**Extensile-Contractile Phase Separation in an Active Nematic Vertex Model**

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The importance of nematic order and active nematic behaviour to epithelial morphogenesis is becoming increasingly clear. Several approaches have been developed to adapt vertex models, one of the most ubiquitous methods of modelling epithelia, to also include nematic activity. Here, we use one of these modified vertex models to study the dynamics of a mixture of extensile and contractile cells. We find that the two cell population separate over time, with the degree of separation depending on the magnitudes of extensile and contractile activity. This phase separation appears to be driven by two mechanisms. Firstly, only extensile model cells are intrinsically motile on their own. Therefore, the two populations move at different speeds when mixed. Secondly, contractile activity in the vertex model leads to cells of that type ‘sticking’ together, preventing separation.