sheet	carrying-in of processing material required for each task	identification/input/cross-check of processing material required for each task
	(10) execution of each task in instruction sheet registration of task result	registration of result of each task designated in instruction sheet	input of each task result	storing of each task result
	(11) authorization of task result	authorization of task result	input of authorization of task result	storing of authorization of task result
④Preservation	(12)confirmation of processed sample to be preserved	confirmation of processed sample to be preserved	confirmation of processed sample to be preserved	cross-check of sample ID of processed sample to be preserved
	(13) preservation	preservation of processed sample	input of preservation site	storing of preservation site
	(14) preservation management	preservation management	inspection of preservation room	storing of inspection result
⑤Delivery	(15) acceptance of delivery request	confirmation of delivery request	carrying-out of processed sample from preservation room	designation of processed sample to be carried out of preservation room
	(16) confirmation (unfreezing)	confirmation of processed sample	confirmation of processed sample to be delivered	cross-check of sample ID of processed sample to be delivered
	(17) delivery	delivery of processed sample	input of delivery data	storing of delivery data

FIG.3

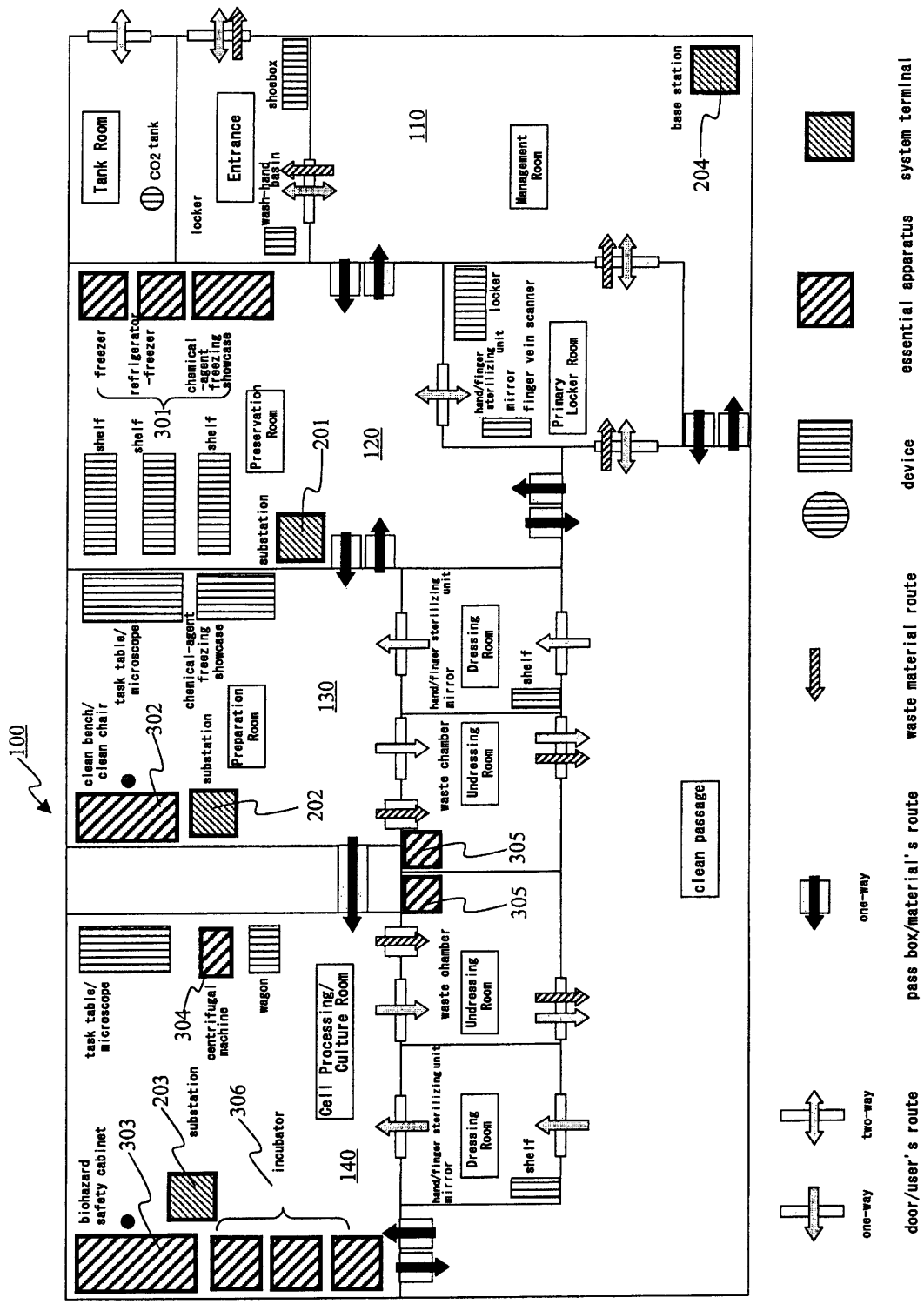

100
Tank Room
CO2 tank
Entrance
locker
shoebox
wash-hand basin
110
Management Room
base station
204
freezer
refrigerator-freezer
chemical-agent freezing showcase
shelf
301
Preservation Room
201
substation
120
hand/finger sterilizing unit
mirror
finger vein scanner
locker
Primary Locker Room
clean bench/ clean chair
task table/ microscope
302
chemical-agent freezing showcase
subtation
Preparation Room
202
130
hand/finger sterilizing unit
mirror
Dressing Room
shelf
waste chamber
Undressing Room
305
305
clean passage
task table/ microscope
304
centrifugal machine
wagon
Cell Processing/ Culture Room
waste chamber
Undressing Room
biohazard safety cabinet
303
203
subtation
306
incubator
140
hand/finger sterilizing unit
mirror
Dressing Room
shelf
door/user's route
one-way
two-way
one-way
pass box/material's route
waste material route
device
essential apparatus
system terminal

