A probabilistic model for the establishment of neuron polarity. (English summary)


Summary: “The main aim of this paper is to present a simple probabilistic model for the early stage of neuron growth: the specification on an axon out of several initially similar neurites. The model is a Markov process with competition between the growing neurites, wherein longer objects have more chance to grow, and parameter $\alpha$ determines the intensity of the competition. For $\alpha > 1$ the model provides results which are qualitatively similar to the experimental ones, i.e. selection of one rapidly elongating axon out of several neurites while other less successful neurites stop growing at some random time. Rigorous mathematical proofs are given.”

References

Note: This list reflects references listed in the original paper as accurately as possible with no attempt to correct errors.

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