



Certificate of Analysis

Thaw and Culture Details

Cell Line Name	WC-52-TSC2Het	
WiCell Lot Number	WB33850	
Provider/Client	University of Wisconsin – Dr. Timothy Gomez	
Banked By	WiCell	
Thaw and Culture Recommendations	WiCell recommends thawing 1 vial into 3 wells of a 6 well plate using mTeSR™ 1 and Matrigel®	
Protocol	WiCell Feeder Independent Pluripotent Stem Cell Protocol	
Culture Platform Prior to Freeze	Medium: mTeSR™ 1	Matrix: Matrigel®
Passage Number	p13 Cells were cultured for 12 passages prior to freeze and post reprogramming. Plated cells at thaw should be labeled passage 13.	
Date Vial	09-May-2016	
Vial Label	WC-52-01A-TG-1 p13 WB33850	
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.	

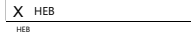


Certificate of Analysis

Results

**** Testing sample name reported as WC-52-01A-TG-1, prior to deposit as WC-52-TSC2Het****

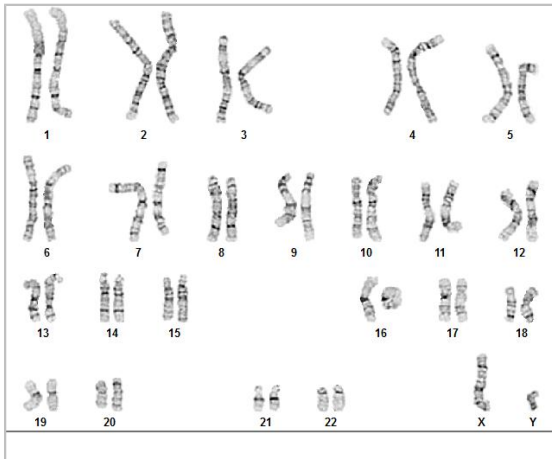
Test Description	Test Provider	Test Method	Test Specification	Result
Karyotype	WiCell	G-T-L Banding performed on 20 metaphase cells	Expected karyotype	See Report
	Results: 46,XY Interpretation: This is a normal karyotype. No clonal abnormalities were detected at the stated band level of resolution.			
Post-Thaw Viable Cell Recovery	WiCell	Thaw using specified Thaw & Culture Recommendations	≥ 15 Undifferentiated Colonies prior to passage, ≤ 30% Differentiation prior to passage, and recoverable attachment after passage	Pass
Identity by STR	WiCell	PowerPlex 16 HS System by Promega™	Defines STR profile of deposited cell line	See Report
Mycoplasma	WiCell	PCR	Amplification of mycoplasma specific DNA detected with negative result	Pass
Sterility	Steris	Native Product Direct Transfer using FTM and TSB (ST/07)	Negative for growth following 14 days of culture	Pass

Approval Date	WiCell Quality Assurance Approval
09-April-2026	<div style="text-align: right;">4/9/2026</div>  <p>HEB WiCell Quality Assurance Signed by Bruner, Haley</p>

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>.

Date Reported: Friday, May 20, 2016
Cell Line: WC-52-01A-TG-1-WB33850 11678
Passage#: 13
Date of Sample: 5/16/2016
Specimen: iPSC
Results: 46,XY

Cell Line Gender: Male
Reason for Testing: Lot release testing
Investigator: Lisa Kesler, WiCell CDM



Cell: 28
Slide: 1
Slide Type: Karyotype

Total Counted: 20
Total Analyzed: 8
Total Karyogrammed: 4
Band Resolution: 500 - 550

Interpretation:

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

Completed by: Kim Leonhard, CG(ASCP)
Reviewed and Interpreted by: Julie Leana Cox, 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 results 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.

Short Tandem Repeat Analysis

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:

11678-STR
Sample Name on Tube: 11678-STR
80.9 ng/μL, (A260/280=1.84)
Sample Type: Cells
Cell Count: ~2 million cells

Requestor:

WiCell Research Institute
Quality Department

Sample Date: N/A

Receive Date: 06/01/16
Assay Date: 06/07/16
File Name: STR 160609 wmr
Report Date: 06/14/16

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 info@wicell.org
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 11678-STR cells submitted by WiCell QA dated and received on 06/01/16, this sample (Label on Tube: 11678-STR) defines the STR profile of the human stem cell line WC-52-01A-TG-1 comprising 30 allelic polymorphisms across the 15 STR loci analyzed.

Interpretation: No STR polymorphisms other than those corresponding to the human WC-52-01A-TG-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 11678-STR sample submitted corresponds to the WC-52-01A-TG-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 06/16/16

Rebecca M. Baus
TRIP Laboratory, Molecular

X_{WMR}

Digitally Signed on 06/16/16

William M. Rehrauer, 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>).



