

## **Nanocomplex of Cytochrome C/ Cardiolipin Action on Host Cells of Human Papillomavirus**

### **Abstract**

Apoptotic cell death plays a meaningful role in host defense by blocking viral expansion. Human papillomavirus (HPV) infection is a viral infection that commonly causes skin or mucous membrane growths (warts). When the infection is persistent, it can produce abnormal cells, which are the most important risk factor for developing cancer. HPV is thought to be involved in 53.6% of cancer cases in females worldwide. "Essentially, every sexually active person in the U.S. will be infected with the virus," says Dr. Poland (Mayo Clinic). We propose a therapy against viral infections, which is mainly based on the stimulation of apoptosis in the host cell of HPV. The principles of apoptosis show an intrinsic, controlled genetic process in the mitochondrial pathway. The outer mitochondrial membrane permeability is controlled by events in the inner mitochondrial membrane, mostly by the complex formation of cytochrome c (Cyt<sub>c</sub>) and cardiolipin (CL). We will prepare protein nanoparticles drug delivery systems by complexing Cyt<sub>c</sub> with CL. We hypothesize that the catalytically reactive nanoparticle-based complex of Cyt<sub>c</sub> with CL introduces apoptosis and destroys the host cell of HPV.