What is claimed is:

1. A medium composition comprising an *Ecklonia cava* extract for dedifferentiating a mesenchymal stem cell into an induced pluripotent stem cell.

2. The medium composition of claim 1, characterized in that the *Ecklonia cava* extract is comprised in a medium selected from the group consisting of Dulbecco's Modified Eagle's Medium (DMEM), Minimal Essential Medium (MEM), Basal Medium Eagle (BME), RPMI 1640, F-10, F-12, DMEM-F12, α-Minimal Essential Medium (α-MEM), Glasgow's Minimal Essential Medium (G-MEM), Iscove's Modified Dulbecco's Medium (IMDM), MacCoy's 5A Medium, AmnioMax complete Medium, AminoMaII complete Medium, and Chang's Medium MesenCult-XF Medium.

3. The medium composition of claim 1, characterized in that the *Ec* extract is comprised in an amount of 100 to 400 μg/mL with respect to the medium composition.

4. The medium composition of claim 1, characterized by further comprising 0.01 to 10 v/v% of energy water.

5. A method for producing an induced pluripotent stem cell, the method comprising:

adding an *Ecklonia cava* extract to a cell culture medium; and

dedifferentiating a mesenchymal stem cell into an induced pluripotent stem cell in the medium.

6. An induced pluripotent stem cell prepared by the method of claim 5.

7. A composition for treating a cell comprising the induced pluripotent stem cell of claim 6.

What is claimed is:

1. A medium composition comprising an *Ecklonia cava* extract for dedifferentiating a mesenchymal stem cell into an induced pluripotent stem cell.

2. The medium composition of claim 1, characterized in that the *Ecklonia cava* extract is comprised in a medium selected from the group consisting of Dulbecco's Modified Eagle's Medium (DMEM), Minimal Essential Medium (MEM), Basal Medium Eagle (BME), RPMI 1640, F-10, F-12, DMEM-F12, α-Minimal Essential Medium (α-MEM), Glasgow's Minimal Essential Medium (G-MEM), Iscove's Modified Dulbecco's Medium (IMDM), MacCoy's 5A Medium, AmnioMax complete Medium, AminoMaxII complete Medium, and Chang's Medium MesenCult-XF Medium.

3. The medium composition of claim 1, characterized in that the *Ecklonia cava* extract is comprised in an amount of 100 to 400 μg/mL with respect to the medium composition.

4. The medium composition of claim 1, characterized by further comprising 0.01 to 10 v/v% of energy water.

5. A method for producing an induced pluripotent stem cell, the method comprising:

adding an *Ecklonia cava* extract to a cell culture medium; and

dedifferentiating a mesenchymal stem cell into an induced pluripotent stem cell in the medium.

6. An induced pluripotent stem cell prepared by the method of claim 5.

7. A composition for treating a cell comprising the induced pluripotent stem cell of claim 6.