Thaw and Culture Details

Cell Line Name	PENN068i-697-3
WiCell Lot Number	DB36611
Provider	University of Pennsylvania – Dr. Daniel Rader
Banked By	Penn Institute for Regenerative Medicine iPS Core Facility
Thaw and Culture Recommendations	WiCell recommends thawing 1 vial into 2 wells of a 6 well plate. WiCell recommends thawing using ROCK Inhibitor for best results.
Culture Platform	Feeder Dependent
	Medium: hESC Medium (KOSR)
	Matrix: MEF
Protocol	WiCell Feeder Dependent Protocol
Passage Number	p13 These cells were cultured for 13 passages prior to freeze and post colony picking. Therefore, plated cells at thaw should be labeled passage 14.
Date Vialed	20-April-2015
Vial Label	iPS-697 SEV3 P13 4/20/2015 ZL
Biosafety and Use Information	Appropriate biosafety precautions should be followed when working with these cells. The end user is responsible for ensuring that the cells are handled and stored in an appropriate manner. WiCell is not responsible for damages or injuries that may result from the use of these cells. Cells distributed by WiCell are intended for research purposes only and are not intended for use in humans.

Testing Performed by WiCell

Test Description	Test Provider	Test Method	Test Specification	Result
Karyotype by G-banding	WiCell	SOP-CH-003	Expected karyotype	See Report
	Results: 46,XY,dup(1)(q21q42)[15]/46,XY[3]/46,XX,t(1;13)(p22;q32)[2]/46,XX[1] Nonclonal Finding: 47,XY,+X,dup(1)(q21q42) *Interpretation:* There are both male and female cells in this culture; the most likely explanation for this is that two cultures have been mixed. Please resubmit the specimen. Both the male and female cell populations are karyotypically abnormal. In the male (XY) cells, there is a duplication of the long arm (q) of chromosome 1 in fifteen of 18 metaphases; this is a recurrent cytogenetic abnormality in human pluripotent stem cell cultures. In the female (XX) cells, there is a reciprocal translocation between the short arm (p) of chromosome 1 and the long arm (q) of chromosome 13 in 2 of three metaphases, not considered recurrently acquired in cultures of this cell type. No other clonal abnormalities were detected at the stated band level of resolution. There is also a nonclonal finding in the male cell population, listed above. Nonclonal findings likely result from technical artifact, but may be due to a developing clonal abnormality or to low-level mosaicism.			
Post-Thaw Viable Cell Recovery	WiCell	SOP-CH-305	Recoverable attachment after passage	Pass
Identity by STR	UW Translational Research Initiatives in Pathology Laboratory	PowerPlex 16 HS System by Promega	Defines profile	Pass
Sterility	Steris	ST/07	Negative	Pass
Mycoplasma	WiCell	SOP-QU-004	Negative	Pass

Testing Reported by Provider

The Provider stated that some or all of the additional analyses listed below may have been performed for this cell line. For more information, publication and dbGaP links, where available, are provided on the cell line specific web page on the WiCell website.

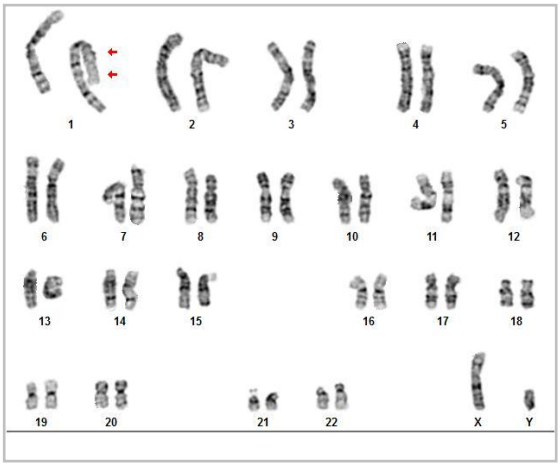
- SNP microarray
- Flow Cytometry (Tra1-60 and SSEA-4)
- Differentiation into hepatocytes
- Infinium® Expanded Multi-Ethnic Genotyping Array (MEGA^{EX})

