

The Role of Type IV Collagen in Developing Lens in Mouse Fetuses

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Abstract

Objective(s)

Extracellular matrix (ECM) and basement membrane (BM) play important roles in many developmental processes during development and after birth. Among the components of the BM, collagen fibers specially type IV are the most important parts. The aim of this study was to determine the time when collagen type IV appears in the BM of lens structure during mouse embryonic development.

Materials and Methods

In this experimental study, 22 female Balb/C mice were randomly selected and were kept under normal condition, finding vaginal plug was assumed as day zero of pregnancy. From embryonic day 10 to 20, all specimens were sacrificed by cervical dislocation and their heads were fixed, serially sectioned and immunohistochemistry study for tracing collagen type IV in lens were carried out.

Results

Our data revealed that collagen type IV appeared at the early stage of gestation day 12 in BM of anterior epithelial lens cells and the amount of this protein gradually increased until days 15-17 in ECM and posterior capsule epithelium. After this period, severe reaction was not observed in any part of the lens.

Conclusion

These findings establish the important role of collagen IV in developing optic cup and any changes during critical period of pregnancy may be result in severe visual system defect

Keywords: Basement membrane, Collagen IV, Lens capsul

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