



CORIELL INSTITUTE

FOR MEDICAL RESEARCH

GM23716*B

Certificate of Analysis

Product description	Human Fibroblast reprogrammed with 7 factors (OCT4, SOX2, KLF4, MYC, NOG, LIN28, T-antigen) using episomal vector	
Publication(s) describing iPSC establishment		
Parent cell line and cell type	GM 06111	Fibroblast
Diagnosis	Apparently Healthy Fetal Tissue	
Passage of iPSC reported at submission	18	
Number of passages at Coriell	6	
Media	mTeSR	
Feeder	Matrigel	
Passage method	Dispase	
Split ratio	1:6 every 4-6 days	

The following testing specifications have been met for the specified product lot:

Test Description	Test Method	Test Specification	Result
Post-Thaw Viable Cell Recovery	Colony Doubling	Colony formation and diameter doubling within 5 days	Pass
Sterility	Growth on agar	Negative	Pass
Mycoplasma	PCR	Negative	Pass
Karyotype	G-banding	46, XX	Pass
Identity Match	STR (THO-1, D22S417, D10S526, vWA31, D5S592, and FES/FPS)	Match parent fibroblast line	Pass
Surface Antigen Expression of Stem Cell Markers	Immunostaining	> 80% expression of SSEA-4	Pass
Pluripotency	Illumina Array and PluriTest Software (www.pluritest.org)	Pluripotency Score greater than 20 and a Novelty Score less than 1.67	Pluripotency: 26.47 Novelty: 1.497

Post-Thaw Viability

One vial of distribution lot was thawed. Cultures were observed daily. Colonies were photographed when they first appeared, then 4 days later (Colonies must double in diameter within 5 days).

Day 2	158 μm
Day 6	524 μm

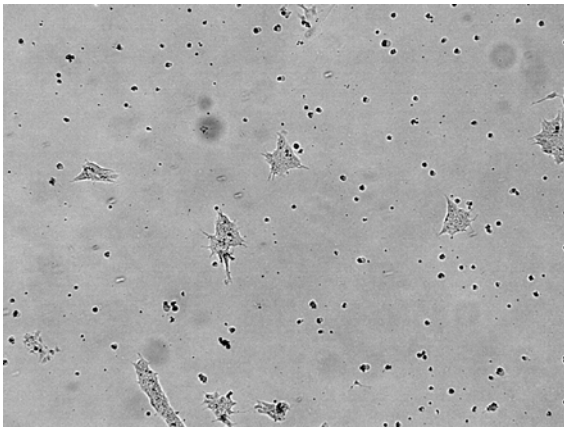


Figure 1A. Colony observed post thaw

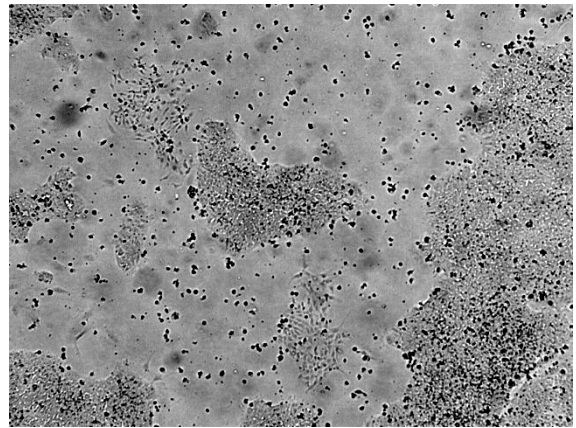


Figure 1B. Colony 4 days after first observation

Karyotype Analysis



Figure 2: G-banded karyotype showing 46,XX

Surface Antigen Expression of Stem Cell Markers

Undifferentiated cells are stained for the surface antigen, SSEA4. SSEA4 (stage specific embryonic antigen 4) is expressed on undifferentiated human stem cells.

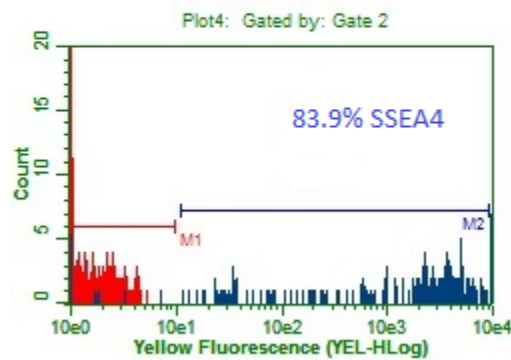


Figure 3: Representative histogram of SSEA-4 positive population. Histogram is an overlay of negative control (red) and SSEA-4 positive population (blue).

Assessment of Pluripotency of a Cell Line

Cells are directed to differentiate to assess the pluripotency of the cell line. RNA is harvested and gene expression is analyzed by real-time PCR. Ct values are adjusted for loading using a housekeeping gene. Gene expression is shown as fold difference to undifferentiated cells.

