

# **Identification of Sp2 as a transcriptional repressor of carcinoembryonic antigen-related cell adhesion molecule 1 in tumorigenesis**

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摘要

## **Abstract**

Down-regulation of carcinoembryonic antigen-related cell adhesion molecule 1 (CEACAM1) tumor suppressor gene expression is common in several malignancies including prostate, colon, and breast cancer. The mechanism that mediates this down-regulation is not known. Here, we report that down-regulation of CEACAM1 expression in prostate cancer cells occurs primarily at the transcriptional level and is mediated by Sp2, a member of the Sp family of transcription factors. Sp2 binds to the CEACAM1 promoter in vitro and in vivo, and transient overexpression of Sp2 down-regulates endogenous CEACAM1 expression in normal prostate epithelial cells. Sp2 appears to repress CEACAM1 gene expression by recruiting histone deacetylase activity to the CEACAM1 promoter. In human prostate cancer specimens, Sp2 expression is high in prostate cancer cells but low in normal prostate epithelial cells and is inversely correlated with CEACAM1 expression. Our studies show that transcriptional repression by Sp2 represents one mechanism by which CEACAM1 tumor suppressor gene is down-regulated in prostate cancer.