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O-ONC-31 - A promising path in the molecular labyrinth of central nervous system tumors: role of SOX family of transcription factors

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Resumen

Introduction: In the last years a growing number of evidences has shown that mutations and dysfunction of SOX factors are implicated in several human diseases, including CNS cancers.

Objectives: To summarize the current knowledge about SOX family in CNS tumors and their role in the origin and maintenance of the subpopulation of cancer stem cells in these tumors.

Material and methods: We conducted a wide review of all available literature on SOX factor. We summarized the results of our previous published studies on basic and clinical research on SOX family.

Results: SOX genes are developmental regulators with functions in sex determination, chondrogenesis, hematopoiesis, neural crest development and neurogenesis. Some members have a role in the instruction of cell fate and maintenance of progenitor's identity during embryogenesis. They are also important for stem cell maintenance and play additional roles during tissue homeostasis and regeneration in adults CNS. Mutations and dysfunction of SOX factors are implicated in several human diseases, including a variety of brain cancer.

Conclusions: Since SOX factors play an integral role in the maintenance of neural stem cells and in the specification and differentiation of neurons, astrocytes and oligodendrocytes, it seems reasonable to surmise that aberrant expression of members of this family is implicated in the development and maintenance of CNS tumors.