

NEI-NYSCF Joint Webinar on AMD Integrative Biology Initiative

A Community Resource of AMD Patient iPSC Lines

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NYSCF

**The New York
Stem Cell Foundation
Research Institute**

The New York **Stem Cell** Foundation Research Institute

Mission: accelerate cures for the major diseases of our time through stem cell research

NYSCF Innovators



NYSCF Research Institute

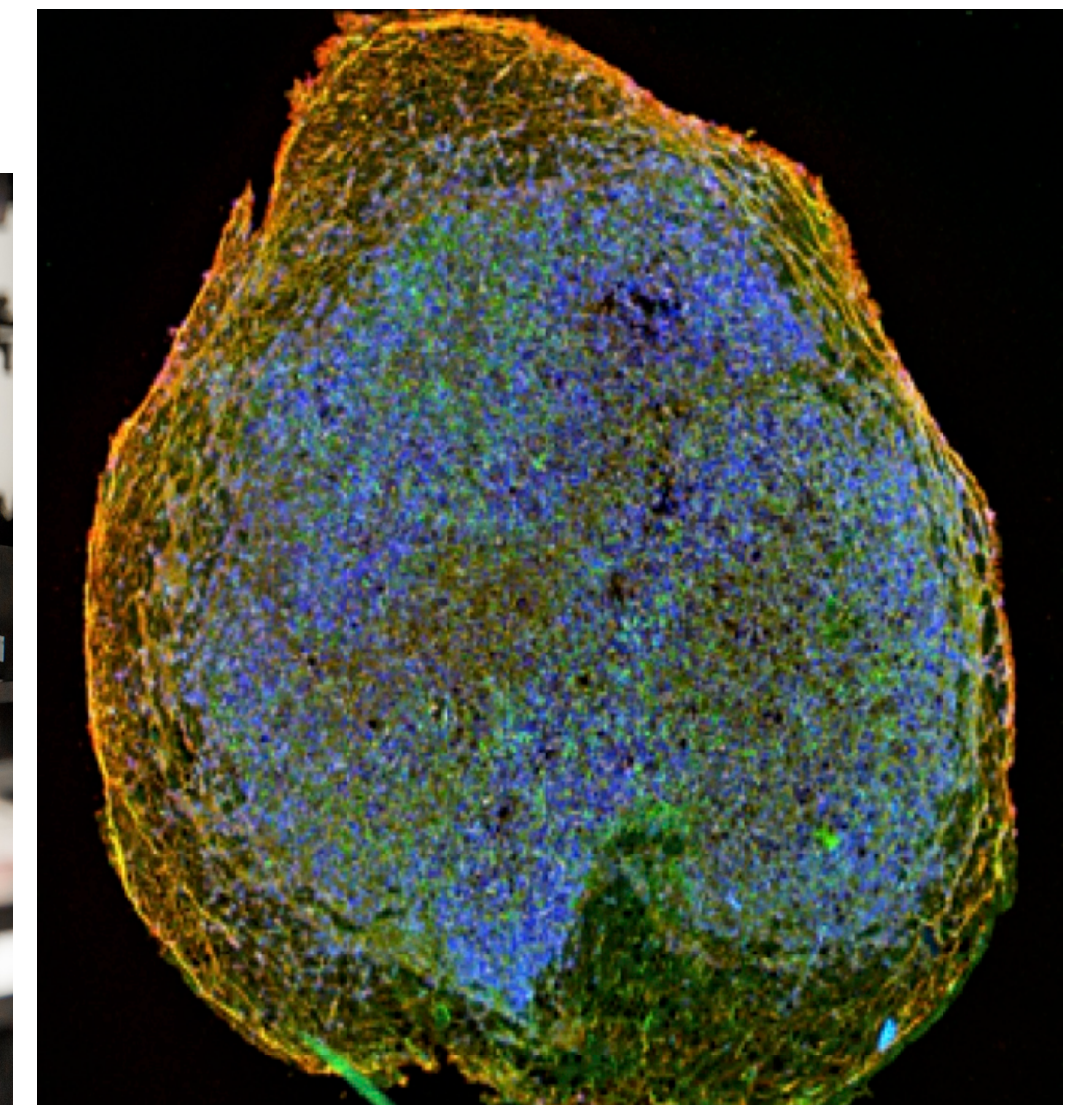
Disease-focused teams

NYSCF Global Stem Cell Array®

Stem cell technology development at scale

