

## Figure S8: Modeling virus infection.

(A) Illustration of virus populations represented by the model. Semi- or fully- infectious particles can have different probabilities of delivering each segment. The proportion of the virus population that contributes to infection is given by  $\phi$ .

(B) Predictions from the infection model for different proportions of non-infectious virions  $(1 - \phi)$  with  $p_i = 0.8$  (*i.e.*, an infectious virus delivers any particular genome segment with an 80% probability). Results are shown for the percentage of HA+ cells. Fitting CA09 infectivity data suggests values of  $p_i = 0.8$  and  $\phi = 0.05$ .

(C) Predictions from the infection model for different segment delivery probabilities  $p_i$  where  $\phi = 0.5$ . 's' shape of curves with lower  $p_i$  values do not recapitulate data.