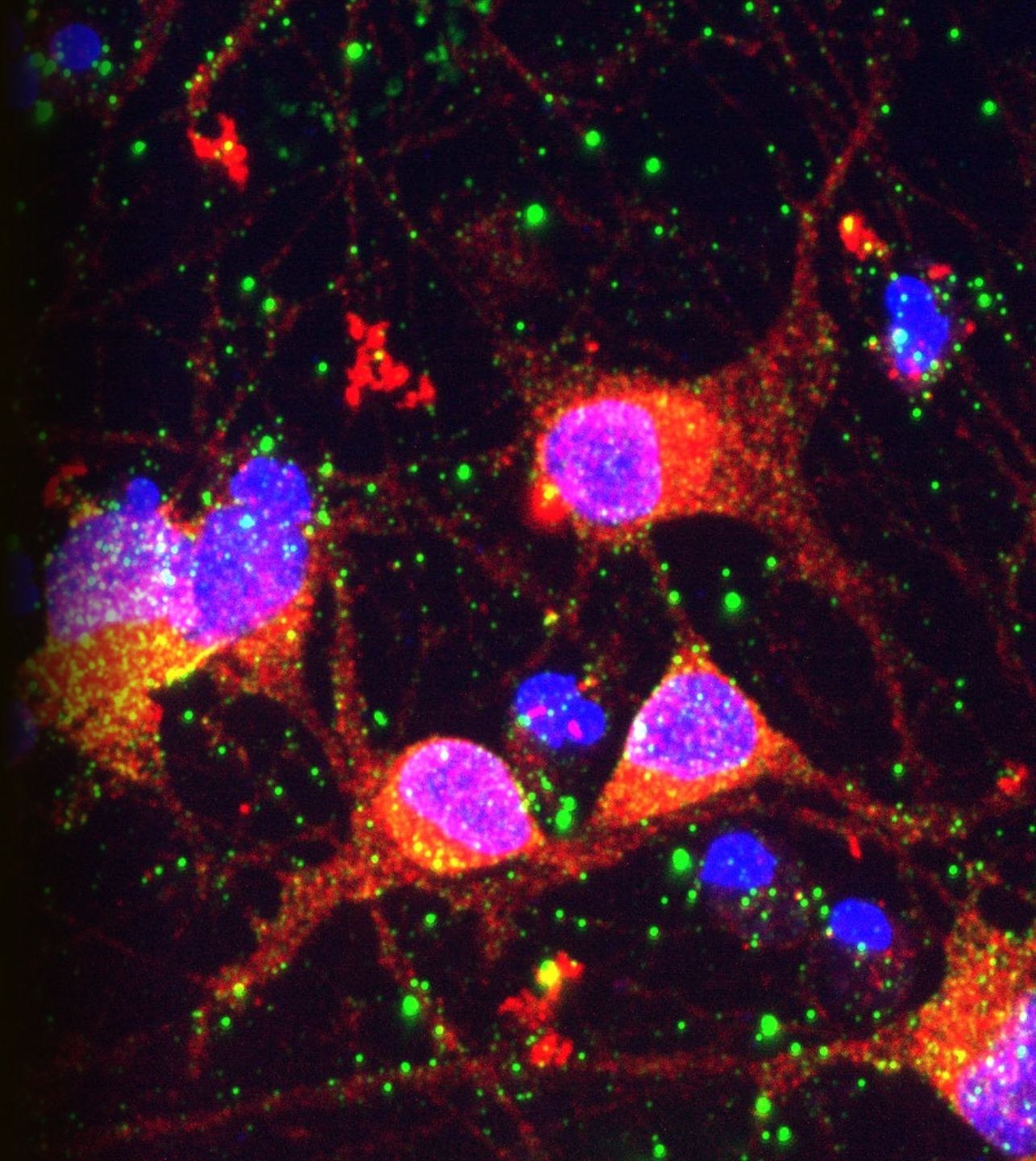
PHENOVISTA

Understanding Complex Biology

CASE STUDY

Evaluating Candidate AAV Therapies' Transduction Efficiencies in a Model of Parkinson's Disease



