DEVELOPMENTAL ROLE OF FGF/BMP IN PATTERNING THE CILIARY BODY IN THE CHICK EYE – A **SOMATIC TRANSGENESIS MODEL**

Dias da Silva M.R. [1,3], Martins J.M.R.[1], Mikawa T.[2], Hyer J.[3]

[1]Department of Biochemistry, UNIFESP-EPM, São Paulo, Brazil; [2]Department of Anatomy and [3]Ophthalmology, UCSF, San Francisco, USA

Optic-vesicle neuroepithelium gives rise to four basic tissues in the vertebrate optic cup: pigmented epithelium, neural retina, ciliary body, and iris. Periocular mesenchyme/BMP specifies pigmented epithelium and surface ectoderm/FGF specifies neural retina. Iris and ciliary body are specified through interactions with lens. As lens is a source of FGF, we examined whether this factor was involved in inducing ciliary body. We forced the pigmented epithelium of the embryonic chick eye to ectopically express FGF4. Infected cells and their neighbors were transformed into neural retina. At a distance from the FGF signal, the tissue develops into pigmented epithelium. Ciliary body was found in the transitioning zone without being in contact with lens. To assess the contribution of the lens on the specification of normal ciliary body, we created optic cups in which the lens had been removed while still pre-lens ectoderm. Ciliary body was identified in the anterior portion of lens-less optic cups. We propose that ciliary body may be specified at optic vesicle stages, at the same developmental stage when the neural retina and pigmented epithelium are specified and we present a model as to how this could be accomplished through overlapping BMP/FGF signals, and hypothesized the role of extracellular matrix in this process.