Fig.1

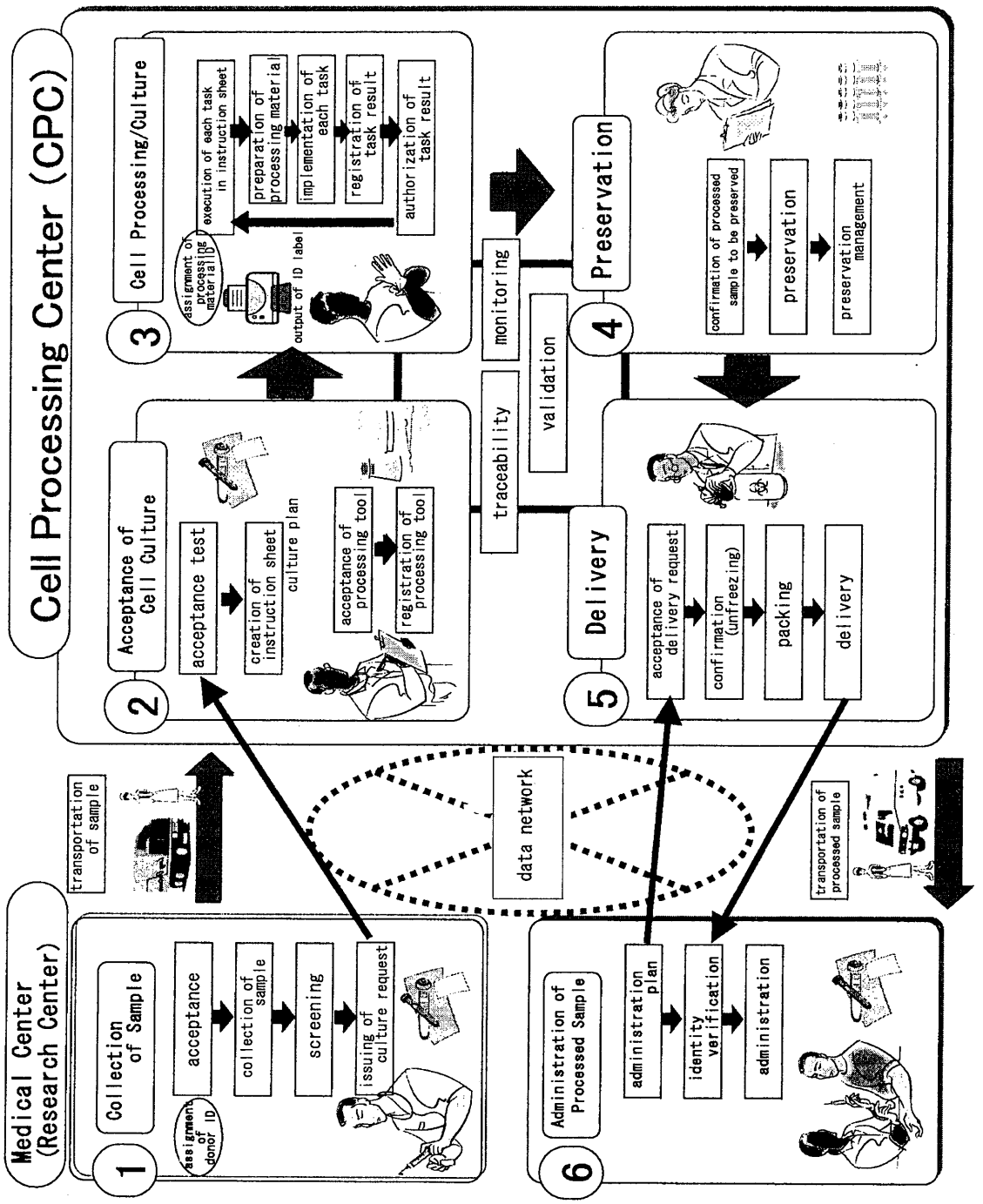