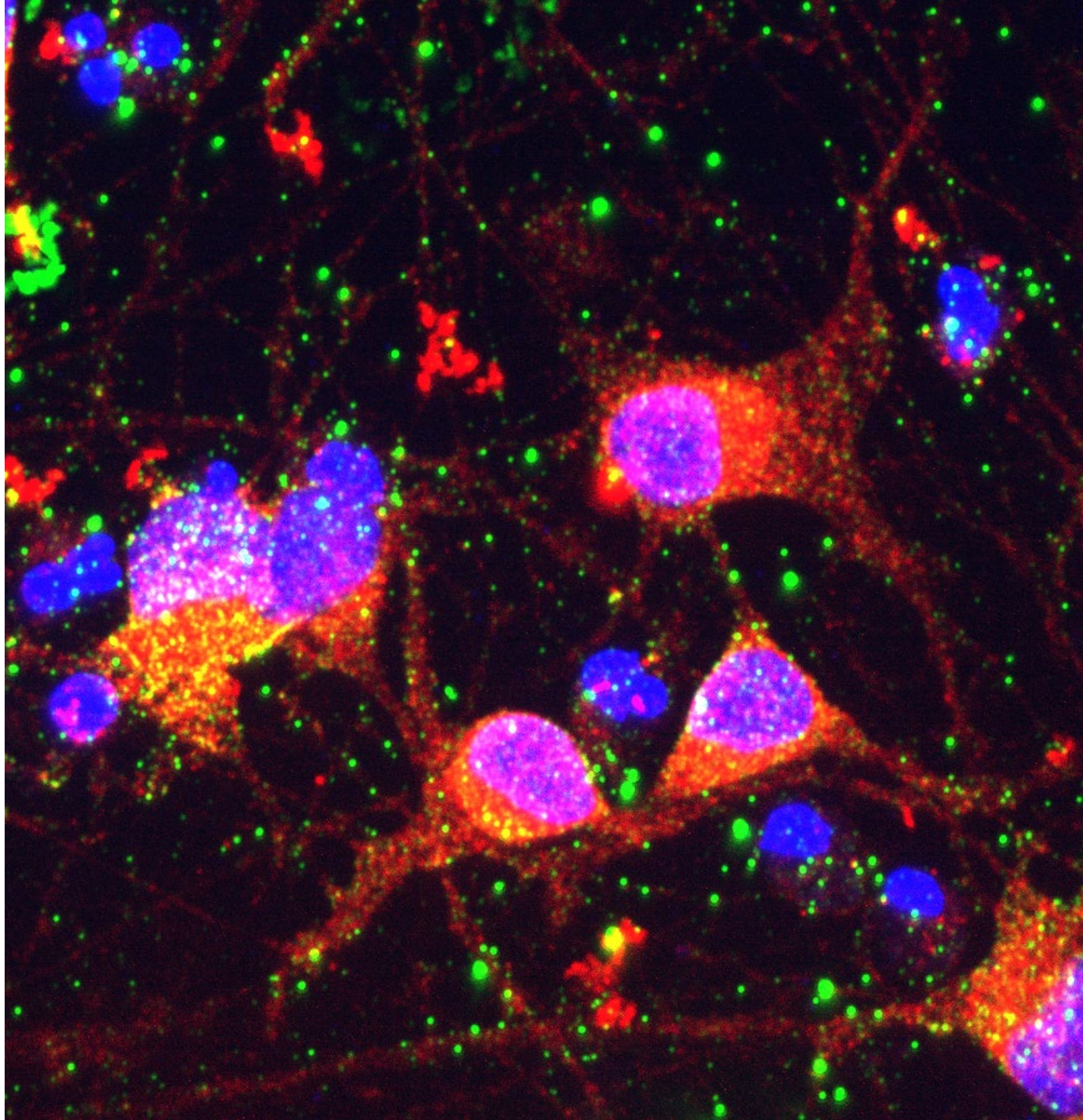
OBJECTIVE

A client requested a custom project to measure transduction efficiencies of AAV gene therapy candidates in a model of Parkinson's disease.

