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21-Apr-2008

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A translational block to HSPG synthesis permits BMP signaling in the early Drosophila embryo.

Bornemann DJ, Park S, Phin S, Warrior R

Development 2008 Mar **135**(6):1039-47 [abstract on PubMed]
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Selected by | Norbert Perrimon / John Couchman
First evaluation 29 Feb 2008 | Latest evaluation 6 Mar 2008
Relevant Sections

Faculty Comments

Faculty Member	Comments
Norbert Perrimon Harvard Medical School & Howard Hughes Medical Instutite, United States of America DEVELOPMENTAL BIOLOGY New Finding	**This paper solves the puzzling observation that heparan sulfate proteoglycans are not required for DPP/BMP signaling in early embryonic development but are required at other stages. The authors demonstrate that in early embryos glycoaminoglycan (GAG) synthesis does not occur because the mRNAs of at least two of the key GAG enzymes are not translated.** Translationally blocking GAG synthesis at that stage is important as it allows the generation of the Dpp/BMP activity gradient that patterns the dorso-ventral axis. **Competing interests:** None declared Evaluated 29 Feb 2008 How to cite this evaluation
John Couchman Imperial College London, United Kingdom CELL BIOLOGY Hypothesis New Finding	**Waiting for the right moment to let the proteoglycans loose. This paper demonstrates a remarkable translational control mechanism involving internal ribosome entry that regulates heparan sulfate synthesis.** In the early Drosophila embryo, a Decapentaplegic gradient requires heparan sulfate absence. However, at three hours, heparan sulfate is needed in a hurry to set up Wingless and Hedgehog gradients -- hence the need for the necessary synthesis enzymes to be transcribed and ready to go. **Competing interests:** None declared Evaluated 6 Mar 2008

How to cite this evaluation

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How to cite the Faculty of 1000 Biology evaluation(s) for this paper

1) To cite all the evaluations for this article:

Faculty of 1000 Biology: evaluations for Bornemann DJ et al *Development* 2008 Mar 135 (6) :1039-47 http://www.f1000biology.com/article/id/1103068/evaluation

2) To cite an evaluation by a specific Faculty member:

Norbert Perrimon: Faculty of 1000 Biology, 29 Feb 2008 http://www.f1000biology.com/article/id/1103068/evaluation

John Couchman: Faculty of 1000 Biology, 6 Mar 2008 http://www.f1000biology.com/article/id/1103068/evaluation

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