

## Lectin binding in the ependymal cells of the cephalic portion of the nervous system in the chick embryo

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### SUMMARY

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The content, distribution and changes of the glycoconjugates oligosaccharides in the ependymal cells of the cephalic portion of the nervous system, in the chick embryo from 5 days of incubation till hatching and in the 3 days old chicken, were investigated. For this purpose a battery of six HRP-conjugated lectins were used (WGA, SBA, UEA I, LTA, PNA, ConA). Enzyme and chemical treatments were performed on some sections prior to staining with HRP-lectins. Our findings showed a large amount of all the investigated sugar residues at the apical portion of the ependymal cells, for the whole considered period of incubation and in the 3 days old chicken. This could indicate that also the immature ependymal cells (spongioblasts) begin to play a typical role of the mature cells. The presence of cytoplasmic soprannuclear granules, containing D-glucosamine, D-galactose-( $\beta 1 \rightarrow 3$ )-N-acetyl-D-galactosamine and sialic acid in the early stages of incubation, might represent a secretion by the ependymal cells to integrate a not yet fully functioning secretion by the choroid plexuses. At the ciglia a large amount of oligosaccharides were detected in the second part of the period of incubation and in 3 days old chicken. These oligosaccharides could be involved in determining and maintaining the movement of the ciglia to facilitate the flow of the CSF.

### INTRODUCTION

The ependymal cells, which have neuroectodermal origin, line the ventricular components of the brain.

Many functions have been attributed to the ependymal cells i.e. secretory activity (Booz, 1975; Gato et al., 2005), propelling of the cerebro-spinal fluid (CSF) with their cilia (Banisz et al., 2005), partial production of CSF (Bruni, 1998) and in case of injuries possibility to regenerate the damaged nervous tissue (Takahashi et al., 2003). Scanty informations are available in literature as the development of the ependymal cells is concerned (Coli et al., 2003). In particular, no data are present on this type of