



THE NEW YORK STEM CELL FOUNDATION RESEARCH INSTITUTE

REVOLUTIONIZING AND
INDUSTRIALIZING STEM CELL RESEARCH

NYSCF Global Stem Cell Array®

Automated stem cell reprogramming,
genome editing, and differentiation

Our Areas of Focus

- Provide research community with access to high-quality human pluripotent stem cell and differentiated lines
- Accelerate precision medicine research and drug discovery in patient-specific, disease-relevant cell types
- Facilitate functional genetics studies of disease-associated variants and pathways through genome editing

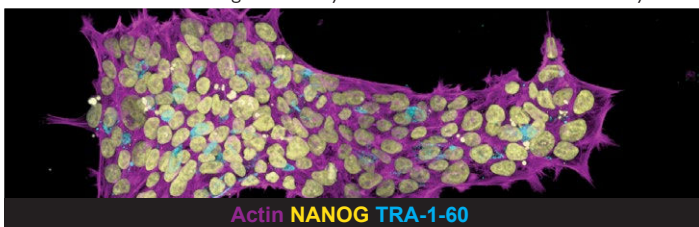
NYSCF Global Stem Cell Array®

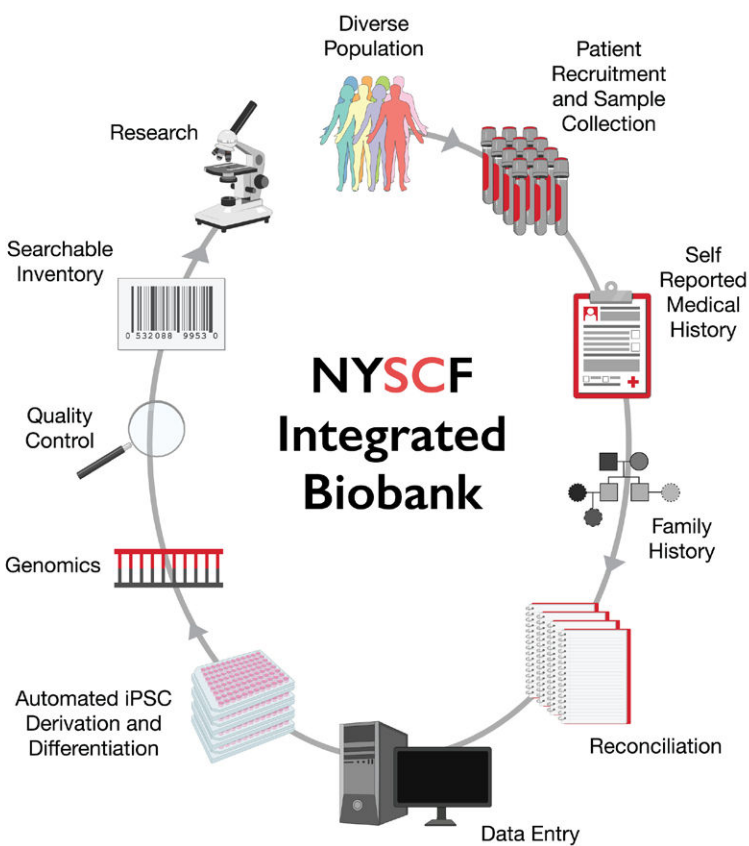
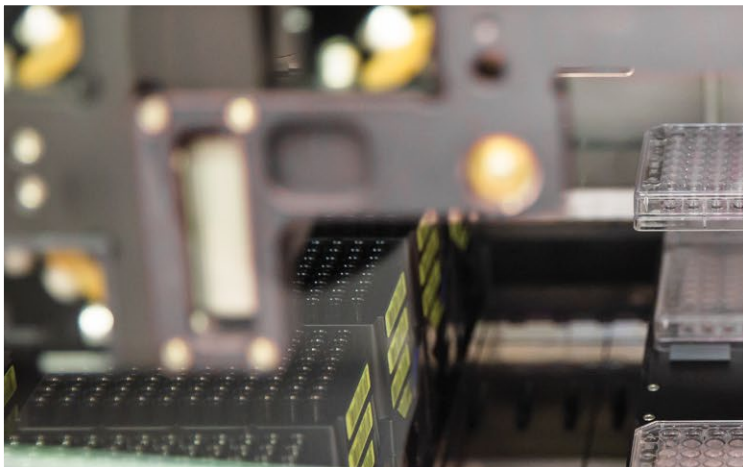
- Fully automated, highly reproducible production of induced pluripotent stem cell (iPSC) lines
- Stringent quality control
- Industrial production scale
- Advanced line tracking and data management systems
- Read Paull D. *et al.*, *Nature Methods* (2015)

