



Certificate of Analysis

Thaw and Culture Details

| | | |
|----------------------------------|--|-------------|
| Cell Line Name | PENN003i-661-4 | |
| WiCell Lot Number | DB36301 | |
| 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 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 | 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 | 05-MAY-2015 | |
| Vial Label | iPS-661 SEV4 P12 5/5/2015 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 (MEGAEX)

| Approval Date | WiCell Quality Assurance Approval |
|------------------|---|
| 03-November-2022 | <div style="text-align: right; font-size: small;">11/3/2022</div> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;"> X HEB </div> <div style="font-size: x-small; margin-top: 2px;"> HEB WiCell Quality Assurance Signed by: Bruner, Haley </div> |

Date Reported: Friday, June 24, 2022

Cell Line: PENN003i-661-4-DB36301

Submitted Passage #: 15

Date of Sample: 6/14/2022

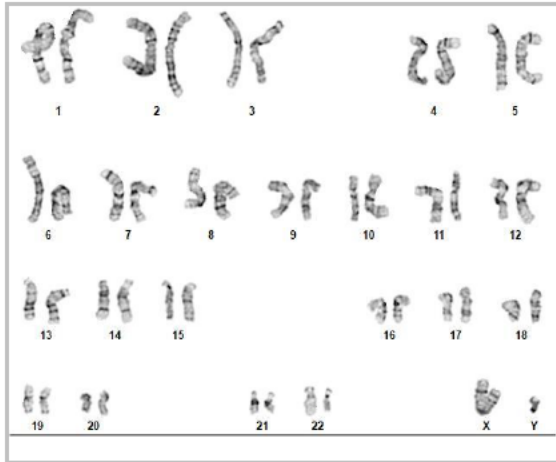
Specimen: Human iPSC

Results: 46,XY

Cell Line Sex: Male

Reason for Testing: LOT_RELEASE

Investigator: WiCell Stem Cell Bank, WiCell



Cell: 50

Slide: G01

Slide Type: Karyotype

Total Counted: 20

Total Analyzed: 9

Total Karyogrammed: 5

Band Resolution: 425 - 450

Interpretation:

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

Completed by: Jennifer Pecos, CG(ASCP)

Reviewed and Interpreted by: Kaitlin C. Lenhart, 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

Form SOP-89.01

Version 8.0

Requestor: WiCell Stem Cell Bank, WiCell

Samples Received: 16Jun22, 15Jun22, 14Jun22, 13Jun22

STR Amplification Date: 22Jun22

| Sample Name | STAN220i-504C2-DB35478 p15 | STAN256i-649C2-DB44439 p15 | WIZ03e-H9CAGhM3Dq-WB67889 p43 | STAN223i-509C3-DB44168 p14 | STAN222i-509C2-DB44165 p14 | STAN255i-649C1-DB44436 p15 | PENN003i-661-4-DB36301 p15 |
|-----------------------|--|--------------------------------|-------------------------------|--------------------------------|----------------------------|--------------------------------|----------------------------|
| Label on tube | 92557 | 92556 | 92553 | 92545 | 92544 | 92501 | 92500 |
| 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 | 28 | 26 | 24 | 28 | 28 | 26 | 25 |
| Matches* | | 92501 | See Matches Comment | 92544 | 92545 | 92556 | |
| Comments | | ¹ Allelic Imbalance | | ² Allelic Imbalance | | ¹ Allelic Imbalance | |

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



Short Tandem Repeat

Form SOP-89.01

Version 8.0

Requestor: WiCell Stem Cell Bank, WiCell

Samples Received: 16Jun22, 15Jun22, 14Jun22, 13Jun22

STR Amplification Date: 22Jun22

| | |
|------------------------------|--|
| Sample Name | WIC-WA09-MB-002 p27 |
| Label on tube | 92481 |
| 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 | 24 |
| 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

Form SOP-89.01

Version 8.0

Requestor: WiCell Stem Cell Bank, WiCell

Samples Received: 16Jun22, 15Jun22, 14Jun22, 13Jun22

STR Amplification Date: 22Jun22

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 24-28 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: Samples 92553 and 92481 are 100% match to each other and to 84552, 84553, 84656, 84930, 84931, 84932, 86113, 89607, 90917, 90918 and additional profiles. Additional matches can be provided upon request.

¹Allelic Imbalance: Allelic imbalance was observed in sample 92556 and 92501 at the Amelogenin loci. This could be the result of chromosomal gains, losses, and/or amplifications in the cell line.

²Allelic Imbalance: Allelic imbalance was observed in sample 92545 at the vWA loci. This could be the result of chromosomal gains, losses, and/or amplifications in the cell line.

| | | |
|--|---|---|
| 6/28/2022 | 6/28/2022 | 6/28/2022 |
| X Molly Miles | X Anna Lisa Larson | X Dawn Graham |
| Tech #1 Characterization Signed by: Miles, Molly | Tech #2 Characterization Signed by: Larson, Anna Lisa | QA Review Quality Assurance Signed by: Graham, Dawn |



Short Tandem Repeat

Form SOP-89.01

Version 8.0

Requestor: WiCell Stem Cell Bank, WiCell

Samples Received: 16Jun22, 15Jun22, 14Jun22, 13Jun22

STR Amplification Date: 22Jun22

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Raw data is available upon request.



Mycoplasma Assay Report

PCR-based assay performed by WiCell
WiCell Stem Cell Bank, WiCell
17Jun22

Form SOP-83.01
Version 5.0

| Sample Name | Result | Interpretation |
|---------------------------------------|----------|---|
| WIZ03e-H9CAGhM3Dq-WB67889 p43 (92553) | Negative | Band was not seen at 270bp, indicating the absence of mycoplasma. |
| STAN223i-509C3-DB44168 p14 (92545) | Negative | Band was not seen at 270bp, indicating the absence of mycoplasma. |
| STAN222i-509C2-DB44165 p14 (92544) | Negative | Band was not seen at 270bp, indicating the absence of mycoplasma. |
| WC-24-02-DS-M-WB67887 p14 (92525) | Negative | Band was not seen at 270bp, indicating the absence of mycoplasma. |
| STAN255i-649C1-DB44436 p15 (92501) | Negative | Band was not seen at 270bp, indicating the absence of mycoplasma. |
| PENN003i-661-4-DB36301 p15 (92500) | 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). |

| | | |
|--|--|---|
| 6/17/2022 | 6/20/2022 | 6/20/2022 |
| X Julia Graham <hr/> Tech #1 Characterization Signed by: Graham, Julia | X Amber Kuhn <hr/> Tech #2 Characterization Signed by: Kuhn, Amber | X Dawn Graham <hr/> 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 #: 19100858
DATE RECEIVED: 10-Oct-19
TEST INITIATED: 16-Oct-19
TEST COMPLETED: 30-Oct-19

SAMPLE NAME / DESCRIPTION: WC059i-108-1-2-19 WB67322 15075
WC057i-108-1-2-02 WB67323 15076
PENN003i-661-4 DB36301 15058
PENN004i-277-1 DB36075 15059
SCR8401i DB43123 15048
SCR9602i DB43150 15049
MCW030i-A2688 WB67307 15050
MCW020i-A2023 WB67311 15054
WC024i-FXS-Nluc1 WB67318 15055
WC053i-FX08-25 WB67320 15057

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 31 OCT 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.