

ABSTRACT**Design of Influenza A Bivalent Vaccine Seed Virus through Knockout Method Using H1N1 and H5N1 (Bird Flu) Virus of Human Isolat in Indonesia****Ema Qurnianingsih**

Background. Effective efforts in preparing upcoming pandemic that may be caused by avian influenza virus, are through the improvement of conventional vaccine production systems. This can be achieved by implementing the knockout method. The knockout (KO) method is a reverse genetic method that would improve efficiency of conventional vaccine production because it produces vaccine seeds with more than one antigen valences and a phenotype that can be designed at the beginning.

Aims. This study was aimed to design influenza A bivalent vaccine seed virus through knockout Method, which is pPol1PB2(120)H5-IDN5(336).

Methods. This research was conducted on November 2015 until August 2017 at Airlangga University and IMSUT Japan. The method utilized a plasmid synthesis of vRNA pPol1 containing the PB2 virus A/PR8 (H1N1) gene. Most of its coding sequence was deleted and substituted by coding sequence of low pathogenic HA gene of Indonesian H5N1 virus. Bioinformatics analysis was also performed to confirm molecular characteristic of KO plasmid that was generated.

Results and Discussion. Interestingly, this study generated the KO plasmid pPol1PB2(120)H5-IDN5(336) which is the core portion of the influenza A bivalent vaccine seed virus through knockout consists of H1N1 and H5N1 (Indonesian isolate) virus. Bioinformatics analysis showed the KO plasmid has the molecular characteristics corresponding to the desired design. The HA gene of Indonesian H5N1 was successfully inserted into desired region of PB2 sequence flanked by pPol1 plasmid as expected. Amino acids bioinformatics analysis also showed no amino acid mutation in its low pathogenically cleavage site (RETR) of HA protein.

Conclusion. This study has succeeded to design an influenza A bivalent vaccine seed virus through knockout method using H1N1 and H5N1 (bird flu) virus of human isolat in indonesia which is KO plasmid pPol1(120) H5-IDN5(336).

Keywords : influenza A bivalent vaccine seed virus, KO, pPol1(120) H5-IDN5(336)