

Thaw and Culture Details

| Cell Line Name | MCW056i-U7076 | | | |
|-------------------------------------|---|--|--|--|
| WiCell Lot Number | WB67392 | | | |
| Parent Material | MCW056i-U7076-DB66385 | | | |
| Provider | Medical College of Wisconsin – Laboratory of Dr. Ulrich Broeckel | | | |
| Banked By | WiCell | | | |
| Thaw and Culture Recommendations | WiCell recommends thawing 1 vial into 3 wells of a 6 well plate. | | | |
| Culture Platform Feeder Independent | | | | |
| | Medium: TeSR [™] -E8 [™] | | | |
| | Matrix: Matrigel® | | | |
| Protocol | WiCell Feeder Independent E8 Medium Protocol | | | |
| Passage Number | p15 These cells were cultured for 14 passages prior to freeze and post colony selection. WiCell adds +1 to the passage number at freeze to best represent the overall passage number of the cells at thaw. Plated cells at thaw should be labeled passage 15. | | | |
| Date Vialed | 23-January-2020 | | | |
| Vial Label | MCW056i-U7076 p15 WB67392 | | | |
| 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. | | | |

Testing Performed by WiCell

| Test Description | Test Provider | Test Method | Test Specification | Result |
|-----------------------------------|---|---|--|------------|
| Karyotype by G-banding | WiCell | SOP-CH-003 | Expected karyotype | See Report |
| Post-Thaw Viable Cell Recovery | WiCell | SOP-CH-305 | ≥ 15 Undifferentiated Colonies prior to passage, ≤ 30% Differentiation prior to passage, and recoverable attachment after passage | Pass |
| Identity by STR | UW Translational Research Initiatives in Pathology Laboratory | PowerPlex 16 HS System by Promega | Defines STR profile of deposited cell line | Pass |
| Sterility | Steris | ST/07 | Negative | Pass |
| Mycoplasma | WiCell | SOP-CH-044 | Negative | Pass |

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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.



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.

- Tra1-60 marker expression
- mRNA expression by qPCR
- Infinium[®] Expanded Multi-Ethnic Genotyping Array (MEGA^{EX})

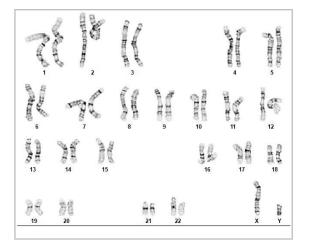
| Approval Date | Quality Assurance Approval |
|---------------|---|
| 12-March-2020 | 3/12/2020 X JKG XG Gaality Assurance Signed by Gay, Jenna |

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Date Reported: Friday, February 14, 2020 Cell Line: MCW056i-U7076-WB67392 Passage#: 15 Date of Sample: 2/6/2020 Specimen: Human IPSC Results: 46,XY Cell Line Sex: Male Reason for Testing: LOT_RELEASE

Investigator: WiCell CDM, WiCell



Cell: 11 Slide: G02 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:
 _________, CG(ASCP)

 Reviewed and Interpreted by:
 _____________, PhD, FACMG

 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 or effect.



TRIP Laboratory (Molecular)

(608) 265-9168

Sample Report:

Short Tandem Repeat Analysis



characterization@wicell.org (608) 316-4145

Receive Date: 02/11/20 **Report Sent: 02/14/20** Assav Date: 02/11/20 File Name: STR 200212 wmr

Report Date: 02/17/20

Characterization Department

MCW056i-U7076-WB67392 p.15 D01 (80268) WiCell Research Institute Sample Name on Tube: MCW056i-U7076-WB67392 p.15 D01 (80268) 53.6 ng/ μ L, (A260/280=1.61)

Department of Pathology and Laboratory Medicine

https://research.pathology.wisc.edu/trip-home/

Sample Type: DNA Cell Count: N/A

| STR Locus | STR Genotype Repeat # | STR Genotype |
|------------|---|---------------------------------------|
| FGA | 16–18,18.2,19,19.2,20,20.2,21,21.2,22, 22.2, 23, 23.2, 24, 24.2, 25, 25.2, 26–30, 31.2, 43.2, 44.2,45.2, 46.2 | Identifying information has |
| TPOX | 6-13 | been redacted to |
| D8S1179 | 7-18 | protect donor |
| vWA | 10-22 | confidentiality. If |
| Amelogenin | X,Y | more information |
| Penta_D | 2.2, 3.2, 5, 7-17 | is required, |
| CSF1PO | 6-15 | please, contact WiCell's Technical |
| D16S539 | 5, 8-15 | Support. |
| D7S820 | 6-14 | |
| D13S317 | 7-15 | |
| D5S818 | 7-16 | |
| Penta_E | 5-24 | |
| D18S51 | 8-10, 10.2, 11-13, 13.2, 14-27 | |
| D21S11 | 24,24.2,25,25.2,26-28,28.2,29,29.2, 30, 30.2,31, 31.2,32,32.2,33,33.2, 34,34.2,35,35.2,36-38 | |
| TH01 | 4-9,9.3,10-11,13.3 | |
| D3S1358 | 12-20 | |

Results: Based on the MCW056i-U7076-WB67392 p.15 D01 (80268) DNA submitted by WiCell Characterization Department dated and received on 02/10/20, this sample (Label on Tube: MCW056i-U7076-WB67392 p.15 D01 (80268)) defines the STR profile of the human cell line MCW056i-U7076 comprising 30 allelic polymorphisms across the 15 STR loci analyzed.