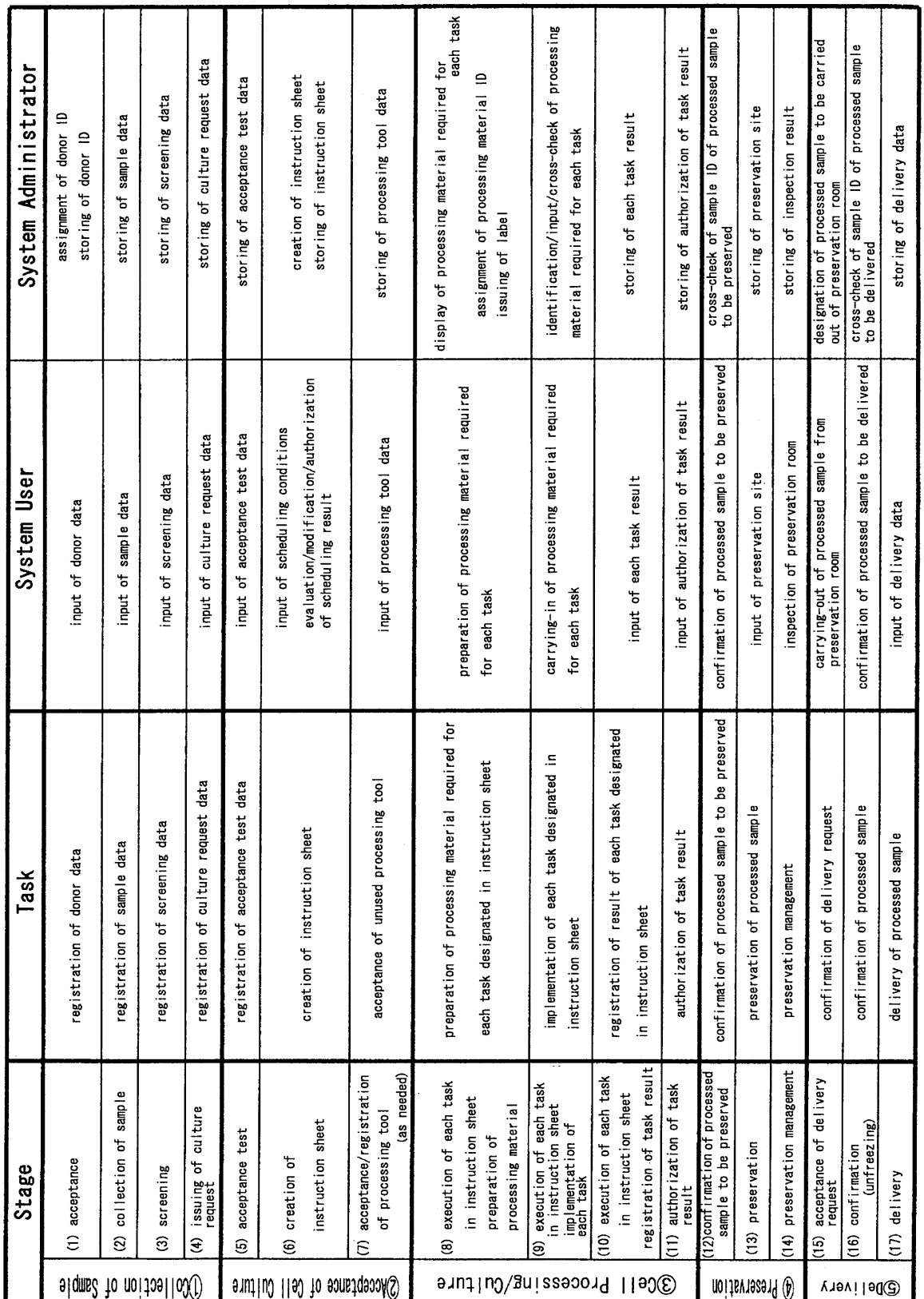