FIG.4

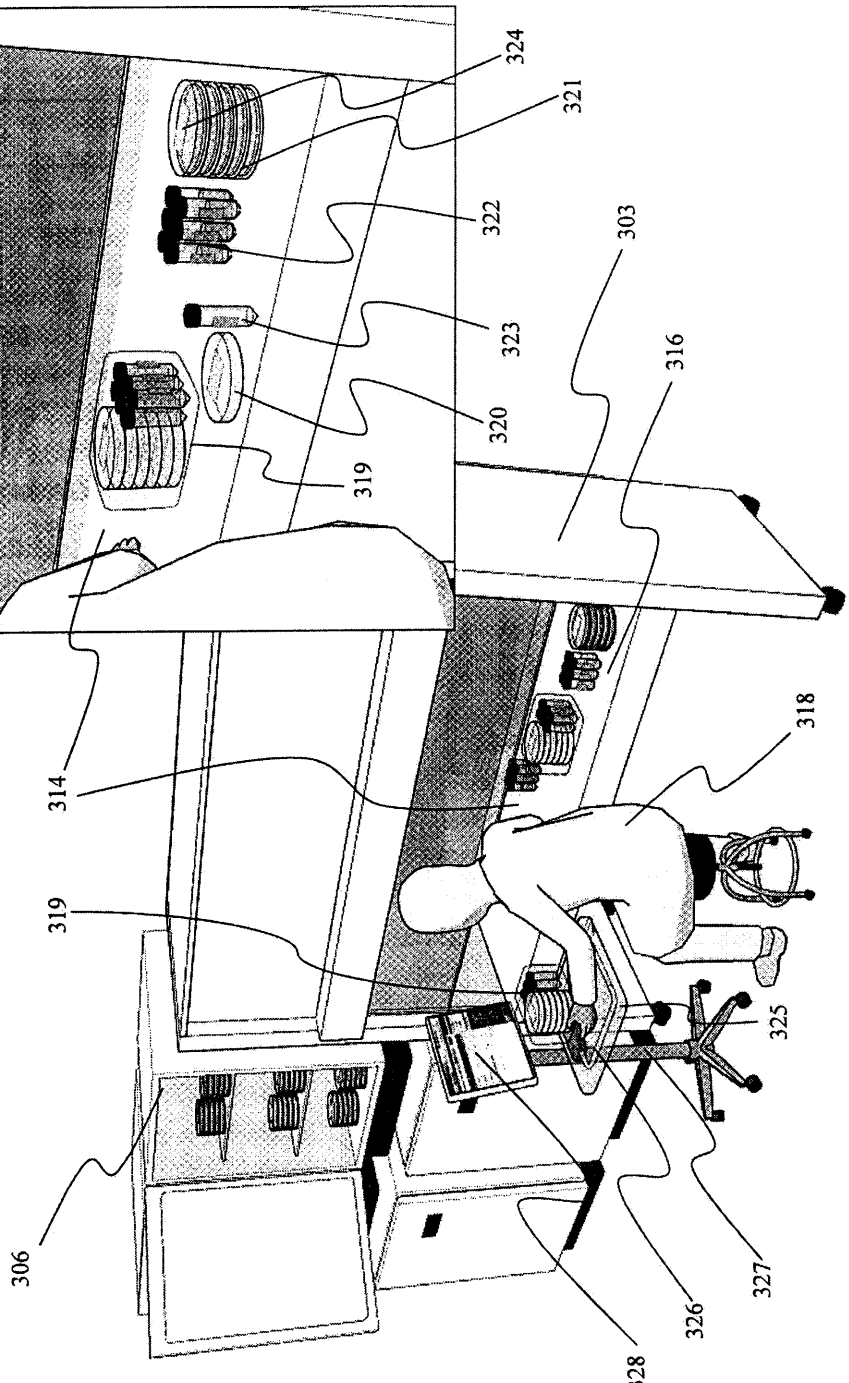


FIG.5

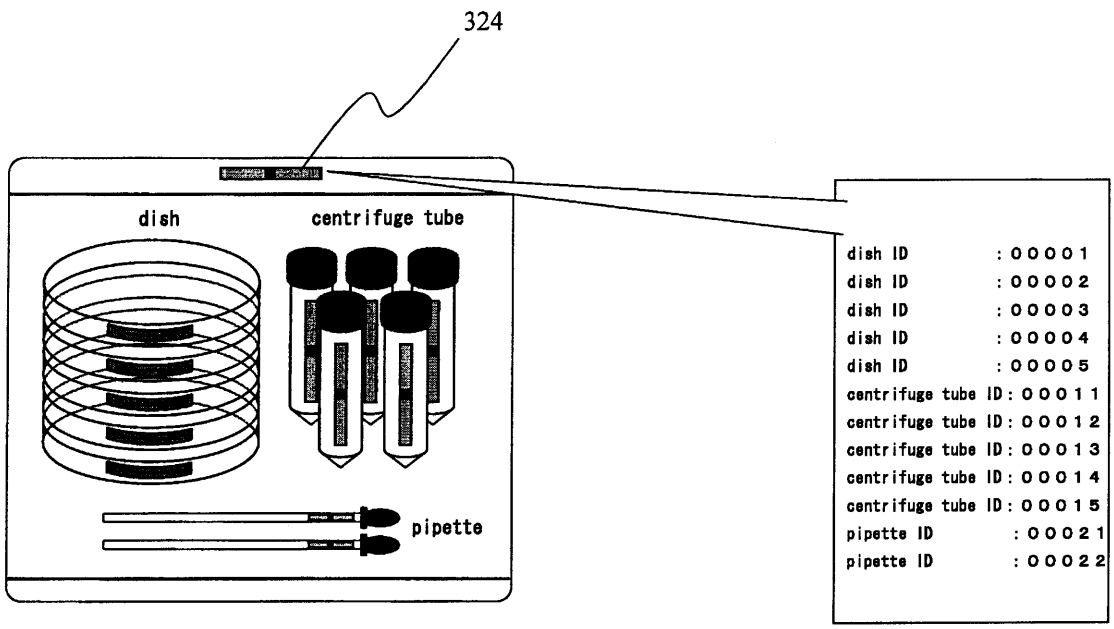

324
dish
centrifuge tube
pipette
dish ID : 00001
dish ID : 00002
dish ID : 00003
dish ID : 00004
dish ID : 00005
centrifuge tube ID : 00011
centrifuge tube ID : 00012
centrifuge tube ID : 00013
centrifuge tube ID : 00014
centrifuge tube ID : 00015
pipette ID : 00021
pipette ID : 00022