Goals

1. Establish culture methods and conditions for WT and KO, human, iPSC-derived, dopaminergic neurons.

2. Compare differences in transduction of AAV-based payloads in various serotypes and between WT and KO neurons.



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EXPERIMENTAL DESIGN

Cell Models

Human, iPSC-derived, WT dopaminergic neurons
Human, iPSC-derived KO (-/-) dopaminergic neurons

Palette

Hoechst (Nuclei)
Tuj1 (Neurites)
Anti-tyrosine hydroxylase (TH) (Dopaminergic marker)
GFP (Transduction marker)

Treatments and Timelines

- Plate, differentiate, and culture WT and KO dopaminergic neurons.
- Treat neurons with 3 MOIs of AAV-based, gene therapy candidate, including bare-plasmid control, on DIV14.
- Fix and stain cells DIV18.

Deliverables

- Population-level cell analysis will include measurements of cell count, morphology and intensity-related features for all appropriate markers.
- Reporting via a presentation-ready report to include detailed methodology, statistical analysis and curve-fits, where applicable. Representative images will be provided for controls and for a reasonable selection of test conditions, as well as additional marketing-quality images.

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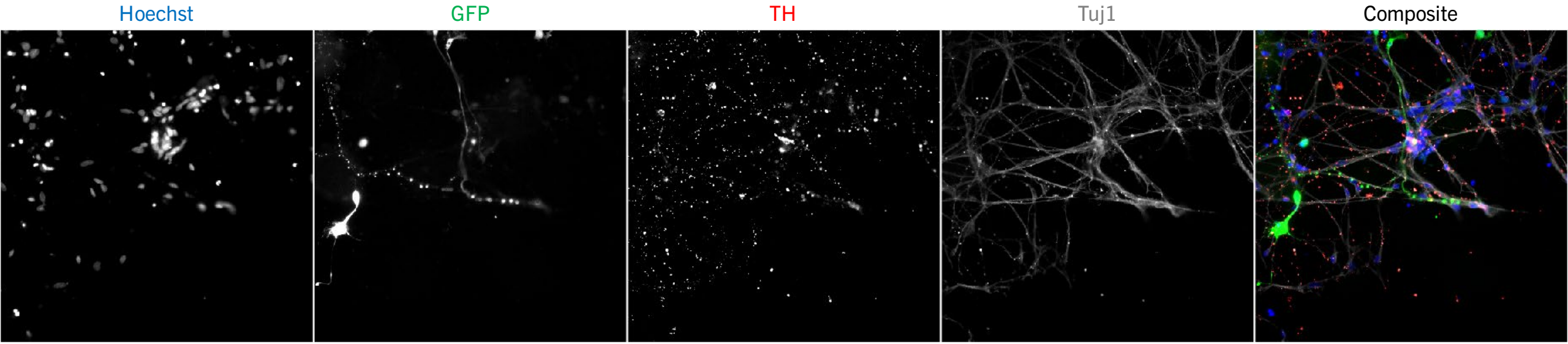
REPRESENTATIVE IMAGES

Representative images showing uptake and transduction of AAV in WT dopaminergic neurons.



