

START WITH HIGHLY CHARACTERIZED HUMAN iPSC SOLUTIONS

Quality Research Starts with Quality Cells

Start your research confidently with a reliable source of high-quality human induced pluripotent stem cell (hiPSC) lines, hiPSC-derived cells, and organoids. With the right starting materials, you can focus on innovation and discovery instead of troubleshooting cell quality issues. Developed in accordance with the [Standards for Human Stem Cell Use in Research](#) released by the International Society for Stem Cell Research (ISSCR), these tools support a wide range of applications, including disease modeling, drug discovery and toxicity testing, and regenerative medicine development. Discover how integrating reliable hiPSC solutions and related products can streamline your research and increase confidence in your results.

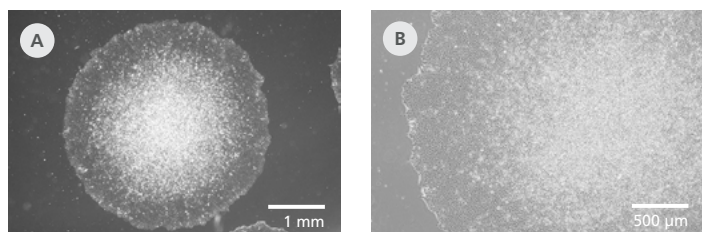


Figure 1. STEMCELL's hiPSC Lines Demonstrate High-Quality Morphology in Routine Culture

Cryopreserved cells from SCTi003-A were thawed and maintained in mTeSR™ Plus on Corning® Matrigel® Matrix. (A) The resulting hiPSC colonies have densely packed cells and show multi-layering when ready for passaging. (B) Cells retain prominent nucleoli and high nuclear-to-cytoplasmic ratios.

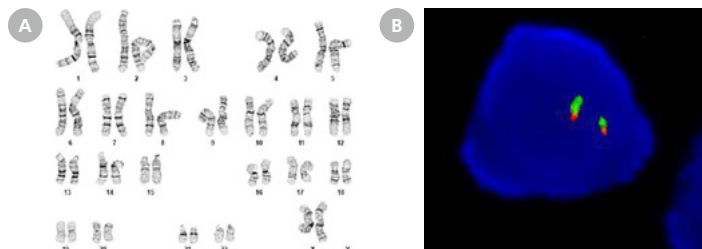


Figure 2. STEMCELL's hiPSC Lines Maintain a Normal Karyotype

Representative images from the SCTi003-A cell line. (A) G-T-L banding shows a normal karyotype with no evidence of clonal abnormalities at a band resolution of 450 - 550 G-bands per haploid genome. (B) Fluorescent in situ hybridization in a representative hiPSC using probes for 20p11 (green) and 20q11.21 (red). 94% of cells examined (n = 200) displayed two sets of two probe signals, indicating no aneusomy of chromosome 20.



hiPSC Solutions

Browse Our Complete Portfolio
stemcell.com/ipsc-solutions

Why Use STEMCELL's hiPSC Solutions?

- Enhance research transparency and integrity with hPSCreg®-certified cells manufactured to meet [ISSCR standards](#).
- Speed up discovery with validated, reliable cell sources and faster, data-driven insights.
- Enable academic and commercial research with ethically sourced cells collected under IRB-approved protocols.
- Integrate hiPSCs confidently into your research with cell lines that are compatible with [TeSR™ media](#) for maintenance and [STEMdiff™](#) for differentiation.

NOTE: For research use or in vitro laboratory-based tissue culture work only. Not approved for application into humans under any circumstances.

