

SYNTHESIS AND ASSEMBLY OF HUMAN PAPILLOMAVIRUS TYPE 16 L1 VIRUS-LIKE PARTICLES

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Human Papillomaviruses (HPVs) are important human pathogens that infect epithelial surfaces. The high-risk types, especially HPV-16, are the primary etiologic agents of cervical cancer, which is the second cause of cancer death in women worldwide. Thus HPV-associated malignancies might be prevented by vaccine inducing virus-specific immune responses. The papillomavirus major capsid protein L1 self assembles into virus-like particles (VLPs) that elicit high titers of neutralizing antibodies. The aim of this work is to produce and to purify the recombinant HPV-16 L1 major capsid protein in yeasts, focusing on the development of a prophylactic vaccine free of charge for public health system in Brazil. Codon-optimized HPV-16 L1 gene was cloned into expression vectors under the regulation of a methanol-inducible promoter and the constructions were used to transform competent *Pichia pastoris* cells. After PCR screening of transformants, yeasts were grown, induced for 48h and lysed. Purification of L1 protein from yeast extracts was performed using a column of Heparin-Sepharose[®]. The eluted samples were subjected to a procedure of disassembly and reassembly of VLPs. Electron microscopy confirmed the presence of intact recombinant particles. Supported by: Fapesp, CNPq, Fundação Butantan.