Prostate cancer (PC); is the second leading cause of cancer mortality among men. Human papillomavirus (HPV) is the most common cause of cervical cancer, strongly associated with anal and vaginal cancers. Also, interleukin-12 (IL-12) induces antitumor immunity. This study aimed to investigate the role of HPV in PC; and determine its effects on serum IL-12 .

Between 2018 and 2022 in Ahvaz, researchers obtained 55 paraffin samples of malignant prostate lesions and 55 control samples of benign hyperplasia tissues from the prostate. Blood samples were collected from 24 diagnosed cancer patients to assess IL-12 levels before treatment initiation. Additionally, 24 patients with benign prostatic hyperplasia participated as controls. We performed DNA extraction using the phenol-chloroform method and examined the presence of papillomavirus DNA in tissues through Nested-PCR. Subsequently, IL-12 levels in serum were measured using ELISA.

The findings did not show the relationship between HPV and PC; HPV infection was not correlated to the presence of IL-12 secretion. However, with the progression of cancer, the level of IL-12 decreased significantly in patients compared to the control group (P<0.05).

HPV infection can exist in prostate tissue, although this does not mean that it contributes to P.C. development. The most significant strains infecting prostate tissue are types 16 and 18. Compared to the control group and with different Gleason scores, prostate cancer patient's levels of interleukin-12 secretion are significantly lower. One can make effective measures to assess the prognosis, regulate the condition, or aid in treating individuals using this crucial cytokine.

**Keywords:** Cytokine, Tumor, Nested-PCR, ELISA, Gleason score