CHICK LIMBS DEVELOP WITHOUT MESONEPHROS.

Marian FERNANDEZ-TERAN, M. Elisa PIEDRA, Maria Felix BASTIDA and Marian ROS

Departamento de Anatomia y Biologia Celular. Universidad de Cantabria. 39011 Santander. Spain

A great deal of information about the molecular biology of limb development has been gathered in the recent past years. However the molecular pathways leading to the foremost specification of the limb field and the initiation of the limb bud remain presently unknown. Classical studies have emphasized on the influence of axial structures on limb initiation, namely the paraxial mesoderm and the mesonephros (Kieny, 1969; Stephens and McNulty, 1981). The influence of the mesonephros has recently been highlighted (Geduspan and Solursh, 1993: Crossley et al., 1996) and two molecules FGF-8 and IGF-I, that are expressed by the mesonephros, have been implicated in limb development. Based on expression data Crossley et al. (1996) have proposed a model in which FGF-8 would be the inductor of the limb. In this model *Fgf-8* expression by the mesonephros would induce *Fgf-8* expression by the prelimb ectoderm and consequently be responsible for the initiation of the limb. The observation that ectopic administration of FGF to the flank cause extra limbs to develop supports this hypothesis. However, other observations indicate that the expression of *Fgf-8* by limb ectoderm is not required for limb bud initiation: the chick mutant *limbless* do not express it but however limbs do normally initiate development although they later regress (Ros et al., 1996).

In the present work we directly checked the influence of mesonephros on limb development by preventing mesonephros differentiation in chick embryos. This procedure has been previously described (Calame, 1962; Le Douarin y Fontaine, 1970) and briefly consists in mechanically arresting the caudal elongation of the Wolffian duct by the placement of a barrier. As a consequence, in a percentage of the operated embryos there is not mesonephros differentiation. We have assessed the absence of mesonephros by histology at several intervals after the operation. Furthermore *Fgf-8*, and *Lmx-1*, two genes that are normally expressed by mesonephric mesenchyme during differentiation, are undetectable at the operated side, both in whole mounts and in sections. We also estimate the presence of the Wolffian duct by the expression of the gen *cSim1* (Pourquie et al., 1996). Our results show that in the absence of mesonephric differentiation the initiation and development of the limb proceeds normally. The wings that develop show normal genetic expression and patterning. We conclude that the mesonephros is not required for chick limb development.

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