

Review of: "Morphomechanics: An Extended View"

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Potential competing interests: No potential competing interests to declare.

The paper introduces an innovative framework that challenges traditional genetic-centric views of morphogenesis, emphasizing the role of mechanical forces and bioelectric signals in shaping biological forms. Here are some comments:

1. The paper theorizes about the role of mechanically activated ion channels and bioelectric signals in morphogenesis but lacks empirical data to substantiate these claims. Including experimental results would significantly strengthen the arguments presented. For example, patch-clamp recordings that demonstrate the activity of mechanically activated ion channels in response to applied mechanical forces could show the direct correlation between mechanical stimuli and channel opening.
2. While the paper discusses the mechanisms by which cells might measure mechanical stress, it could benefit from a clearer explanation of how these mechanisms are integrated into the larger context of cell behavior and development.
3. The paper could benefit from a comparative analysis with existing models of morphogenesis, highlighting the advantages and potential limitations of the morphomechanical approach.
4. The paper should discuss how the proposed morphomechanical principles integrate with the current biological understanding of development, including molecular and genetic factors.
5. The broader implications of the morphomechanical model for biology and medicine are touched upon but not fully explored. The paper would be improved by a discussion of how this model could impact our understanding of disease, injury, and repair processes in biological tissues.