

P007 FGFR3, osteoarthritis and hypertrophic differentiation.
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Activation of the tyrosine kinase receptor FGFR3 prevents progression of chondrocytes from the proliferative to the hypertrophic zone of the growth plate. Activating mutations of this receptor are responsible for some forms of short-limbed dwarfism such as achondroplasia.

Osteoarthritis is a highly prevalent, debilitating condition brought on by interactions between genetic and environmental factors which lead to the breakdown of cartilage on the articular surface. During disease progression the chondrocytes of the articular cartilage appear to express some characteristics of hypertrophy. This present study uses a retroviral method of stably transfecting the ATDC5 chondrogenic cell line with two naturally occurring isoforms of FGFR3 with and without a mutation causing constitutive activity. Real time PCR analysis is used to examine progression of differentiation and expression of hypertrophic markers. Western blot analysis is used to demonstrate the continued expression of the transfected gene at the protein level. FGFR3 is expressed at the message level throughout the 42 day differentiation period. Studies demonstrating at the correct localisation and constitutive phosphorylation of the receptor are in progress.