DEVELOPMENT OF AN IN VITRO HUMAN-DERIVED 3D MODEL OF DORSAL HORN PAIN SIGNALING

Anderson, WA^{*, **}, Iver N^{****}, Meselhe ME^{**}, McCoy L^{*}, Pollard K^{**}, Sharma AD^{*}, Bowser DA^{**}, Curley JL^{*}, Ashton RS^{****}, Moore MJ^{*, **, ***}. 🔨 AxoSim AxoSim Inc*, Department of Biomedical Engineering**, Brain Institute***, Tulane University, New Orleans, LA.

Wisconsin Institute for Discovery****, University of Wisconsin-Madison, Madison, WI. - Correspondence: wesley.anderson@axosim.com

Electrically Active Nerve Fibers and Synapse

Formation



Introduction

The "Opioid Crisis" of today emerged from the dramatic increase in prescription and misuse of the highly addictive drug. Current models to study this area involve expensive animal studies, which do not translate well in human clinical studies. This creates a need for physiologically relevant model systems for drug discovery and preclinical trials.





С 5 min after 1.0µM CNOX

Human Sensory Nerve (SN) to Dorsal Horn (DH) Synapse Model



Conclusion

- Developed 3D in vitro model of the DRG to dorsal horn synapse, a major target in pain and opioid research.
- Demonstrated electrical activity of nerve fibers and synaptic formation.
- Developed human iPSC-derived 3D in vitro sensory nerve model to create presynaptic nerve fiber of what will become a human 3D in vitro model of pain.

3D Rat DRG to Dorsal Horn Synapse Model







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