

Aberrant expression and distribution of the OCT-4 transcription factor in seminomas

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摘要.

Abstract

Testicular germ cell tumors (TGCTs), comprised of seminomas and non-seminomas, are derived from premalignant and noninvasive intracellular germ cell neoplasias. Among TGCTs, seminomas are believed to resemble a transformed state of primordial germ cells (PGCs) and are known to exhibit a gene expression profile similar to that of embryonic stem (ES) cells, such as transcription factor OCT-4. OCT-4 has recently been recognized as a diagnostic marker for clinical aspects of seminomas. However, the role of the OCT-4 protein in seminomas has not been clarified. To determine a possible role of the OCT-4 protein in seminomas, in this paper, we studied a series of 41 testicular tumor tissues and four cell lines by immunohistochemistry, Western blotting, and reverse-transcriptase polymerase chain reaction (RT-PCR) to examine the expression and distribution of the OCT-4 transcription factor in seminomas. By utilizing immunohistochemical staining and Western blotting, we demonstrated that the OCT-4 transcription factor was aberrantly localized in the cytoplasm and nuclei of cells in the collected seminoma tissues. This observation was further confirmed using immunocytochemical staining of NCCIT (seminoma-embryonal carcinoma) and NT2 (embryonal carcinoma) cells. In addition, the RT-PCR results indicated that Oct-4 mRNA was relatively highly expressed in NCCIT, NT2 cells, and seminoma tissues when compared with human embryonic stem cells. The aberrant expression and distribution of the OCT-4 transcription factor in seminomas may provide some important clues concerning the cell transformation between germ line stem cells (like PGC) and testicular germ cell tumors.