

Product Information

Product Name	iPS DF19-9-11T.H
Alias	iPS-DF19-9-11T
Lot Number	DF19-9-11T.H-MCB-01
Depositor	University of Wisconsin – Laboratory of Dr. James Thomson
Banked by	WiCell
Thaw Recommendation	Thaw 1 vial into 1 well of a 6 well plate
Culture Platform	Feeder Independent
	Medium: mTeSR1
	Matrix: Matrigel
Protocol	WiCell Feeder Independent Protocol
Passage Number	p24 These cells were cultured for 23 passages prior to freeze. WiCell adds +1 to the passage number at freeze so that the number on the vial best represents the overall passage number of the cells at thaw.
Date Vialled	06-June-2009
Vial Label	DF19-9-11T.H P24 JY EDTA 06 JUNE 2009 SOPCC038A
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
Post-Thaw Viable Cell Recovery	WiCell	SOP-CH-305	≥ 15 Undifferentiated Colonies, ≤ 30% Differentiation	Pass
Identity by STR	UW Molecular Diagnostics Laboratory	PowerPlex 1.2 System by Promega	Consistent with known profile	Pass
Sterility - Direct transfer method	Apptec	30744	Negative	Pass
Mycoplasma	Bionique	M250	No contamination detected	Pass
Karyotype by G-banding	WiCell	SOP-CH-003	Normal karyotype	Pass

Amendment(s):

Reason for Amendment	Date
CoA updated to include copyright information.	See signature
CoA updated for format changes, including adding fields of thaw recommendation, vial label, protocol, and banked by.	01-JUL-2013
CoA updated for clarification of test specifications and lot number, and removed text regarding technical services and iPS cells	05-OCT-2010
CoA updated for format changes, clarification of test specifications, test method, addition of test provider, culture platform, and electronic signature, and reference to WiCell instead of the NSCB	20-AUG-2010
Original CoA	02-NOV-2009

Date of Lot Release	Quality Assurance Approval
02-November-2009	<p style="text-align: right;">12/31/2013</p> <p>X AMC</p> <hr/> <p>AMC Quality Assurance Signed by [REDACTED]</p>

Short Tandem Repeat Analysis*

Sample Report: 4852-STR

UW HLA#: 61566

Sample Date: 08/25/09
Received Date: 08/25/09

Requestor: WiCell Research Institute
Test Date: 09/04/09

File Name: 090905

Report Date: 09/14/09

Sample Name: (label on tube) 4852-STR

Description: DNA Extracted by WiCell

245.16 ug/mL; 260/280 = 1.96

Locus	Repeat #	STR Genotype
D16S539	5, 8-15	Identifying information has been redacted to protect donor confidentiality. If more information is required, please, contact WiCell's Technical Support .
D7S820	6-14	
D13S317	7-15	
D5S818	7-15	
CSF1PO	6-15	
TPOX	6-13	
Amelogenin	NA	
TH01	5-11	
vWA	11, 13-21	

Comments: Based on the DNA 4852-STR dated and received on 08/25/09 from WI Cell, this sample (UW HLA# 61566) matches exactly the STR profile of the human stem cell line iPS FORESKIN comprising 15 allelic polymorphisms across the 8 STR loci analyzed. No STR polymorphisms other than those corresponding to the human iPS FORESKIN stem 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. These results suggest that the 4852-STR DNA sample submitted corresponds to the iPS FORESKIN stem cell line and it was not contaminated with any other human stem cells or a significant amount of mouse feeder layer cells. Sensitivity limits for detection of STR polymorphisms unique to either this or other human stem cell lines is ~5%.

^

[Signature]

Manager Date

HLA/Molecular Diagnostics Laboratory

[Signature]
09/14/09

PhD, Director Date

HLA/Molecular Diagnostics Laboratory

* Testing to assess engraftment following bone marrow transplantation was accomplished by analysis of human genetic polymorphisms at STR loci. This methodology has not yet been approved by the FDA and is for investigational use only.

Test Facility:

This report is confidential. No part may be used for advertising or public announcement without written permission. Results apply only to the sample(s) tested.