FIG.6

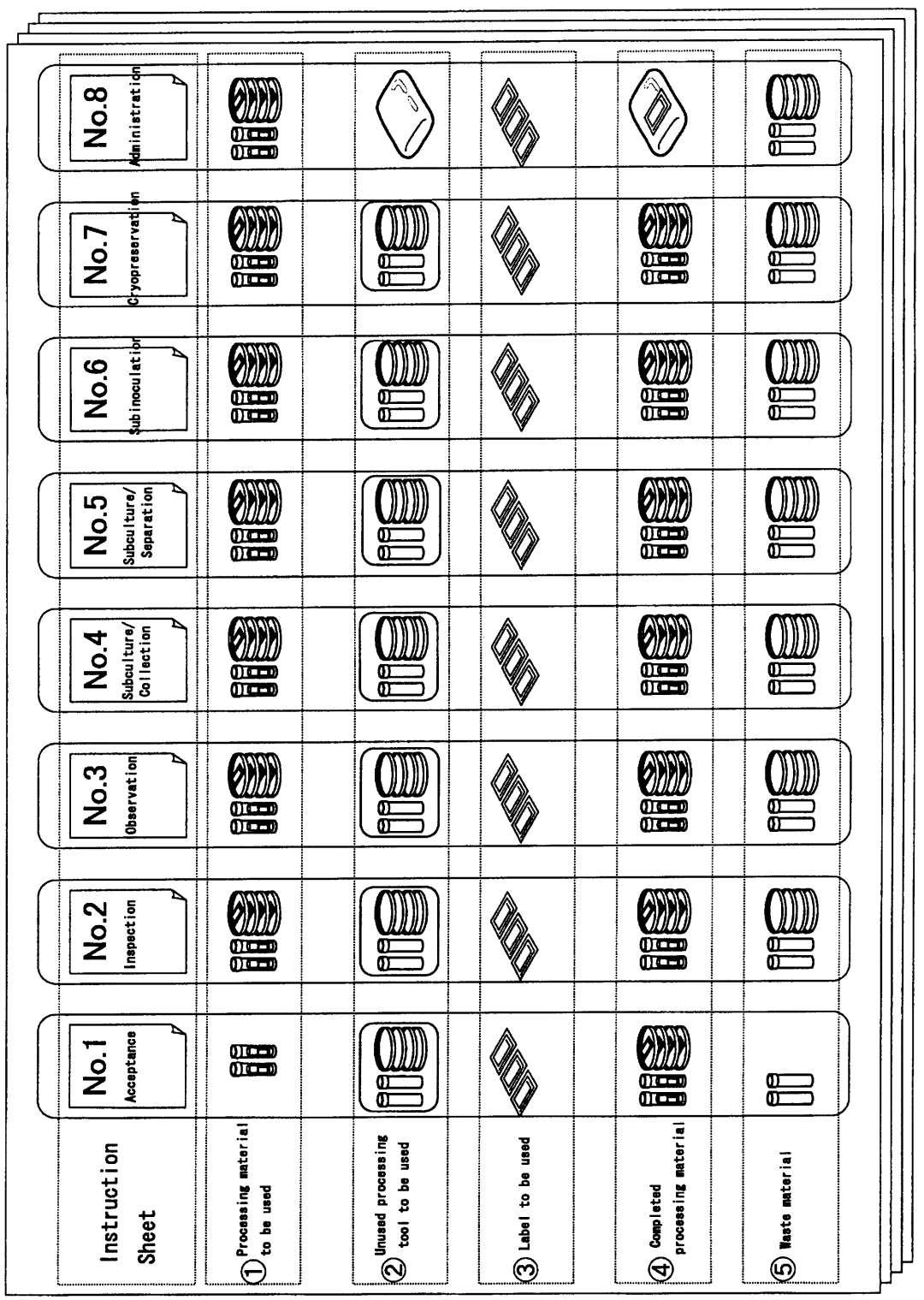

Instruction Sheet
No.1 Acceptance
No.2 Inspection
No.3 Observation
No.4 Subculture/ Collection
No.5 Subculture/ Separation
No.6 Subinoculation
No.7 Cryopreservation
No.8 Administration
① Processing material to be used
② Unused processing tool to be used
③ Label to be used
④ Completed processing material
⑤ Waste material

