

Are Aberrant Transcripts of FHIT, TSG101, and PTEN/MMAC1  
Oncogenesis Related?

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Abstract

Tumor suppressor gene mutations in TSG101, FHIT, and PTEN/MMAC1 were found in many types of cancer and the defects in these genes are responsible for the tumor development. Since aberrant transcripts of these genes were also identified in normal tissues, the significance of these mutations in carcinogenesis has become a controversy. To determine large deletions or other alterations in these genes, we analyzed the integrity of their transcripts in both cancerous tissues and the matched normal tissues. More than 400 transcripts derived from at least eight different types of tissue were analyzed using nested RT-PCR and direct sequencing. High frequency of abnormal transcripts of all three genes occurred in both cancerous and the normal tissues. We believe that these aberrant transcripts do not relate to cancer development. These aberrant transcripts may be imperfect products of splicesome that occurs rarely but was amplified by nested RT-PCR. They may be also generated from alternative splicing due to the exonic splicing elements of the gene.