



Certificate of Analysis

Thaw and Culture Details

Cell Line Name	PENN008i-77-5	
WiCell Lot Number	DB36507	
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	p12 Cells were cultured for 12 passages prior to freeze and post colony selection. Plated cells at thaw should be labeled passage 13.	
Date Vialied	18-July-2015	
Vial Label	iPS-77-1638 SEV5 P12 7/18/2015 ZL	
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

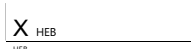
Results

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
01-December-2022	<div style="text-align: right;">12/1/2022</div>  <small>HEB WiCell Quality Assurance Signed by Bruner, Haley</small>

Date Reported: Wednesday, November 23, 2022

Cell Line Sex: Male

Cell Line: PENN008i-77-5-DB36507

Reason for Testing: LOT_RELEASE

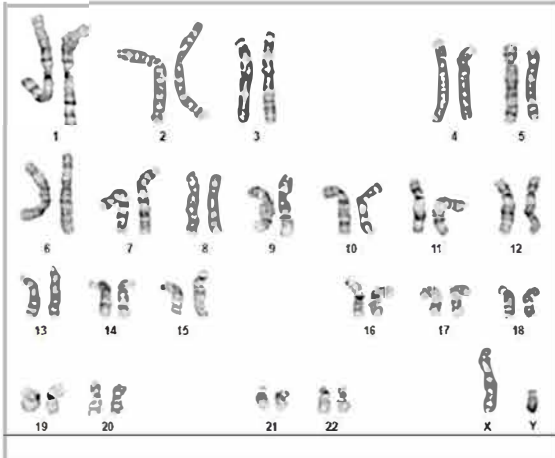
Submitted Passage #: 14

Date of Sample: 11/2/2022

Investigator: WiCell Stem Cell Bank, WiCell

Specimen: Human IPSC

Results: 46,XY



Cell: 14

Slide: G03

Slide Type: Karyotype

Total Counted: 20

Total Analyzed: 8

Total Karyogrammed: 4

Band Resolution: 400 - 450

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: 02Nov22, 03Nov22, 04Nov22
STR Amplification Date: 07Nov22

Form SOP-89.01
Version 9.0

Sample Name	CBiPS-6.13-PCBC-WB68020 p33	STAN036i-49-2-DB30900 p12	PENN008i-77-5-DB36507 p14	PENN018i-487-4-DB35031 p17
WiCell CTR No. ¹	94621	94593	94588	94587
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	28	26	29
Matches*	77507, 76855, 76813			
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: 02Nov22, 03Nov22, 04Nov22
STR Amplification Date: 07Nov22

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%.

11/17/2022	11/18/2022	11/17/2022
<p>X Amber Kuhn</p> <hr/> <p>Tech #1 Characterization Signed by: Kuhn, Amber</p>	<p>X Anna Lisa Larson</p> <hr/> <p>Tech #2 Characterization Signed by: Larson, Anna Lisa</p>	<p>X Hunter Hefti</p> <hr/> <p>QA Review Quality Assurance Signed by: Hefti, Hunter</p>

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Mycoplasma Assay Report

PCR-based assay performed by WiCell
WiCell Stem Cell Bank, WiCell
04Nov22

Form SOP-83.01
Version 5.0

Sample Name	Result	Interpretation
STAN036i-49-2-DB30900 p12 (94593)	Negative	Band was not seen at 270bp, indicating the absence of mycoplasma.
PENN008i-77-5-DB36507 p14 (94588)	Negative	Band was not seen at 270bp, indicating the absence of mycoplasma.
PENN018i-487-4-DB35031 p17 (94587)	Negative	Band was not seen at 270bp, indicating the absence of mycoplasma.
CBiPS-6.13-PCBC-WB68020 p33 (94621)	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).

11/4/2022	11/8/2022	11/10/2022
X Julia Graham Tech #1 Characterization Signed by: Graham, Julia	X Justin Hobson Tech #2 Characterization Signed by: Hobson, Justin	X Hunter Hefti QA Review Quality Assurance Signed by: Hefti, Hunter

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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 #: 19102854
DATE RECEIVED: 31-Oct-19
TEST INITIATED: 11-Nov-19
TEST COMPLETED: 25-Nov-19

SAMPLE NAME / DESCRIPTION: STAN100i-108C4 WB67324 15096
WC058i-108-1-2-16 WB67325 15097
STAN255i-649C1 DB44436 15098
STAN256i-649C2 DB44439 15099
PENN005i-35-3 DB36317 15100
PENN006i-149-1 DB36519 15101
PENN007i-765-3 DB36286 15102
PENN008i-77-5 DB36507 15103
PENN012i-93-2 DB34713 15104
PENN013i-72-1 DB35089 15105

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

26 NOV 19

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.