Best-in-class Automation Technology

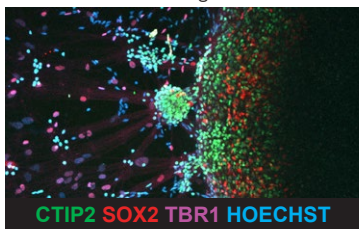
- Eliminates all manual manipulation
- Massively parallel processing of samples
- Significantly reduces line-to-line variability
- Yields highly reproducible panels of iPSCs and differentiated lines

Immunostained iPSCs generated by the NYSCF Global Stem Cell Array®



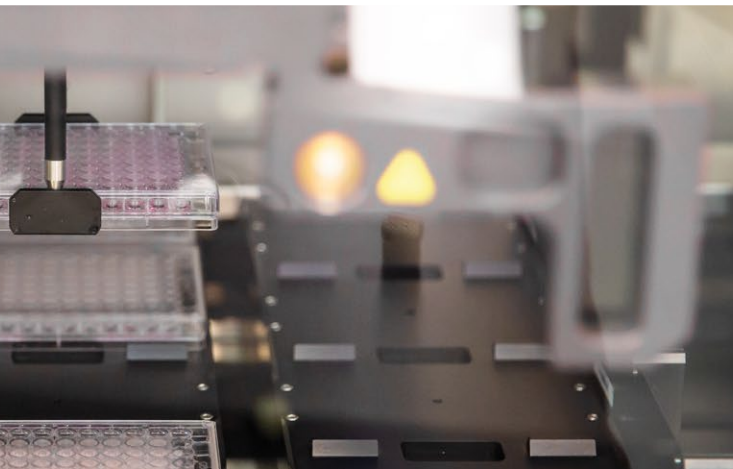


Cortical organoids



Neurons





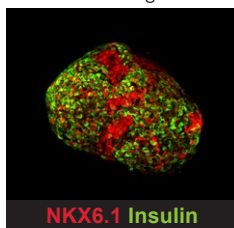
Quality Stem Cell Derivation, Differentiation, Genome Editing

- Fully automated reprogramming of skin and blood samples into iPSCs
 - Certificate of Analysis provided for each line with comprehensive characterization
- Automated CRISPR/Cas9 knockouts
- Precision genome editing for production of isogenic control lines
- High-yield protocols for differentiating PSCs into all major brain cell types including neurons and glia; hepatocytes, pancreatic beta cells/organoids, cardiomyocytes, retinal pigmented epithelia, immune cells, neural progenitors/organoids
 - Many differentiation protocols automated
- Marker-based isolation of pure differentiated populations

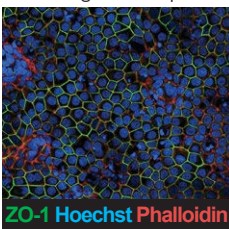
“ NYSCF is especially eager to do the heavy lifting that leads to good science. To do the controls, the technical replicates — to understand variance and repeatability, to introduce automation to minimize that variance. Researchers often talk about it, but NYSCF actually does it. We’ve done some tremendous work together. ”

— Philip Nelson, Google Research

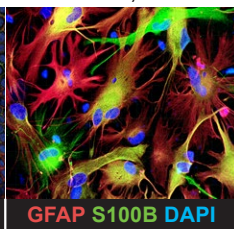
Pancreatic organoids



Retinal Pigmented Epithelia



Astrocytes



NYSCF is a Partner of Choice

- **Integrated solutions** for stem cell research
- Production of **high-quality iPSC lines**
- Large-scale **differentiation** of pluripotent cells into numerous disease-relevant cell types
- Access to **NYSCF biobank** of iPSC lines from genetically diverse patient and healthy populations spanning ~300 diseases
- **Fully automated, high-throughput** cell culture methods
- Traceable processes and project management systems
- Phenotypic **assay development**, validation, scale-up
- Capacity for high-content imaging and **high-throughput compound screening**
- Team of PhD researchers with active projects focused on understanding and treating a wide range of diseases

For more information: partnering@nyscf.org

“ NYSCF is my role model ... I visited the NYSCF Research Institute and was very impressed. They have a beautiful system of automation and iPSC cell generation. ”

– Shinya Yamanaka, MD, PhD
Nobel Laureate
Kyoto University



The mission of the New York Stem Cell Foundation Research Institute is to accelerate cures for the major diseases of our time through stem cell research.

The NYSCF Research Institute conducts advanced stem cell research through technology development and disease-focused programs on neurological diseases, cancer, diabetes, macular degeneration, and tissue engineering. We collaborate extensively with research teams from academia and industry across the globe.

NYSCF Fellowship and Investigator Programs support the next generation of scientists, including postdoctoral fellows and early career investigators, pursuing innovative research in neuroscience and stem cell biology.

NYSCF's Education and Outreach Program includes the annual NYSCF Conference – a leading translational stem cell research conference – and a series of seminars, panel discussions, and educational programming to engage and inform scientists, policymakers, students, teachers, and the general public.

