RECOMBINANT HEMAGGLUTININ PROTEINS FORMULATED IN A NOVEL PELC/CpG ADJUVANT FOR H7N9 SUBUNIT VACCINE DEVELOPMENT

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Humans infected with H7N9 avian influenza viruses can result in severe pneumonia and acute respiratory syndrome with an approximately 40% mortality rate, and there is an urgent need to develop an effective vaccine to reduce its pandemic potential. In this study, we used a novel PELC/CpG adjuvant for recombinant H7HA (rH7HA) subunit vaccine development. After immunizing BALB/c mice intramuscularly, rH7HA proteins formulated in this adjuvant instead of an alum adjuvant elicited higher IgG, hemagglutination-inhibition, and virus neutralizing antibodies in sera; induced higher numbers of H7HA-specific IFN-γ-secreting T cells and antibody secreting cells in spleen; and provided improved protection against live virus challenges. Our results indicate that rH7HA proteins formulated in PELC/CpG adjuvant can induce potent anti-H7N9 immunity that may provide useful information for H7N9 subunit vaccine development.