Report Number
815300
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WiCell Research Institute

August 27, 2009
P.O. #:

Attn: Quality Assurance

STERILITY TEST REPORT

Sample Information: hES Cells
3: DF19-9-11T.H WISC #8115

Date Received: August 04, 2009
Date in Test: August 05, 2009
Date Completed: August 19, 2009

Test Information: Test Codes: 30744, 30744A
Immersion, USP / 21 CFR 610.12
Procedure #: BS210WCR.201

TEST PARAMETERS	PRODUCT	
Approximate Volume Tested	0.5 mL	0.5 mL
Number Tested	2	2
Type of Media	SCD	FTM
Media Volume	400 mL	400 mL
Incubation Period	14 Days	14 Days
Incubation Temperature	20 °C to 25 °C	30 °C to 35 °C
RESULTS	2 NEGATIVE	2 NEGATIVE

Page 1 Signed

QA Reviewer

Date

Page 1 Signed

Technical Reviewer

Date

Testing conducted in accordance with current Good Manufacturing Practices.





APPENDIX IV

Document#: DCF3013D
Edition#: 10
Effective Date: 07/15/2003
Title: **M-250 FINAL REPORT SHEET**

M-250 FINAL REPORT

Direct Specimen Culture
Procedure 3008, 3011, 3013

TO: **Wicell QA**

BTL SAMPLE ID#: **58169**

P.O.#:

DATE REC'D: 07/29/2009

TEST/CONTROL ARTICLE:

DF19-9-11T.H

LOT#: # 4852

DIRECT CULTURE SET-UP (DAY 0)
INDICATOR CELL LINE (VERO)

DATE: 07/29/2009

SEE DNA FLUOROCHROME RECORD SHEET

THIOGLYCOLLATE BROTH

DAY 7 + ⊖ 08/05/2009

DAY 28 + ⊖ 08/26/2009

BROTH-FORTIFIED COMMERCIAL

0.5 mL SAMPLE

DAY 7 + ⊖ 08/05/2009

6.0 mL BROTH

DAY 28 + ⊖ 08/26/2009

BROTH-MODIFIED HAYFLICK

0.5 mL SAMPLE

DAY 7 + ⊖ 08/05/2009

6.0 mL BROTH

DAY 28 + ⊖ 08/26/2009

BROTH-HEART INFUSION

0.5 mL SAMPLE

DAY 7 + ⊖ 08/05/2009

6.0 mL BROTH

DAY 28 + ⊖ 08/26/2009

(See Reverse)

Document#: DCF3013D
 Edition#: 10
 Effective Date: 07/15/2003
 Title: M-250 FINAL REPORT SHEET

SAMPLE ID#:	58169	AEROBIC	MICROAEROPHILIC	DATE
AGAR PLATES-FORTIFIED COMMERCIAL	DAY 7	+ ⊖	+ ⊖	<u>08/05/2009</u>
	DAY 14	+ ⊖	+ ⊖	<u>08/12/2009</u>
	DAY 21	+ ⊖	+ ⊖	<u>08/19/2009</u>
AGAR PLATES-MODIFIED HAYFLICK	DAY 7	+ ⊖	+ ⊖	<u>08/05/2009</u>
	DAY 14	+ ⊖	+ ⊖	<u>08/12/2009</u>
	DAY 21	+ ⊖	+ ⊖	<u>08/19/2009</u>
AGAR PLATES-HEART INFUSION	DAY 7	+ ⊖	+ ⊖	<u>08/05/2009</u>
	DAY 14	+ ⊖	+ ⊖	<u>08/12/2009</u>
	DAY 21	+ ⊖	+ ⊖	<u>08/19/2009</u>

BROTH SUBCULTURES (DAY 7)DATE: 08/05/2009

AGAR PLATES-FORTIFIED COMMERCIAL	DAY 7	+ ⊖	+ ⊖	<u>08/12/2009</u>
	DAY 14	+ ⊖	+ ⊖	<u>08/19/2009</u>
	DAY 21	+ ⊖	+ ⊖	<u>08/26/2009</u>
AGAR PLATES-MODIFIED HAYFLICK	DAY 7	+ ⊖	+ ⊖	<u>08/12/2009</u>
	DAY 14	+ ⊖	+ ⊖	<u>08/19/2009</u>
	DAY 21	+ ⊖	+ ⊖	<u>08/26/2009</u>
AGAR PLATES-HEART INFUSION	DAY 7	+ ⊖	+ ⊖	<u>08/12/2009</u>
	DAY 14	+ ⊖	+ ⊖	<u>08/19/2009</u>
	DAY 21	+ ⊖	+ ⊖	<u>08/26/2009</u>

RESULTS: No detectable mycoplasmal contamination

Date

8/16/09

 Laboratory Director

Ph.D.

