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## Tissue geometry determines sites of mammary branching morphogenesis in organotypic cultures.

Nelson CM, Vanduijn MM, Inman JL, Fletcher DA, Bissell MJ

*Science* 2006-10-13 **314**(5797):298-300 [[abstract on PubMed](#)] [[related articles](#)]

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**Selected by** | Valeri Vasioukhin **NEW** / Kenneth Yamada

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## Faculty Comments

### Faculty Member

#### Valeri Vasioukhin

Fred Hutchinson Cancer Research Center, United States of America  
CELL BIOLOGY

Hypothesis

New Finding

### Comments

**This work demonstrates that tissue geometry may control organ morphogenesis by defining the local cellular environment.** The authors show that mammary branching morphogenesis is initiated in the regions with the lowest concentrations of transforming growth factor beta (TGF-beta) and that the local concentrations of TGF-beta are controlled by the geometry of the pre-existing tissue.

Competing interests: None declared

Evaluated 6 Nov 2006 **NEW**

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#### Kenneth Yamada

National Institutes of Health (NIH), United States of America  
CELL BIOLOGY

Hypothesis

New Finding

Tech Advance

**This paper uses a clever new approach to explore how tubules branch during embryonic organ development.** The authors micropattern wells in collagen gels to control the geometry of tubules, and subsequent branching by a mammary cell line. Using modeling, they predict that cell proliferation and outgrowth to form branches depends on an autocrine inhibitory morphogen. Branches form at sites of lowest concentration of this morphogen, which can involve autocrine TGF-beta and other signals.

Competing interests: None declared

Evaluated 26 Oct 2006

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## Faculty Comments

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Faculty of 1000 Biology: evaluations for Nelson CM et al *Science* 2006-10-13 314 (5797) :298-300  
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