FIG.7

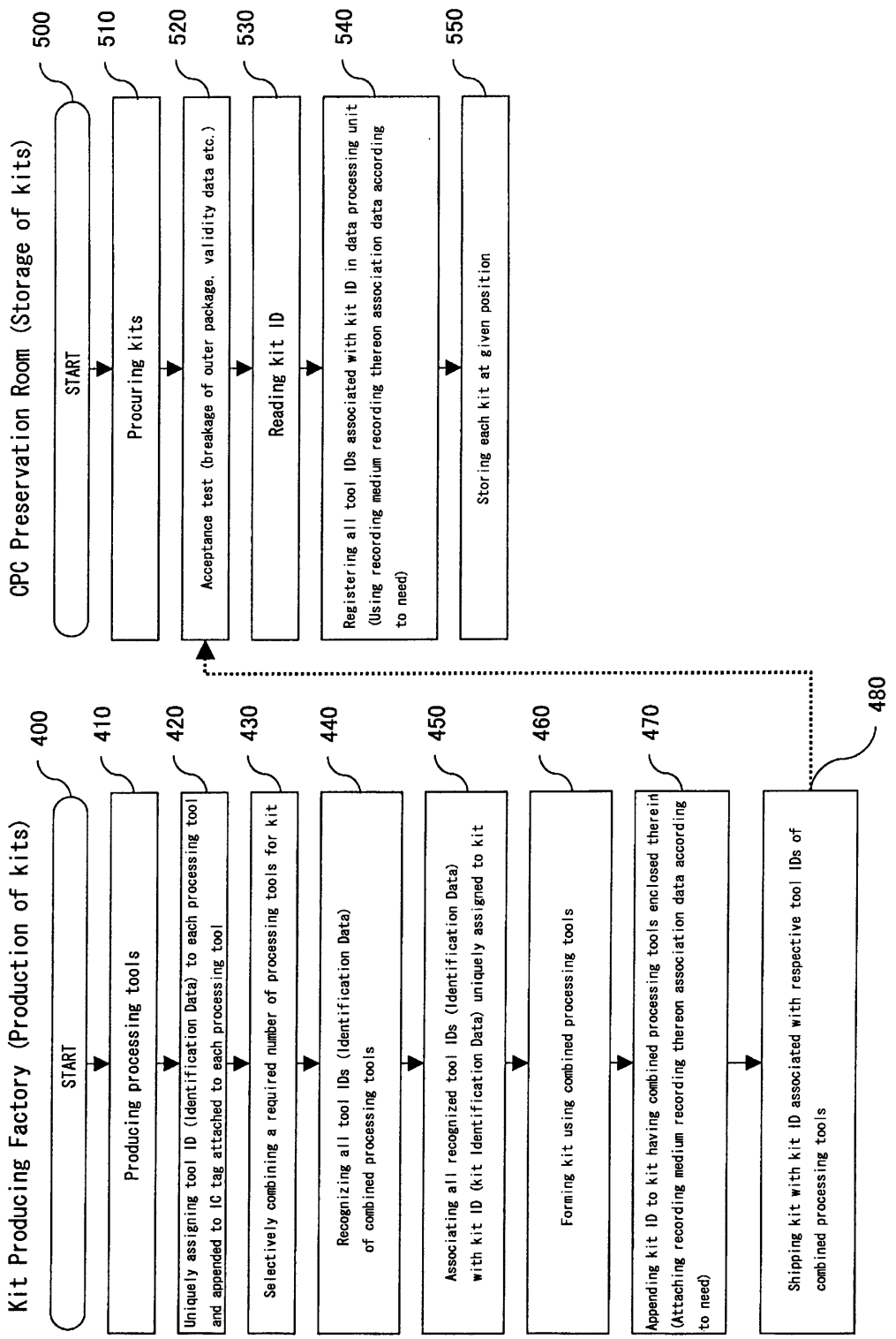

Kit Producing Factory (Production of kits)
400
START
410
Producing processing tools
420
Uniquely assigning tool ID (Identification Data) to each processing tool and appended to IC tag attached to each processing tool
430
Selectively combining a required number of processing tools for kit
440
Recognizing all tool IDs (Identification Data) of combined processing tools
450
Associating all recognized tool IDs (Identification Data) with kit ID (kit Identification Data) uniquely assigned to kit
460
Forming kit using combined processing tools
470
Appending kit ID to kit having combined processing tools enclosed therein (Attaching recording medium recording thereon association data according to need)
480
Shipping kit with kit ID associated with respective tool IDs of combined processing tools
CPC Preservation Room (Storage of kits)
500
START
510
Procuring kits
520
Acceptance test (breakage of outer package, validity data etc.)
530
Reading kit ID
540
Registering all tool IDs associated with kit ID in data processing unit (Using recording medium recording thereon association data according to need)
550
Storing each kit at given position

