



Certificate of Analysis

Thaw and Culture Details

Cell Line Name	PENN167i-M5-3	
WiCell Lot Number	DB34994	
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 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	p25 These cells were cultured for 25 passages prior to freeze and post colony picking. Therefore, plated cells at thaw should be labeled passage 26.	
Date Vialled	23-June-2015	
Vial Label	iPS-M5-PB Sev3 P25 06-23-15 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,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

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
20-Novemeber-2025	<div>11/20/2025</div> <div>X HEB</div> <div>HEB</div> <div>WiCell Quality Assurance</div> <div>Signed by: Bruner, Haley</div>

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: September 22, 2025

Cell Line: PENN167i-M5-3-DB34994

Submitted Passage #: 27

Date of Sample: 9/17/2025

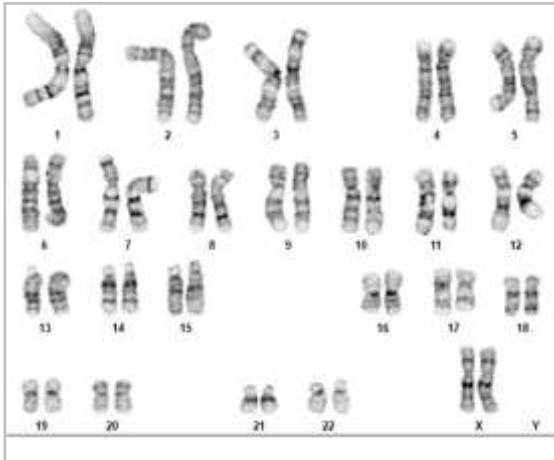
Specimen: Human IPSC

Results: 46,XX

Cell Line Sex: Female

Reason for Testing: LOT_RELEASE

Investigator: WiCell Stem Cell Bank, WiCell



Cell: 2

Slide: G01

Slide Type: Karyotype

Total Counted: 20

Total Analyzed: 8

Total Karyogrammed: 4

Band Resolution: 425 - 475

Interpretation:

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

Completed by: Davena Lira, CG(ASCP)

Reviewed and Interpreted by: Justin Schleede, PhD, FACMG

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
Sample Receipt Date: 18Sep25, 17Sep25, 16Sep25
STR Amplification Date: 23Sep25

Form SOP-89.01
Version 15.0

Sample Name	WA01-WB69061 p23	PENN167i-M5-3- DB34994 p27	CVCL_C7UV- WB69028 p52	WA01-WB69058 p22	WA01-WB69060 p23	WA14-WB69050 p20
WiCell CTR No. ¹	Identifying information has been redacted to protect donor confidentiality. If more information is required, please contact info@wicell.org					
FGA						
TPOX						
D8S1179						
vWA						
Amelogenin						
Penta_D						
CSF1PO						
D16S539						
D7S820						
D13S317						
D5S818						
Penta_E						
D18S51						
D21S11						
TH01						
D3S1358						
Allelic Polymorphisms	28	23	28	28	28	27
Matches ²	See Results		See Results	See Results	See Results	36299, 33113, 20303
Comments						

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

² The STR profile of the sample(s) listed are a 100% match for the given sample unless otherwise specified.



Short Tandem Repeat

Requestor: WiCell Stem Cell Bank, WiCell
Sample Receipt Date: 18Sep25, 17Sep25, 16Sep25
STR Amplification Date: 23Sep25

Form SOP-89.01
Version 15.0

Sample Name	WC-24-02-DS-P-WB69081 p17
WiCell CTR No. ¹	Identifying information has been redacted to protect donor confidentiality. If more information is required, please contact info@wicell.org
FGA	
TPOX	
D8S1179	
vWA	
Amelogenin	
Penta_D	
CSF1PO	
D16S539	
D7S820	
D13S317	
D5S818	
Penta_E	
D18S51	
D21S11	
TH01	
D3S1358	
Allelic Polymorphisms	28
Matches ²	See Results
Comments	

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

² The STR profile of the sample(s) listed are a 100% match for the given sample unless otherwise specified.



Short Tandem Repeat

Requestor: WiCell Stem Cell Bank, WiCell
Sample Receipt Date: 18Sep25, 17Sep25, 16Sep25
STR Amplification Date: 23Sep25

Form SOP-89.01
Version 15.0

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

Results: The genotypic profiles comprise a range of 23-28 allelic polymorphisms across the 15 STR loci analyzed. Samples 109171, 109118, and 109117 are a 100% match to each other and to 105103, 105671, 105203, 104962, 104606, 104361, 103887, 103763, 96463, 101599, and additional profiles. Sample 109158 is a 100% match to 108776, 108996, 108953, 108863, 108780, 108864, 108982, 108861, 108862, 108816, and additional profiles. Sample 109115 is a 100% match to 103592, 102657, 102115, 101953, 101596, 92525, and additional profiles. Sample 109115 is also a 93.33% match to 103288, 103130, 95322, 18976, and additional profiles. Additional matches can be provided upon request.

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 suggest 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%.

9/25/2025	9/25/2025	9/26/2025
X Steph Dos Santos	X Anna Lisa Larson	X Dawn Graham
Tech #1 Characterization Signed by: Dos Santos, Stephany	Tech #2 Characterization Signed by: Larson, Anna Lisa	QA Review Quality Assurance Signed by: Graham, Dawn

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
23Sep25

Form SOP-83.01
Version 7.0

Sample Name	Result	Interpretation
WA01-WB69061 p23 (109171)	Negative	Band was not seen at 270bp, indicating the absence of mycoplasma.
PENN167i-M5-3-DB34994 p27 (109159)	Negative	Band was not seen at 270bp, indicating the absence of mycoplasma.
CVCL_C7UV-WB69028 p52 (109158)	Negative	Band was not seen at 270bp, indicating the absence of mycoplasma.
CVCL_C7VD-WB69009 p39 (109139)	Negative	Band was not seen at 270bp, indicating the absence of mycoplasma.
WA01-WB69058 p22 (109118)	Negative	Band was not seen at 270bp, indicating the absence of mycoplasma.
WA01-WB69060 p23 (109117)	Negative	Band was not seen at 270bp, indicating the absence of mycoplasma.
WA14-WB69050 p20 (109116)	Negative	Band was not seen at 270bp, indicating the absence of mycoplasma.
WC-24-02-DS-P-WB69081 p17 (109115)	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).

9/23/2025	9/24/2025	9/24/2025
<div>X Dylan Peters</div> <div>Tech #1 Characterization Signed by: Peters, Dylan</div>	<div>X Steph Dos Santos</div> <div>Tech #2 Characterization Signed by: Dos Santos, Stephany</div>	<div>X Dawn Graham</div> <div>QA Review Quality Assurance Signed by: Graham, Dawn</div>

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

**CORRECTED
REPORT**

SAMPLE #: 21091676
DATE RECEIVED: 30-Sep-21
TEST INITIATED: 01-Oct-21
TEST COMPLETED: 15-Oct-21

SAMPLE NAME / DESCRIPTION: WC034i-SOD1-D90A-WB67762
WC035i-SOD1-D90D-WB67763
NDO.SS.019-WB67773
PENN081i-352-4-DB35147
PENN082i-562-6-DB36109
PENN083i-679-4-DB36305
PENN084i-555-2-DB35115
PENN085i-76-5-DB36325
PENN069i-60-1-DB35123
PENN167i-M5-3-DB34994

UNIQUE IDENTIFIER: N/A

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: Report revised due to updated Sample/Name Description.

REVIEWED BY Amin Buckhard

DATE 18Oct2021

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.