WHAT IS CLAIMED IS:

1. An automatic cell culture device comprising:

an incubator configured to contain at least one container for culturing cells;

a microscope configured to observe a state of the cell in the container;

a robot arm configured to move the container;

a liquid handler configured to suction liquid from the container, the liquid handler having a grip part configured to transfer the container moved to a loader by the robot arm to a work part; and

a control device configured to control an operation of at least one of the incubator, the microscope, the robot arm, and the liquid handler.

2. The automatic cell culture device of claim 1, further comprising:

a repository configured to store the container to be moved by the robot arm; and

a centrifugal separator configured to separate a particle of a material included in the container using centrifugal force.

3. An operating method of an automatic cell culture device, the operating method comprising:

extracting at least one container that contains a cell cultured in an incubator for a predetermined time from the incubator using a robot arm;

observing a state of the cell in the extracted container using a microscope;

selecting an operation protocol for the container based on a result of the observation;

driving the robot arm according to the selected operation protocol, wherein driving of the robot arm comprises enabling the robot arm to move the container extracted from the incubator or a repository to a loader; and

moving the container moved to the loader to a first work part using a grip part included in the liquid handler.

4. The operating method of claim 3, wherein the operation protocol for the container is at least one of a protocol for an operation of reinserting the container into the

incubator, a protocol for an operation of injecting a culture medium into the container, and a protocol for an operation of performing sub-culturing using the container.

5. The operating method of claim 4, wherein,

when the protocol for an operation of injecting the cultural medium into the container is selected,

the operating method further comprises:

suctioning a culture medium provided in a culture medium storage using the liquid handler and dividing the sucked culture medium into the container positioned in the first work part;

moving the container into which the culture medium is divided to the loader using the grip part; and

reinserting the container moved to the loader into the incubator.

6. The operating method of claim 4, wherein,

when the protocol for an operation of performing sub-culturing using the container is selected, the operating method further comprises:

transferring a material included in the container moved to the first work part to a container having a predetermined shape positioned in a second work part;

moving the container having a predetermined shape to the centrifugal separator to perform centrifugation on the container;

processing a particle separated through the centrifugation;

observing the processed particle using the microscope;

transferring the processed particle to a new container; and

reinserting the new container into the incubator.

7. The operating method of claim 6, wherein,

the container having a predetermined shape is a tubular container having a stopper, and

the transferring of a material included in the container moved to the first work part to a container having a predetermined shape positioned in the second work part further

comprises transferring a mixed liquid, which is acquired by dividing a predetermined solution into the container moved to the first work part and shaking the container, to the container having a predetermined shape.

8. The operating method of claim 6, wherein the processing of a particle separated through the centrifugation comprises:

removing a supernatant liquid generated in the container through the centrifugation;

injecting a predetermined material into the container having a predetermined shape to perform mixing and suspension;

performing centrifugation on the container that contains the suspended material;

removing the supernatant liquid generated in the container through the centrifugation;

injecting the culture medium into the container to perform mixing; and

mixing the predetermined material and a cell suspension using another container having a predetermined shape.

9. The operating method of claim 8, wherein the predetermine material is an enzyme or a phosphate-buffered saline (PBS).

10. The operating method of claim 6, wherein,

the observing of the processed particle using the microscope further comprises transferring the material included in the container having a predetermined shape to an auxiliary observation device before observing the processed particle through the microscope, and

the auxiliary observation device comprises a microscopic chip.

11. The operating method of claim 6, wherein,

the transferring of the processed particle to a new container further comprises dividing the culture medium into the new container before the transfer of the particle, and

the material including the processed particle is transferred to the new container into which the culture medium is divided.

12. A non-transitory computer-readable recording medium having recorded thereon a program to :

drive a robot arm to extract at least one container that contains a cell cultured in an incubator for a predetermined time from the incubator;

operate a microscope to observe a state of the cell in the extracted container;

select an operation protocol for the container based on a result of the observation;

drive the robot arm according to the selected operation protocol, wherein driving of the robot arm comprises enabling the robot arm to move the container extracted from the incubator or a repository to a loader; and

drive a grip part included in the liquid handler to move the container moved to the loader to a first work part.

13. An automatic cell culture device comprising:

an incubator configured to contain at least one container for culturing cells;

a liquid handler configured to suction liquid from the container, the liquid handler having a grip part configured to transfer the container;

a work part which is configured to receive the container transferred from the loader by the grip part of the liquid handler and which is configured to perform at least one of rotating, shaking, and tilting of the transferred container; and

a control device configured to control an operation of at least one of the incubator, the liquid handler, and the work part.