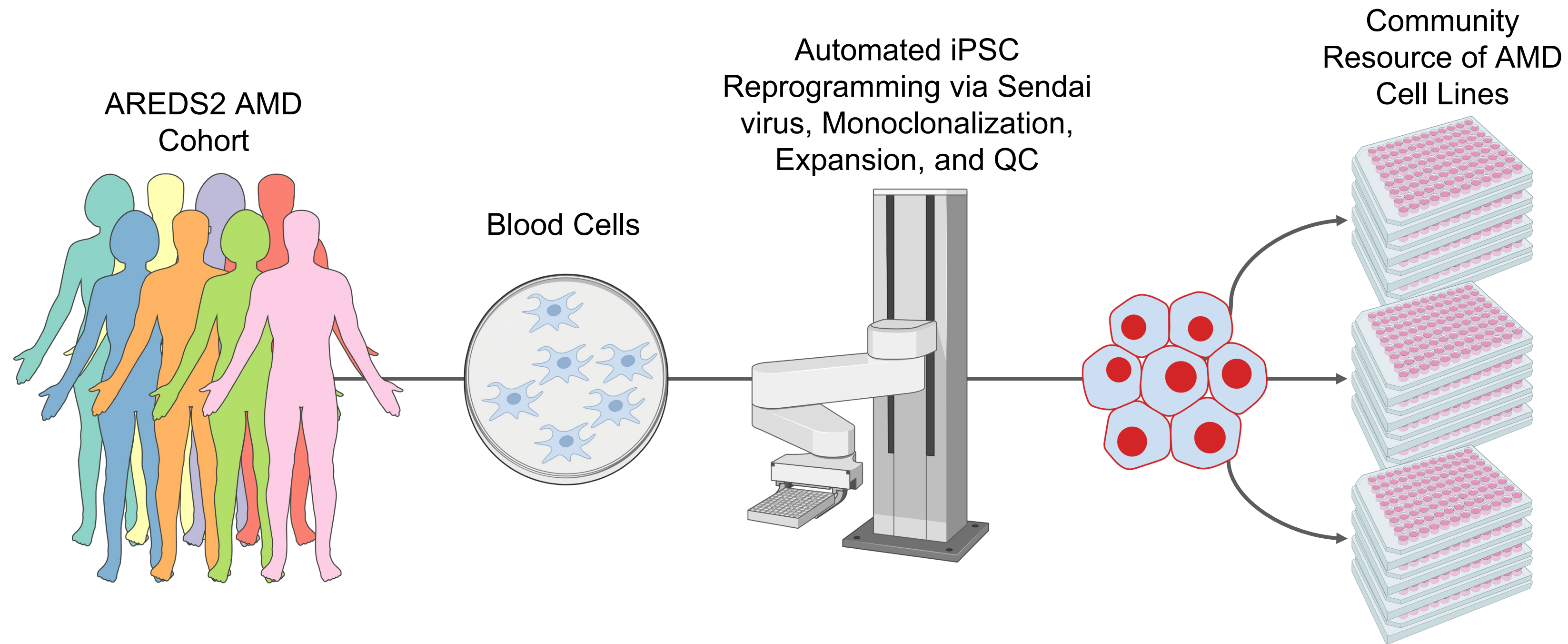
Diverse iPSC line bank

NYSCF Outreach



iPSC Generation with the NYSCF Global Stem Cell Array®

High-throughput, fully automated iPSC reprogramming from blood samples



Fully automated, highly reproducible stem cell production

Parallel derivation & culture at scale

Quantitative quality control assays

Full certificate of analysis provided with each line

Paull, D., *et al.* Automated, high-throughput derivation, characterization and differentiation of induced pluripotent stem cells. *Nature Methods* (2015).

