CLAIMS

1. A cell culture device, comprising:

a culture tank of culturing a cell in a culture solution, the culture tank being in a shape in which a horizontal sectional area upwardly increases;

a supply unit supplying the culture solution to the culture tank; and

a control unit controlling the supply of the culture solution of the supply unit,

wherein the culture solution is intermittently supplied to the culture tank from the supply unit, according to the control of the control unit, and a circulation upward flow is formed in the culture solution, and thus, a plug flow of the culture solution is formed in a culture region in which the cell is retained in the culture tank.

2. The cell culture device according to claim 1,

wherein the supply unit includes,

a culture solution supply line for supplying the culture solution to the culture tank, and a pump provided on the culture solution supply line, and

the control is performed by the control unit such that a time for driving the pump and a time for stopping the driving of the pump are alternately repeated, and thus, the culture solution is intermittently supplied to the culture tank.

3. The cell culture device according to claim 1 or 2, further comprising:

a cell distribution detection unit detecting a distribution of the cell in the culture tank,

wherein the control unit controls a supply amount per unit time of the culture solution to be supplied to the culture tank by the supply unit, on the basis of the distribution of the cell in the culture tank, detected by the cell distribution detection unit.

4. The cell culture device according to claim 3,

wherein the control unit is configured to increase the supply amount per unit time of the culture solution with respect to the culture tank when the distribution of the cells is moved to a lower side from the culture region, and to reduce the supply amount per unit time of the culture solution with respect to the culture tank when the distribution of the cells is moved to an upper side from the culture region.

5. The cell culture device according to any one of claims 1 to 4, further comprising:

a culture environment detection unit detecting a culture environment in the culture tank;

an adjustment unit adjusting the culture solution to be supplied to the culture tank, in front of the supply unit; and

an adjustment control unit controlling the adjustment of the culture solution of the adjustment unit, on the basis of the culture environment in the culture tank, detected by the culture environment detection unit.

6. A cell culture method in a cell culture device including a culture tank of culturing a cell in a culture solution, the culture tank being in a shape in which a horizontal sectional area upwardly increases,

wherein the culture solution is intermittently supplied to the culture tank from a supply unit of the cell culture device, according to the control of a control unit of the cell culture device, and a circulation upward flow is formed in the culture solution, and thus, a plug flow of the culture solution is formed in a culture region in which the cell is retained in the culture tank.