Approval Date	Quality Assurance Approval
23-June-2016	6/5/2018 X HEB HEB Quality Assurance Signed by: Bruner, Haley

Chromosome Analysis Report: 071459

Date Reported: Wednesday, May 02, 2018
Cell Line Gender: Male
Cell Line: PENN068i-697-3-DB36611-13636
Reason for Testing: Lot Release Testing
Passage#: 15
Date of Sample: 4/24/2018
Investigator: [redacted], WiCell
Specimen: Human IPS
Results: 46,XY,dup(1)(q21q42)[15]/46,XY[3]/46,XX,t(1;13)(p22;q32)[2]/46,XX[1]

Nonclonal Finding: 47,XY,+X,dup(1)(q21q42)



Cell: 39
Slide: G02
Slide Type: Karyotype

Total Counted: 22
Total Analyzed: 10
Total Karyogrammed: 6
Band Resolution: 450-500

Interpretation:

There are both male and female cells in this culture; the most likely explanation for this is that two cultures have been mixed. Please resubmit the specimen.

Both the male and female cell populations are karyotypically abnormal. In the male (XY) cells, there is a duplication of the long arm (q) of chromosome 1 in fifteen of 18 metaphases; this is a recurrent cytogenetic abnormality in human pluripotent stem cell cultures. In the female (XX) cells, there is a reciprocal translocation between the short arm (p) of chromosome 1 and the long arm (q) of chromosome 13 in 2 of three metaphases, not considered recurrently acquired in cultures of this cell type. No other clonal abnormalities were detected at the stated band level of resolution.

There is also a nonclonal finding in the male cell population, listed above. Nonclonal findings likely result from technical artifact, but may be due to a developing clonal abnormality or to low-level mosaicism.

Completed by: [redacted] CG(ASCP)
Reviewed and Interpreted by: [redacted] Ph.D., FACMGG

A signed copy of this report is available upon request.

Date:_____ Sent By:____ Sent To:_____ QC Review By: ____

Limitations: This assay allows for microscopic visualization of numerical and structural chromosome abnormalities. The size of structural abnormality that can be detected is >3-10Mb, dependent upon the G-band resolution obtained from this specimen. For the purposes of this report, band level is defined as the number of G-bands per haploid genome. It is documented here as "band level", i.e., the range of bands determined from the four karyograms in this assay. Detection of heterogeneity of clonal cell populations in this specimen (i.e.,mosaicism) is limited by the number of metaphase cells examined, documented here as "# of cells counted".

This assay was conducted solely for listed investigator/institution. The results may not be relied upon by any other party without the prior written consent of the Director of the WiCell Cytogenetics Laboratory. The resu lts of this assay are for research use only. If the results of this assay are to be used for any other purpose, contact the Director of the WiCell Cytogenetics Laboratory.

Unless otherwise mutually agreed in writing, the services provided to you hereunder by WiCell Research Institute, Inc. ("WiCell") are governed solely by WiCell's Terms and Conditions of Service, found at www.wicell.org/privacyandterms. Any terms you may attach to a purchase order or other document that are inconsistent, add to, or conflict with WiCell's Terms and Conditions of Service are null and void and of no legal force or effect.

TRIPath
HISTOLOGY - IHC - MOLECULAR - IMAGING
Department of Pathology and Laboratory Medicine
TRIP Laboratory (Molecular)
http://www.pathology.wisc.edu/research/trip

Short Tandem Repeat Analysis

WiCell®
info@wicell.org
(888) 204-1782

Sample Report:
13636-STR
Sample Name on Tube: 13636-STR
154.1 ng/µL, (A260/280=1.93)
Sample Type: Cells
Cell Count: ~2 million cells

Requestor:
WiCell Research Institute
Quality Department

Sample Date: N/A
Receive Date: 04/30/18
Assay Date: 05/01/18
File Name: STR 180502 wmr
Report Date: 05/09/18

