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%29%20requires%20eliciting%20an%20adequate%20polyclonal%20response%20to%20AIV%20hemagglutinin%20%28HA

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%29%20AIV%20subtype%20H5N1%20can%20occur%20in%20vaccinated%20flocks%20in%20many%20endemic%20areas.%20Protection%2C%20the%20use%20of%20leaky%20vaccines%2C%20and%20the%20use%20of%20multiple%2C%20and%20often%20antigenically-

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# Visualization of Alternative Functional Configurations of Influenza Virus Hemagglutinin Facilitates Rapid Selection of Complementing Vaccines in Emergency Situations

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## Abstract

Successful immunization against avian influenza virus (AIV) requires eliciting an adequate polyclonal response to AIV hemagglutinin (HA) subunit 1 (HA1) epitopes. Outbreaks of highly-pathogenic (HP) AIV subtype H5N1 can occur in vaccinated flocks in many endemic areas. Protection against emerging AIV is partly hindered by the limitations of vaccine production and transport, the use of leaky vaccines, and the use of multiple, and often antigenically-diverse, vaccines. It was hypothesized that the majority of alternative functional configurations (AFC) within the AIV HA1 can be represented by the pool of vaccine seed viruses currently in production because only a finite number of AFC are possible within each substructure of the molecule. Therefore, combinations of commercial vaccines containing complementing structural units (CSU) to each HA1 substructure can elicit responses to the totality of a given emerging AIV HA1 substructure isoforms. Analysis of homology-based 3D models of vaccine seed and emerging viruses facilitated the definition of HA1 AFC isoforms. CSU-based plots were used to predict which commercial vaccine combinations could have been used to cover nine selected AFC isoforms on recent Egyptian HP AIV H5N1 outbreak viruses. It is projected that expansion of the vaccine HA1 3D model database will improve international emergency responses to AIV. [View Full-Text \(/1422-0067/18/4/766/htm\)](/1422-0067/18/4/766/htm)

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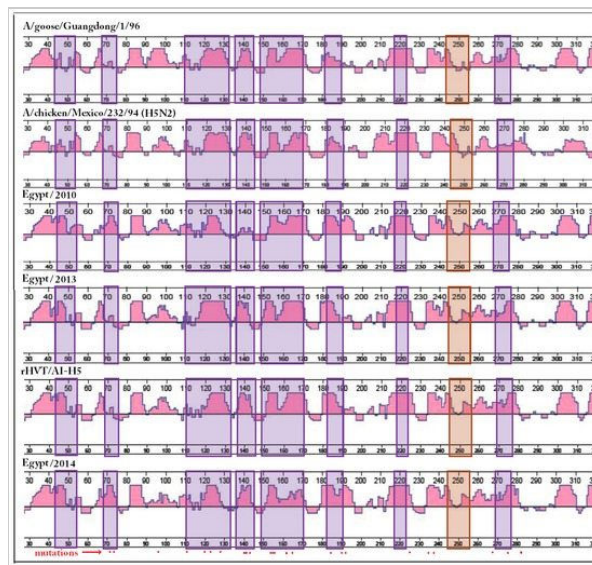


