

Thaw and Culture Details

Cell Line Name	WC019i-SMA-GM13						
WiCell Lot Number	WB44684						
Provider	University of Wisconsin – Laboratory of Dr. Su-Chun Zhang						
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	p41 These cells were cultured for 40 passages after colony picking prior to freeze. WiCell adds +1 to the passage number to best represent the overall passage number of the cells at thaw.						
Date Vialed	03-September-2016						
Vial Label	WC019i-SMA-GM13 p41 WB44684						
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	Pass				
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				

Testing Reported by Provider

The provider has published the following testing and results for this cell line. A link to the relevant publication is provided on the cell line specific web page on the WiCell website.

Test Description	Result			
Karyotype by G-banding	Normal karyotype			

©2018 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.

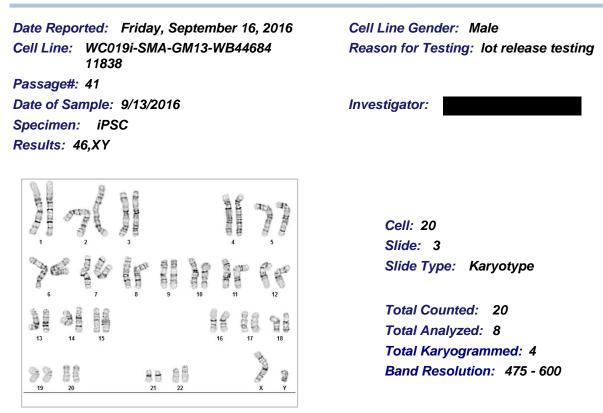


Approval Date	Quality Assurance Approval
17-January-2018	1/17/2018 XG Quality Assurance Signed by: Gay, Jenna

©2018 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.





Interpretation:

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



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

Sample Report: 11838-STR **Sample Name on Tube:** 11838-STR 63.6 ng/μL, (A260/280=1.79) **Sample Type:** Cells **Cell Count:** 2 million **Requestor:** WiCell Research Institute Quality Department



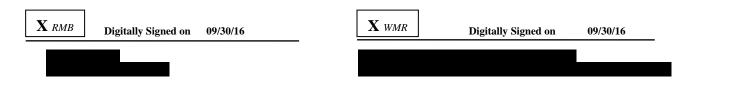
Sample Date: N/A Receive Date: 09/26/16 Assay Date: 09/27/16 File Name: STR 160929 wmr Report Date: 09/29/16

STR Locus	STR Genotype Repeat #	Identifying information has							
FGA	A 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								
ТРОХ	6-13	protect donor confidentiality. If							
D8S1179									
vWA	VA 10-22								
Amelogenin	Dgenin X,Y								
Penta_D									
CSF1PO	6-15	Support.							
D16S539	539 5, 8-15								
D7S820	6-14								
D13S317	138317 7-15								
D5S818	7-16								
Penta_E	5-24								
D18S51	8-10, 10.2, 11-13, 13.2, 14-27								
D21S11	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								

<u>Results:</u> Based on the 11838-STR cells submitted by WiCell QA dated and received on 09/26/16, this sample (Label on Tube: 11838-STR) defines the STR profile of the human stem cell line WC019i-SMA-GM13 comprising 27 allelic polymorphisms across the 15 STR loci analyzed.

<u>Interpretation:</u> No STR polymorphisms other than those corresponding to the human WC019i-SMA-GM13 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 11838-STR sample submitted corresponds to the WC019i-SMA-GM13 stem cell line and was not contaminated with any other human stem cells or a significant amount of mouse feeder layer cells.

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



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).

Making life-saving products possible

WiCell Research Institute, WiCell Quality Assurance	Inc.	BIOTEST SAMPLE #	16091533		
504 South Rosa Road, Room 101 Madison, WI 53719		VALIDATION #	NG		
Mudison, wi 337 19		TEST PURPOSE	NG		
PRODUCT	STAN048i-126-2 DB30969 11796, STAN057i-162-1 DB30966 11797, STAN047i-126-1, DB30963 11798, STAN061i-164-1 WB45344 11848, WC019i-SMA-GM13 WB44684 11849, R366.4 WB46792 11850, WC020i-SMA-GM14 WB46760 11851, UCSD226i-NDC2-1 DB26789 11852, UCSD229i-SAD1-1 DB26798 11853, UCSD232i-SAD2-1 DB26807 11854				
PRODUCT LOT	NA				
STERILE LOT	NA	BI LOT	NA		
STERILIZATION LOT	NA	BI EXPIRATION DAT	TE NA		
STERILIZATION DATE	NA	DATE RECEIVED	2016-09-22		
STERILIZATION METHOD	NA	TEST INITIATED	2016-10-03		
SAMPLING BLDG / ROOM	NA	TEST COMPLETED	2016-10-17		
REFERENCE	Processed according to LAB-0	003: Sterility Test Procedu	e		
	Ten (10) 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 Specification Other	ons			
RESULTS Sterile	# POSITIVES # TEST 0 10	ED POSITIVE CON NA	TROL NEGATIVE CONTROL 2 Negatives		
COMMENTS NA		DATE	1800716		

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. The uncertainty of measurement associated with the measurement result reported in this certificate is available from the organization upon request.

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

Form: M-002 rev, 12 Effective: 26JUL16 A subsidiary of STERIS Corporation





Mycoplasma Detection Assay Report Testing Performed by WiCell

Testing Performed by WiCell Lot Release Test September 16, 2016 FORM SOP-QU-004.01 Version F Edition 01 Reported by: SM Reviewed by: DF Berthold Flash n' Glo 539

		Reading A		Α	Read	ing B	В	Ratio		
#	Sample Name	RLU1	RLU2	Ave	RLU1	RLU2	Ave	B/A	Result	Comments/Suggestions
1	WC019i-SMA-GM13-WB44684 11838	103	97	100	45	48	46.5	0.47	Negative	
2	Positive (+) Control	140	147	143.5	14695	14656	14676	102.27	Positive	
3	Negative (-) Control	303	298	300.5	36	36	36	0.12	Negative	

