

Cell lineage dependent chiral flows at the actomyosin cortex drive cellular rearrangement in early development.

Cells need to be positioned correctly during embryogenesis for achieving important processes like body axis formation and organ development. The mechanisms by which cells reposition in the early developing embryo are still not completely understood. Recently, Naganathan et al 2014, showed that the gradient of myosin in the actomyosin cortex generates chiral flows and these flows are important for breaking left-right symmetry in a developing *C. elegans* embryo. We here show that chiral flows arise in the AB lineage only, and that the presence of these flows correlates with cellular repositioning in the embryo. Using reverse genetics approach and temperature sensitive mutants we demonstrate that cellular rearrangements in the AB lineage are driven by chiral actomyosin flows. Thus, we conclude that chiral actomyosin flows drive cellular rearrangement in early development.

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