Ensuring Quality

Extensive quality control procedures are conducted at every stage of the hiPSC manufacturing process to ensure cell quality and reproducibility. These assessments may include:

- **Cell line identity** by short tandem repeat (STR) analysis
- **Viability and recovery** by thawing and culturing cells
- **Microbiological testing**, including sterility testing, mycoplasma testing, and viral screening
- **Genomic integrity and stability** by residual vector testing, T cell clonality, karyotyping, 20q FISH, SNP microarray, and whole genome sequencing
- **Undifferentiated status testing** by a three-passage assay and flow cytometry
- **Pluripotency** by in vitro trilineage differentiation



Certificate of Analysis

Example From the SCTi004-A Line
hpscereg.eu/cell-line/SCTi004-A

Undifferentiated State and Pluripotency

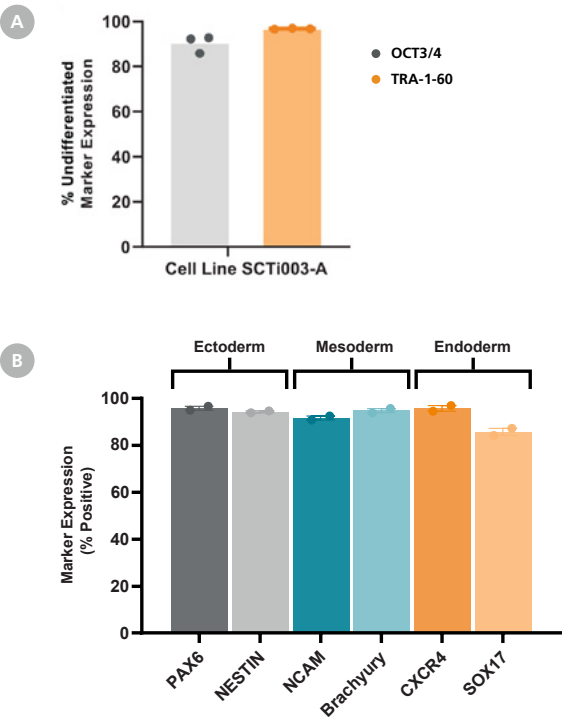


Figure 3. STEMCELL's hiPSC Lines Express Undifferentiated Cell Markers and Demonstrate a High Trilineage Differentiation Capacity

(A) Flow cytometry was used to characterize the SCTi003-A cell line for undifferentiated cell markers OCT3/4 and TRA-1-60. Percentage marker expression was quantified 5 passages after thawing from the master cell bank and analyzed from three technical replicates. (B) Cells were split into 3 groups, differentiated using STEMdiff™ Trilineage Differentiation Kit (Catalog #05230), and then subjected to flow cytometry analysis. Two markers for each embryonic germ layer were assessed, and bars represent mean marker expression for each group of cells (n = 2 biological replicates).

Selected Publications with STEMCELL's Control hiPSC Lines

- Clayton et al. (2024) DOI: <https://doi.org/10.1016/j.scr.2024.103410> SCTi003-A was used for benchmarking newly created hiPSCs against known standards, confirming their quality for disease modeling and therapeutic research.
- Olijnik et al. (2024) DOI: <https://doi.org/10.1038/s41596-024-00971-7> SCTi003-A played a critical role in demonstrating the protocol's broad applicability, helping to establish a consistent model for generating organoids that accurately replicate human bone marrow's environment.
- Pineiro-Llanes et al. (2024) DOI: <https://dx.doi.org/10.3791/66277> SCTi003-A served as a model system to evaluate the efficacy of different basement-membrane matrices for the cultivation of hiPSCs and the generation of human intestinal organoids.



Resource
Frequently Asked Questions on hiPSCs
stemcell.com/ipsc-faq

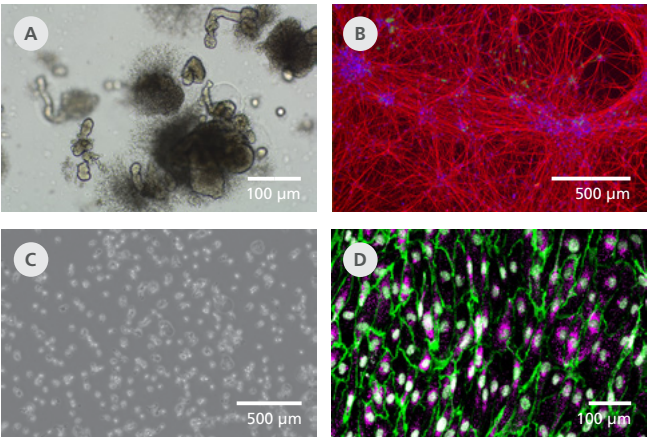


Figure 4. STEMCELL's hiPSC Lines Can Efficiently Differentiate into More than 20 Different Cell Types of All Three Germ Layers