iPSC Quality Control

TEST DESCRIPTION	TEST METHOD	TEST SPECIFICATION
Post-Thaw Viable Cell Recovery	Thaw to 12 well plate	>50% Confluency reached within 10 days
Sterility	SteriTEQ	Negative
Mycoplasma	Lonza MycoAlert Plus	Negative
Karyotype	Illumina Infinium Global Screening Array-24	Normal Karyotype [no autosomal CNVs >2.5Mb]
Identity Test	Fluidigm SNPTrace Panel	Match parent line
Pluripotency Expression Profile	Nanostring Pluripotency Analysis	Express markers of pluripotency with absence of early differentiation markers
Absence of Sendai Transgene Expression	Nanostring Gene Expression Analysis	Absence of Sendai Virus
Differentiation Capacity	Nanostring 3 Germ Layer Scorecard Analysis from formed EBs	Absence of differentiation bias across all three germ layers

A Certificate of Analysis (CoA) is provided with each iPSC line distributed.

Available AMD iPSC Lines

<https://nyscf.org/repository>

- iPSC lines are derived from blood cells of AREDS2 participants with clinical data available through the NEI Data Commons
- NYSCF website lists currently available iPSCs, including genotype for 8 AMD risk factors
- 62 AMD patient iPSCs currently available with 2 clones each
- An additional 11 iPSCs (2 clones each) will be available in the coming months

How to Request AMD iPSC Lines

Email repository@nyscf.org with:

- Which iPSC(s) you would like to obtain, via NYSCF ID or NEI AREDs2 ID and whether you would like 1 or 2 clones of each
- A brief research plan – can be just a few sentences on use of the line(s)
- Contact info for tech transfer office
- Shipping address

NYSCF will review the request and provide additional information as needed. A draft MTA will be provided for review.

NYSCF also has additional iPSCs (healthy, disease-specific, diverse, age/sex matched) available through the Repository upon request.

Distribution Fees for NEI AMD iPSC Lines

Academic / Non-Profit Requests

- 1 clone (1 vial) = \$450 per AMD subject
- 2 clones (1 vial per clone) = \$900 per AMD subject

Industry Requests

- 1 clone (1 vial) = \$950 per AMD subject
- 2 clones (1 vial per clone) = \$1900 per AMD subject

Shipping Costs

- Domestic: \$75-125 flat rate shipping via FedEx on dry ice, cost dependent on U.S. location
- International: \$500-2,500+ via Cryoport cold chain logistics (variety of shipping couriers with their LN2 dewars depending on customs/country specifications), cost dependent on worldwide location