Interpretation: No STR polymorphisms other than those corresponding to the human MCW056i-U7076 cell line were detected and 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. This result suggests that the MCW056i-U7076-WB67392 p.15 D01 (80268) sample submitted corresponds to the MCW056i-U7076 cell line and was not contaminated with any other human stem 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%.

| X RMB Digitally Signed on 02/17/20 | X WMR Digitally Signed on 02/17/20 |
|---|---|
| , BA TRIP Laboratory, Molecular | , PhD, Director / Co-Director UWHC Molecular Diagnostics Laboratory / UWSMPH TRIP Laboratory |
| Testing was accomplished by analysis of human genetic polymorphisms at STR loci. Th | is methodology has not yet been approved by the FDA and is for investigational use only. |

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Requestor:

Native Product Sterility Report



| WiCell 504 S Rosa Road, Rm 101 Madison, WI 53719 | CORRECTED REPORT | SAMPLE #: DATE RECEIVED: TEST INITIATED: TEST COMPLETED: | 20021177 20-Feb-20 21-Feb-20 06-Mar-20 |
|--|---|--|---|
| SAMPLE NAME / DESCRIPTI | ON: WC070i-335-1-2-30 JHU206i MCW056i-U7076 MCW018i-A2868 MCW024i-A3263 MCW046i-U2346 STAN205i-448C2 STAN120i-192C2 MCW054i-U2073 MCW054i-U2073 MCW058i-U2082 MCW062i-U2157 MCW072i-40001708 MCW099i-40000558 MIN09i-33114.C MCW051i-40001166 MCW079i-40001456 MCW055i-U2054 MCW098i-40002583 STAN206i-459C1 STAN130i-212C4 | WB67391 WB67393 WB67392 WB67397 WB67398 WB67396 WB67399 WB67406 WB67407 WB67408 WB67408 WB67410 WB67410 WB67413 WB67411 WB67412 WB67414 WB67414 WB67416 WB67417 WB67418 WB67415 | |
| | | | |

UNIQUE IDENTIFIER:

NA

| TEST RESULTS: | # Tested | # Positives (Growth) | - Control |
|---------------|----------|-------------------------|-------------|
| | 20 | 0 | 3 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 |

Native Product Sterility Report



REFERENCE:

Processed according to LAB-003: Sterility Test Procedure

PD #:

000053

TEST METHODOLOGY:

USP - Direct Transfer

COMMENTS: Sample #2

Sample #20021177

Report revised due to Customer request to update sample name.

REVIEWED BY

DATE OMARZOZD

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.



Mycoplasma Assay Report

PCR-based assay performed by WiCell WiCell 05Feb20

| Sample Name | Result | Comments/Suggestions |
|----------------------------------|----------|---|
| MCW062i-U2157-DB66356 (80193) | Negative | Band was not seen at 270bp, indicating the absence of mycoplasma. |
| MCW072i-40001708-DB66366 (80194) | Negative | Band was not seen at 270bp, indicating the absence of mycoplasma. |
| MCW079i-40001456-DB66373 (80195) | Negative | Band was not seen at 270bp, indicating the absence of mycoplasma. |
| WC024i-FXS-Nluc1-WB67318 (80197) | Negative | Band was not seen at 270bp, indicating the absence of mycoplasma. |
| MCW056i-U7076-WB67392 (80198) | Negative | Band was not seen at 270bp, indicating the absence of mycoplasma. |
| WC005i-FX11-7-WB67289 (80199) | Negative | Band was not seen at 270bp, indicating the absence of mycoplasma. |
| MCW102i-UR117-DB66410 (80200) | Negative | Band was not seen at 270bp, indicating the absence of mycoplasma. |
| MCW099i-40000558-DB66407 (80201) | Negative | Band was not seen at 270bp, indicating the absence of mycoplasma. |
| JHU206i-WB67393 (80212) | Negative | Band was not seen at 270bp, indicating the absence of mycoplasma. |
| INC288 03Feb20KR (80202) | Negative | Band was not seen at 270bp, indicating the absence of mycoplasma. |
| INC149 03Feb20AP (80213) | Negative | Band was not seen at 270bp, indicating the absence of mycoplasma. |
| Positive (+) Control | Positive | |
| Negative (-) Control | Negative | |

Reported by: Katie Remondini, Cell Culture Specialist Reviewed by: Alex Paguirigan, Assistant Cell Culture Specialist

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A gel image is available upon request.