



Certificate of Analysis

Thaw and Culture Details

Cell Line Name	PENN044i-51-1	
WiCell Lot Number	DB36547	
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 1 well of a 6 well plate. WiCell recommends thawing using ROCK Inhibitor for best results.	
Protocol	WiCell Feeder Based (MEF) Pluripotent Stem Cell Protocol	
Culture Platform Prior to Freeze	Medium: Stem Cell Culture Medium	Matrix: MEF
Passage Number	p15 Cells were cultured for 14 passages prior to freeze and post colony selection. Plated cells at thaw should be labeled passage 15.	
Date Vialied	01-DECEMBER-2014	
Vial Label	iPS-51-034 Sev1 p15 12/01/14 SL	
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,XX 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
Mycoplasma	WiCell	PCR	Amplification of mycoplasma specific DNA detected with negative result	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 (MEGAEX)

Approval Date	WiCell Quality Assurance Approval
28-October-2021	<div style="text-align: right; font-size: small;">10/28/2021</div>  <div style="font-size: x-small;"> X JKG JKG WiCell Quality Assurance Signed by: Gay, Jenna </div>

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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>.

Date Reported: Friday, October 15, 2021

Cell Line Sex: Female

Cell Line: PENN044i-51-1-DB36547

Reason for Testing: LOT_RELEASE

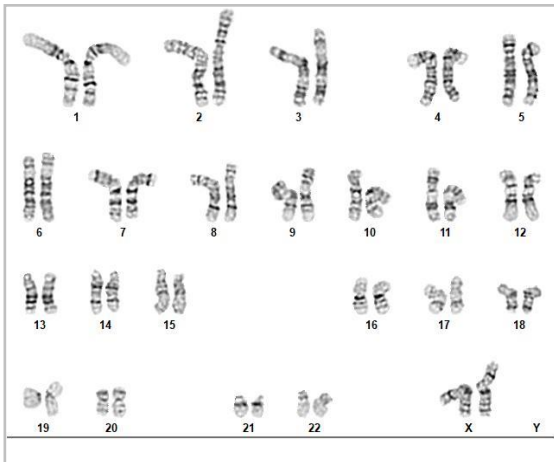
Submitted Passage #: 18

Date of Sample: 10/11/2021

Investigator: WiCell Stem Cell Bank, WiCell

Specimen: Human iPSC

Results: 46,XX



Cell: 36

Slide: G02

Slide Type: Karyotype

Total Counted: 20

Total Analyzed: 8

Total Karyogrammed: 4

Band Resolution: 400 - 475

Interpretation:

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

Completed by: Dawn Davis, CG(ASCP)

Reviewed and Interpreted by: Kaitlin C. Lenhart, Ph.D.

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: 04Oct21, 11Oct21

STR Amplification Date: 13Oct21

Form SOP-89.01

Version 7.0

Sample Name		PENN013i-72-1-DB35089 p16	PENN044i-51-1-DB36547 p18	PENN100i-623-3-DB36129 p15
Label on tube		89079	89080	89081
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	23	26	25
Matches*	See Matches Comments			
Comments				

**Note: The STR profile of the following sample is an exact match for the given sample/samples.*



Short Tandem Repeat

Requestor: WiCell Stem Cell Bank, WiCell

Samples Received: 04Oct21, 11Oct21

STR Amplification Date: 13Oct21

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 23-27 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 ~2-5%.

Matches: 88955 is an exact match to 88312, 88433, 88628, 88629, 88630, 88657, 88659, 88664, 88665, 88711, and to additional profiles. Additional matches available upon request.

10/14/2021	10/18/2021	10/15/2021
<p>X Molly Miles</p> <hr/> <p>Tech #1 Characterization Signed by: Miles, Molly</p>	<p>X Amber Kuhn</p> <hr/> <p>Tech #2 Characterization Signed by: Kuhn, Amber</p>	<p>X Dawn Graham</p> <hr/> <p>QA Review Quality Assurance Signed by: Graham Dawn</p>

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Raw data is available upon request.



Mycoplasma Assay Report

PCR-based assay performed by WiCell

WiCell
21Sep21

FORM SOP-83.01

Version 3.0

Sample Name	Result	Interpretation
PENN013i-72-1-DB35089 p14 (88710)	Negative	Band was not seen at 270bp, indicating the absence of mycoplasma.
PENN035i-746-3-DB36398 p14 (88709)	Negative	Band was not seen at 270bp, indicating the absence of mycoplasma.
PENN100i-623-3-DB36129 p13 (88708)	Negative	Band was not seen at 270bp, indicating the absence of mycoplasma.
PENN044i-51-1-DB36547 p16 (88707)	Negative	Band was not seen at 270bp, indicating the absence of mycoplasma.
PENN043i-633-3-DB35058 p15 (88706)	Negative	Band was not seen at 270bp, indicating the absence of mycoplasma.
PENN010i-486-2-DB34783 p21 (88705)	Negative	Band was not seen at 270bp, indicating the absence of mycoplasma.
Positive (+) Control	Positive	
Negative (-) Control	Negative	

9/21/2021

9/22/2021

9/23/2021

X Justin Hobson

Tech #1
Characterization
Signed by: Hobson, Justin

X Callum Walker

Tech #2
Characterization
Signed by: Walker, Callum

X Andy Arntz

QA Review
Quality Assurance
Signed by: Arntz, Andy

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A gel image is available upon request.

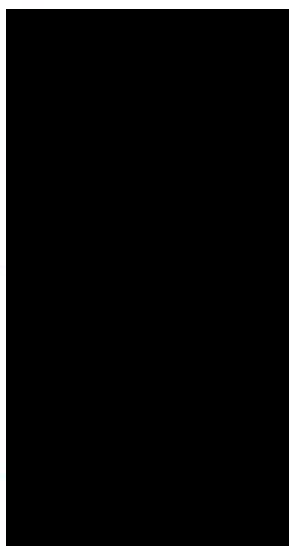
Native Product Sterility Report



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

SAMPLE #: 21090501
DATE RECEIVED: 09-Sep-21
TEST INITIATED: 13-Sep-21
TEST COMPLETED: 27-Sep-21

SAMPLE NAME / DESCRIPTION: PENN035i-746-3-DB36398
PENN043i-633-3-DB35058
PENN044i-51-1-DB36547
PENN100i-623-3-DB36129



CREM033i-SS49-1-DB48073

UNIQUE IDENTIFIER: N/A

TEST RESULTS:

# Tested	# Positives (Growth)	- Control
20	0	2 Negatives

TEST SUMMARY:

# Samples	Media Type	Volume (mL)	Incubation Temperature (° C)	Incubation Duration (Days)
20	TSB	40	20-25	14
20	FTG	40	30-35	14

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

PD #: 000053

TEST METHODOLOGY: USP - Direct Transfer

Native Product Sterility Report



COMMENTS: NA

REVIEWED BY

[Handwritten Signature]

DATE

28 SEP 2021

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.