The Nei genetic distance is a measure based on the identity of genes between populations.

It is defined as D = -logel and the normalized identity of genes between two populations. It contains the measures of accumulated allele differences per locus also taking gene substitution and and the divergence time between populations under sexual isolation into consideration

Geographical distance and area migration models are also considered.

<https://www.jstor.org/stable/2459777#metadata_info_tab_contents>

Immunological distances precedes the condition that antibody production by a host is proportional to the number of site differences between antigen and the host molecule. Therefore the reaction will correspond proportionally to the number of differences as well