

bcellcio Inc.

1. Technology Overview

1) Differentiation medium and insulin-secreting cells

- To develop alternative therapeutics for insulin injection or whole pancreatic transplantation in type 1 DM, cellular therapeutic agents are developing using human adult stem cells.

- Human adult stem cells, when cultured in the presence of various cytokines and growth factors known to be effective to be for the differentiation into beta cells in media, secrete insulin and c-peptide into the medium surrounding cells with high glucose-dependent manner.

[Differentiation medium]

- To differentiate human adult stem cells into insulin-secreting cells, cells were cultured in a medium supplemented with fetal bovine serum, nicotinamide, basic fibroblast growth factor, activin A, betacellulin or glucagon-like peptide-1 for 10-20 days.

Fig.1. Insulin & c-peptide ELISA.

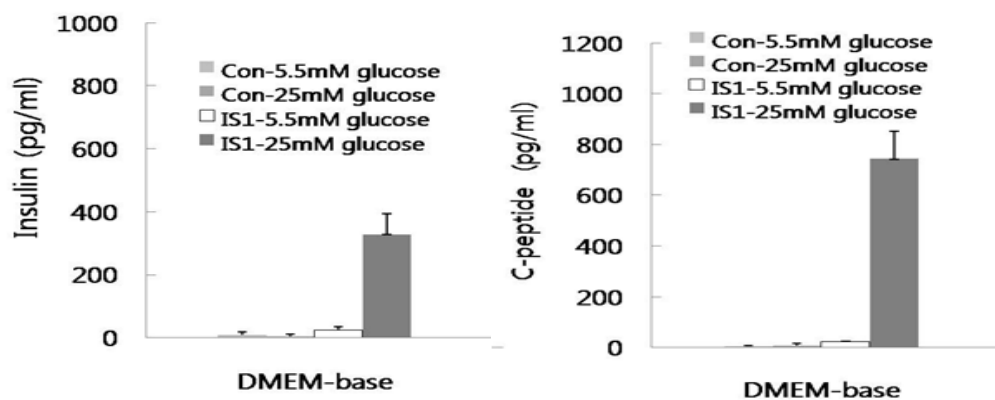


Fig.2. Immunocytochemistry

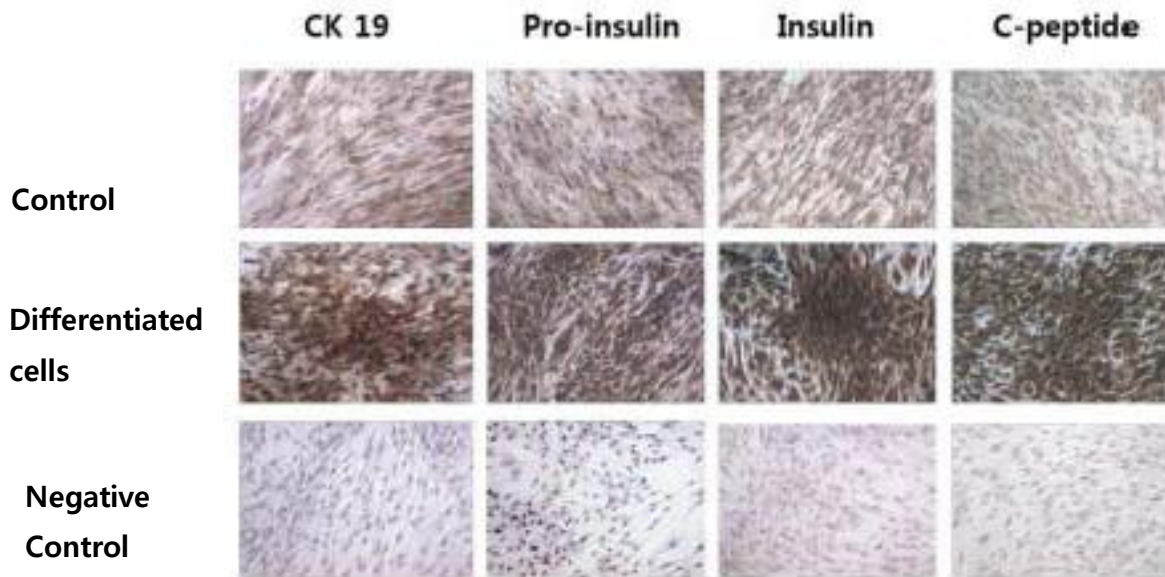


Fig.3. β - cell-related gene expression.