FIG.8

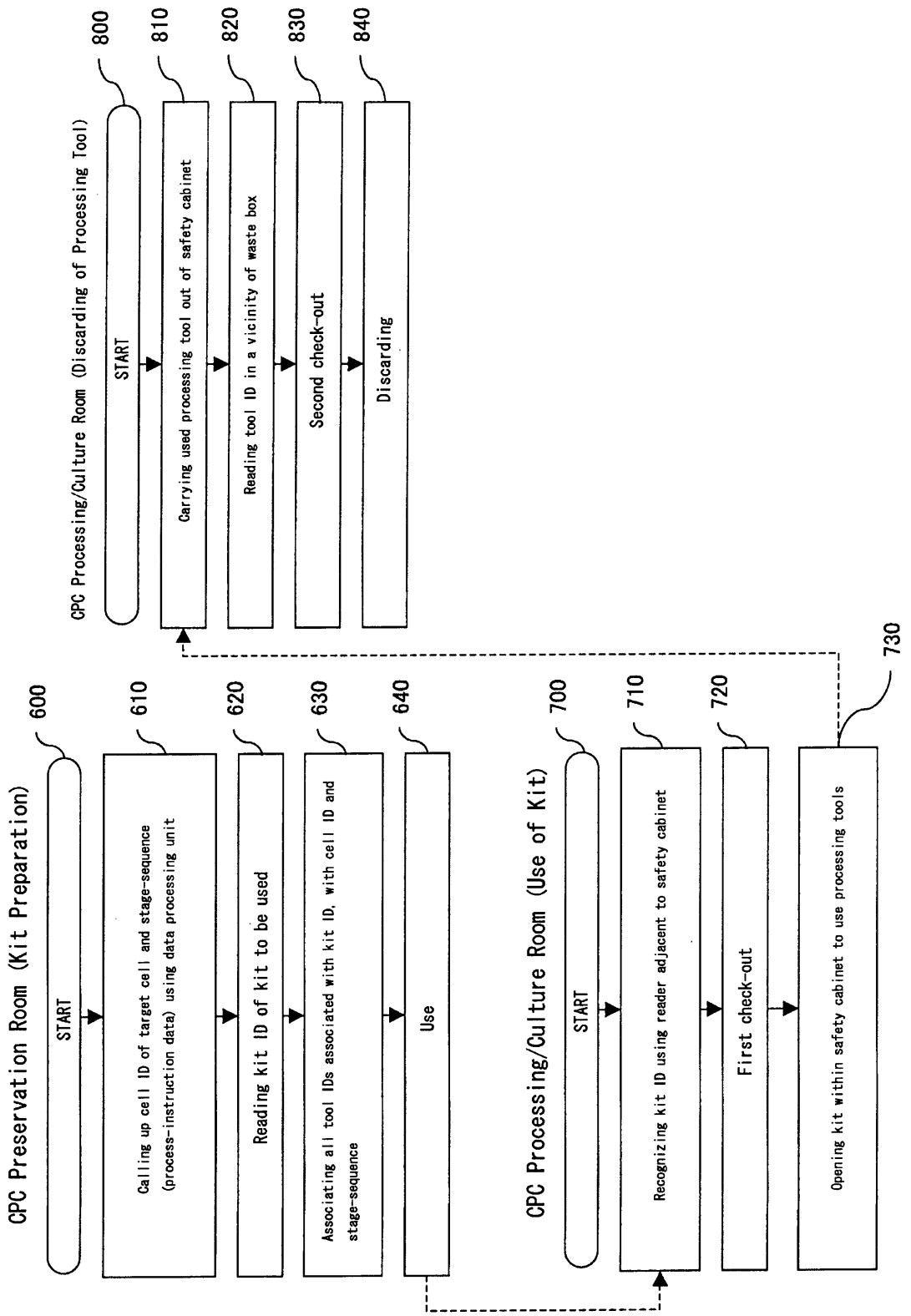

CPC Preservation Room (Kit Preparation)
600
START
610
Calling up cell ID of target cell and stage-sequence (process-instruction data) using data processing unit
620
Reading kit ID of kit to be used
630
Associating all tool IDs associated with kit ID, with cell ID and stage-sequence
640
Use
CPC Processing/Culture Room (Use of Kit)
700
START
710
Recognizing kit ID using reader adjacent to safety cabinet
720
First check-out
730
Opening kit within safety cabinet to use processing tools
CPC Processing/Culture Room (Discarding of Processing Tool)
