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Expression of recombinant hepatitis A virus capsid proteins in plants and its mucosal immunization in mice

[1]Graduate School of Biotechnology, Kyung Hee University, Yongin 449-701, Korea
[2]Metabolic Engineering Division, National Institute of Agricultural Biotechnology, RDA, 225 Seodun-dong, Suwon, 441-707, Korea
[3]Korea Food Research Institute, Seongnam-si, Kyunggi-do 463-746, Korea
[4]Department of Microbiology & Research Institute for Translational System Biomics, Chung-Ang University College of Medicine, Seoul 156-756, Korea

Hyun-Ho Lee[1,*], Ha-Young Chung[1], Jong-Hwa Park[1], Jong-Bum Kim[2], Dong-Hwa Shon[3], Wonyong Kim[4] and In-Sik Chung[1]

Objectives

Hepatitis A virus (HAV), a family of *Picornaviridae*, causes acute hepatitis in humans. And mucosal immunization, one of the vaccine delivery methods without needle, is a safe and cost effective way. So we investigated expression of HAV VP1 fused to the human immunoglobin Fc fragment (HAV VP1-hFc) and immune responses by intranasal and sublingual immunization in mice.

Materials and Methods

Materiasls: BALB/c mice, Cholera toxin, Protein A/G
Methdos: Expression, Purification, Mucosal immunization

Results

HAV VP1 fused to the human immunoglobin Fc fragment (HAV VP1-hFc) was transiently expressed in tobacco and tomato leaves using a Beet curly top virus (BCTV) vector system. Recombinant HAV VP1-hFc was expressed with a molecular mass of approximately 68 kDa. Recombinant HAV VP1-hFc was purified using protein A sepharose affinity chromatography and immunized to mice by intranasal and sublingual routes. VP1-hFc elicited productions of specific IgG antibodies in the serum and specific IgA in feces and vaginal wash.

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주저자 연락처 (Corresponding author) : 정인식 E-mail : ischung@khu.ac.kr Tel : 031-201-2436

* 시험성적

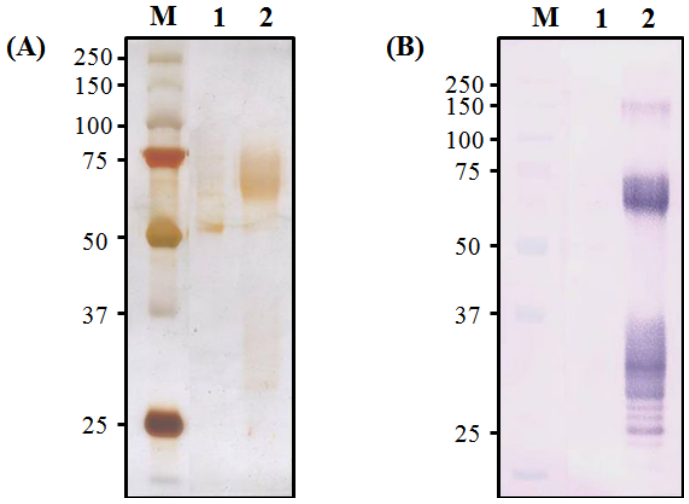

Figure 1. Production and purification of VP1. SDS-PAGE analysis of the purification of recombinant VP1 (A) and western blot analysis of the purification of recombinant VP1 (B). M: Molecular marker, 1: PBS, 2: VP1-Fc.