Medical Center (Research Center)
Cell Processing Center (CPC)
1 Collection of Sample
assignment of donor ID
acceptance
collection of sample
screening
issuing of culture request
transportation of sample
2 Acceptance of Cell Culture
acceptance test
creation of instruction sheet
culture plan
acceptance of processing tool
registration of processing tool
3 Cell Processing/Culture
assignment of processing material
output of ID label
execution of each task in instruction sheet
preparation of processing material
implementation of each task
registration of task result
authorization of task result
4 Preservation
confirmation of processed sample to be preserved
preservation
preservation management
5 Delivery
acceptance of delivery request
confirmation (unfreezing)
packing
delivery
6 Administration of Processed Sample
administration plan
identity verification
administration
data network
traceability
validation
monitoring
transportation of processed sample

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	input of processing tool data	storing of processing tool 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
(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

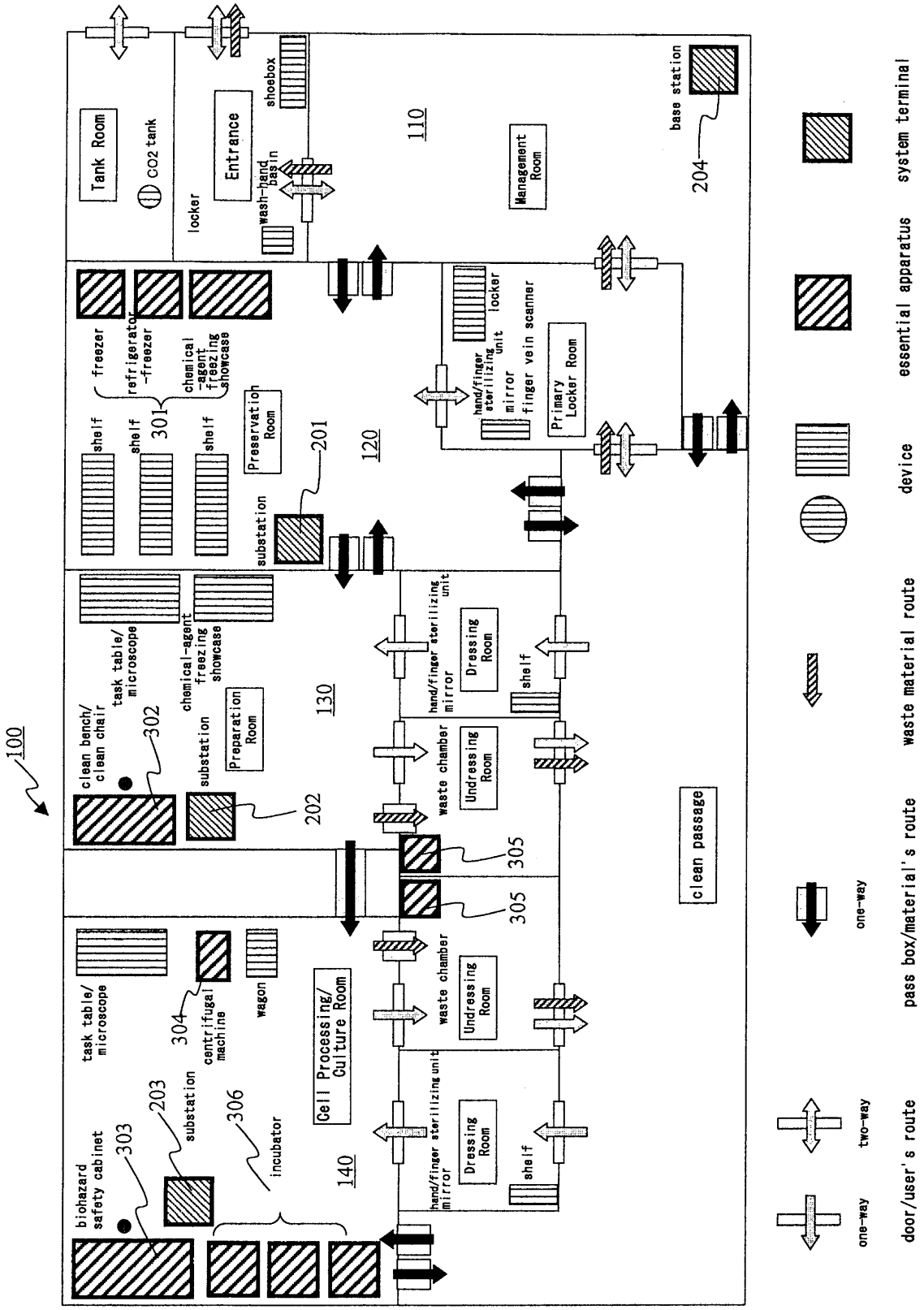

100
Tank Room
CO2 tank
Entrance
shoebox
wash-hand basin
locker
110
Management Room
base station
204
freezer
refrigerator -freezer
chemical -agent freezing showcase
301
shelf
shelf
shelf
Preservation Room
201
substation
120
hand/finger sterilizing unit
locker
mirror
finger vein scanner
Primary Locker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