Representative data from the SCTi003-A and the SCTi004-A cell lines. (A) SCTi003-A hiPSCs can be differentiated into intestinal spheroids and embedded in Corning® Matrigel® domes for maturation into human intestinal organoids using STEMdiff™ Intestinal Organoid Kit (Catalog #05140). (B) SCTi004-A hiPSCs were differentiated into forebrain neurons using STEMdiff™ Forebrain Neuron Differentiation Kit (Catalog #08600). (C) Hematopoietic progenitor cells generated from cell line SCTi004-A using STEMdiff™ Hematopoietic Kit (Catalog #05310) were further differentiated using STEMdiff™ Microglia Differentiation and Maturation Kits (Catalog #100-0019, 100-0020). The resulting cells are small with visible processes, are non-adherent on Matrigel®, and exhibit small cytoplasmic-to-nuclear ratios characteristic of microglia. (D) SCTi003-A-derived endothelial cells were thawed and cultured in STEMdiff™ Endothelial Expansion Medium (Catalog #08007) for two passages. Immunohistochemistry confirmed the expression of endothelial markers CD31 (green), VWF (magenta), and DAPI (gray).

Demographic Information

STEMCELL collects donor demographic information ethically, using consent forms and protocols approved by either an institutional review board (IRB), the U.S. Food and Drug Administration (FDA), the U.S. Department of Health and Human Services, and/or an equivalent regulatory authority. Donations are performed in the United States in compliance with applicable federal, state, and local laws, regulations, and guidance.

Available Cell Lines

Our hiPSC portfolio is continuously evolving to meet the diverse needs of researchers. Explore our range of highly-characterized control cell lines, featuring a variety of genotypes and genetic backgrounds.

Description	Donor Ethnicity ¹	Catalog #
Healthy Control Human iPSC Line, Female, SCTi003-A	Caucasian	200-0511
Healthy Control Human iPSC Line, Male, SCTi004-A	African-American	200-0769
Healthy Control Human iPSC Line, Female, SCTi005-A	Asian	200-0944
Healthy Control Human iPSC Line, Male, SCTi006-A	Caucasian	200-0945

¹Self-reported

ISSCR Standards in Action: STEMCELL's hiPSC Lines Enable Reproducible Research

The ISSCR's [Standards for Human Stem Cell Use in Research](#) establish the minimum characterization and reporting criteria for working with human stem cells. These recommendations have been increasingly adopted in the field, including by journals and granting agencies.

As a passionate advocate for standardized data reporting and quality control measures, STEMCELL's manufacturing process adheres to these standards to provide high-quality cells and cell products for reproducible research. Our quality control process incorporates all relevant assays in alignment with these standards, as outlined below for selected representative products.

Table 1. Summary of ISSCR Standards Adherence for STEMCELL's hiPSC Lines and iPSCdirect™

