Thaw and Culture Details

Cell Line Name	MIN05i-33110.2F
WiCell Lot Number	WB20162
Provider	Massachusetts General Hospital
Banked By	WiCell
Thaw and Culture Recommendations	WiCell recommends thawing 1 vial into 3 wells of a 6 well plate.
Culture Platform	Feeder Independent
	Medium: mTeSR™1
	Matrix: Matrigel®
Protocol	WiCell Feeder Independent mTeSR™1 Protocol
Passage Number	p23 These cells were cultured for 22 passages prior to freeze. WiCell adds +1 to the passage number at freeze so that the number on the vial best represents the overall passage number of the cells at thaw.
Date Vialed	06-June-2015
Vial Label	MIN05i-33110.2F p23 WB20162
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
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	Biotest Laboratories	ST/07	Negative	Pass
Mycoplasma	WiCell	SOP-QU-004	Negative	Pass
Karyotype by G-banding	WiCell	SOP-CH-003	Expected karyotype[1]	Pass

[1]This is the first karyotype of this cell line.

©2015 WiCell Research Institute
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

Test Description & Method	Result
Embryoid Body Formation	RT(q)PCR (Brachyury, GATA2 - Meso; AFP, Sox17 - Endo; Pax6, MAP2 - Ectoderm)
Pluripotency Markers; AP, Oct4, Nanog, SSEA-3, SSEA-4, TRA1-60	All Markers Expressed

Approval Date	Quality Assurance Approval
09-October-2015	6/22/2016 X DEW DEW Quality Assurance Signed by: Wilson, Dustin

©2015 WiCell Research Institute
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.

Short Tandem Repeat Analysis

School of Medicine and Public Health
UNIVERSITY OF WISCONSIN-MADISON
Department of Pathology and Laboratory Medicine
TRIP Laboratory (Molecular)
http://www.pathology.wisc.edu/research/trip

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

Sample Report:
11640-STR
Sample Name on Tube: 11640-STR
73.0 ng/µL, (A260/280=1.83)
Sample Type: Cells
Cell Count: ~2 million cells

Requestor:
WiCell Research Institute
Quality Department

Sample Date: N/A
Receive Date: 05/19/16
Assay Date: 05/24/16
File Name: STR 160525 wmr
Report Date: 06/02/16

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 11640-STR cells submitted by WiCell QA dated and received on 05/19/16, this sample (Label on Tube: 11640-STR) defines the STR profile of the human stem cell line MIN05i-33110.2F and exactly matches sample 11641-STR (clones from same donor per email from [redacted] 05/19/16) comprising 29 allelic polymorphisms across the 15 STR loci analyzed.**

Interpretation: **No STR polymorphisms other than those corresponding to the human 11640-STR 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 11640-STR sample submitted corresponds to the MIN05i-33110.2F, matches sample 11641-STR 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 06/02/16**

[redacted]
TRIP Laboratory, Molecular

X *WMR* **Digitally Signed on 06/02/16**

[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).

Sterility Report

Biotest Laboratories, Inc.
Making life-saving products possible

WiCell Research Institute, Inc.
WiCell Quality Assurance
[redacted]

BIOTEST SAMPLE #	15101757
VALIDATION #	NG
TEST PURPOSE	NG

PRODUCT	WA28-WB0201 11409, WA28-WB0202 11410, WA29-WB0203 11411, WA29-WB0204 11412, WA30-WB0213 11413, WA30-WB0214 11414 WA31-WB0215 11415, WA31-WB0216 11416, WA32-WB0217 11417 WA33-WB0220 11419, WA33-WB0221 11420, WA34-WB0222 11421 WA35-WB0224 11422, WA35-WB0225 11423, WA36-WB0226 11424 WA36-WB0227 11425, WA37-WB0228 11426, WA37-WB0229 11427 WA38-WB0230 11428, WA38-WB0231 11429, WA39-WB0233 11430 WA39-WB0234 11431, WA40-WB0235 11432, WA40-WB0236 11433 WA41-WB0241 11434, WA42-WB0242 11435, WA42-WB0243 11436 WA43-WB0244 11437, WA43-WB0245 11438, WA44-WB0246 11439 WA44-WB0247 11440, WA45-WB0254 11441, WA45-WB0255 11442 WA46-WB0256 11443, WA46-WB0257 11444, WA47-WB0258 11445 WA47-WB0259 11446, H9 hOct4-pGZ-WB22367 11451 MIN05i-33110.2F-WB20162 11452, MIN06i-33110.2H-WB20163 11453
PRODUCT LOT	NA

STERILE LOT	NA	BI LOT	NA
STERILIZATION LOT	NA	BI EXPIRATION DATE	NA
STERILIZATION DATE	NA	DATE RECEIVED	2015-10-21
STERILIZATION METHOD	NA	TEST INITIATED	2015-10-23
SAMPLING BLDG / ROOM	NA	TEST COMPLETED	2015-11-06

REFERENCE

Processed according to LAB-003: Sterility Test Procedure

Forty (40) products were each cultured in 40 mL TSB at 20-25 C and 40 products were each cultured in 40 mL FTG at 30-35 C and monitored for a minimum of 14 days.

