

Immunochemical and immunocytochemical expression of protein kinase c isoenzymes alpha, delta, epsilon and zeta in primary adherent cultures of chick chondrocytes

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Key words: PKC isoforms, chondrocytes, immunochemistry, immunocytochemistry.

SUMMARY

The family of protein kinase C (PKC) comprises serine/threonine isoenzymes involved in various biological processes, including cell proliferation and differentiation. On the bases of previous investigations performed by us on the expression of various PKC isoforms in the endochondral ossification process of the vertebral column, the aim of the present work was to investigate the expression of various PKC-isoenzymes in chick primary chondrocyte cultures i.e. the most used chondrocyte culture model in vitro. Immunochemical and immunocytochemical experiments were performed to detect the expression of PKC- α , - δ , - ϵ and - ζ . Chondrocyte cultures were examined two weeks after cell collection from tibiae of 6-day old chick embryos. By means of morphological observations associated with the immunocytochemical expression of type II collagen, two different cell phenotypes were identified, i.e. fibroblast-like and polygonal-roundish-shaped cells. As far as PKC-isoenzyme expression was concerned, PKC- ζ revealed a stronger immunochemical and immunocytochemical expression; PKC- α exhibited a positivity less marked than PKC- ζ , whereas PKC- δ and - ϵ were less expressed in this culture stage. It is reasonable that a major role could be played by PKC- α and - ζ in this phase of the chondrogenic process, whereas PKC- δ and - ϵ could be involved in different stages of chondrocyte differentiation in vitro.