




Certificate of Analysis

Thaw and Culture Details

Cell Line Name	PENN029i-752-3	
WiCell Lot Number	WB68199	
Parent Material	PENN029i-752-3-DB36392	
Provider/Client	University of Pennsylvania – Dr. Daniel Rader	
Banked By	WiCell	
Thaw and Culture Recommendations	WiCell recommends thawing 1 vial into 2 wells of a 6 well plate using Stem Cell Culture Medium and MEF.	
Protocol	WiCell Feeder Based (MEF) Pluripotent Stem Cell Protocol	
Culture Platform Prior to Freeze	Medium: Stem Cell Culture Medium	Matrix: MEF
Passage Number	p19 Cells were cultured for 18 passages prior to freeze and post colony selection. Plated cells at thaw should be labeled passage 19.	
Date Vial	30-OCTOBER-2023	
Vial Label	PENN029i-752-3 p19 WB68199 Store at -135C or colder Made in United States Research Use Only 	
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.	



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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
	<p>Results: 46,XY Nonclonal findings: 46,XY,del(7)(q34) Interpretation: This is a normal karyotype; no clonal abnormalities were detected at the stated band level of resolution. There is a nonclonal finding, listed above. Nonclonal findings may result from technical artifact, but may be due to a developing clonal abnormality or to low-level mosaicism.</p>			
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™	Consistent with STR profile of donor material	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



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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.

- Flow Cytometry (Tra1-60 and SSEA-4)
- Differentiation into hepatocytes

Approval Date	WiCell Quality Assurance Approval
17-September-2024	<div>9/17/2024</div> <div>X <small>DLG</small></div> <div><small>DLG</small></div> <div><small>WiCell Quality Assurance</small></div> <div><small>Signed by: Graham, Dawn</small></div>

Date Reported: Monday, December 4, 2023

Cell Line: PENN029i-752-3-WB68199

Submitted Passage #: 21

Date of Sample: 11/21/2023

Specimen: Human IPSC

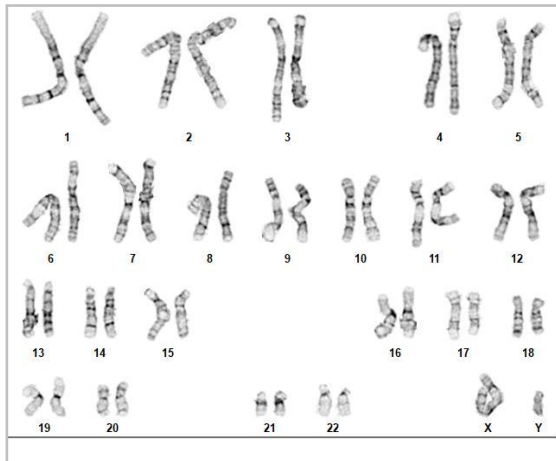
Results: 46,XY

Cell Line Sex: Male

Reason for Testing: LOT_RELEASE

Investigator: WiCell Stem Cell Bank, WiCell

Nonclonal findings: 46,XY,del(7)(q34)



Cell: 21

Slide: G01

Slide Type: Karyotype

Total Counted: 20

Total Analyzed: 8

Total Karyogrammed: 4

Band Resolution: 450 - 500

Interpretation:

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

There is a nonclonal finding, listed above. Nonclonal findings may result from technical artifact, but may be due to a developing clonal abnormality or to low-level mosaicism.

Completed by: Korrine Thornell, CG(ASCP)

Reviewed and Interpreted by: Vanessa Horner, 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.



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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.

- Flow Cytometry (Tra1-60 and SSEA-4)
- Differentiation into hepatocytes
- Infinium® Expanded Multi-Ethnic Genotyping Array (MEGAEX)

Approval Date	WiCell Quality Assurance Approval
11-January-2024	<div>1/11/2024</div> <div>X HEB</div> <div>HEB</div> <div>WiCell Quality Assurance</div> <div>Signed by: Bruner, Haley</div>



Short Tandem Repeat

Requestor: WiCell Stem Cell Bank, WiCell

Samples Received: 21Nov23

STR Amplification Date: 28Nov23

Form SOP-89.01

Version 11.0

Sample Name	PENN029i-752-3-WB68199 p21	WA-AICS-0023-WB68203 p31
WiCell CTR No. ¹	99745	99744
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	26	29
Matches*	70876	
Comments		Potential Loss of Y

**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: 21Nov23

STR Amplification Date: 28Nov23

Form SOP-89.01

Version 11.0

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 26-29 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%.

Potential loss of Y: No Y chromosome was detected for sample 99744 resulting in a discrepancy from G-band karyotyping performed on same material. This could be the result of dropout allele, change on Y-chromosome impacting amplification of AMELY (null allele) or indicate a mismatched sample.

11/30/2023	11/30/2023	11/30/2023
X Amber Kuhn	X Anna Lisa Larson	X Ryen Smith
Tech #1	Tech #2	QA Review
Characterization	Characterization	Quality Assurance
Signed by: Kuhn, Amber	Signed by: Larson, Anna Lisa	Signed by: Smith, Ryen

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Mycoplasma Assay Report

PCR-based assay performed by WiCell
WiCell Stem Cell Bank, WiCell
30Nov23

Form SOP-83.01
Version 5.0

Sample Name	Result	Interpretation
PENN029i-752-3-WB68199 p21 (99745)	Negative	Band was not seen at 270bp, indicating the absence of mycoplasma.
WA-AICS-0023-WB68203 p31 (99744)	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).

11/30/2023	11/30/2023	12/1/2023
X Amber Kuhn	X Michael Mussar	X Dawn Graham
Tech #1 Characterization Signed by: Kuhn, Amber	Tech #2 Characterization Signed by: Mussar, Michael	QA Review Quality Assurance Signed by: Graham, Dawn

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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 #: 23120703
DATE RECEIVED: 15-Dec-23
TEST INITIATED: 15-Dec-23
TEST COMPLETED: 29-Dec-23

SAMPLE NAME / DESCRIPTION: UCSD087i-6-4-WB68222
WA-AICS-0046-051-WB68220
WA-AICS-0053-016-WB68221
WA-AICS-0058-067-WB68225
WA-AICS-0060-027-WB68223
WA-AICS-0023-WB68203
PENNO29i-752-3-WB68199
H1 SOX2-Cherry-2A-C.2-WB68198
STAN249i-617C2-WB68196
H1 SOX2-Cherry-2A-C.2-WB68197
UCSD012i-5-5-WB68191
UCSD087i-6-4-WB68192
WA09-WB68167
WA09-WB68168
WA09-WB68169

UNIQUE IDENTIFIER: N/A

TEST RESULTS:

# Tested	# Positives (Growth)	- Control
15	0	2 Negatives

TEST SUMMARY:

# Samples	Media Type	Volume (mL)	Incubation Temperature (° C)	Incubation Duration (Days)
15	TSB	40	20-25	14
15	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: Sample #23120703

AUTHORIZED BY _____

A handwritten signature in blue ink, consisting of a circular loop followed by a horizontal stroke and a diagonal line extending upwards and to the right.

DATE 03 JAN 2024

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.