M-250 Procedural Summary: The objective of this test is to ascertain whether or not detectable mycoplasmas are present in an *in vitro* cell culture sample, be it a primary culture, hybridoma, master seed stock or cell line. This procedure combines an indirect DNA staining approach to detect non-cultivable mycoplasmas with a direct culture methodology utilizing three different mycoplasmal media formulations. The indirect approach involves the inoculation of the sample into a mycoplasma-free VERO (ATCC) indicator cell line and performing a DNA fluorochrome assay after 72-120 hours of incubation. The direct culture aspect of the test utilizes three different mycoplasmal media including both broth and agar formulations. The sample is inoculated into each of the 3 broth formulations and also onto duplicate plates (0.1 mL/plate) for each of the 3 agar formulations. Subculture from broth to fresh agar plates is carried out after 7 days incubation. Agar plates are incubated aerobically and microaerophilically in order to detect any colony forming units morphologically indicative of mycoplasmal contamination. Issuance of the final report with signature of the Laboratory Director signifies that the required controls were performed concurrently with the test sample(s) as detailed in the referenced SOPs and that all test conditions have been found to meet the required acceptance criteria for a valid test, including the appropriate results for the positive and negative controls.



APPENDIX I

Document #: DCF3008A
Edition #: 06
Effective date: 9/17/2003
Title: DNA FLUOROCHROME ASSAY RESULTS

DNA-FLUOROCHROME ASSAY RESULTS

Procedures 3008, 3009, 3011

Sample ID # 58169 M-250 Date Rec'd: 07/29/2009 P.O. #

Indicator Cells Inoculated: Date/Initials: 7/30/09 / HS

Fixation: Date/Initials: 8/3/09 / JA

Staining: Date/Initials: 8/3/09 / JA

TEST/CONTROL ARTICLE:

DF19-9-11T.H

LOT# #4852

Wicell OA

DNA FLUOROCHROME ASSAY RESULTS:

X NEGATIVE: A reaction with staining limited to the nuclear region, which indicates no mycoplasmal contamination.

POSITIVE: A significant amount of extranuclear staining which strongly suggests mycoplasmal contamination.

INCONCLUSIVE: A significant amount of extranuclear staining consistent with low - level mycoplasmal contamination or nuclear degeneration.

A significant amount of extranuclear staining consistent with bacterial, fungal or other microbial contaminant or viral CPE. Morphology not consistent for mycoplasmal contamination.

COMMENTS:

Date: 8/3/09 Results Read by: JA Date of Review: 8-3-09 Reviewed by: Self

Report Date: July 22, 2009

Case Details:

Cell Line: DF19-9-11T.H (4852)

Passage #: 26

Date Completed: 7/22/2009

Cell Line Gender: male

Investigator: WiCell Stem Cell Bank

Specimen: iPSC on Matrigel

Date of Sample: 7/17/2009

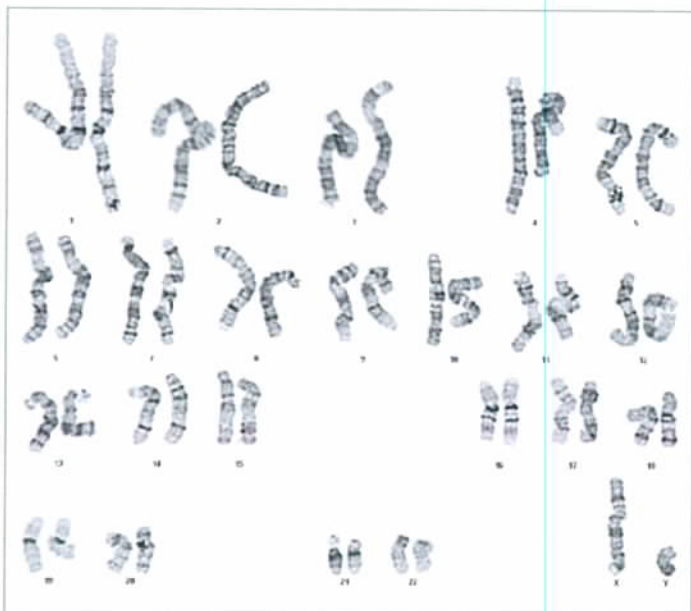
Tests, Reason for: MCB Testing

Results: 46,XY

Completed by CLSp(CG), on 7/22/2009

Reviewed and interpreted by PhD, FACMG, on 7/22/2009

Interpretation: No clonal abnormalities were detected at the stated band level of resolution.



Cell: S01-04

Slide: B

Slide Type: Karyotyping

Cell Results: Karyotype: 46,XY

of Cells Counted: 20

of Cells Karyotyped: 4

of Cells Analyzed: 8

Band Level: 525-600

Results Transmitted by Fax / Email / Post

Sent By: _____

QC Review By: _____

Date: _____

Sent To: _____

Results Recorded: _____