



Certificate of Analysis

Thaw and Culture Details

Cell Line Name	PENN019i-136-2	
WiCell Lot Number	DB34921	
Provider/Client	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 using Stem Cell Culture Medium and MEF. WiCell recommends passaging with ROCK Inhibitor	
Protocol	WiCell Feeder Based (MEF) Pluripotent Stem Cell Protocol	
Culture Platform Prior to Freeze	Medium: Stem Cell Culture Medium	Matrix: MEF
Passage Number	p14 Cells were cultured for 14 passages prior to freeze and post colony selection. Plated cells at thaw should be labeled passage 15.	
Date Vialied	22-July-2015	
Vial Label	iPS-136 Sev2 P14 07-22-15 JS	
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

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	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

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	WiCell Quality Assurance Approval
21-December-2022	<div style="text-align: right;">12/21/2022</div> 

Date Reported: Sunday, December 11, 2022

Cell Line Sex: Male

Cell Line: PENN019i-136-2-DB34921

Reason for Testing: LOT_RELEASE

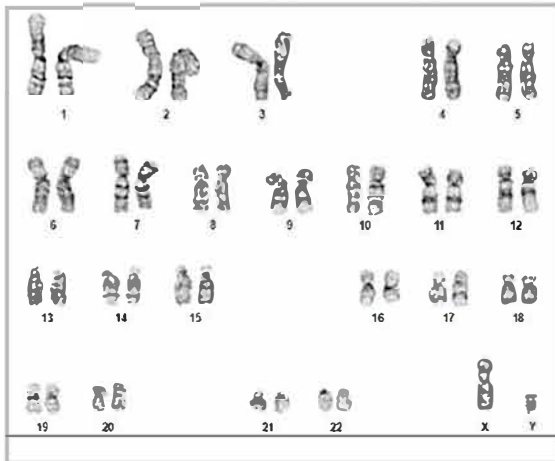
Submitted Passage #: 16

Date of Sample: 11/19/2022

Investigator: WiCell Stem Cell Bank, WiCell

Specimen: Human iPSC

Results: 46,XY



Cell: 8

Slide: G03

Slide Type: Karyotype

Total Counted: 20

Total Analyzed: 9

Total Karyogrammed: 5

Band Resolution: 400 - 475

Interpretation:

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

Completed by: Leah George, CG(ASCP)

Reviewed and Interpreted by: Xiangqiang Shao, PhD

For internal use only

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 of this assay are for research use only. 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

Requestor: WiCell Stem Cell Bank, WiCell

Samples Received: 17Nov22, 19Nov22

STR Amplification Date: 22Nov22

Form SOP-89.01

Version 9.0

Sample Name	PENN033i-182-2-DB36145 p15	PENN019i-136-2-DB34921 p16
WiCell CTR No. ¹	94830	94855
FGA	Identifying information has been redacted to protect donor confidentiality. If more information is required, please contact info@wicell.org	
TPOX		
D8S1179		
vWA		
Amelogenin		
Penta_D		
CSF1PO		
D16S539		
D7S820		
D13S317		
D5S818		
Penta_E		
D18S51		
D21S11		
TH01		
D3S1358		
Allelic Polymorphisms	27	27
Matches*		
Comments		

**Note: The STR profile of the following sample is a 100% match for the given sample/samples unless otherwise specified.*

¹ CTR No.: Characterization Test Request Number; also known as a laboratory accessioning number.



Short Tandem Repeat

Requestor: WiCell Stem Cell Bank, WiCell
Samples Received: 17Nov22, 19Nov22
STR Amplification Date: 22Nov22

Assay Description: STR analysis is performed using the PowerPlex 16 HS System by Promega™. Results are reported as 13 CODIS STR markers, Amelogenin for gender determination and two low-stutter, highly discriminating pentanucleotide STR markers.

Results: The genotypic profiles comprise a range of 27 allelic polymorphisms across the 15 STR loci analyzed.

Interpretation: 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. These results suggests that the cells submitted correspond to the cell lines as named and were not contaminated with any other human 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 cell lines is ~2-4%.

11/29/2022	11/29/2022	11/29/2022
<p>X Amber Kuhn</p> <hr/> <p>Tech #1 Characterization Signed by: Kuhn, Amber</p>	<p>X Justin Hobson</p> <hr/> <p>Tech #2 Characterization Signed by: Hobson, Justin</p>	<p>X Hunter Hefti</p> <hr/> <p>QA Review Quality Assurance Signed by: Hefti, Hunter</p>

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. Raw data is available upon request.



Mycoplasma Assay Report

PCR-based assay performed by WiCell
WiCell Stem Cell Bank, WiCell
23Nov22

Form SOP-83.01
Version 5.0

Sample Name	Result	Interpretation
PENN033i-182-2-DB36145 p15 (94830)	Negative	Band was not seen at 270bp, indicating the absence of mycoplasma.
PENN019i-136-2-DB34921 p16 (94855)	Negative	Band was not seen at 270bp, indicating the absence of mycoplasma.
Positive (+) Control	Positive	
Negative (-) Control	Negative	

Assay Description
Sample is tested for presence of mycoplasma using EZ-PCR™ Mycoplasma Detection Kit (Sartorius).

11/23/2022	11/28/2022	11/28/2022
X Michael Mussar <hr/> Tech #1 Characterization Signed by: Mussar, Michael	X Julia Graham <hr/> Tech #2 Characterization Signed by: Graham, Julia	X Hunter Hefti <hr/> QA Review Quality Assurance Signed by: Hefti, Hunter

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.

A gel image is available upon request.

Native Product Sterility Report



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

SAMPLE #: 19122292
DATE RECEIVED: 31-Dec-19
TEST INITIATED: 03-Jan-20
TEST COMPLETED: 17-Jan-20

SAMPLE NAME / DESCRIPTION: STAN216i-496C1 WB67364 15210
WC063i-247-1-2-18 WB67363 15211
WC073i-226-1-2-41 WB67367 15212
WC065i-247-1-2-32 WB67368 15213
WC066i-310-17-2-27 WB67369 15214
SCR9403i WB67375 15215
WC069i-335-1-2-28 WB67365 15216
WC071i-335-1-2-35 WB67366 15217
PENNO18i-487-4 DB35031 15218
PENNO19i-136-2 DB34921 15219

UNIQUE IDENTIFIER: NA

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

PD #: 000053

TEST METHODOLOGY: USP - Direct Transfer

COMMENTS: NA

REVIEWED BY 

DATE 20 JAN 2020

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. Results applied to samples as received.