

P.09 Folding of cellular monolayers

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Cell sheet folding is a common morphogenetic process during the development of multicellular organisms [1]. Spheroidal green algae of the genus *Volvox* are uniquely suited as simple model systems for studying the basic principles of epithelial folding [2]. *Volvox* embryos turn their spherical cell monolayer inside out to achieve their adult configuration; this process is called inversion [2, 3, figure 1].

We use a combination of experimental and theoretical approaches to determine which cellular forces drive inversion and how these forces are forwarded across the cell sheet. Here we show comparative imaging of cell sheet folding in different *Volvox* species.

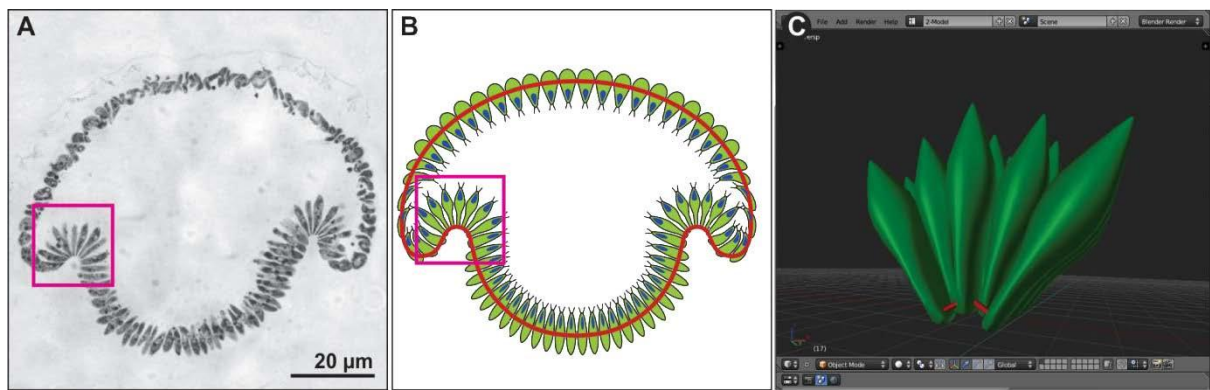


Figure 1. Inverting *Volvox globator* embryo. A: light micrograph. B: schematic representation. C: 3D-model of cells.

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- [2] Kirk DL, Nishii I: *Volvox carteri* as a model for studying the genetic and cytological control of morphogenesis. *Dev Growth Differ* 2001, 43:621-631
- [3] Höhn S, Hallmann A: There is more than one way to turn a spherical cellular monolayer inside out: type B embryo inversion in *Volvox globator*. *BMC Biology* 2011, 9:89