

HPV and carcinogenesis

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S U M M A R Y

The HPV's mechanism of carcinogenesis is not completely understood. The possibility of evolving into direction of malignancy depends on the type of virus, the synergic action with different physical, chemical and biological agents, the genetic constitution of the host and the immune defense mechanism of the host, all of which are able to modify the course of HPV infection.

Introduction

The human papillomaviruses (HPV) are small viruses with double stranded DNA that have a particular tropism for the epithelium inducing its proliferation. It is believed that the HPV enters the body after slight trauma to the epithelium and needs terminally differentiated epithelial cells for replication (1).

Up to now 100 (2) different genotypes have been recognized, of which one small group has been identified as a causing agent for certain types of tumors in several epithelia. It is the number one cause of cervical carcinoma (3).

The DNA of the HPV can persist in the infected cell in episomic or extrachromosomic form or can be incorporated into chromosomes of the host cell. Consequently, the derived cells will also carry within their genetic material the genetic material of the virus, responsible for the cellular transformation.

The HPV genome contains a double-stranded circular DNA of about 7900 base pairs that can be functionally divided into two regions:

1. LCR (Long Control Region) - necessary for the regulation of the genic expression and for the DNA replication.

2. ORF (Open Reading Frames) - that can be divided into the Early Region, necessary for the replication, cellular transformation and for the control of viral transcription and the Late Region that codes for the capsid proteins that comprises the outer protein coat of the virus (1).

Within the Early Regions (E), it is possible to distinguish different genes with specific functions:

- E1 and E2 have an important role in viral DNA replication. The E2 participates in the regulation of LCR transcriptions, and decreases the expression of E6 and E7.

K E Y W O R D S

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