Hazara virus, Nairobi sheep disease virus, and Dugbe virus: pathogens of the Genus Orthonairovirus

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The family Nairoviridae includes a wide range of tick-borne RNA viruses such as CCHFV, HAZV, NSDV, and DUGV which affect to a more or lesser degree animals and humans in parts of Africa and Asia. The genomes of HAZV, NSDV, and DUGV consist of three segments (S, M, L segments). The S-segment encodes N-protein.

N-protein is an important immunogen which is frequently used as antigen in serological tests for Orthonairoviruses. The aim of the here proposed studies is to investigate the antigenic characteristics of the HAZV, DUGV, and NSDV N-proteins, and to develop double antigen ELISAs for antibodies against these viruses which can be used in seroepidemiological studies. Double antigen ELISAs utilize captured antigens which immobilize specific antibodies, if present, in sera to be screened. Specific antibody binding is then visualized by the addition of the same antigen (coupled to a detection enzyme) into the solution followed by an enzymatic color reaction. Assays will be evaluated using field and experimental challenge sera from ruminants in order to determine their performance.

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