Thaw and Culture Details

Cell Line Name	UCSD046i-50-1
WiCell Lot Number	WB60581
Provider	University of California, San Diego – Dr. Kelly Frazer
Banked By	WiCell
Thaw and Culture Recommendations	WiCell recommends thawing 1 vial into 4 wells of a 6 well plate.
Culture Platform	Feeder Independent
	Medium: mTeSR™1
	Matrix: Matrigel®
Protocol	WiCell Feeder Independent mTeSR™1 Protocol
Passage Number	p33 These cells were cultured for 32 passages prior to freeze and post reprogramming. WiCell adds +1 to the passage number to best represent the overall passage number of the cells at thaw.
Date Vialed	02-March-2017
Vial Label	UCSD046i-50-1 p33 WB60581
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,add(9)(q32)[2]/46,XY[18] ***Interpretation:*** This is an abnormal karyotype, with an unbalanced structural aberration in the long (q) arm of chromosome 9 in two of twenty cells examined. This abnormality, in which segments of unknown chromosome origin ("add") have been translocated to 9q, cannot be characterized by G-banded chromosome analysis. Additional testing, e.g., CGH, may be helpful in defining this abnormality.			
Post-Thaw Viable Cell Recovery	WiCell	SOP-CH-305	≥ 15 Undifferentiated Colonies, ≤ 30% Differentiation and 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

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The material provided under this certificate has been subjected to the tests specified and the results and data described herein are accurate based on WiCell's reasonable knowledge and belief. Appropriate Biosafety Level practices and universal precautions should always be used with this material. For clarity, the foregoing is governed solely by WiCell's Terms and Conditions of Service, which can be found at http://www.wicell.org/privacyandterms.

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.

- Illumina® HumanCoreExome BeadChip Array
- RNA-Seq
- Flow Cytometry (SSEA-4, Tra 1-81)
- Infinium® Expanded Multi-Ethnic Genotyping Array (MEGA^{EX})

Approval Date	Quality Assurance Approval
03-May-2017	3/7/2018 X HEB HEB Quality Assurance Signed by: Bruner, Haley

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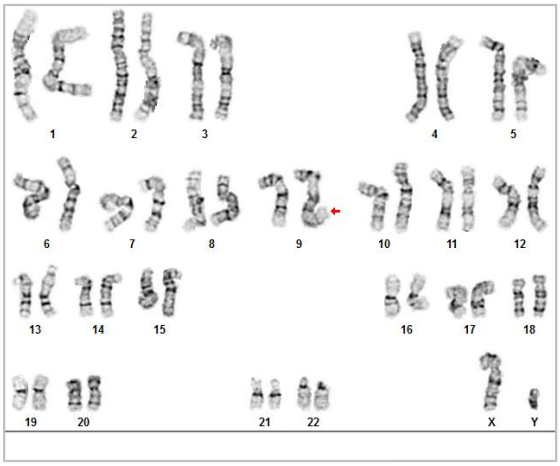
Chromosome Analysis Report: 070456

Date Reported: Monday, February 19, 2018
Cell Line: UCSD046i-50-1-WB60581 13380
Passage#: 33
Date of Sample: 2/12/2018
Specimen: Human IPS
Results: 46,XY,add(9)(q32)[2]/46,XY[18]

Cell Line Gender: Male
Reason for Testing: lot release testing

Investigator: [redacted], WiCell CDM



Cell: 16
Slide: G02
Slide Type: Karyotype

Total Counted: 20
Total Analyzed: 8
Total Karyogrammed: 4
Band Resolution: 450 - 525

Interpretation:

This is an abnormal karyotype, with an unbalanced structural aberration in the long (q) arm of chromosome 9 in two of twenty cells examined. This abnormality, in which segments of unknown chromosome origin ("add") have been translocated to 9q, cannot be characterized by G-banded chromosome analysis. Additional testing, e.g., CGH, may be helpful in defining this abnormality.

Completed by: [redacted] MS, CG(ASCP)
Reviewed and Interpreted by: [redacted], PhD, FACMG

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.

