

**Jelly coat, cell shape and cleavage plane reorientation in *Xenopus* early embryos**

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**Abstract**

Cell shape has been shown to influence cleavage plane orientation in early *Xenopus laevis* embryos [1]. A similar effect has been reported as resulting from a strong static magnetic field [2], while other studies did not find any significant magnetic field effect on development at all [3,4]. Here, we present evidence that the jelly coat – which surrounds the fertilizable eggs like an external skeleton and which is often neglected as an experimental parameter – might offer an explanation for these seemingly differing findings. As the mediator between jelly coat and cleavage plane determination, we propose cell shape. This hypothesis is supported by <sup>31</sup>P solid state NMR spectra which show that the fluidity of the oocyte's cell membrane is higher in the absence than in the presence of the jelly coat.

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[3] K. H. Mild, M. Sandstrom, S. Lovtrup, "Development of *Xenopus laevis* embryos in a static magnetic field", *Bioelectromagnetics* 2: 199-201 (1981)

[4] H. H. Kay, R. J. Herfkens, B. K. Kay, "Effects of magnetic resonance imaging on *Xenopus laevis* embryogenesis". *Magn. Reson. Imaging* 6:501-506 (1988)