

Gene Editing of Human iPS Cells

- An Optimized Culture System for Creating Highly Pluripotent, Edited Clonal Lines

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Abstract: Recent progress in gene editing technology has made it possible to introduce targeted genetic alterations in cells. These methods are being applied in human induced pluripotent stem (iPS) cells; however, a major barrier remains at the level of selecting single cells with the desired mutation as human iPS cells typically survive only in colonies and/or on feeder cells. Getting single cells is not enough however. For subsequent differentiation, it is paramount that the cloned cells remain in homogenous, undifferentiated state.

Takara bio's experts have been working with human pluripotent stem cells for 15years, and have established optimized protocols for the complete workflow of iPS cells. The protocols are centered around Cellartis DEF-CS, a feeder-free and completed culture system for human iPS cells. This talk will show that DEF-CS can be used for the entire workflow of human induced pluripotent stem cells, focusing on genome editing in human iPS cells. An efficient method to perform gene editing using novel CRISPR/Cas9 kits, followed by single cell cloning to identify clones with the desired mutation, will be presented.