	ISSCR Standards	STEMCELL Control hiPSC lines	iPSCdirect™
Metadata	Name (or names)/alias of line	✓	✓
	Unique ID/Registry # (name of registry)	✓	✓
	Source (vendor and catalog number if obtained commercially); biopsy site and derivation details (if derived)	✓	✓
	Additional metadata as applicable (e.g. sex, ethnicity, disease information, known mutations, etc.)	✓	✓
Culture Details	Passaging/dissociation/split ratio	✓	N/A
	Freezing and thawing	✓	✓
	Culture reagents used (e.g. media, matrices, growth factors, etc.) with vendor and catalog number	✓	✓
	The passage number of the cryopreserved/characterized master cell bank or working cell bank stocks used, and the number of subsequent passages prior to and during experimentation	✓	✓
Basic Characterization	Authentication	✓	✓
	Mycoplasma	✓	✓
	Sterility (bacteriostasis/fungistasis)	✓	✓
Genomic Characterization	Methodology used, including sufficient detail to allow an assessment of sensitivity (e.g. the number of cells analyzed/resolution/depth of analysis)	✓	✓
	Timing of analysis in relation to key experiments reported	User-determined	User-determined
Characterization of Pluripotency and the Undifferentiated State (hPSCs Only)	Assay methodology	✓	✓
	Quantitative results along with statistical analysis	✓	✓
	Timing of analysis in relation to key experiments reported	User-determined	User-determined
Molecular Characterization	Confirmation of disease mutation (if applicable)	User-determined	User-determined
	Confirmation of genetic modification (if applicable)	User-determined	User-determined
Experimental Details	Information regarding the experimental unit or sample type for each experiment (e.g. individuals, cell lines, clones, tissues, organoids, devices, batches, cells, etc.)	User-determined	User-determined
	Number of replicates (biological/technical)	User-determined	User-determined
Data Practices	Statistical methods used	User-determined	User-determined
	Inclusion of the data and annotation code/software used for phenotype classification for computationally derived classifiers (if applicable)	User-determined	User-determined

For a detailed look at how your line of interest compares to the ISSCR Standards, please contact your STEMCELL sales representative. To learn more about iPSCdirect™, refer to page 4.



Resources

Getting Started with the ISSCR Standards
stemcell.com/isscr-standards



Wallchart

Reporting Practices for Publishing
Results with hPSCs
stemcell.com/standards-wallchart

STEMCELL Provides hiPSC-Derived Cells and Organoids As Assay-Ready Models

STEMCELL offers flexible product formats to support different research needs. iPSCdirect™ provides hiPSCs in a single-cell format designed for immediate use, eliminating the need for hiPSC maintenance and expediting differentiation. To fast-track your research even more, our progenitor cells provide both expansion and differentiation potential, serving as reliable intermediates. You may also choose fully characterized and assay-ready differentiated cells and organoids to deliver high-quality data as quickly as possible. Cells are validated for use with STEMCELL’s media and culture protocols, ensuring reproducibility and scalability.

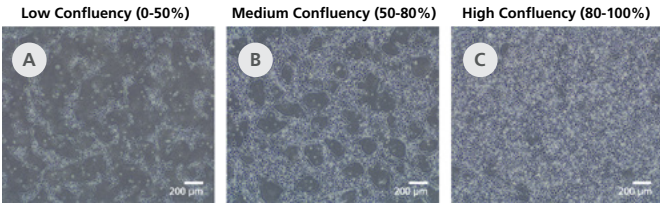


Figure 5. iPSCdirect™ Cells Can Be Seeded to Reach a Range of Confluencies After 24 Hours

To reach the desired confluency for downstream experiments, thaw and plate iPSCdirect™ cells into mTeSR™ Plus with CloneR™2 (Catalog #100-0276 and #100-0691) at the densities recommended in the Product Information Sheet. These representative examples of (A) low confluency, (B) medium confluency, and (C) high confluency were cultured after thaw on Corning® Matrigel® Matrix and imaged at a magnification of 4X.

