Respons antibodi spesifik HPV16 mencit BALB/c yang diimunisasi vaksin DNA dan vaksin antigen rekombinan L1 secara bersamaan = HPV16 specific antibody response in BALB/c mice immunized simultaneously with L1 DNA vaccine and L1 recombinant antigen vaccination

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Abstrak

Infeksi human papillomavirus tipe 16 (HPV16) dapat menyebabkan kanker servikk, penyebab kematian no 2 di dunia. Salah satu pencegahannya adalah dengan imunisasi. Vaksin komersil saat ini merupakan vaksin viral like particles (VLP) diproduksi pada sistem ekspresi yeast dan baculovirus. Sebagai upaya penyediaan vaksin dengan harga lebih ekonomis telah dilakukan pengembangan vaksin DNA dan protein rekombinan L1 HPV16 yang diekspresikan di prokariota. Antigenitas vaksin DNA dan L1 rekombinan diujikan dalam peneltian ini. Penelitian dimulai dari pemindahan L1 dari pUC L1 HPV16 ke pCDNA3.1, ekspresi L1 rekombinan dalam prokariota, pengamatan pembentukan VLP oleh L1 rekombinan dengan transmission electron microscope (TEM), pengujian antigenitas kombinasi vaksin DNA dan protein rekombinan pada BALB/c. Hasil menunjukkan pcDNA3.1 L1 berhasil diperoleh yang dibuktikan dengan analisis enzim restriksi dan sekuensing. L1 rekombinan berhasil membentuk VLP, vaksin komposisi 12,5 g pcDNA3.1 L1 dikombinasikan 2 g L1 rekombinan menginduksi titer antibodi endpoint tertinggi pada pengambilan serum terakhir yaitu 23.55 ($p<0.05$) dibandingkan vaksin 12,5 g pcDNA3.1 L1 (2.775) dan 2 g L1 rekombinan (10.45) yang diberikan secara terpisah setelah 3 kali imunisasi. Sebagai kesimpulan pCDNA3.1L1 berhasil diperoleh, protein L1 rekombinan dapat membentuk VLP dan pemberian kombinasi pcDNA3.1 L1 dan L1 rekombinan menginduksi respon kekebalan tubuh lebih bagus dibandingkan pemberian secara terpisah.

.....Infection with human papillomavirus type 16 (HPV16) can cause cervical cancer, the second cause of death in the world. One way to prevent it is with a barrier. The current commercial vaccine is a viral like particle (VLP) vaccine produced on yeast and baculovirus expression systems. As an effort to provide a vaccine at a more economical price, a DNA vaccine and a recombinant L1 HPV16 protein that are expressed in prokaryotes have been developed. The antigenicity of recombinant DNA and L1 vaccines was tested in this study. The research started with the transfer of L1 from pUC L1 HPV16 to pCDNA3.1, expression of recombinant L1 in prokaryotes, assessment of VLP formation by recombinant L1 with transmission electron microscopy (TEM), testing the antigenicity of a combination of DNA vaccines and recombinant protein on BALB/c. The results showed that pcDNA3.1 L1 was successfully obtained, as evidenced by restriction enzyme analysis and sequencing. The recombinant L1 succeeded in forming a VLP, the composition of the vaccine 12.5 µg PCDNA3.1 L1 combined 2 µg L1 recombinant induced the highest endpoint antibody titer (10.45) which was given 23.55 ($p <0.05$) compared to the 12.5 µg vaccine PCDNA 3.1 L1 (2,775) and 2 µg L1 recombinant (10.45) given by 3 times. As a conclusion, pCDNA3.1L1 was successfully obtained, recombinant L1 protein can form VLP and provide a combination of recombinant pcDNA3.1 L1 and L1 induce an immune response better than administration separately.