# Linking genetics to mechanics during the *Drosophila* thorax morphogenesis

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Understanding tissue morphogenesis is a key question in developmental biology. In a team composed of biologists and physicists, we investigate how epithelial tissues acquire size and shape. We aim to link signaling pathway know to be a regulator of tissue size and shape to the mechanisms that govern tissue mechanics.

We first setup a multi-scale method to image the morphogenesis of the whole thorax of the fruit fly *Drosophila*. We then develop image analysis tools that allow us to quantify the morphogenesis from the cell level to the tissue level. In parallel, we use laser ablation at different scales to probe cell junction tension and global mechanical stress. We also analyze how mutations affecting tissue size and shape impair tissue morphogenesis.

In combination with physical modeling, our approach reveals how global gene expression controls the local cell mechanical properties to drive global tissue morphogenesis.