

Mature human iPSC-derived motor neurons form functional networks in culture.

Motor Neuron Maturation Accelerator

Motor Neuron Maturation Accelerator media supplement is specially designed to recreate the developmental milieu of motor neurons, driving rapid maturation.

Culturing our iPSC-derived motor neuron progenitor cells in this supplemented media provides functionally mature neurons in 14 days.

PRODUCT CODE	CULTURE MEDIA AND REAGENTS	VOLUME
ax0179	Motor Neuron Maturation Accelerator Media	1 mL
ax0072	Motor Neuron Maintenance Medium	200 mL
ax0041	SureBond	3 x 120 mL
ax0053	SureBond-XF	1 mL
ax0044	Unlock - fully defined & gentle detachment buffer	25 mL
ax139800	Recombinant Human Brain-derived Neurotrophic Factor (BDNF)	10 g/mL
ax139855	Recombinant Human Brain-derived Neurotrophic Factor (GDNF)	10 g/mL
ax139888	Recombinant Human Ciliary - Neurotrophic Factor (CNTF)	5 g/mL

Mature Motor Neurons Express Relevant Markers

Our human iPSC-derived motor neurons express HB9 and MAP2 (Figure 1), as well as LIM3 and ChAT2. These markers, mature motor neuron morphology, and tight cell clustering are indicative of maturation (Figure 2). The markers are expressed after 14 days in culture with motor neuron maturation accelerator-supplemented media.

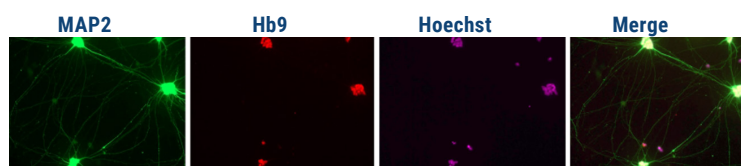


Figure 1. Mature iPSC-derived motor neurons express relevant markers. Immunocytochemical staining of human iPSC-derived motor neurons at 19 days in vitro.

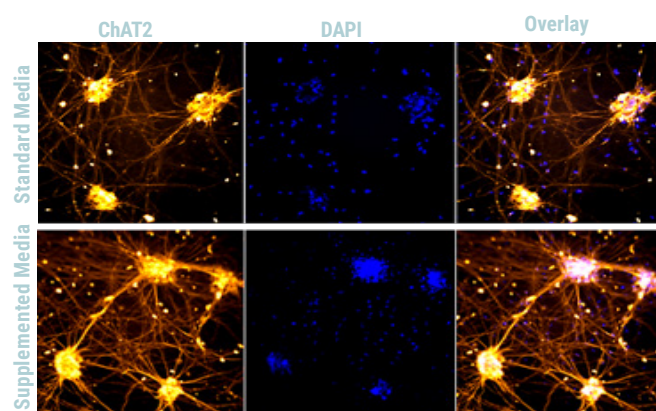


Figure 2. Mature iPSC-derived motor neurons show tight cell clustering and extensive network formation. Immunocytochemical staining of human iPSC-derived motor neurons at 20 days in vitro.

Functionally Mature Neurons in 14 Days

The maturation accelerator-supplemented media produces iPSC-derived motor neurons that are both morphologically and functionally mature. Multi-electrode array (MEA) electrophysiological recordings at DIV20 show burst firing events and amplitude responses in-line with mature motor neuron development, in contrast with iPSC-derived motor neurons cultured in standard maintenance media (Figure 3).

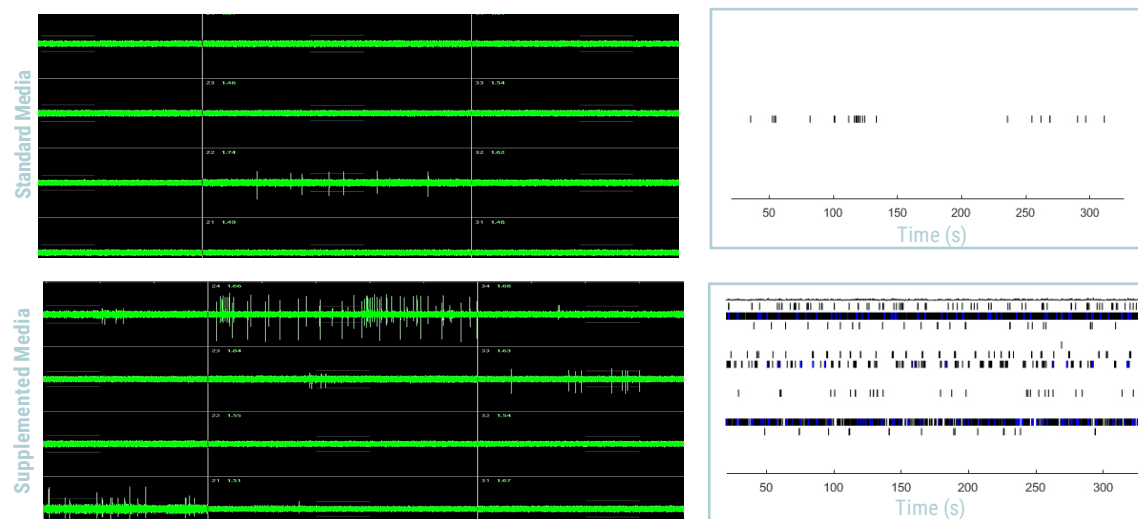


Figure 3. Maturation Accelerator media supplement produces functionally mature cells at 20 DIV. Left, MEA recordings show iPSC-derived motor neurons cultured in maturation accelerator-supplemented media (bottom row) exhibit increased levels of activity and burst firing compared to cells grown in standard maintenance media (top row).

Right, raster plots show activity recorded from multiple wells over time. Cells grown in maturation accelerator-supplemented media exhibit greater levels of functional activity (bottom row). All cells recorded from at 20 days in vitro.