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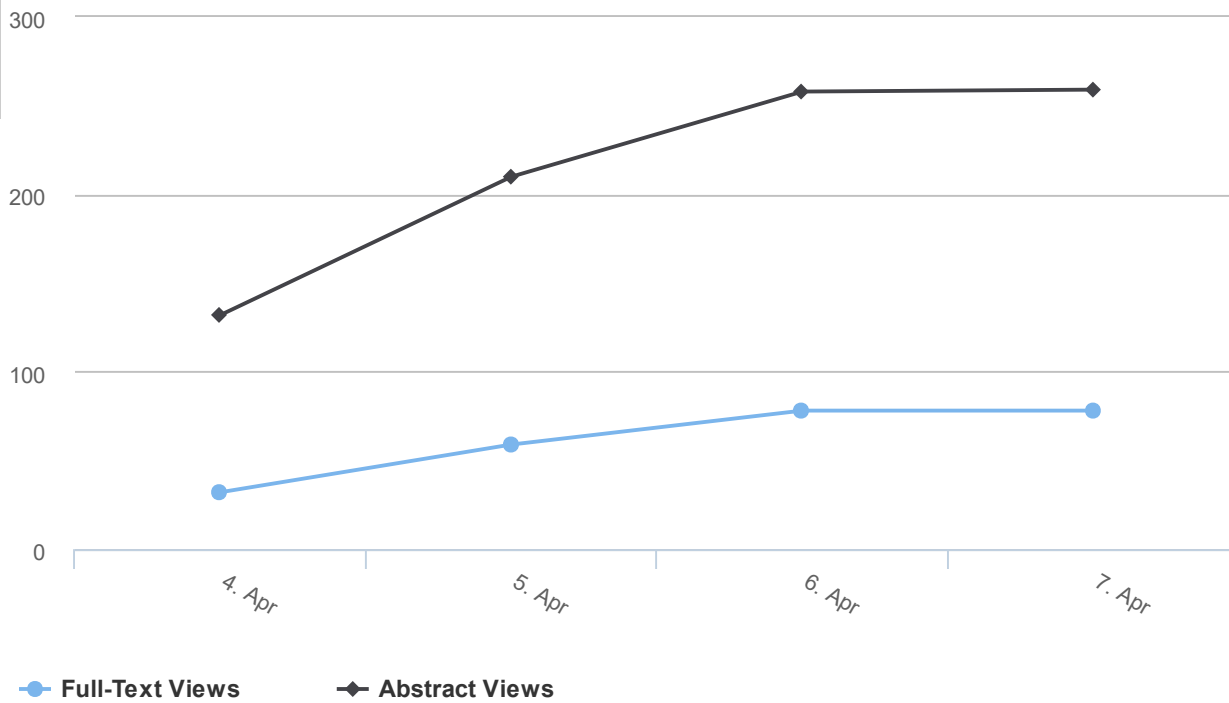
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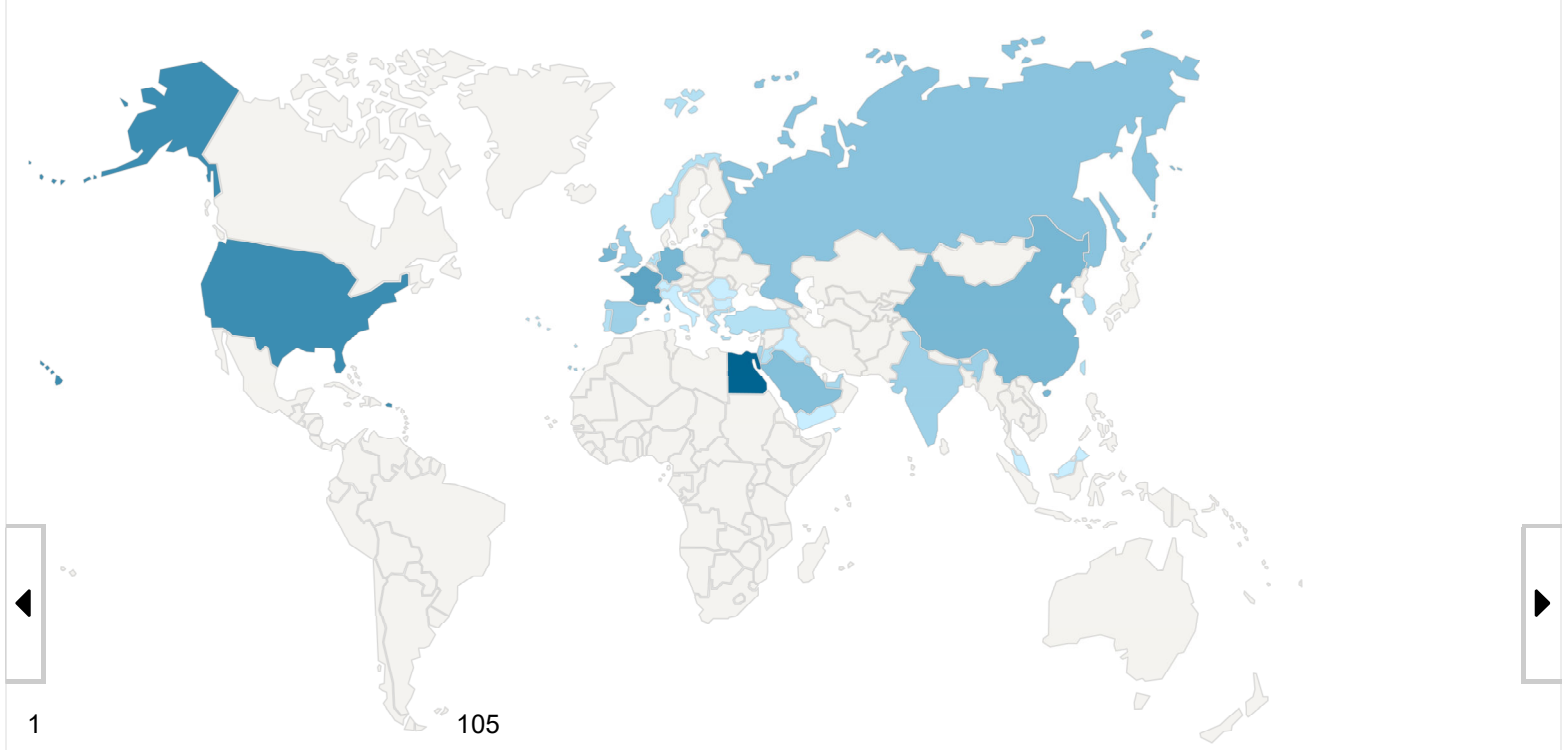
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