

**P017** Gene targeting collagen XXVII.

**D.A. Plumb, M.D. Briggs, D.J. Thornton, K.E. Kadler,  
R.P. Boot-Handford**

*Wellcome Trust Centre for Cell-Matrix Research, Faculty of  
Life Sciences, The University of Manchester, Oxford Road,  
Manchester M13 9PT, UK*

Type XXVII collagen is distinct from classical fibrillar collagen chains (eg  $\alpha 1(I)$  or  $\alpha 1(V)$ ) in that it has no minor triple-helix, a major triple-helix that is relatively short with two interruptions in the Gly-X-Y repeat.

We have utilised gene targeting to generate mice carrying mutant forms of type XXVII collagen for functional studies. By incorporating an additional *loxP* site into the targeting construct, we have generated a mouse carrying a Gly to Cys mutation in the collagenous domain (col27G1516C) that is converted *in vivo* to an 84 amino acid deletion (col27del84) within the collagenous domain by the expression of *cre* recombinase.

The secretion of mutant protein into the extracellular matrix by animals carrying the col27G1516C is indistinguishable from wild-type controls. The col27G1516C mice are viable, fertile, grow normally and have no overt phenotype. In mice carrying col27del84, the mutant collagen is also secreted into the matrix but at possibly reduced levels. However, the col27del84 allele is peri-natal lethal in the homozygous state with mice presenting lung and growth plate phenotypes.

These results suggest that type XXVII plays an important role in early development of the lung and skeleton.

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