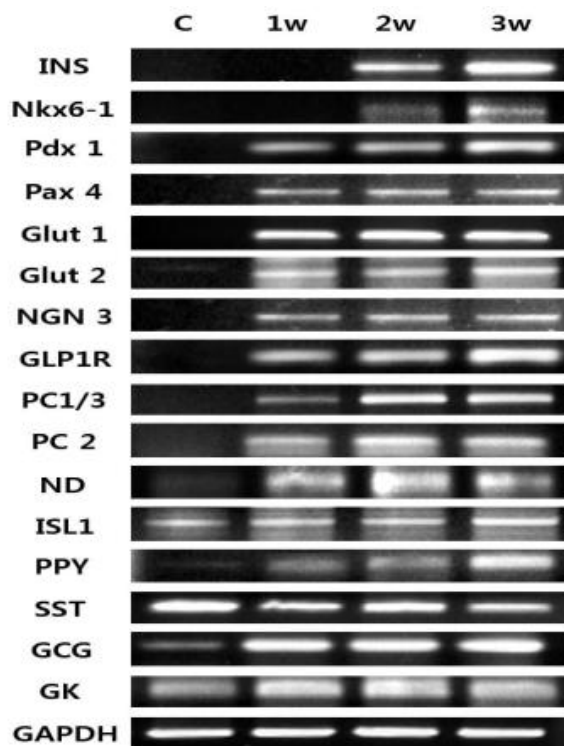
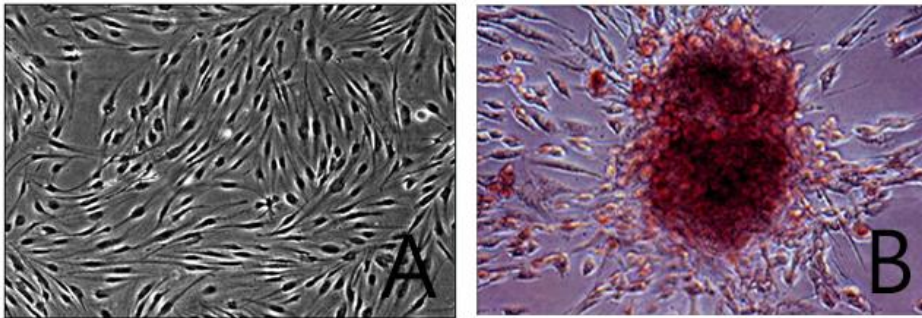


Fig.4. DTZ staining for β -cell.



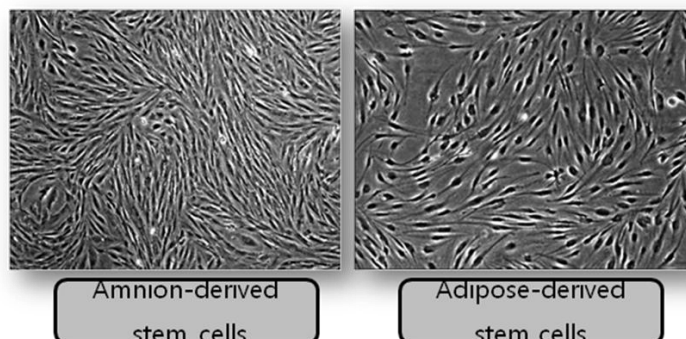
2) Human adult stem cells.

- Human amnion-derived stem cells

Human amnion-derived stem cells can differentiate into mesodermal lineage cells such as adipocytes, osteoblasts, and chondrocytes. They can also differentiate into ectodermal neuron cells and endodermal insulin-secreting cells.

- Human eyelid adipose-derived stem cells

Human eyelid adipose-derived stem cells have multi-lineage differentiation potential. Although the degree of differentiation potential may vary depending on the type of origin of fat tissues, most of them can differentiate into mesodermal lineage cells as well as ectodermal and endodermal lineage cells.



2. Specific Patent Information

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|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| U.S.A & Other Countries, Application | Application (Korea) Method for the differentiation of human adult stem cells into insulin-secreting cells (20080104393, 2008. 10. 23) |
| | Application (USA); Method for the differentiation of human adult stem cells into insulin-secreting cells (12/573,451, 2009.10.5) |
| | Application (China); Method for the differentiation of human adult stem cells into insulin-secreting cells (200910207018.8, 2009.10.23) |
| | Application (Japan); Method for the differentiation of human adult stem cells into insulin-secreting cells (2009-24052, 2009.10.19) |
| | Application (EU); Method for the differentiation of human adult stem cells into insulin-secreting cells (9171868.4, 2009.09.30) |