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## GENERATION OF A STABLE PLURIPOTENT CELL LINE FROM CHINESE HAMSTER EMBRYONIC FIBROBLASTS

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Chinese hamster ovary (CHO) cells are aneuploidy and exhibit a high degree of genomic instability. Many studies having a cell line with a stable karyotype and genome structure is highly desirable. We have derived a stable cell line from Chinese hamster embryonic fibroblasts by transduction of mouse transcription factors M3O (a fusion gene which is chimeric of Oct4 and the effective transactivation domain of MyoD), Sox2, Klf4, and n-Myc using a lentivirus vector. The cells showed morphology of typical murine pluripotent stem cells, stained positively with alkaline phosphatase, expressed endogenous Sox2, Nanog and surface antigen SSEA1, resembling mouse embryonic stem cells. They maintained a normal 22, XY male karyotype. Bisulfite sequencing showed that the CpG on the promoter regions of Oct4 were highly unmethylated. Their telomerase activity was high compared to the parental Chinese hamster embryonic fibroblasts. Upon injection into mice these cells form teratoma that exhibit differentiated cell types of all three germ layer lineages. Transcriptome analysis using an expression array revealed the expression of all pluripotent marker genes and other metabolic genes that are characteristic of embryonic stem cells. The cell line thus possesses all the characteristics of an induced pluripotent cell line. Their differentiation capability toward hepatic and other lineages is currently being investigated.