Mycoplasma Detection Assay Report

Testing Performed by WiCell

Lot Release Testing

May 19th, 2016

FORM SOP-QU-004.01

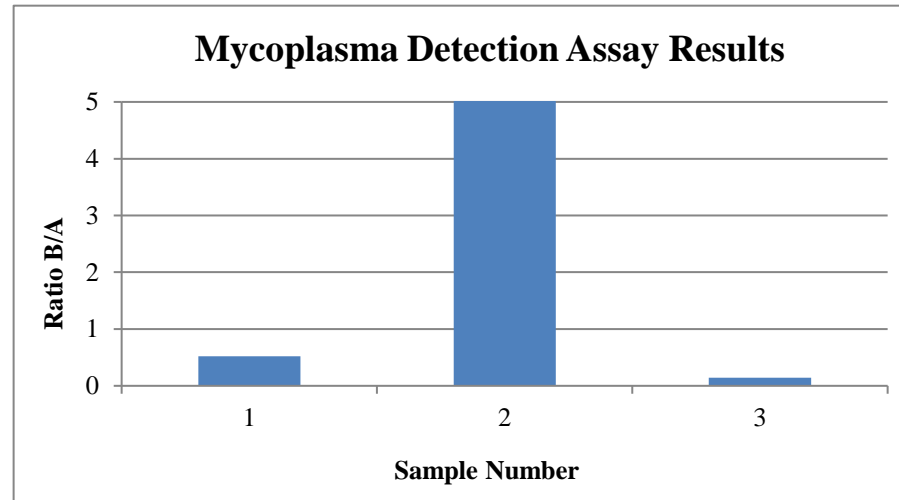
Version E Edition 01

Reported by: SM

Reviewed by: JB

BD Flash n' Glo 180

#	Sample Name	Reading A			Reading B			Ratio B/A	Result	Comments/Suggestions
		RLU1	RLU2	Ave	RLU1	RLU2	Ave			
1	WC-52-01A-TG-1-WB33850 11678	186	196	191	100	99	99.5	0.52	Negative	
2	Positive (+) Control	223	212	217.5	13338	13321	13330	61.29	Positive	
3	Negative (-) Control	335	345	340	49	48	48.5	0.14	Negative	



Sterility Report

Biotest Laboratories, Inc.

Making life-saving products possible

CORRECTED REPORT

WiCell Research Institute, Inc.
WiCell Quality Assurance
504 South Rosa Road, Room 101
Madison, WI 53719

BIOTEST SAMPLE # 16051350

VALIDATION # NG

TEST PURPOSE NG

PRODUCT WA43-WB32660 11659, WA38-WB32549 11656, WA47-WB32596 11658, WA46-WB32595 11657, WA35-WB32392 11654, WA40-WB32393 11660, WA32-WB32295 11652, WA37-WB32294 11655, WA41-WB33024 11661, WA30-WB32033 11651, WA33-WB32032 11653, RUES2-WB33127 11630, WA44-WB33154 11662, WC-52-01U-TG-1-WB33842 11675, WC-52-01U-TG-2-WB33843 11676, WC-52-01U-TG-3-WB33844 11677, iPS(IMR90)-4-WB33712 11663, MIN04i-33109.2B-WB33713 11664, WA14-WB33693 11665, MIN14i-33363.C-WB33622 11666, H9 hNanog-pGZ-WB33582 11667, H9 Cre-LoxP-WB33296 11668, NSC-H14iPSZeng-WB33374 11669, IISH2i-BM9-WB33257 11670, IISHi-BM1-WB33256 11671, WC-52-01A-TG-1-WB33850 11678, WC-52-01A-TG-2-WB33852 11679, WC-52-01A-TG-3-WB33853 11680, MIN03i-32642.B-WB33911 11672

PRODUCT LOT NA

STERILE LOT NA

BI LOT NA

STERILIZATION LOT NA

BI EXPIRATION DATE NA

STERILIZATION DATE NA

DATE RECEIVED 2016-05-19

STERILIZATION METHOD NA

TEST INITIATED 2016-05-20

SAMPLING BLDG / ROOM NA

TEST COMPLETED 2016-06-03

REFERENCE Processed according to LAB-003: Sterility Test Procedure

Twenty-nine (29) products were divided between 40 mL TSB and 40 mL FTG. The sample was then cultured at 20-25 C and 30-35 C respectively and was monitored for a minimum of 14 days.

- USP
- BI Manufacturers Specifications
- Other

RESULTS
No Growth

POSITIVES
0

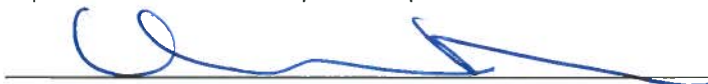
TESTED
29

POSITIVE CONTROL
NA

NEGATIVE CONTROL
2 Negatives

COMMENTS Report revised due to updated product name.

REVIEWED BY



DATE

10/20/16

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 Laboratories ■ 9303 West Broadway Ave. ■ Brooklyn Park, MN 55445 ■ USA ■ (763) 315-1200

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