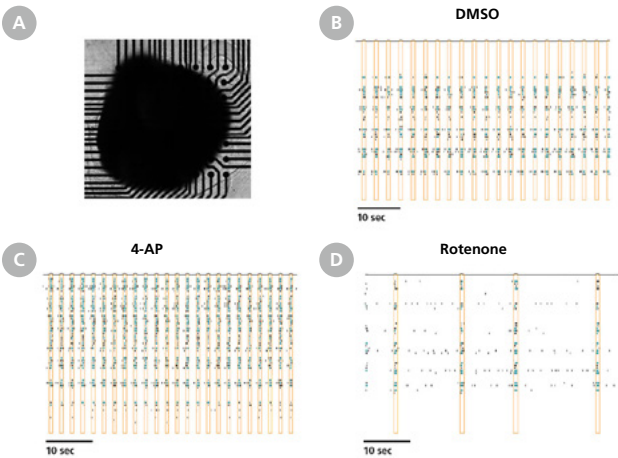


Figure 6. STEMCELL’s hiPSC-Derived Cells and Organoids Enable Functional Assays and Demonstrate Workflow Compatibility

Representative data from Human iPSC-Derived Midbrain Organoids. Organoids were plated on an MEA plate (CytoView MEA™ 6-Well Plate, Catalog #200-0876/ #200-0875) and maintained with STEMdiff™ Neural Organoid Maintenance Medium (Catalog #100-0120). Activities from 64 electrodes were recorded from organoids at Day 125, after one hour of treatment with 4-AP, rotenone, or DMSO as control, using a Maestro Pro™ MEA system (Catalog #200-0887). (A) Representative brightfield image of a Human iPSC-Derived Midbrain Organoid on the MEA plate. (B-D) Detected spikes (black lines), single channel bursts (blue lines), and network bursts (orange boxes) were recorded for each treatment. Raster plots of spike activity show the Day 125 organoids exhibit increased network bursting upon 4-AP treatment (100 µM) and a decrease in network bursting with rotenone treatment (100 nM).

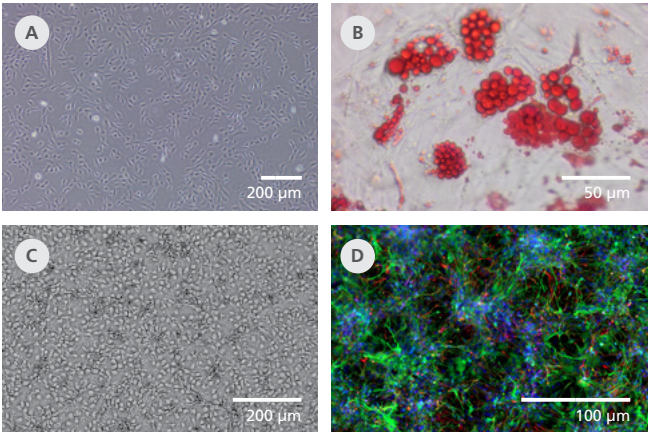


Figure 7. STEMCELL’s hiPSC-Derived Progenitor Cells Can Be Further Differentiated into Target Cell Types

Representative images of (A) Human iPSC-Derived Mesenchymal Progenitor Cells and (C) Human iPSC-Derived Neural Progenitor Cells. (B) Adipocytes were generated from (A) Human iPSC-Derived Mesenchymal Progenitor Cells using the MesenCult™ Adipogenic Differentiation Kit (Catalog #05412), with adipogenic differentiation confirmed by Oil Red O staining at Day 30 post-differentiation. (D) Astrocytes were derived from (C) Human iPSC-Derived Neural Progenitor Cells using STEMdiff™ Astrocyte Differentiation Medium (Catalog #100-0013) and STEMdiff™ Astrocyte Serum-Free Maturation Kit (Catalog #100-1666).

Available hiPSC-Derived Cells

Description	Catalog #
Human iPSC-Derived Neural Progenitor Cells	200-0620, 100-1028
Human iPSC-Derived Mesenchymal Progenitor Cells	200-0781
Human iPSC-Derived Retinal Pigment Epithelial Cells	100-2150, 100-2151, 200-0912, 200-0913
Human iPSC-Derived Midbrain Organoids	200-0790, 200-0791, 200-0792, 200-0793
Human iPSC-Derived Forebrain Neuron Precursor Cells	200-0770
iPSCdirect™	200-0510



Coming Soon
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stemcell.com/upcomingproducts