STR Locus	STR Genotype Repeat #	STR Genotype
FGA	16–18,18.2,19,19.2,20,20.2,21,21.2,22, 22.2, 23, 23.2, 24, 24.2, 25, 25.2, 26–30, 31.2, 43.2, 44.2,45.2, 46.2	Identifying information has been redacted to protect donor confidentiality. If more information is required, please, contact WiCell's Technical Support.
TPOX	6-13	
D8S1179	7-18	
vWA	10-22	
Amelogenin	X,Y	
Penta_D	2.2, 3.2, 5, 7-17	
CSF1PO	6-15	
D16S539	5, 8-15	
D7S820	6-14	
D13S317	7-15	
D5S818	7-16	
Penta_E	5-24	
D18S51	8-10, 10.2, 11-13, 13.2, 14-27	
D21S11	24,24.2,25,25.2,26-28,28.2,29,29.2, 30, 30.2,31, 31.2,32,32.2,33,33.2, 34,34.2,35,35.2,36-38	
TH01	4-9,9.3,10-11,13.3	
D3S1358	12-20	

Results: **Based on the 13636-STR cells submitted by WiCell QA dated and received on 04/30/18, this sample (Label on Tube: 13636-STR) defines the STR profile of the human stem cell line PENN068i-697-3 comprising 26 allelic polymorphisms across the 15 STR loci analyzed.**

Interpretation: **No STR polymorphisms other than those corresponding to the human PENN068i-697-3 stem cell line were detected and the concentration of DNA required to achieve an acceptable STR genotype (signal/ noise) was equivalent to that required for the standard procedure (~1 ng/amplification reaction) from human genomic DNA. This result suggests that the 13636-STR sample submitted corresponds to the PENN068i-697-3 stem cell line and was not contaminated with any other human stem cells or a significant amount of mouse feeder layer cells.**

Sensitivity: **Sensitivity limits for detection of STR polymorphisms unique to either this or other human stem cell lines is ~2-5%.**

X *RMB* **Digitally Signed on 05/10/18**

[redacted]s, *BA*
TRIP Laboratory, Molecular

X *WMR* **Digitally Signed on 05/10/18**

[redacted], *PhD, Director / Co-Director*
UWHC Molecular Diagnostics Laboratory / UWSMPH TRIP Laboratory

Native Product Sterility Report

STERIS

WiCell
504 S Rosa Rd, Rm 101
Madison, WI 53719

SAMPLE #: 18041158
DATE RECEIVED: 18-Apr-18
TEST INITIATED: 20-Apr-18
TEST COMPLETED: 04-May-18

SAMPLE NAME / DESCRIPTION:
JFRBi1 WB66746 13644
JFNY1 WB66747 13645
UCSD216i-114-1 WB66784 13646
PENN020i-588-6 DB36448 13647
PENN070i-408-1 DB35065 13648
PENN068i-697-3 DB36611 13649
PENN091i-588-2 DB35156 13650
PENN135i-30-8 DB34725 13651
STAN004i-147-1 WB66789 13652
STAN057i-162-1 WB66790 13653

UNIQUE IDENTIFIER: NA

PRODUCT REGISTRATION: Other: Human iPS cells

TEST RESULTS:

# Tested	# Positives (Growth)	- Control
10	0	2 Negatives

TEST SUMMARY:

# Samples	Media Type	Volume (mL)	Incubation Temperature (° C)	Incubation Duration (Days)
10	TSB	40	20 - 25	14
10	FTG	40	30 - 35	14

REFERENCE: Processed according to LAB-003: Sterility Test Procedure

METHOD VALIDATION / PD #: 000053

TEST METHODOLOGY: USP - Direct Transfer

COMMENTS: "Reported as" per packing slip

REVIEWED BY Dersad

DATE 07MAY18

Mycoplasma Detection Assay Report

Testing Performed by WiCell

Lot Release Testing

April 16, 2018

FORM SOP-QU-004.01
Version G Edition 02
Reported by: AP
Reviewed by: DF
BD Monolight 180

#	Sample Name	Reading A		A Ave	Reading B		B Ave	Ratio B/A	Result	Comments/Suggestions
		RLU1	RLU2		RLU1	RLU2				
1	PENN068i-697-3-DB36611 13636	374	374	374	174	169	171.5	0.46	Negative	
2	Positive (+) Control	427	435	431	23689	23939	23814	55.25	Positive	
3	Negative (-) Control	669	659	664	80	83	81.5	0.12	Negative