800
START
810
Carrying used processing tool out of safety cabinet
820
Reading tool ID in a vicinity of waste box
830
Second check-out
840
Discarding

FIG.9

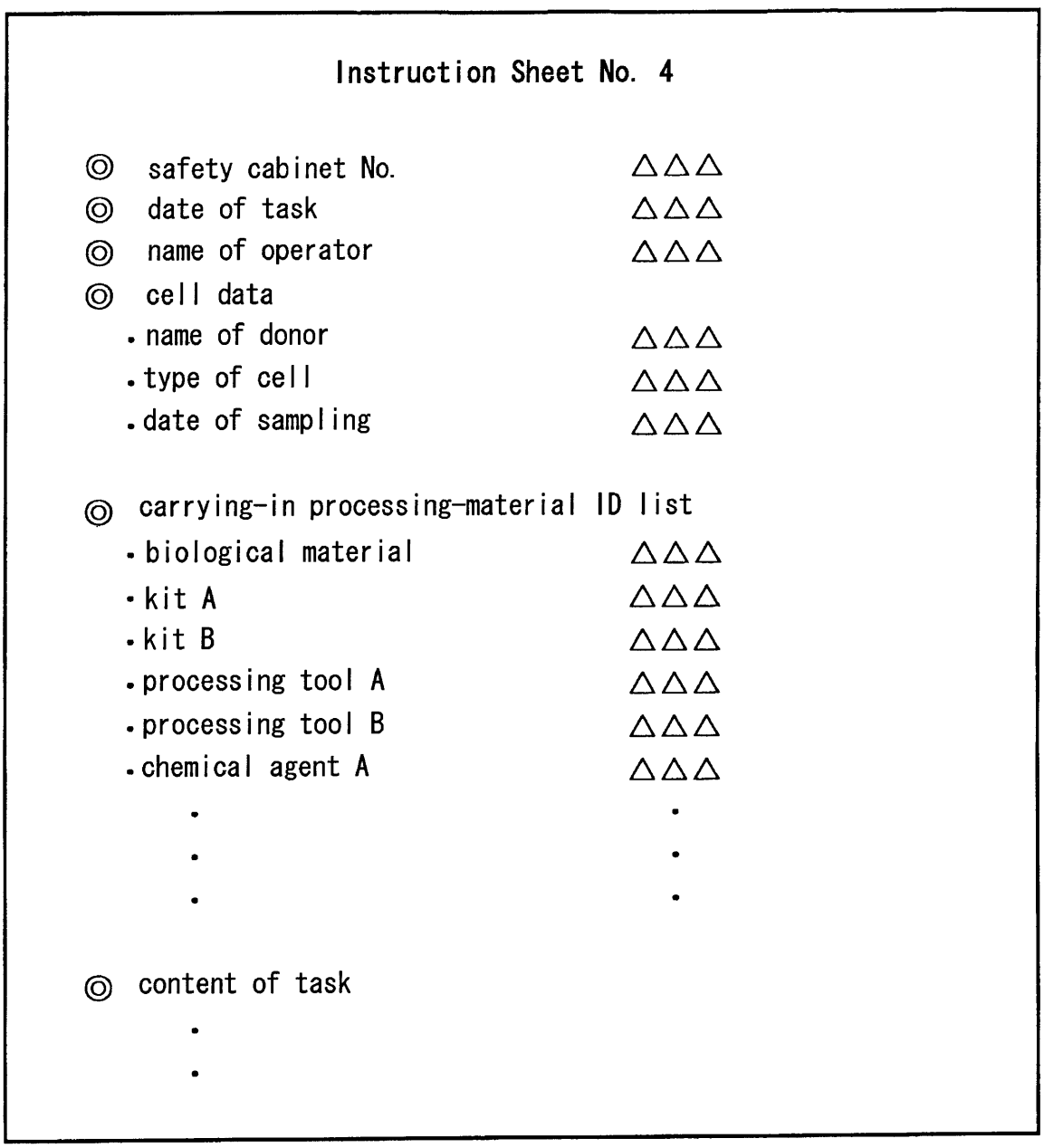

Instruction Sheet No. 4
◎ safety cabinet No. △△△
◎ date of task △△△
◎ name of operator △△△
◎ cell data
• name of donor △△△
• type of cell △△△
• date of sampling △△△
◎ carrying-in processing-material ID list
• biological material △△△
• kit A △△△
• kit B △△△
• processing tool A △△△
• processing tool B △△△
• chemical agent A △△△
◎ content of task

