

Abstract

The prechordal plate is generally described as a population of axial mesendodermal cells that is formed during early embryonic development, in the rostral-most area of the vertebrate head. The population of the prechordal plate cells is specific for vertebrate, and evolution of the vertebrate head was one of the key steps during vertebrate evolution. During vertebrate embryogenesis, the prechordal plate cells are pushed by the growth of the forebrain, until only some small population remains in front of the notochord, which later differentiate into mesodermal cells. The precise morphogenesis of this prechordal mesoderm, differs across vertebrates, but in most vertebrates produces a pair of head cavities, which are called premandibular. Within the organogenesis of vertebrates, extrinsic eye muscles are formed from these mesodermal cells and cavities. The prechordal plate, however is also referred to as one of the important centers that control the formation of the vertebrate head during early embryogenesis, since its removal or inhibition of important signals caused various disorders and embryonic dead.

This thesis aims to summarize the information on the formation and function of the prechordal plate cells during vertebrate embryogenesis.

Key words: prechordal plate; prechordal mesoderm; head cavities; extrinsic eye muscle; embryogenesis; vertebrate