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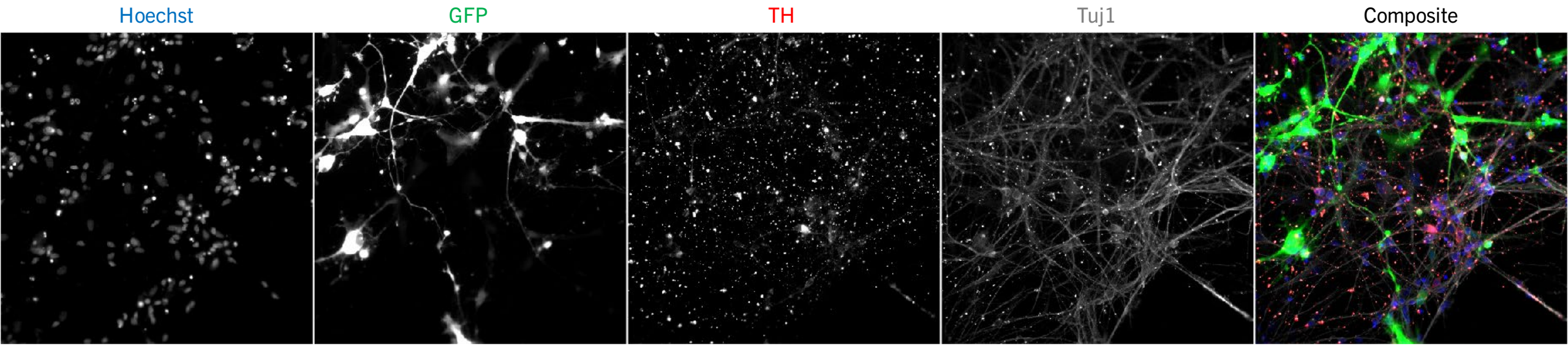
REPRESENTATIVE IMAGES

Representative images showing uptake and transduction of AAV in KO (-/-) dopaminergic neurons.



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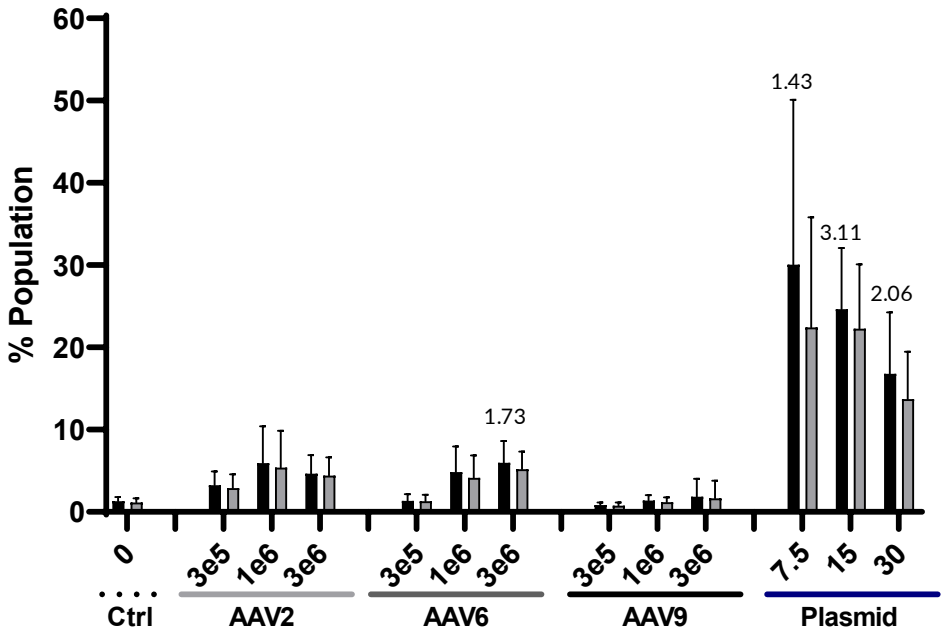
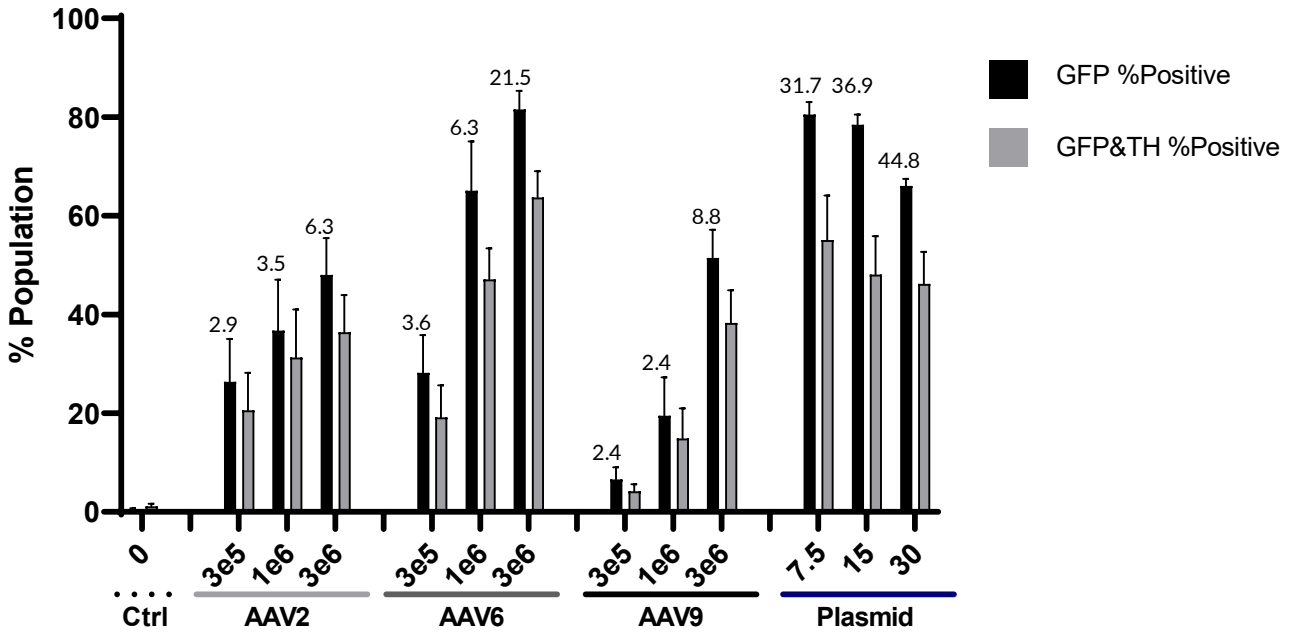
QUANTITATIVE DATA