FIG.10

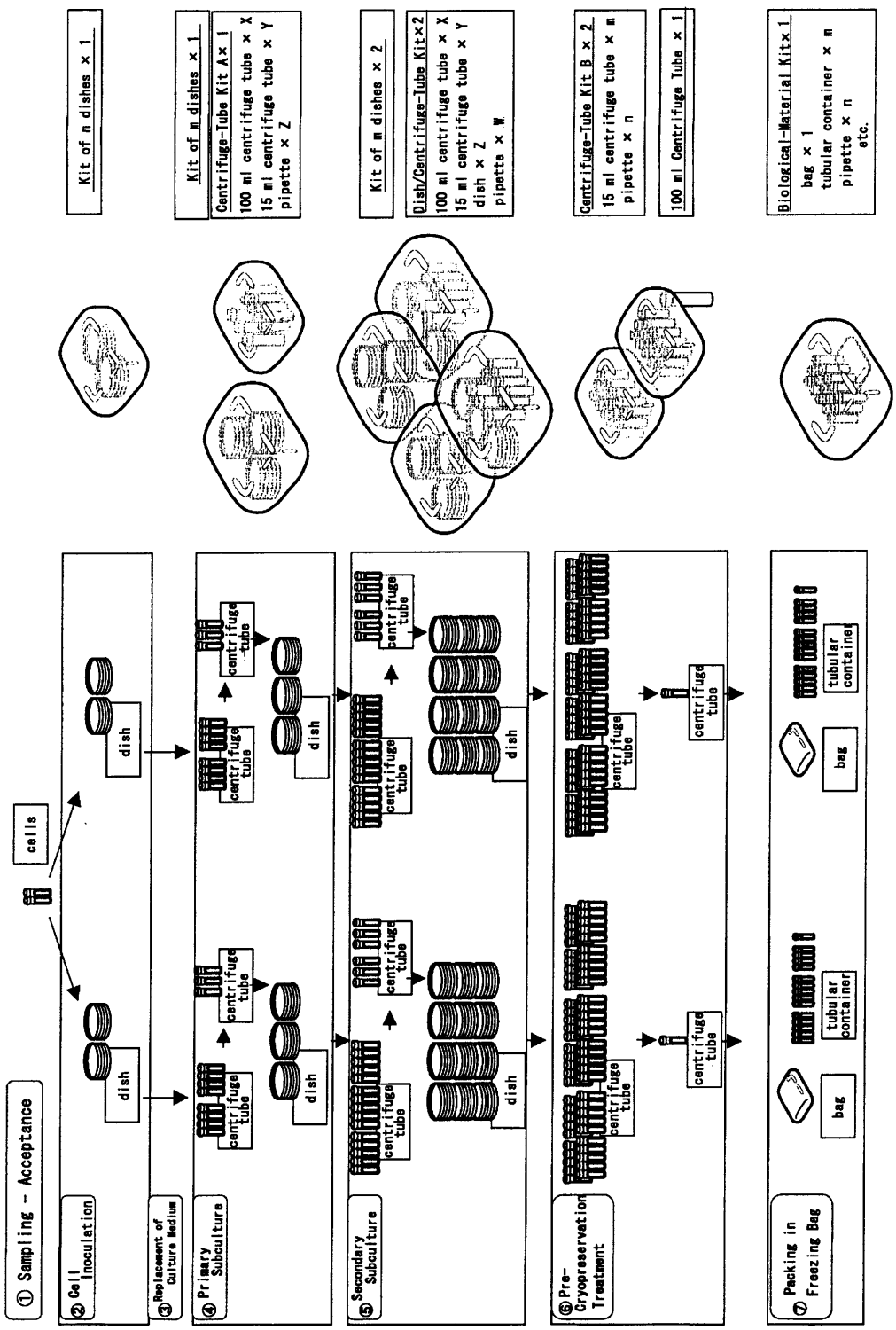
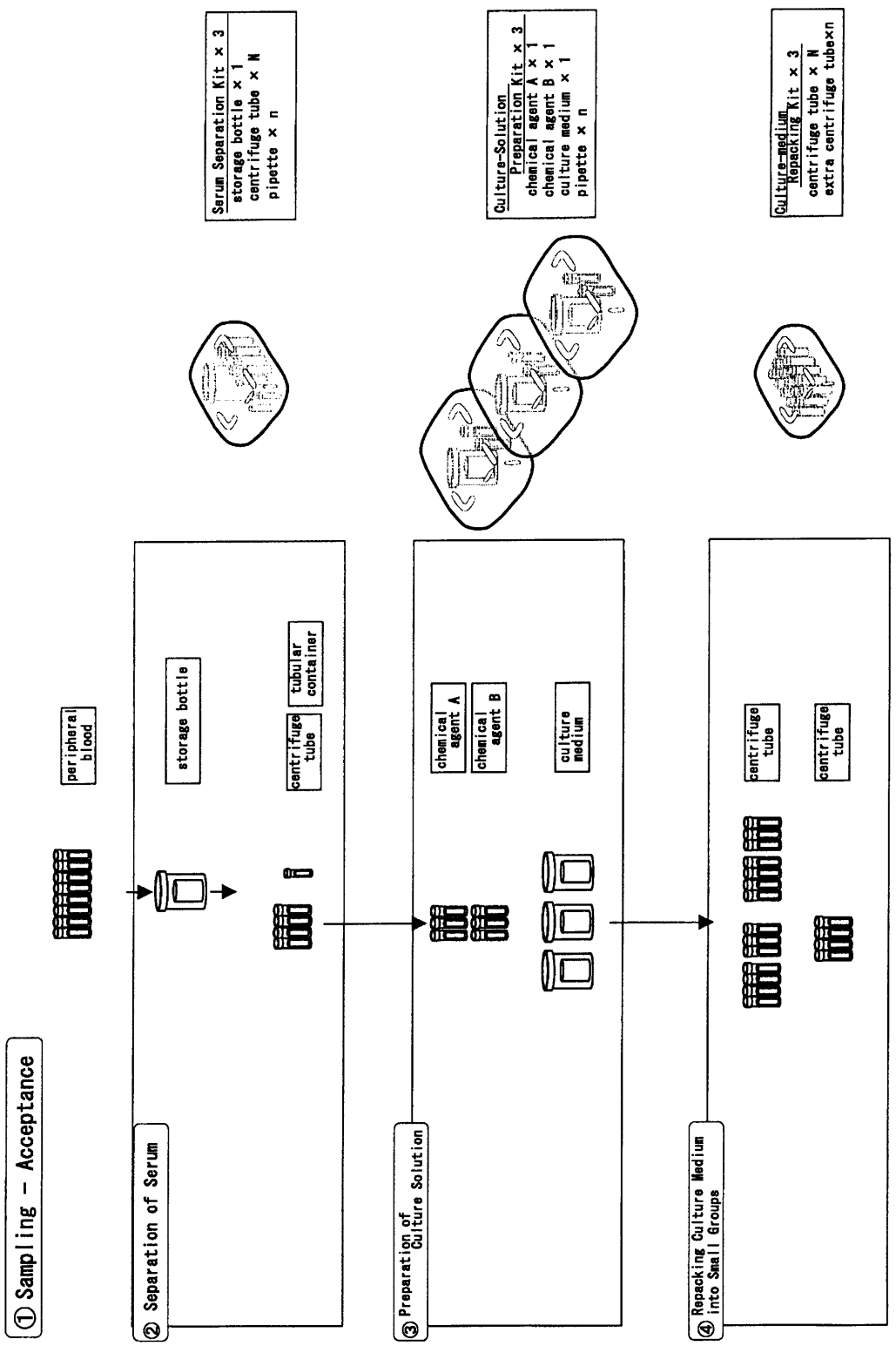

