ASC Applied StemCell
### Genome editing *in vitro* and *in vivo*

Human iPSC-derived Astrocytes

Ready-to-use functional astrocyte precursor cells and mature astrocytes derived from well-characterized iPSCs and NSCs

Key Features:

- High purity cells: >90% GFAP+ cells; <1% Tuj1+ cells with typical astrocyte morphology
- Isogenic panels of neural stem cells, astrocyte precursors and mature cells, dopaminergic neurons from two parental iPSC lines
- Expression of astrocyte markers confirmed by immunocytochemistry and whole genome profiling
- Suitable for co-culturing with neurons for complex tissue modeling
- Limited proliferative potential and long-term viability
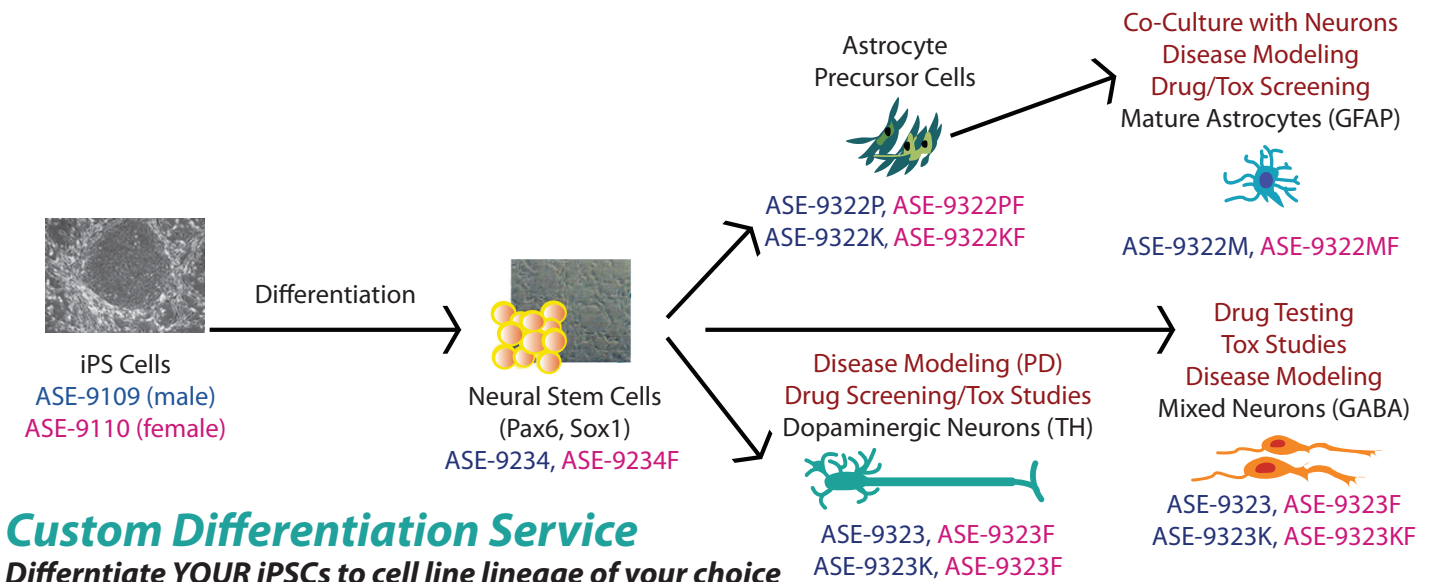- Xeno-free & Integration-free derivation and culturing
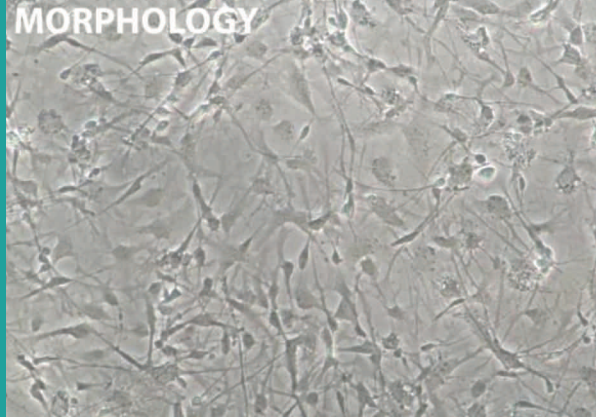
Astrocyte morphology at 17 days post-seeding.

Tuj1/Synapsin I/DAPI
Neurons + Astrocytes

Benefits & Applications:

- Neuroscience research to study neurogenesis and CNS function
- Build physiologically relevant tissue models for drug screening and neurotoxicity tests
- Build disease models of neurodegenerative diseases and neuroinflammation
- Co-culture with neurons to improve neuronal viability in cell therapy studies

Astrocytes co-cultured with neurons for complex and predictive research models.

