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Modeling of interstitial branching of axonal networks

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Abstract

A mathematical model is developed to describe and investigate interstitial branching of axonal networks during nervous system development. The model under consideration describes axonal network growth in which the concentration of axon guidance molecules controls axon's growth and interstitial branching from axon shaft. Numerical simulations show that in the model framework axonal networks branch similarly to real neural networks in vitro. © 2013 Imperial College Press.

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Keywords

activity, Axon, branching model, growth cone, interstitial, neuron