

Abstract of Presentation

Presentation Title

New concepts in culturing pluripotent stem cells and derivation of multipotent vasculogenic progenitor cells

Name (Underline the family name)

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Abstract

Pluripotent stem cells, both hESCs and iPSCs, have been traditionally cultured with a supportive layer in 2D culture, which allows their continuous propagation as undifferentiated cells. However, any future clinical or industrial application of these cells will require a scalable, reproducible and controlled culture system.

A static or dynamic suspension culture for undifferentiated pluripotent stem cells will be presented, which includes medium consisting of serum replacement, bFGF and interleukins, mainly the IL6-IL-6 receptor chimera.

Four hESC lines cultured as small spheroids maintained all typical ESC features following prolonged culture of over 50 passages (160 doublings). In addition, when applied onto a dynamic system for 10 days, the number of cell clumps increased 26-fold and cell number increased 100-fold, all the while maintaining ESC characteristics, including stable karyotype and pluripotency.

This suspension system is suitable for both the routine culture of hESCs and iPSCs in 3D and for mass production of pluripotent cells for therapeutic and industrial ends.