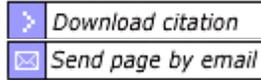


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EndNote



A new chemotaxis assay shows the extreme sensitivity of axons to molecular gradients.

Rosoff WJ, Urbach JS, Esrick MA, McAllister RG, Richards LJ, Goodhill GJ
 Nat Neurosci 2004 Jun 7(6):678-82 [[abstract on PubMed](#)] [[related articles](#)] [[order article](#)]

Selected by | Rachel O.L. Wong / Kees Jalink

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Faculty Comments

Faculty Member

Rachel O.L. Wong

Washington University School of
 Medicine, United States
 NEUROSCIENCE

Tech Advance

Comments

Using a clever method to create molecular gradients in three dimensions, the authors reveal the extreme sensitivity of neuronal growth cones to the environment. This technique not only permits rapid assessment of the response of neuronal growth cones to known axonal guidance molecules but also is particularly useful for identifying novel molecular cues.

Evaluated 23 Sep 2004

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Kees Jalink

The Netherlands Cancer
 Institute, Netherlands
 CELL BIOLOGY

Tech Advance

This paper reports imprinting of chemotactic gradients on a collagen gel that are stable enough to study neurite outgrowth in long-term experiments. Such gradients allowed the authors to show that neurites of rat dorsal root ganglion cells are capable of sensing a gradient of 0.1% of nerve growth factor, on average corresponding to a single molecule along a typical growth cone. They also showed that this sensitivity is only reached over a relatively small part of the gradient, indicating that no significant adaptation occurs in the growth cones. As generation of stable chemotactic gradients is a nuisance in other studies too, the gel-printing technique is certainly worth consideration by others studying chemotaxis.

Evaluated 19 Jul 2004

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Faculty Comments

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Faculty of 1000: evaluations for Rosoff WJ et al Nat Neurosci 2004 Jun 7 (6) :678-82 <http://www.f1000biology.com/article/15162167/evaluation>

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