A Strategy for the Efficient Production of Bioactive Human Papillomavirus16 L1 Protein using *Escherichia coli*

안금영, 한경연, 송종암, 박진승, 서혁성, 이은정, 이종환, 권수정, 신재욱, 김성은, 이지원*
고려대학교
(leejw@korea.ac.kr*)

The major capsid protein L1 of human papillomavirus (HPV) has the intrinsic ability to form virus-like particles that induce the production of neutralizing antibodies. Therefore, HPV L1 capsid protein has been widely studied for immune response to HPV vaccine. To construct an efficient prokaryotic HPV16 L1 expression system, we attempted to produce HPV16 L1 fusion proteins using the stress-responsive proteins (SHPs) as fusion partners. Among the fusion partners, when SHP2 was fused to the N-termnus of the L1 protein, the GroEL contamination that is observed during GST fusion expression was dramatically decreased. Furthermore, ELISA analysis indicated that the SHP2- L1 fusion protein had specific binding activity toward the HPV16 L1 specific antibody, which indicates that SHP2-L1 protein had antigenic epitope that can be accessed by antibody even without the removal of fusion partner. Consequently, SHP2 fusion is an effective expression method, by which a large quantity of soluble and bioactive L1 protein is produced with simpler purification process.