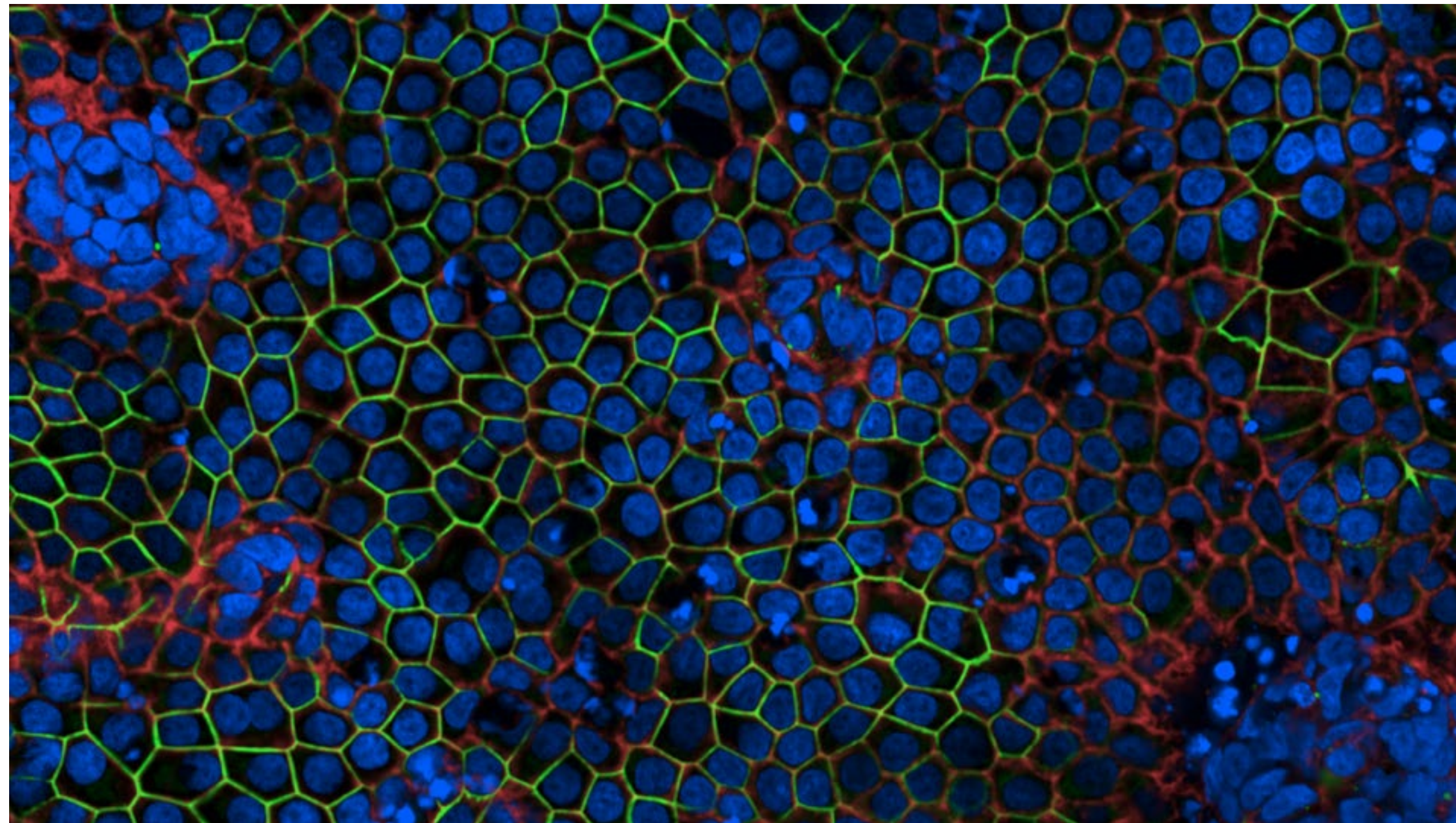
iPSC cost recovery fees have been partially subsidized by the NEI

iPSC Culture Conditions

- NYSCF provides a SOP for thawing, expansion, and cryopreservation of the iPSC lines
- NYSCF recommends thawing into StemFlex/Geltrex (Thermo Fisher) and then transitioning to preferred cell culture system during/after a passage, as outlined in the SOP
- It is possible to thaw directly into E8, NYSCF highly recommends using CloneR (Stem Cell Technologies) at thaw for best cell recovery

Leveraging iPSC Lines as a Model for AMD

- iPSCs can be differentiated into Retinal Pigmented Epithelial (RPE) cells.
- For more information on the differentiation protocol, please go to the NEI AMD Integrative Biology Website to find links to the published RPE protocols that were followed.



Questions?

Email

repository@nyscf.org

or

visit our website at

<https://nyscf.org/repository>

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