

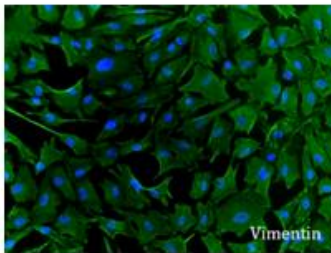
Human iPSC-Derived Astrocytes (ax0665)

These Astrocytes are cryopreserved for convenience, they are ready to use and assay ready within 48 hrs. These are derived from integration-free, induced pluripotent stem cells (iPSCs) under fully defined growth conditions using a completely reproducible process to enable researchers to gain further insight into the mechanisms that govern CNS development, disease onset and drug response.

Astrocyte dysfunction has been implicated in a number of neurological conditions such as **Alzheimer's** and **Parkinson's** diseases, **autism**, **amyotrophic lateral sclerosis (ALS)**, **Rett syndrome** and **schizophrenia**.

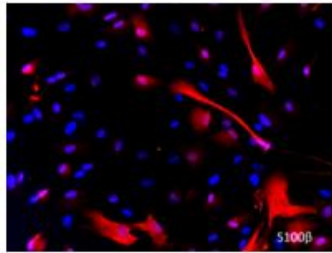
Vimentin

An intermediate filament protein known to co-express with GFAP in maturing and adult astrocytes



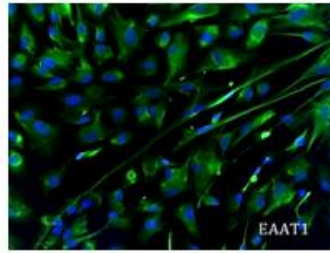
S100B

A pan-astrocytic calcium binding protein known to be a mature development marker.



EAAT1

Is active in clearing excitatory glutamate from the extracellular space, preventing neurotoxicity where GS converts glutamate to glutamine



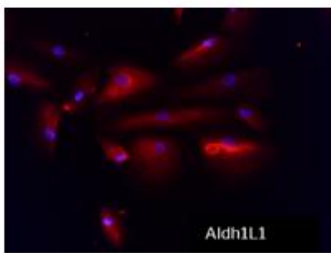
Once thawed, Axol's Astrocytes display all indicative markers and will respond to glutamate stimulation, a key functional characteristic within 48-60hrs.

They also express prototypical phenotype markers such as **GFAP, S100B, AQA4, AldhL1L** and **EAAT1**.

They have also been further validated where they display other key biomarkers including **Vimentin, Kir4.1** and **CD44**.

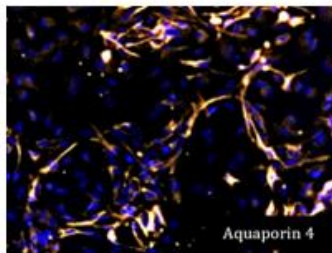
Aldh1L1

An enzyme that catalyses the conversion of 10-formyltetrahydrofolate, NADP+ and water to tetrahydrofolate, NADPH and CO₂



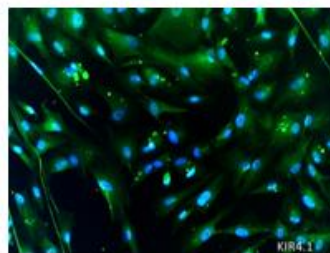
AQP4

The most abundantly expressed water channel in the brain and is highly localized in the end feet of astrocyte.



Kir-4.1

A key astrocytic channel known to play a major role in Potassium clearance mechanisms. Also has a specific association with known induced seizure and epileptic models.



PHYSIOLOGICALLY REPRESENTATIVE OF HUMAN PRIMARY ASTROCYTES

Offering a physiologically-relevant tool to study these cells as an isolated population or within co-culture and multiple culture populations with other neuronal cells for complex analysis of the central nervous system (CNS).

Cellular Characteristics

Axol have created these to give a mixture of grey and white matter astrocytes with a preference towards WHITE MATTER focusing on those cellular populations that modulate the distribution of action potentials coordinating communication between different brain regions, acting as a relay for input/output signals

GREY matter Astrocytes	WHITE matter Astrocytes
Low / No CD44 expression	High CD44 expression
Low GFAP expression	High GFAP expression
Low Vimentin expression	High Vimentin expression
Low <u>Nestin</u> expression	High <u>Nestin</u> expression
Highly branched morphology	Elongated, more simple morphology
High Aldolase C expression	Low Aldolase C expression

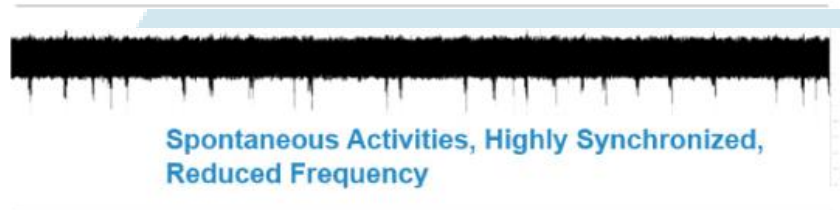
They carry low expression of nestin, a marker progenitor cell phenotype and are also tested to have low or negative expression for A2B5, a marker for Glial type cells, MAP2, a marker of microtubule growth and neuroitogenesis and Pax-6, a transcription factor marker for early embryonic development.

MEA Characterization of Cerebral Cortical Neuron-Astrocyte Co-culture

Day 30 Cerebral Cortical Excitatory Neurons (ax0025)



Day 30 Cerebral Cortical Excitatory Neurons (ax0025) and Inhibitory Neurons (ax0667)



Day 30 Cerebral Cortical Excitatory Neurons (ax0025) and Inhibitory Neurons (ax0667) + **Astrocytes (ax0665)**

