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The joint gene

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The formation of joints during foetal development is essential for determining the final skeletal pattern and is also strongly implicated in a number of joint diseases. At present little is known about the complicated molecular mechanisms involved in joint formation, however. In the 9 February issue of *Cell*, researchers from the Department of Genetics, Harvard Medical School, suggest that *Wnt-14* is essential in the initial steps of joint formation.

Christine Hartmann and Clifford Tabin studied the early joint-forming regions of the developing chick limb. They found that *Wnt-14* shows a striking pattern of expression in the regions of joint formation. Observations of localized *Wnt-14* misexpression indicated that cells within prechondrogenic regions respond to exogenous *Wnt-14* and become morphologically and histologically distinct from neighbouring cartilage, taking on histological and molecular properties typical of the early joint interzone (*Cell* 2001, **104**:341-351).

But ectopic *Wnt-14* expression led to a repression of joint formation in adjacent cartilage. This provides a potential mechanism for spacing the joints, in which each newly formed joint would block formation of additional joints in its immediate vicinity.

References

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