Embryoid Body (EB) Formation Assay

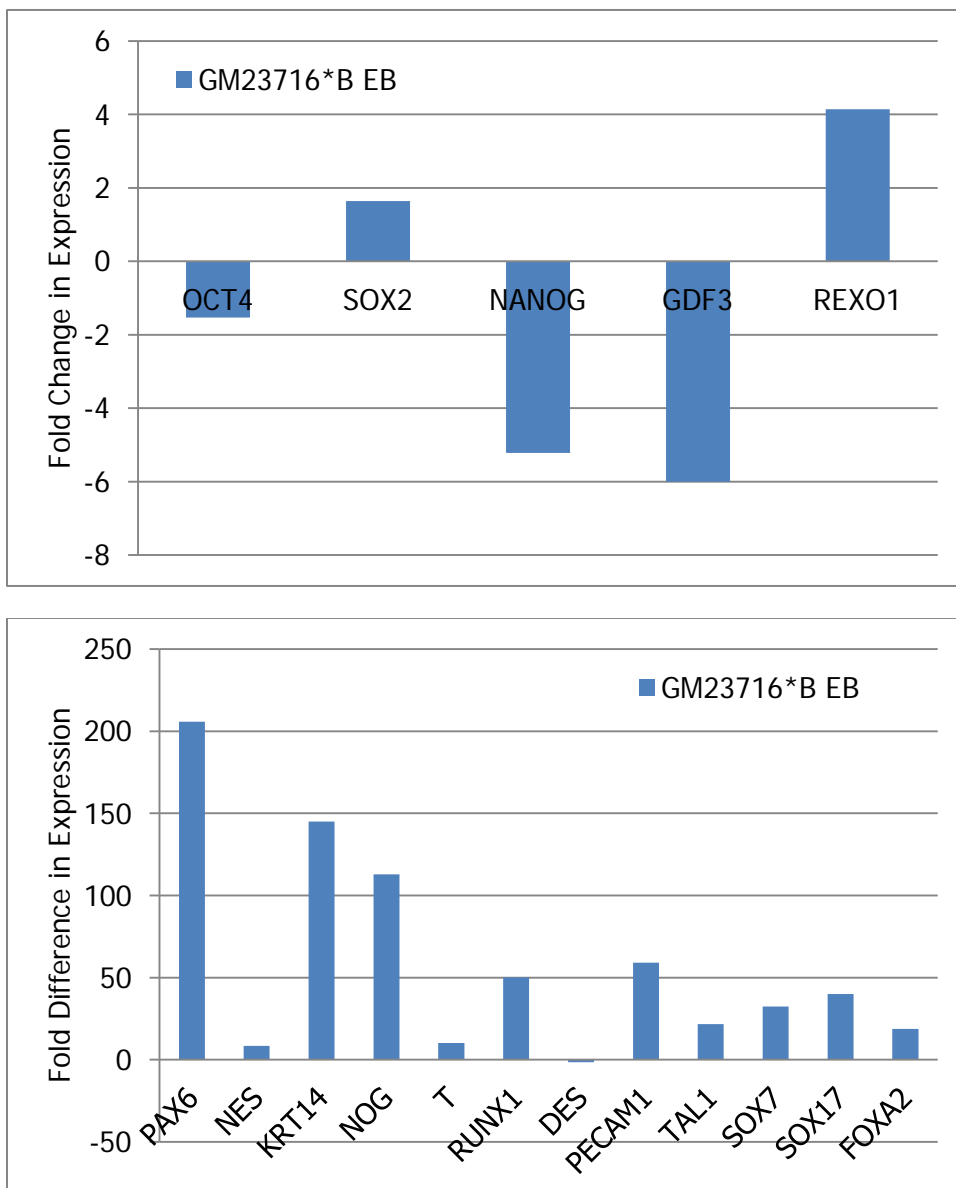


Figure 4. Gene expression following EB differentiation. Fold difference is shown relative to undifferentiated iPS cell line.

Pluripotent Markers

	OCT4	SOX2	NANOG	GDF3	REXO1
GM23716*B EB	-2	2	-5	-6	4

Ectoderm

	PAX6	NES	KRT14	TP63	NOG
GM23716*B EB	206	8	145	3828	113

Mesoderm

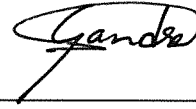
	T	RUNX1	DES	PECAM1	TAL1
GM23716*B EB	10	50	-1	59	22

Endoderm

	SOX7	SOX17	FOXA2	AFP
GM23716*B EB	32	40	19	384055

Table 1. Fold difference values of gene expression of EB. Fold difference is relative to undifferentiated cells. Ct values are normalized to that of GAPDH.

- Pass
- Fail
- Other:



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