

INTRODUCTION

The cochlea is the hearing coiled shape organ composed of three main structures: the spiral ligament, the organ of Corti with sensory hair cells and supporting cells and the spiral ganglion (Fig.1). The alteration of one of these structures induces deafness. Currently, numerous genes have been associated to this kind of hearing loss. In the present work, we focus our attention *Cemip* – also known as KIAA1199 – that has been associated to human hereditary neurosensory deafness.. Therefore we would like to understand the role of *Cemip* in the mouse cochlear development. In this way, it is important to determine the spatio-temporal expression pattern of *Cemip* during the cochlear development.

RESULTS

During the embryonic development *Cemip* begins to be expressed in the spiral ganglion at E14 (Fig.2). Between P0 and P14, this expression in the spiral ganglion is maintained and seems to be located in neurons (Fig.3- A,B and C). *Cemip* is also expressed in the spiral ligament and in some cells of the organ of Corti which seem to be pillar and Deiter's cells (Fig. 3- D, E and F). At later stage (P21), *Cemip* expression is completely different and is located only in the spiral lamina, the osseous structure surrounding the spiral ganglion.

Figure 1: Schematic representation of a transversal section of the cochlea.

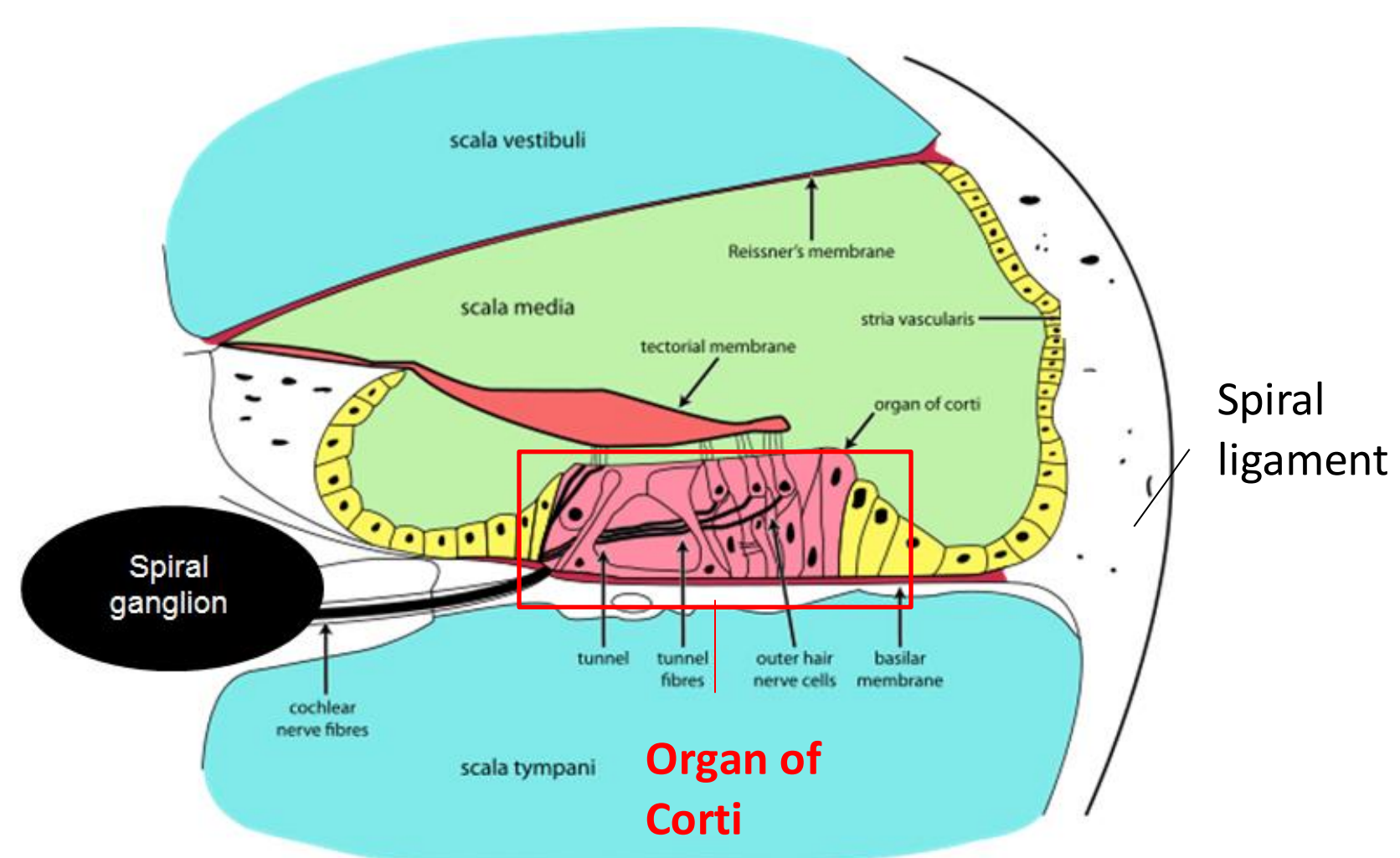


Figure 3: Immunofluorescence to determine cell types expressing Cemip. A, B, C: High magnification of the spiral ganglion. *Cemip* seems to be expressed in neurons. D, E, F: High magnification of the organ of Corti. Expression in some supporting cells.