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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:
13380-STR
Sample Name on Tube: 13380-STR
70.7 ng/µL, (A260/280=1.94)
Sample Type: Cells
Cell Count: ~2 million cells

Requestor:
WiCell Research Institute
Quality Department

Sample Date: N/A
Receive Date: 02/19/18
Assay Date: 02/20/18
File Name: STR 180221 wmr
Report Date: 02/26/18

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 13380-STR cells submitted by WiCell QA dated and received on 02/19/18, this sample (Label on Tube: 13380-STR) defines the STR profile of the human stem cell line UCSD046i-50-1 comprising 27 allelic polymorphisms across the 15 STR loci analyzed.**

Interpretation: **No STR polymorphisms other than those corresponding to the human UCSD046i-50-1 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 13380-STR sample submitted corresponds to the UCSD046i-50-1 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 02/26/18**

[redacted] *BA*
TRIP Laboratory, Molecular

X *WMR* **Digitally Signed on 02/26/18**

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

Testing was accomplished by analysis of human genetic polymorphisms at STR loci. This methodology has not yet been approved by the FDA and is for investigational use only.
Acknowledge TRIP in your publications, posters & presentations. For details, see: *http://www.pathology.wisc.edu/research/trip/acknowledging*
TRIP agrees to maintain the confidentiality of any information provided to it in connection with its performance of this STR analysis on the same conditions as set forth in paragraph 2 of WiCell's Terms and Conditions of Service (http://www.wicell.org/media.acux/1a429b84-2b54-44a4-8ad8-5c05db93dd8a).

Native Product Sterility Report

STERIS

SAMPLE #:	17121102
DATE RECEIVED:	14-Dec-17
TEST INITIATED:	14-Dec-17
TEST COMPLETED:	02-Jan-18

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

SAMPLE NAME / DESCRIPTION:
UCSD033i-41-2 WB54901 13153
UCSD037i-26-2 WB65027 13154
UCSD039i-14-3 WB57650 13155
UCSD040i-33-1 WB61158 13156
UCSD041i-33-2 WB60323 13157
UCSD043i-47-1 WB61824 13158
UCSD045i-49-1 WB62417 13159
UCSD046i-50-1 WB60581 13160
UCSD047i-51-1 WB54782 13161
UCSD049i-53-1 WB57867 13162
UCSD114i-69-1 WB55346 13163
UCSD150i-11-1 WB58932 13164
UCSD154i-90-1 WB58798 13165
UCSD164i-96-1 WB58713 13166
UCSD180i-27-2 WB60894 13167
UCSD204i-26-1 WB62522 13168
UCSD216i-114-1 WB65031 13169
UCSD220i-118-1 WB60019 13170
iPS (Foreskin)-4 WB66699 13171
WISC015i-SC7 DB66675 13172

UNIQUE IDENTIFIER: NA

PRODUCT REGISTRATION: Other: Human iPS cells

TEST RESULTS:

# Tested	# Positives (Growth)	- Control
20	0	4 Negatives

TEST SUMMARY:

# Samples	Media Type	Volume (mL)	Incubation Temperature (° C)	Incubation Duration (Days)
20	TSB	40	20-25	15
20	FTG	40	30-35	15

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

METHOD VALIDATION / PD #: 000053

Native Product Sterility Report

STERIS

TEST METHODOLOGY: USP - Direct Transfer

COMMENTS: NA

REVIEWED BY _____ DATE 03JAN18

Specific test results may not be indicative of the characteristics of any other samples from the same lot or similar lots. This test report shall not be reproduced, except in full, without prior written approval. Liability is limited to the costs of the tests.

Mycoplasma Detection Assay Report

Testing Performed by WiCell

Lot Release Testing

February 15, 2018

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

#	Sample Name	Reading A		A Ave	Reading B		B Ave	Ratio B/A	Result	Comments/Suggestions
		RLU1	RLU2		RLU1	RLU2				
1	UCSD046i-50-1-WB60581 13380	237	224	230.5	94	91	92.5	0.40	Negative	
2	Positive (+) Control	360	381	370.5	14525	14630	14578	39.35	Positive	
3	Negative (-) Control	611	629	620	69	63	66	0.11	Negative