Fig.4

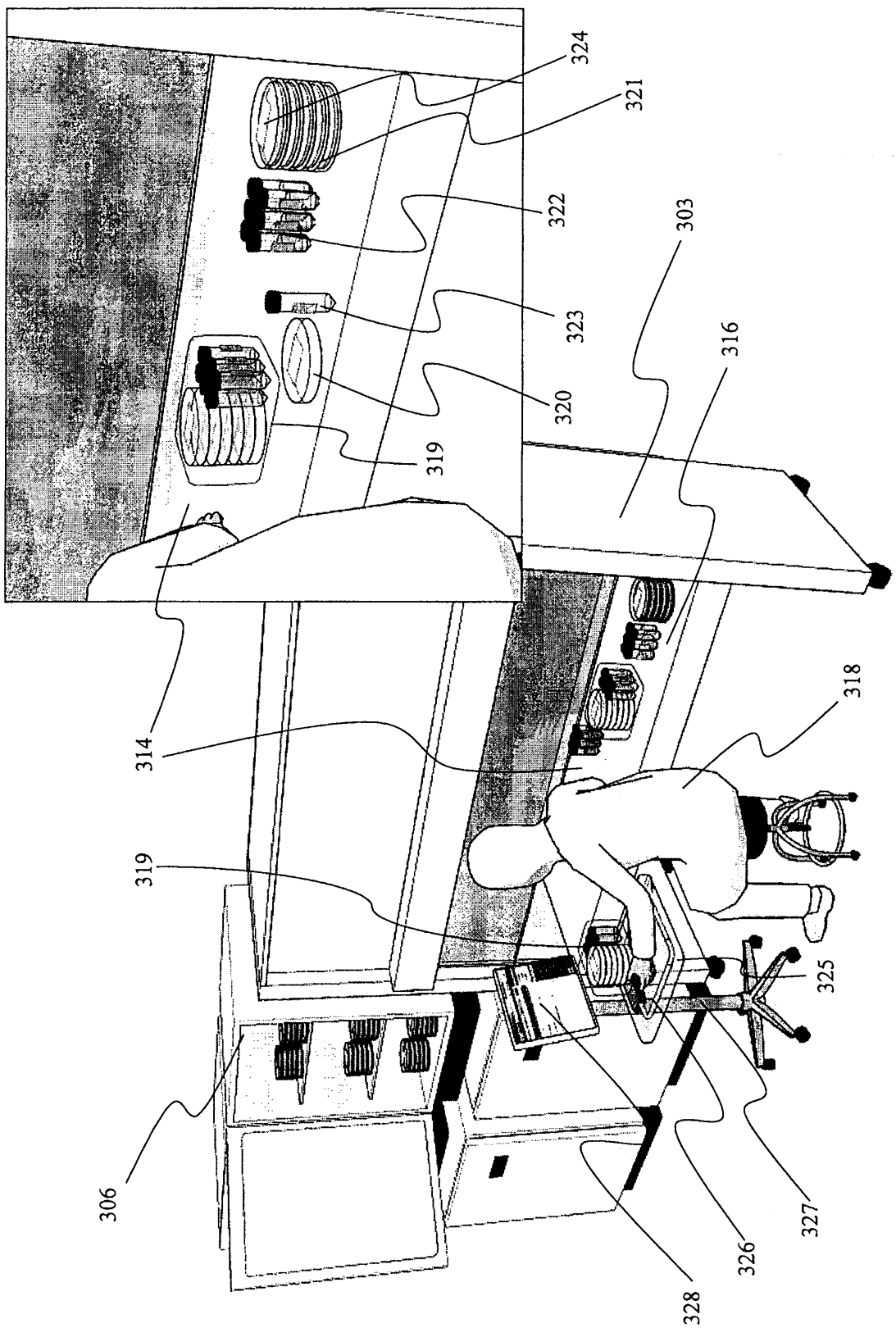


Fig.5

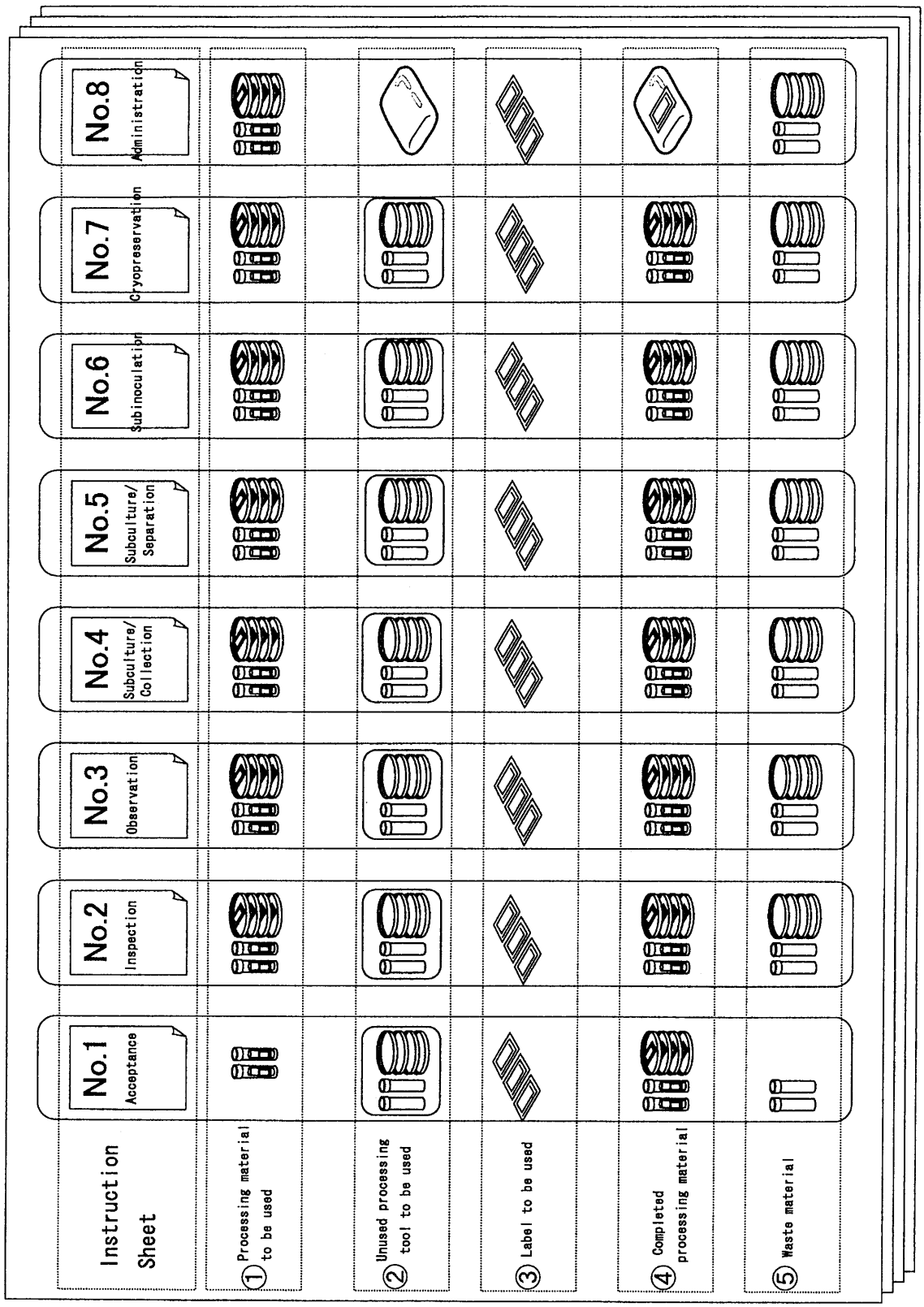

Instruction Sheet
No.1 Acceptance
No.2 Inspection
No.3 Observation
No.4 Subculture/ Collection
No.5 Subculture/ Separation
No.6 Subinoculation
No.7 Cryopreservation
No.8 Administration
① Processing material to be used
② Unused processing tool to be used
③ Label to be used
④ Completed processing material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

