CLAIMS

1. A method of preparing a stem cell-derived epidermal progenitor cell conditioned medium, the method comprising:

differentiating stem cells to stem cell-derived epidermal progenitor cells by culturing the stem cells in a differentiation medium containing ascorbic acid and hydrocortisone, wherein the stem cells are placenta-derived stem cells or umbilical cord-derived stem cells;

producing a culture of stem cell-derived epidermal progenitor cells by culturing the differentiated stem cell-derived epidermal progenitor cells in a medium; and

recovering the stem cell-derived epidermal progenitor cell conditioned medium from the culture of the stem cell-derived epidermal progenitor cells.

2. The method of claim 1, wherein a concentration of ascorbic acid is in a range of 0.03 μM to 3 μM, and a concentration of hydrocortisone is in a range of 0.05 μg/ml to 5 μg/ml.

3. The method of claim 1, wherein the differentiating of the stem cells to the stem cell-derived epidermal progenitor cells is performed by culturing for 120 hours to 600 hours.

4. The method of claim 1, wherein the stem cells comprise one or more cells from embryonic stem cells, adult stem cells, and induced pluripotent stem cell.

5. The method of claim 1, wherein the producing of the culture of the stem cell-derived epidermal progenitor cells is performed by culturing for 10 hours to 350 hours.

6. The method of claim 1, wherein the producing of the culture of the stem cell-derived epidermal progenitor cells is performed by culturing the differentiated stem cell-derived epidermal progenitor cells in a serum-free medium.

7. The method of claim 1, wherein the method comprises, before the differentiating of the stem cells to the stem cell-derived epidermal progenitor cells, culturing the stem cells in a serum-containing medium for 10 hours to 350 hours.

8. The method of claim 1, wherein the stem cell-derived epidermal progenitor cell conditioned medium comprises one or more proteins selected from Thrombospondin (TSP), Tissue Inhibitor of Metalloproteinases 1 (TIMP1), Tissue Inhibitor of Metalloproteinases 2: (TIMP2), Ectodysplasin-A2 (EDA-A2), X-linked Ectodysplasin-A Receptor (XEDAR), Angiopoietin-1, Secreted Protein Acidic and Rch in Cysteine (SPARC), Transmembrane Protein with EGF-like and Two Follistatin-like Domains 1/Tomoregulin-1 (TMEFF1/tomoregulin-1), Nidogen-1, Insulin-like Growth Factor-binding Protein-3 (IGFBP-3), Thrombospondin-2, TNF-Related Activation-Induced Cytokine (TRANCE), and Interleukin-15 receptor alpha (IL-15R alpha).

9. The method of claim 1, wherein the stem cell-derived epidermal progenitor cell conditioned medium comprises, at a concentration of 10 pg/ml or more, one or more proteins selected from TSP, Nidogen-1, TRANCE, and IL-15R alpha.

10. A stem cell-derived epidermal progenitor cell conditioned medium prepared by the method of claim 1.

11. The conditioned medium of claim 10, wherein the conditioned medium comprises one or more proteins selected from TSP, TIMP, TIMP2, EDA-A2, XEDAR, Angiopoietin-1, SPARC, TMEFF1/Tomoregulin-1, Nidogen-1, IGFBP-3, TRANCE, and IL-15R alpha.

12. The cell culture of claim 10, wherein the conditioned medium comprises, at a concentration of 10 pg/ml or more, one or more proteins selected from TSP, Nidogen-1, TRANCE, and IL-15R alpha.

13. A method of producing a protein from stem cell-derived epidermal progenitor cells, the method comprising:

differentiating stem cells to stem cell-derived epidermal progenitor cells by culturing the stem cells in a differentiation medium containing ascorbic acid and hydrocortisone, wherein the stem cells are placenta-derived stem cells or umbilical cord-derived stem cells;

producing a culture of stem cell-derived epidermal progenitor cells by culturing the differentiated stem cell-derived epidermal progenitor cells in a medium; and

recovering the stem cell-derived epidermal progenitor cell conditioned medium from the culture of the stem cell-derived epidermal progenitor cells.

14. The method of claim 13, wherein a concentration of ascorbic acid is in a range of 0.03 μM to 3 μM, and a concentration of hydrocortisone is in a range of 0.05 μg/ml to 5 μg/ml.

15. The method of claim 13, wherein the differentiating of the stem cells to the stem cell-derived epidermal progenitor cells is performed by culturing for 120 hours to 600 hours.

16. The method of claim 13, wherein the stem cells comprise one or more cells from embryonic stem cells, adult stem cells, and induced pluripotent stem cell.

17. The method of claim 13, wherein the producing of the culture of the stem cell-derived epidermal progenitor cells is performed by culturing for 10 hours to 350 hours.

18. The method of claim 13, wherein the producing of the culture of the stem cell-derived epidermal progenitor cells is performed by culturing the differentiated stem cell-derived epidermal progenitor cells in a serum-free medium.

19. The method of claim 13, wherein the method comprises, before the differentiating of the stem cells to the stem cell-derived epidermal progenitor cells, culturing the stem cells in a serum-containing medium for 10 hours to 350 hours.

20. The method of claim 13, wherein the protein comprises a one or more proteins selected from TSP, TIMP1, TIMP2, EDA-A2, XEDAR, Angiopoietin-1, SPARC, TMEFF1/Tomoregulin-1, Nidogen-1, IGFBP-3, TRANCE, and IL-15R alpha.