

Mechanical and genetics basis of cellularization and serosal window closure in Tribolium castaneum

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Propositions

- 1. The cellular shape during the early development of insects is highly influenced by mechanical factors (Chapter 2).
- 2. The fact that cell-cell interactions form Voronoi tessellations shows that embryo development can be modeled in a simple and elegant way (Chapter 2).
- 3. Innexin 7 protein is important to form the cell during the last part of cellularization (Chapter 3).
- 4. The trimer Laminin $\alpha 1, 2, \beta, \gamma$ of *Tribolium castaneum* has a key role in the serosal window closure (Chapter 4).
- 5. During development there are physical and chemical factors acting at the same time.
- 6. Tribolium castaneum should have a bigger role in the study of insect development than Drosophila melanogaster.
- 7. Although *Tribolium castaneum* is a good model to study insect development, there is little knowledge about its signaling pathways.
- 8. The fact that there are many histological approaches to visualize *Tribolium castaneum* embryos but limited availability of in vivo methods, reflects the bottlenecks to study living organisms using microscopy.
- 9. Science is objective *per se* but scientists are not.
- 10. All vaccines should be free and mandatory for everyone to eradicate as many diseases as possible.
- 11. In science it is common to teach that the disciplines as clearly differentiated, but in reality the separation is blurred.