Fig.6

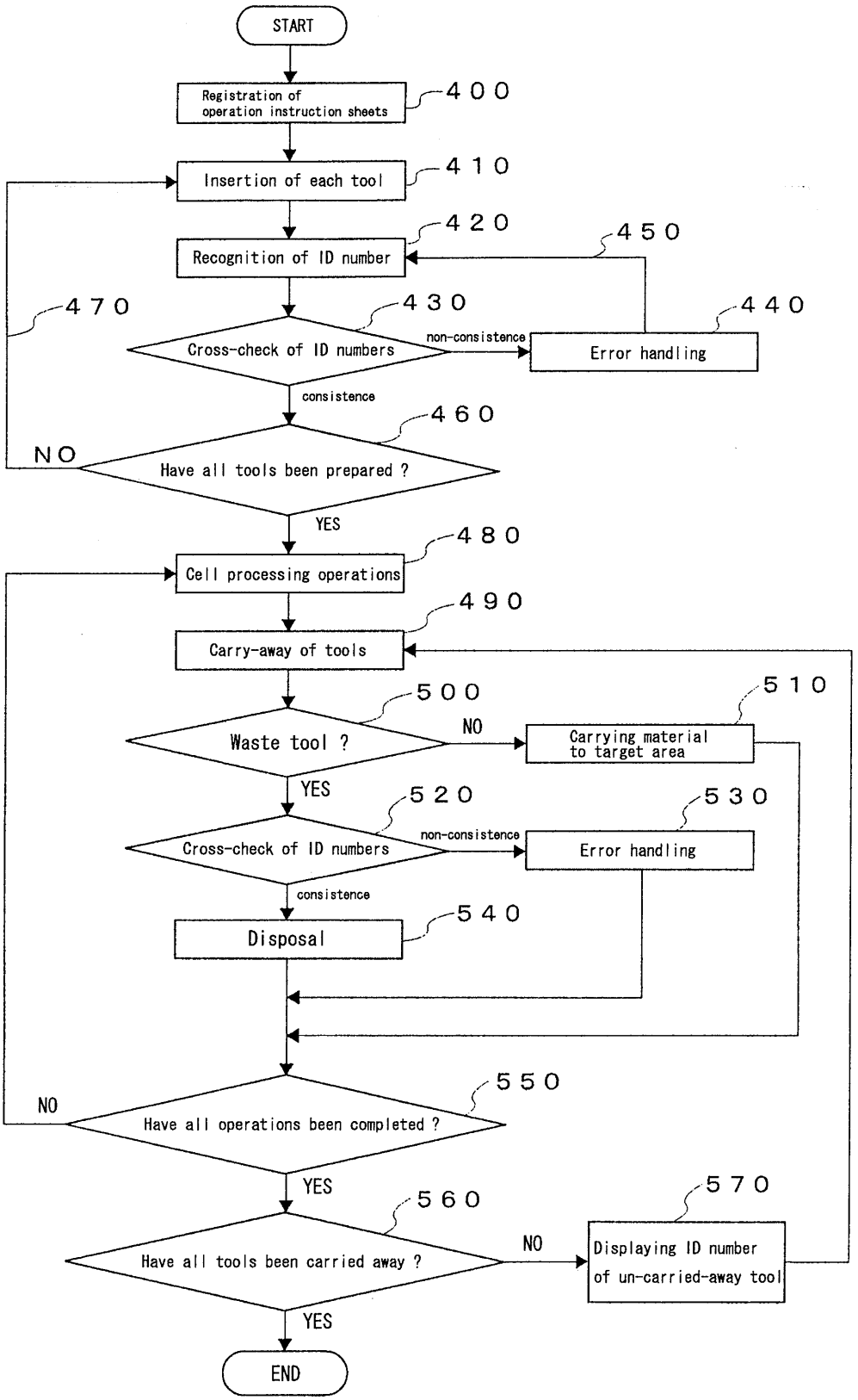

START
Registration of operation instruction sheets
400
Insertion of each tool
410
Recognition of ID number
420
450
470
430
440
Cross-check of ID numbers
non-consistence
Error handling
consistence
460
NO
Have all tools been prepared ?
YES
480
Cell processing operations
490
Carry-away of tools
500
510
Waste tool ?
NO
Carrying material to target area
YES
520
530
Cross-check of ID numbers
non-consistence
Error handling
consistence
540
Disposal
550
NO
Have all operations been completed ?
YES
560
570
Have all tools been carried away ?
NO
Displaying ID number of un-carried-away tool
YES
END

