MATURATION MAXIMIZER is a fully defined medium supplement for enhancing the existing Sensory Neuron Maintenance Medium (ax0060). It works by mimicking in vivo signals between sensory neurons and their supporting cells. The supplement contains signaling factors present in the peripheral nervous system and in particular the native environment of sensory neurons. Utilizing this supplement accelerates the maturation of iPSC-derived sensory neurons in vitro.

Human iPSC-derived sensory neurons treated with the Maximizer express key markers, such as TRPv1, TRPa1, TRPv2, TRPv3 and TRPm8, in early weeks of culturing.

**Functional Characterization using Ca\textsuperscript{2+} imaging**

Calcium Imaging of the Sensory Neurons’ responses to 1 μM Capsaicin when cultured with and without Maximizer. When cultured with Sensory Neuron Maturation Maximizer Supplement, sensory neurons respond to low concentrations of Capsaicin indicating the presence of functional TRPV1 channels.

A. Average deltaF/Fo values for the unsupplemented and Maximizer-supplemented sensory neurons treated with vehicle control and 1 μM capsaicin on Day 20 of culture.

B & C. Pie Chart and Table showing capsaicin threshold concentrations for sensory neurons treated with and without Maximizer. 91% of Regions-Of-Interest (ROIs) show a response to the lowest concentration of capsaicin tested (1 μM) compared to only 19% of control cells and while 99% of the ROIs of treated sensory neurons respond to the highest concentration of capsaicin (100 μM), 57% of non-treated sensory neurons remain non-responsive.

This shows that even by Day 20, the Maximizer-treated sensory neurons demonstrate enhanced capsaicin responses compared to non-treated. Neuronal responses to capsaicin occur at 1 μM for 90% of the sensory neuron population.
Each spike in the following traces shows individual neuronal firing.

**Functional Characterization: TRPV1 – Capsaicin**

- **22 days in culture; 60 second trace**
- Sensory Neuron Maintenance Medium with BDNF, GDNF, NGF & NT-3
- Sensory Neuron Maintenance Medium with the growth factors + MATURATION MAXIMIZER

- Control
- 1µM Capsaicin
- 10µM Capsaicin

**Sensory Maturation Maximizer Supplement**

**Functional Characterization using MEA**

- Sensory Neuron Maintenance Medium with BDNF, GDNF, NGF & NT-3
- Sensory Neuron Maintenance Medium with the growth factors + MATURATION MAXIMIZER

**Functional Characterization: TRPM8 – Menthol**

- **27 days in culture; 60 second trace**
- Control
- 30µM Menthol
- 100µM Menthol
So, what does this mean in terms of time to assay?

**FASTER MATURATION, QUICKER RESULTS**

Complete your assay between Day 21 and Day 29, rather than culturing the cells for months before their maturation.

- 17 less medium changes - save hours of labor with the Maximizer supplement!
- Reduced infection potential as a result of reduced culture period - higher experimental success rate!

**Available Products:**

**Sensory Neuron Maturation MAXIMIZER Supplement (ax0058)**

**Sensory Neuron MAXIMIZER Kit (ax00157):**

*All in one starter kit* including 1 vial of the sensory neuron progenitors, 1 bottle of Sensory Neuron Maintenance Medium, the Maturation Maximizer supplement, required growth factors, SureBond-XF coating substrate

**Sensory MATURATION MAXIMIZER Medium Kit (ax0158):**

One bottle of Sensory Neuron Maintenance Medium with the Maturation Maximizer Supplement

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