Astrocyte Precursor Cells

ASE-9322P, ASE-9322PF
ASE-9322K, ASE-9322KF

Co-Culture with Neurons
Disease Modeling
Drug/Tox Screening
Mature Astrocytes (GFAP)

ASE-9322M, ASE-9322MF

iPS Cells
ASE-9109 (male)
ASE-9110 (female)

Differentiation

Neural Stem Cells
(Pax6, Sox1)
ASE-9234, ASE-9234F

Disease Modeling (PD)
Drug Screening/Tox Studies
Dopaminergic Neurons (TH)

ASE-9323, ASE-9323F
ASE-9323K, ASE-9323F

Drug Testing
Tox Studies
Disease Modeling
Mixed Neurons (GABA)

ASE-9323, ASE-9323F
ASE-9323K, ASE-9323KF

Custom Differentiation Service
Differntiate YOUR iPSCs to cell line lineage of your choice

iPSC-derived Astrocytes Product Catalog:

ASE-9322P	Astrocyte Precursors (iPSC from Blood Cells; Male)
ASE-9322PF	Astrocyte Precursors (iPSC from Blood Cells; Female)
ASE-9322M	Astrocytes Mature (iPSC from Blood Cells; Male)
ASE-9322MF	Astrocytes Mature (iPSC from Blood Cells; Female)
ASE-9322K	Astrocytes Precursors Starter Kit (iPSC from Blood Cells; Male)
ASE-9322KF	Astrocytes Precursors Starter Kit (iPSC from Blood Cells; Female)
ASE-9322DI	Astrocyte Induction Media 100 mL
ASE-9322DM	Astrocyte Maturation Media 100 mL

Related Products: Master iPSCs and Differentiated-Cell Lines

ASE-9109	Human iPSC (iPSC from Blood Cells; Male); Master Lines for Neural Differentiation and Genome Engineering
ASE-9110	Human iPSC (iPSC from Blood Cells; Female); Master Lines for Neural Differentiation and Genome Engineering
ASE-9324	Neural Stem Cells (iPSC from Blood Cells; Male)
ASE-9324F	Neural Stem Cells (iPSC from Blood Cells; Female)
ASE-9324SM	NSC Maintenance Media 100 mL
ASE-9323	Dopamine Neurons (iPSC from Blood Cells; Male)
ASE-9323F	Dopamine Neurons (iPSC from Blood Cells; Female)
ASE-9323K	Dopaminergic Neuron Starter Kit (iPSC from Blood Cells; Male)
ASE-9323KF	Dopaminergic Neuron Starter Kit (iPSC from Blood Cells; Female)
ASE-9323DI	DOPA Induction Media 100 mL
ASE-9323DM	DOPA Maturation Media 100 mL
ASE-9321	Neurons (iPSC from Blood Cells; Male)
ASE-9321F	Neurons (iPSC from Blood Cells; Female)
ASE-9321K	Neurons Starter Kit (iPSC from Blood Cells; Male)
ASE-9321KF	Neurons Starter Kit (iPSC from Blood Cells; Female)
ASE-9321DI	Neuron Induction Media 100 mL
ASE-9321DM	Neuron Maturation Media 100 mL

Cytoplasmic co-localization of S100b and GFAP in differentiated NSCs.
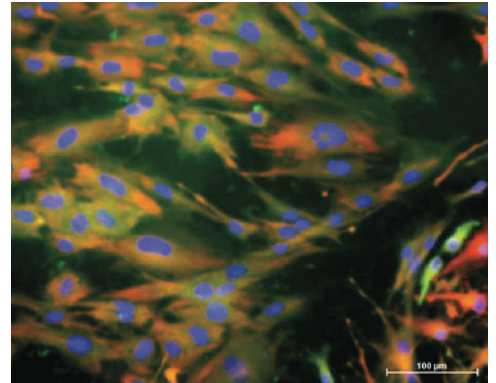
ASC's Stem Cell Custom Services & Products Include:

- iPSC Generation, Characterization and Differentiation
- Stem Cell Gene Editing: CRISPR-Cas9 and TARGATT™
- iPSC, ESC Cell Lines: Human (Healthy/Disease/Engineered); and Other Species
- Stem Cell Growth Factors, MEF Feeder Cells, and ESC-SURE™ FBS
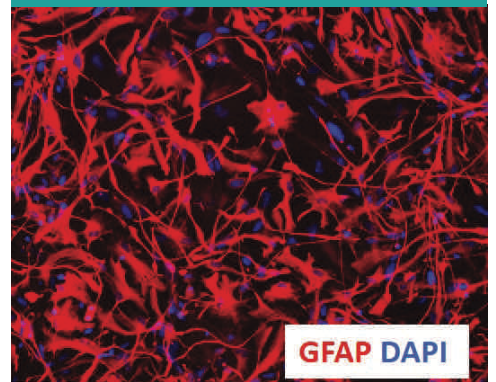
Expression of astrocyte marker, GFAP: >90% GFAP$^+$ cells and < 1% Tuj1$^+$

References:

• Pei, Y., Peng, J., Behl, M., Sipes, N. S., Shockley, K. R., Rao, M. S., … Zeng, X. (2016). Comparative Neurotoxicity Screening in Human iPSC-derived Neural Stem Cells, Neurons and Astrocytes. Brain Research, 1638(Pt A), 57–73.

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• Efthymiou, A., Shaltouki, A., Steiner, J. P., Jha, B., Heman-Ackah, S. M., Swistowski, A., ... & Malik, N. (2014). Functional screening assays with neurons generated from pluripotent stem cell–derived neural stem cells. Journal of Biomolecular Screening, 19(1), 32-43.

• Shaltouki, A., Peng, J., Liu, Q., Rao, M. S., & Zeng, X. (2013). Efficient generation of astrocytes from human pluripotent stem cells in defined conditions. Stem Cells, 31(5), 941-952.

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