

'Glue' holding together skin cells and other epithelial tissue more active than realized

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The strong mechanical attachments – the "glue"—that hold together the cells of the skin and the other epithelial tissues of the body are the adherens junctions.

These junctions are responsible for maintaining the shape and integrity of the sheets of [epithelial cells](#) that line such [body cavities](#) as the [digestive tract](#), as well as the surfaces of structures such as the heart. Defects in the proteins of these attachments have been implicated as potential contributors to the development and spread of cancer.

Recent research on *Drosophila* flies, combined with previous studies in cell cultures, are challenging the traditional view that adherens junctions maintain tissue integrity by passively resisting disruptive forces.

In studies with *Drosophila* embryos, the Princeton University lab of Nobel laureate Eric Wieschaus, Ph.D., has uncovered the first evidence in living organisms that adherens junctions actively respond to mechanical cues by remodeling their own position and intensity, which in turn restructures the cells.

Mo Weng, Ph.D., postdoctoral fellow in the lab, used live imaging and quantitative image analysis of fixed and live embryos to determine that these changes depend on mechanical force mediated by the motor protein myosin and precede the changes in the distribution of cell polarity proteins, such as Bazooka, that are responsible for spatial organization of the cells.

Understanding the regulation and functioning of adherens junctions sheds light on the organization of multi-cellularity—from cell-cell contacts to the remodeling of tissues and organs during life.

More information: Abstract: "Mechanical force induced adherens junctions remodeling." Mo Weng², Eric Wieschaus^{1,2}. 1) Howard Hughes Medical Institute; 2) Molecular Biology, Princeton University, Princeton, NJ. Link: [abstracts.genetics-gsa.org/cgi ...
il.pl?absno=14531606](https://abstracts.genetics-gsa.org/cgi-bin/il.pl?absno=14531606)

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