

Isolation and characterization of Mesenchymal Stem Cells from pituitary tumours

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In the past few years the introduction of the cancer stem cells (CSCs) notion opened new perspectives for the diagnosis and cure of solid tumors. According to this theory, CSCs originate from mutated stem cells, maintaining the self-renewal and differentiative abilities. Therefore, the development of specific therapies targeted at CSCs holds hope for improvement of survival and quality of life of cancer patients. Actually, no informations are available about stem cells and cancer stem cells on pituitary tumours.

This work depicts some essential features of stem cells isolated from pituitary adenomas. Six tumour biopsies (3: GH-secreting; 3: non secreting) were collected and cultured with a specific culture medium. Cell growth and morphology were monitored and cells were subjected to analyses for stemness determination (immunophenotype, gene expression and differentiative potential) [1, 2] and GH secretion. Cells showed a stem-like immunophenotype, the expression of Oct-4, Sox-2, Nanog and Klf-4 and the ability to differentiate towards osteogenic, chondrogenic and adipogenic lineages. The hormone secretion ended after two weeks culturing. Even if further studies are needed for the fully comprehension of the specific nature of these cells and on their role on tumour onset and maintenance, this study opens to the possibility of isolation of stem cells from pituitary tumour, allowing a molecular targeting of it.

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References

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Key words

MSCs, cancer stem cells, pituitary tumours.