Fig.7

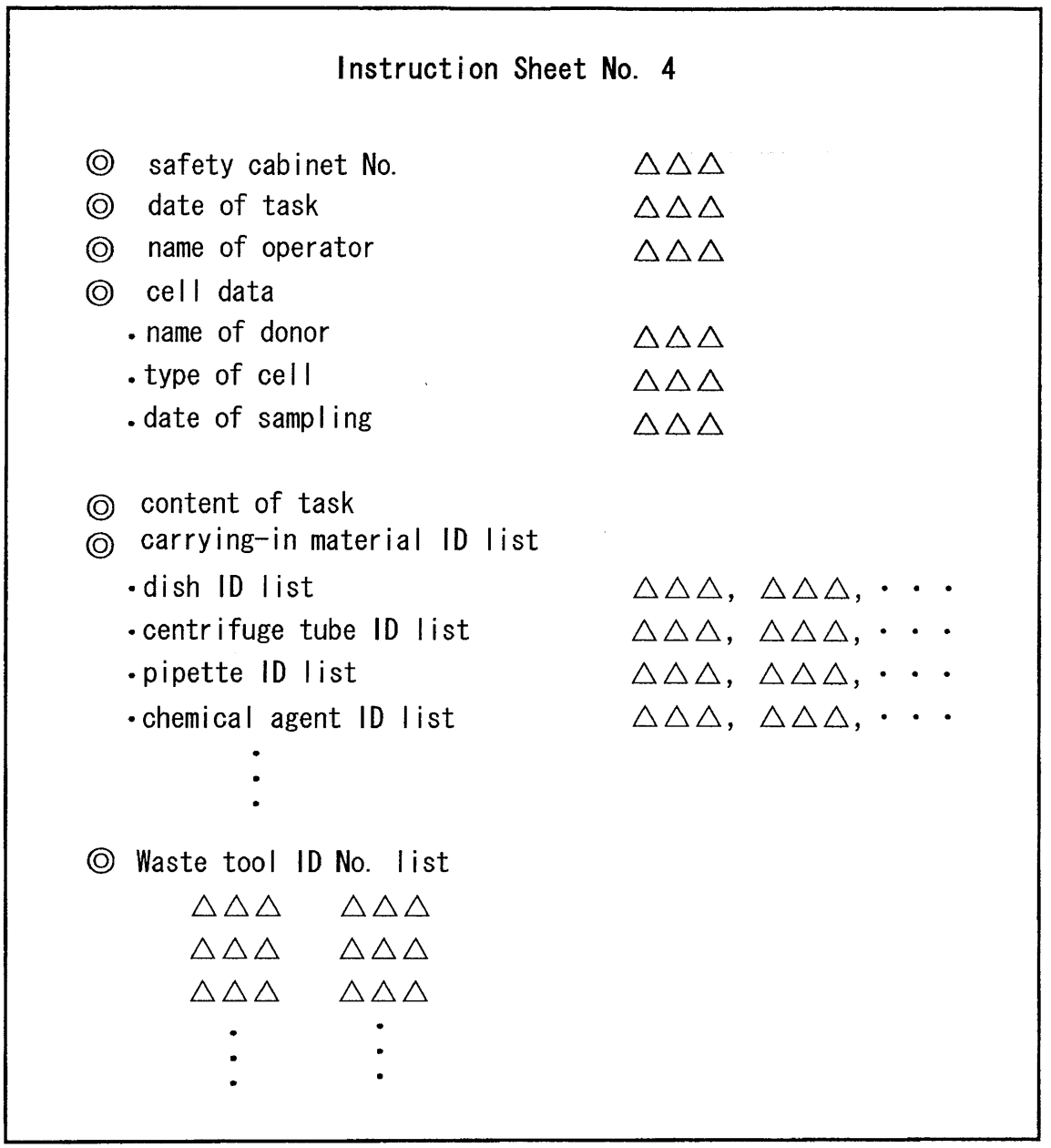
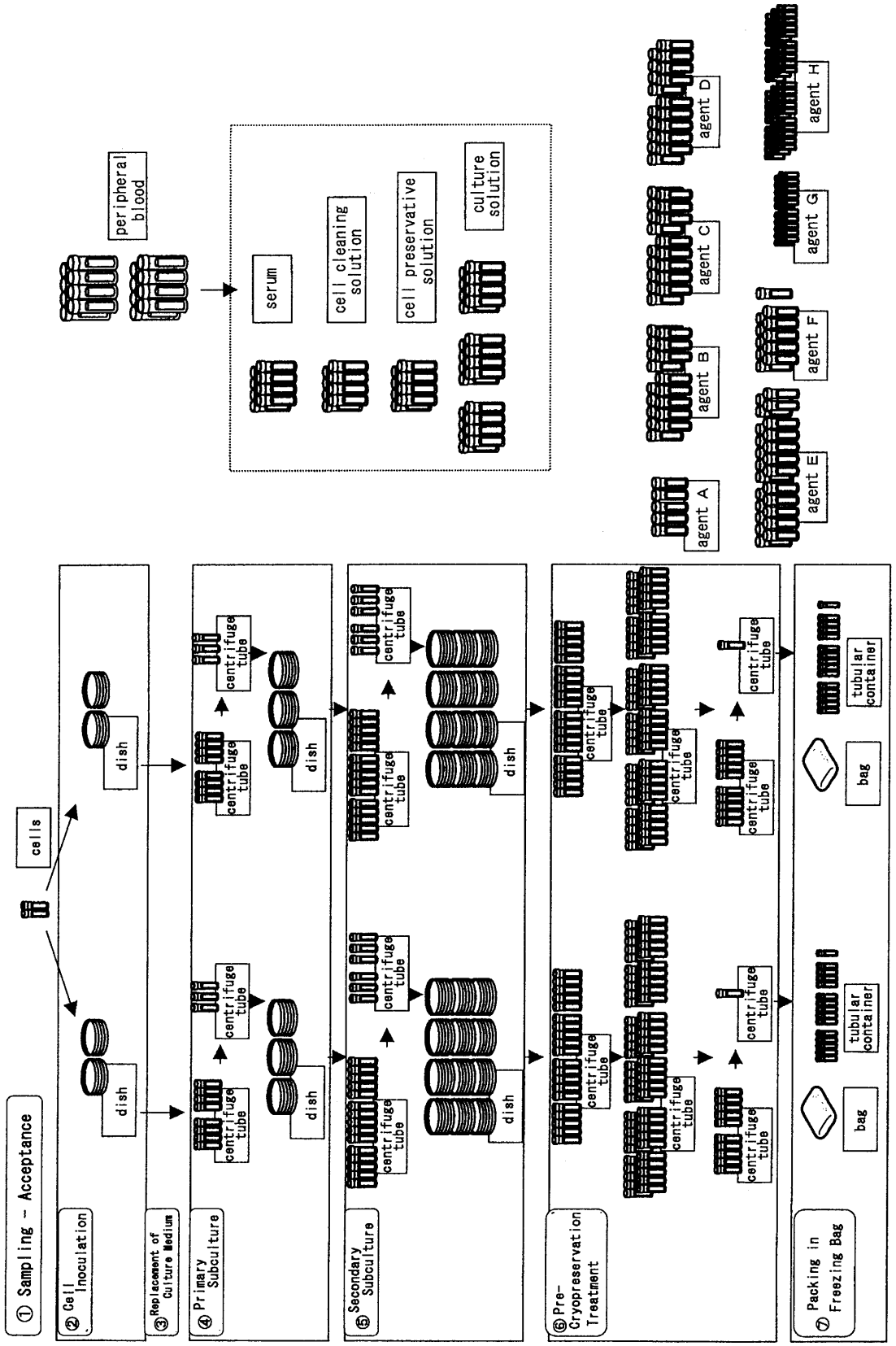

Instruction Sheet No. 4
◎ safety cabinet No. △△△
◎ date of task △△△
◎ name of operator △△△
◎ cell data
• name of donor △△△
• type of cell △△△
• date of sampling △△△
◎ content of task
◎ carrying-in material ID list
• dish ID list △△△, △△△, • • •
• centrifuge tube ID list △△△, △△△, • • •
• pipette ID list △△△, △△△, • • •
• chemical agent ID list △△△, △△△, • • •
◎ Waste tool ID No. list
△△△ △△△
△△△ △△△
△△△ △△△

Fig.8


① Sampling - Acceptance
② Cell Inoculation
③ Replacement of Culture Medium
④ Primary Subculture
⑤ Secondary Subculture
⑥ Pre-Cryopreservation Treatment
⑦ Packing in Freezing Bag
cells
dish
centrifuge tube
bag
tubular container
peripheral blood
serum
cell cleaning solution
cell preservative solution
culture solution
agent A
agent B
agent C
agent D
agent E
agent F
agent G
agent H