Transduction/Transfection efficiency WT Cells



Transduction/Transfection efficiency GENE1 (-/-) Cells



Highest SSMD Scores Indicated Above Datapoints

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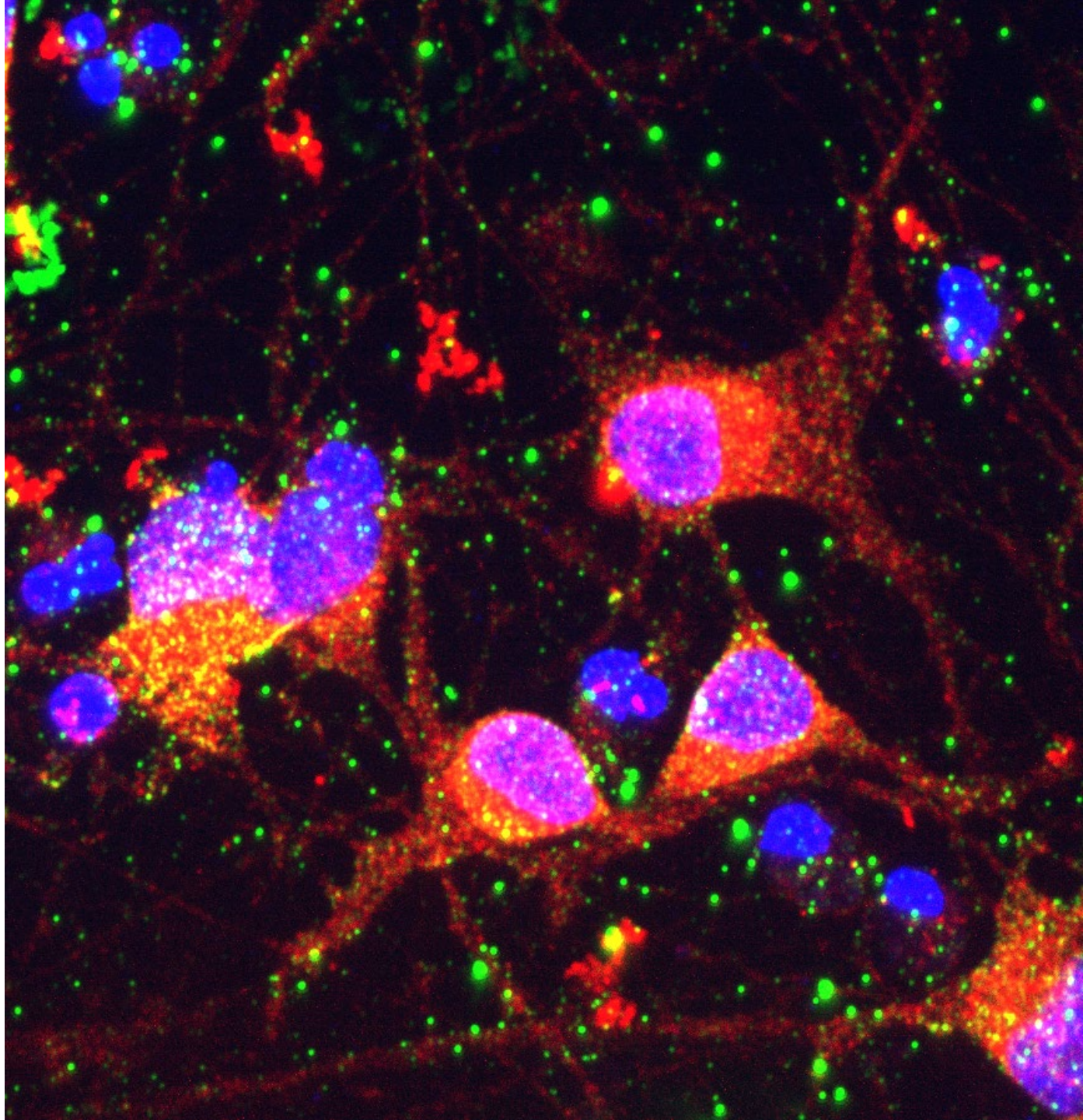
SUMMARY

1. Both WT and KO (-/-) neuronal precursors were successfully cultured and differentiated into Tuj1-positive neurons, a subset of which were also positive for dopaminergic marker TH.

2. Both WT and KO (-/-) neurons were effectively transduced with 3 different AAVs at 3 different MOIs.

3. GFP payload expression was significantly higher in KO neurons compared to WT.

4. Both WT and KO neurons were efficiently transfected with plasmid.



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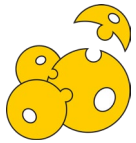
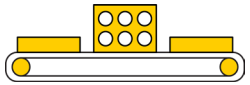
ADDITIONAL RESOURCES

PhenoVista's Services

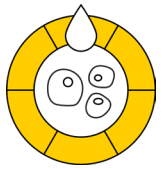
We develop assays in close collaboration with our clients to ensure that your specific questions will be answered. You can choose from a range of services to select the best fit for your needs. For more information, visit https://phenovista.com/assay-services



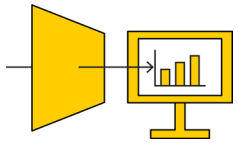
Custom Assay Services
Custom assays to answer your specific, complex biological questions.



Ready-2-Go Assay Services
Defined assay offerings across a range of disease and therapeutic areas.



Cell Painting
Compare your compounds' effects against those of reference compounds.



Imaging & Analysis
Send us plates of fixed & stained cells, and we'll send you data.