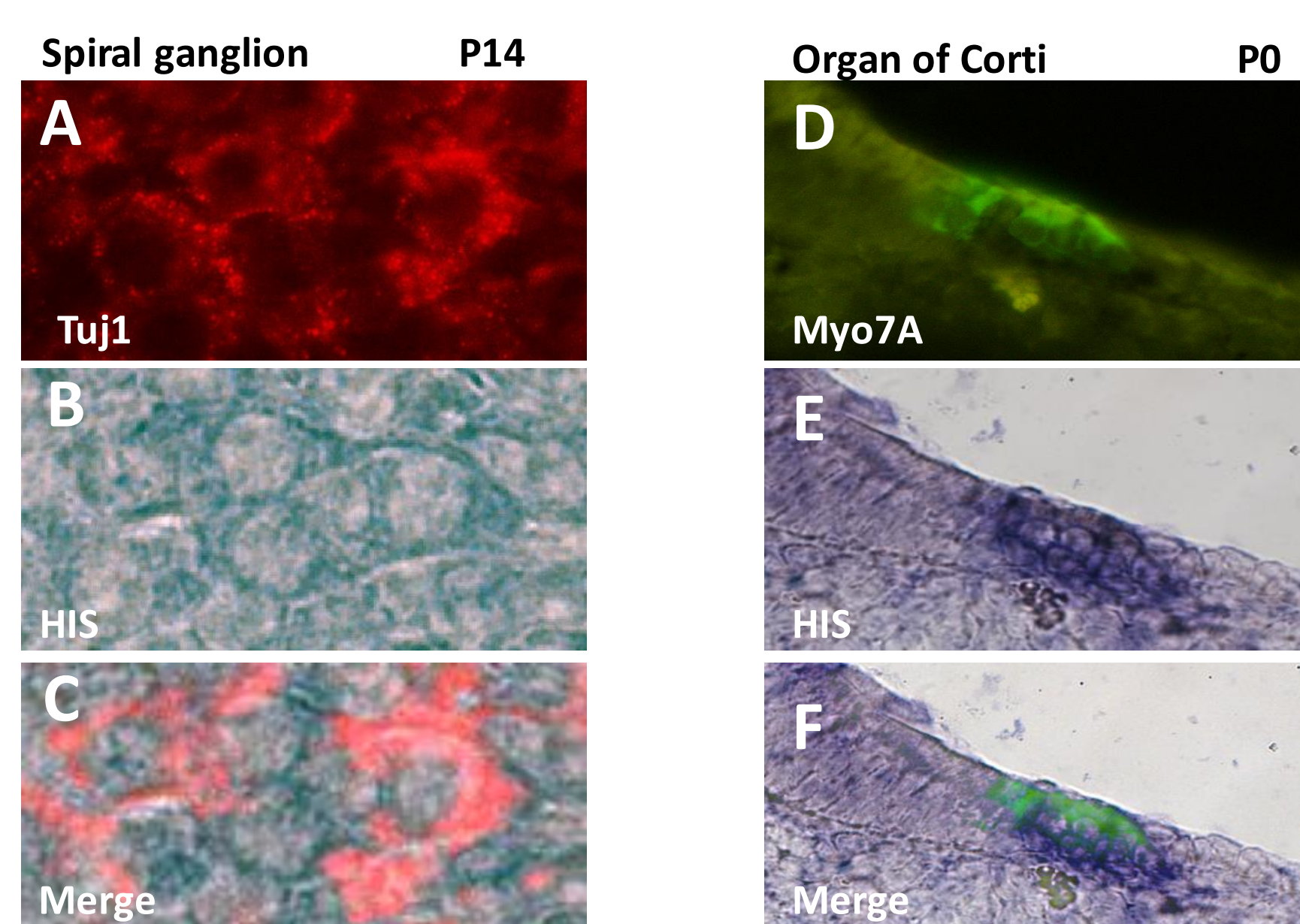
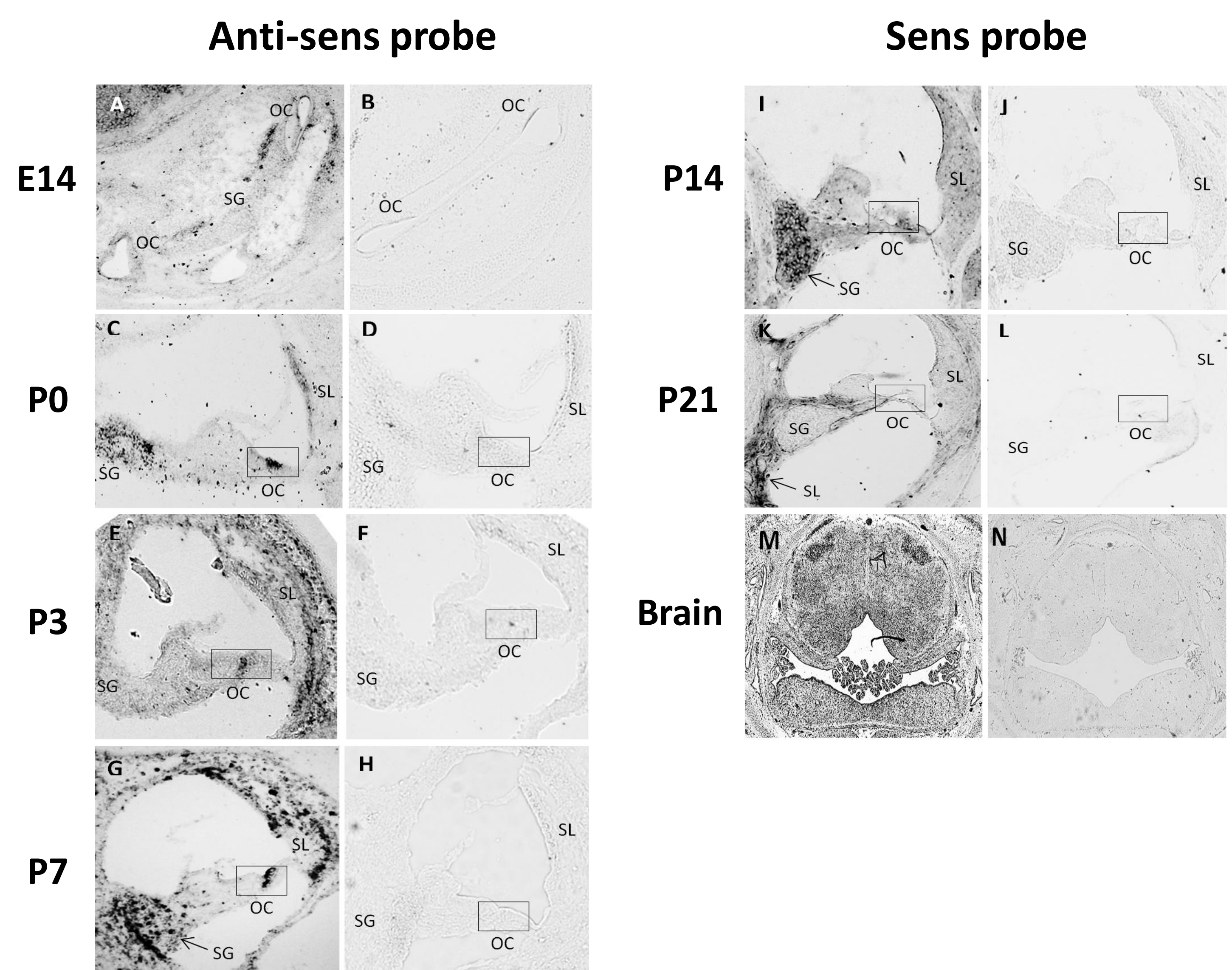


Figure 2: Study of the expression pattern of Cemip by in situ hybridization at different developmental stages . At P0 (C), P3 (F), P7 (G) *Cemip* is expressed in some cells of the organ of Corti (OC), the spiral ganglion (SG) and the spiral ligament (SL). At P14, the expression in the SL is weaker. At P21, *Cemip* is expressed only in the spiral lamina, the osseous structure surrounding the SG. The brain is used as a positive control (M) and the sense probe as a negative control (B, D, F, H, J, L and N).



CONCLUSION

Cemip expression changes during embryonic development. It begins to be expressed only in the spiral ganglion (E14) before to be expressed also in some supporting cells of the organ of Corti and in the spiral ligament (between P0 and P14). At later stage (P21), *Cemip* is absent of these structure but expressed in the spiral lamina. These results seem to indicate that *Cemip* is important during the cochlear development and that its role may change after the maturation of the cochlea occurring around P15.

