Zinc Finger Nuclease ZFN-603

National Cancer Institute

Source

National Cancer Institute. Zinc Finger Nuclease ZFN-603. NCI Thesaurus. Code C129588.

A zinc finger nuclease (ZFN) targeting the human papillomavirus (HPV) type 16 (HPV16) oncoprotein E7, with potential antineoplastic activity. Upon transfection of ZFN-603 into HPV16-positive cells, ZFN-603 targets, binds to and cleaves the HPV16 E7 oncogene in HPV16-infected cells. By cleaving the HPV16 E7 DNA, the E7 oncoprotein is not expressed. This results in an inhibition of E7-mediated signaling, an induction of apoptosis, and inhibition of tumor cell proliferation in HPV16-expressing cells. In addition, preventing E7 expression induces the expression of tumor suppressor genes, thereby further preventing HPV-induced cancer cell formation and proliferation. E7 plays a key role in promoting both viral infection and carcinogenesis. ZFN, an engineered endonuclease in which a DNA-binding zinc finger protein is fused to a DNA-cleavable domain, cleaves specific DNA sites.