- ☒ USP
- ☐ BI Manufacturers Specifications
- ☐ Other

RESULTS	# POSITIVES	# TESTED	POSITIVE CONTROL	NEGATIVE CONTROL
Sterile	0	40	NA	2 Negatives

Specific test results may not be indicative of the characteristics of any other samples from the same lot or similar lots. Liability is limited to the costs of the tests.

BIOTEST SAMPLE # 15101757

COMMENTS NA

REVIEWED BY [redacted] DATE 06NOV15

Specific test results may not be indicative of the characteristics of any other samples from the same lot or similar lots. Liability is limited to the costs of the tests.

Mycoplasma Detection Assay Report

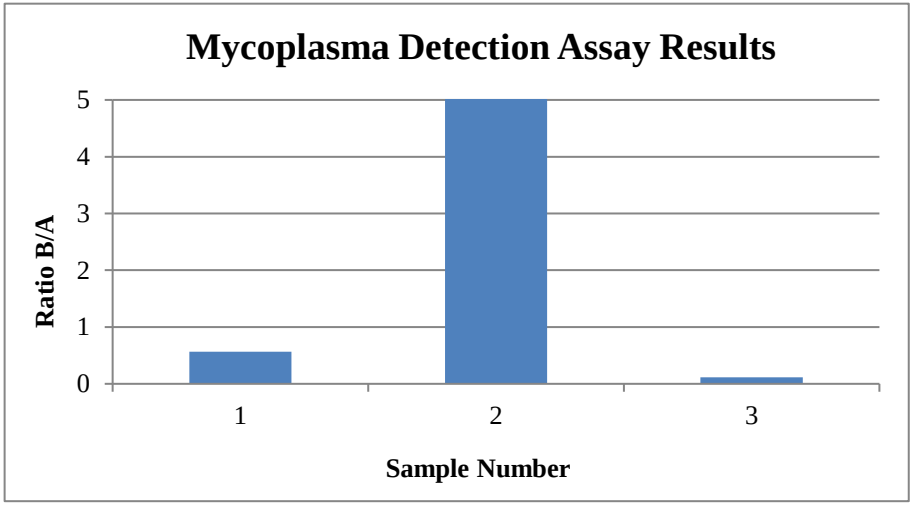
Testing Performed by WiCell

Lot Release Testing

May 6th, 2016

FORM SOP-QU-004.01
Version E Edition 01
Reported by: SS
Reviewed by: JB
Berthold Flash n' Glo 539

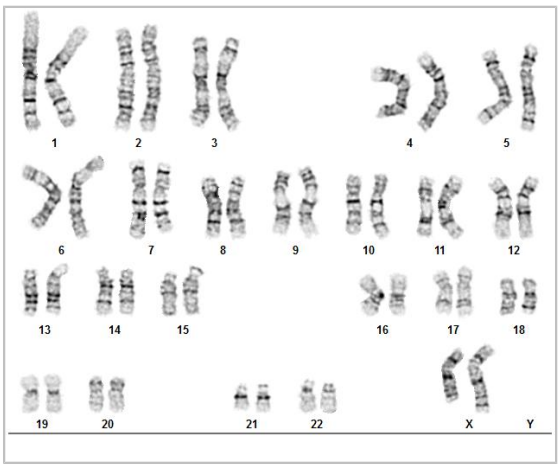
#	Sample Name	Reading A		A Ave	Reading B		B Ave	Ratio B/A	Result	Comments/Suggestions
		RLU1	RLU2		RLU1	RLU2				
1	MIN05i-33110.2F-WB20162 11640	177	190	183.5	105	103	104	0.57	Negative	
2	Positive (+) Control	225	238	231.5	19246	19260	19253	83.17	Positive	
3	Negative (-) Control	342	336	339	40	37	38.5	0.11	Negative	



Chromosome Analysis Report: 033651

Date Reported: Wednesday, May 11, 2016
Cell Line: MIN05i-33110.2F-WB20162 11640
Passage#: 23
Date of Sample: 5/2/2016
Specimen: iPSC
Results: 46,XX

Cell Line Gender: Female
Reason for Testing: Lot release testing
Investigator: [redacted], CDM



Cell: 11
Slide: 2
Slide Type: Karyotype

Total Counted: 20
Total Analyzed: 8
Total Karyogrammed: 4
Band Resolution: 425 - 450

Interpretation:

This is a normal karyotype. No clonal abnormalities were detected at the stated band level of resolution.

Completed by: [redacted]Leonhard, 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.

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.