Kit of n dishes × 1
Kit of m dishes × 1
Centrifuge-Tube Kit A× 1
100 ml centrifuge tube × X
15 ml centrifuge tube × Y
pipette × Z
Kit of m dishes × 2
Dish/Centrifuge-Tube Kit×2
100 ml centrifuge tube × X
15 ml centrifuge tube × Y
dish × Z
pipette × W
Centrifuge-Tube Kit B × 2
15 ml centrifuge tube × m
pipette × n
100 ml Centrifuge Tube × 1
Biological-Material Kit×1
bag × 1
tubular container × m
pipette × n
etc.
① Sampling - Acceptance
cells
② Cell Inoculation
dish
③ Replacement of Culture Medium
④ Primary Subculture
centrifuge tube
⑤ Secondary Subculture
⑥ Pre-Cryopreservation Treatment
⑦ Packing in Freezing Bag
bag
tubular container

FIG.11


① Sampling - Acceptance
② Separation of Serum
③ Preparation of Culture Solution
④ Repacking Culture Medium into Small Groups
peripheral blood
storage bottle
centrifuge tube
tubular container
chemical agent A
chemical agent B
culture medium
centrifuge tube
centrifuge tube
Serum Separation Kit × 3
storage bottle × 1
centrifuge tube × N
pipette × n
Culture-Solution Preparation Kit × 3
chemical agent A × 1
chemical agent B × 1
culture medium × 1
pipette × n
Culture-medium Repacking Kit × 3
centrifuge tube × N
extra centrifuge tube×n