Learning Library

Visit https://phenovista.com/resources to browse additional resources such as

- Brochures
- Case studies
- Webinars
- Blog posts

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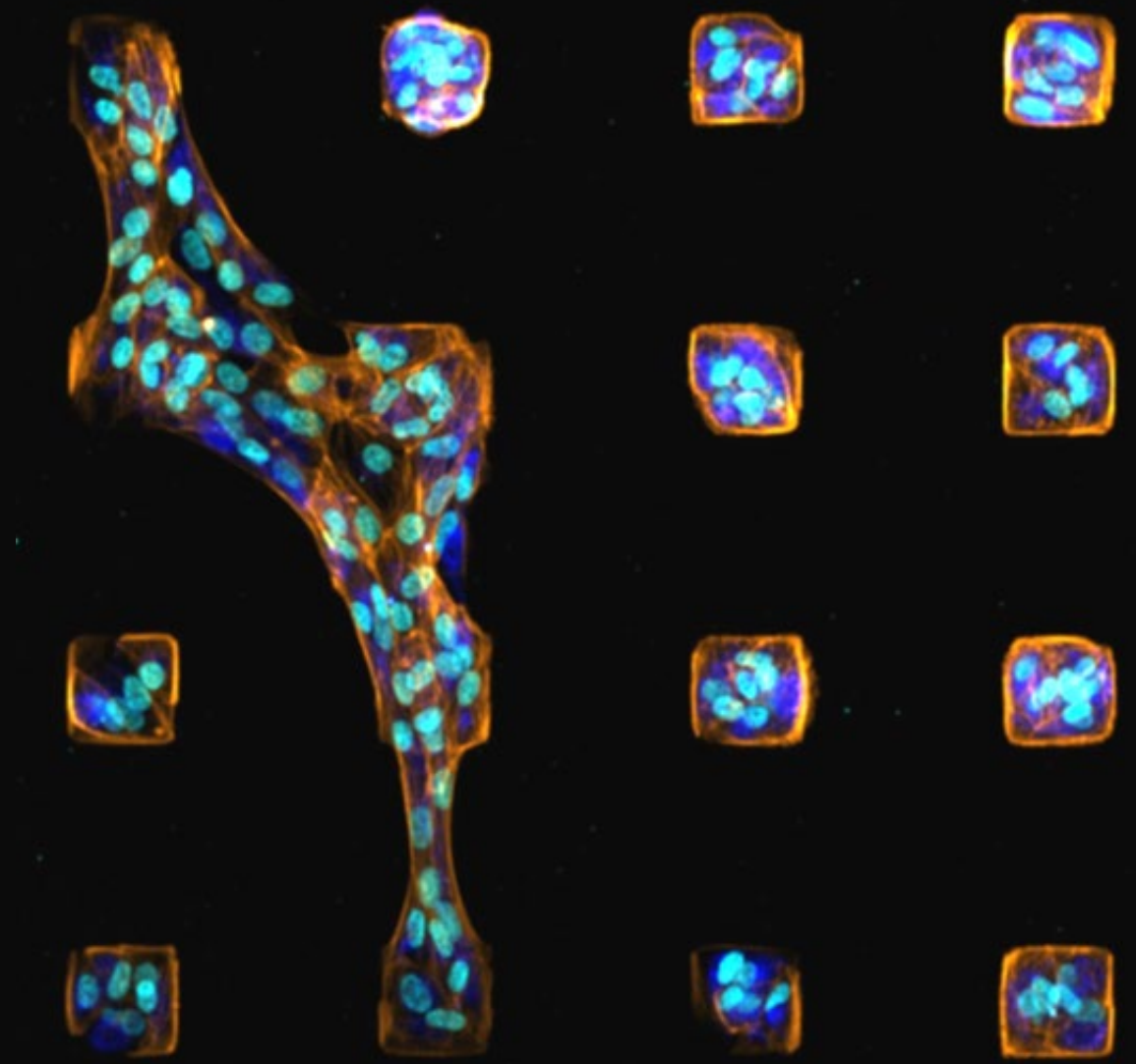

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