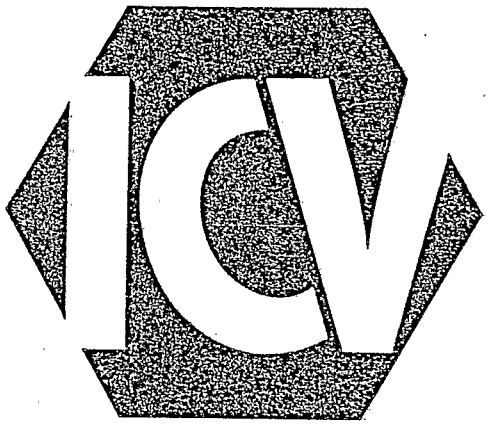
VIIIth INTERNATIONAL CONGRESS OF VIROLOGY



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ABSTRACTS

P70-007

THE GLYCOPROTEIN OF MARBURG VIRUS IS N- AND O-GLYCOSYLATED

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Marburg virus is an enveloped, negative-stranded RNA virus and constitutes together with Ebola virus a new virus family, the Filoviridae. Both viruses are highly pathogenic for humans and cause a severe hemorrhagic disease. The glycoprotein (GP) is a highly glycosylated membrane protein with a molecular weight of at least 150 kd. The sugar part of the protein amounts to about 30% of the total molecular weight. There is no evidence for phosphorylation, sulfatation or acylation. GP is sensitive to digestion with Endoglycosidase F/N-Glycosidase F, Endoglycosidase H as well as Endo-α-N-acetylgalactosaminidase (O-Glycosidase). This means that GP carries not only N-glycosidic carbohydrates of the high mannose and the complex type, but also O-glycosidically linked oligosaccharides. These conclusions were confirmed by using digoxigenin labelled lectins that specifically bind to different carbohydrate structures. Experiments with the cross-linking reagent DSP show that the GP exists on the viral surface in an oligomeric form, probably as a trimer.

P70-008

ANTIGENIC CHARACTERIZATION OF HANTAVIRUSES ISOLATED IN YUGOSLAVIA

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Two viruses have been isolated from yellow - neck field mice (Apodemus flavicollis) and bank vole (Cletrhrionomys glareolus), captured in endemic areas of HFRS in Yugoslavia. Viruses were isolated directly in Vero E-6 cells and partially characterized based upon the serological cross-reactivity of McAb with viruses representative of each of four known antigenic groups within the Hantavirus genus. The isolate from A. flavicollis, designated Fojnica, was antigenically similar but not identical to Hantaan virus, whereas the isolate from C.glareolus, Vranica, was antigenically indistinguishable from Puumala virus. The second isolate from A. flavicollis, Dobrava, differs from all hantaviral isolates used in study. These data indicate the existence of at least 2 hantaviral serotypes in Yugoslavia.

P70-009

STUDY ON THE PROTEINS OF HFRS VIRUSES WITH WESTERN-BLOTTING

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Beijing, China

Haemorrhagic Fever with Renal Syndrome (HFRS) is a wide spread, serious infecticus disease in our country. The etiological agents, Hantaviruses from different animals and patients, could be antigenically unique and exhibited a extensive crossreaction, but little was known about this on molecular level.We chosed 7 strains,isolated from different parts of the world for comparison of their protein studies.They are HB205,Rabe1114,75-113,Fh,HE, Seoul and USSR strains.Three ploypeptides were found by western-blotting, MWs were 72KD,56 KD,50KD respectively,with a slight difference among the 7 strains.Besides this,a peptide of larger MW and several smaller ones were also found in HB205 strain,their origin and character were discussed.Comparision of the antigenic properties of 7 strains showed that HE strain differed much from the others,and HB205 was a little different from the ones isolated from mice,but no obvious differences were found among viruses from Apodemus,Rattus and Microtus with the antisera used in our test. This suggests that vaccine made from apodemus or rattus type viruses might have similar protective effect.

P70-010

J.P.Gonzalez, ML Wilson, JP Cornet, F.Adam, B.LeGuenno, H.Zeller, & J.L.Camicas. ORSTOM Institut Français de Recherche Scientifique pour le Développpement en Coopération, B.P.1386 Dakar; Institut Pasteur de Dakar; Harvard University, School of Public Health Boston.

Developing experimental models of Crimean-Congo haemorrhagic fever virus (CCHFV) using strains and hosts from West Africa.

Ticks (*Hyalomma truncatum, Amblyomma variegatum)* naturally and experimentally infected with CCHFV have been monitored for virus replication throughout stadial development.

Sheep were infected with CCHFV either by infestation of experimentally infected ticks or by inoculation. Viremia, including reisolation using suckling mice and serological response (IgM capture & IgG Elisa) have been monitored over 6 months.

Pathogenic and immunological responses were observed in pregnant ewes and *their offspring.*

Experimental transmission to laboratory rabbits by naturally infected ticks has been carried out.

Wild rodents (*Mastomys erithroleucus* and *Arvicanthis niloticus)* as well as hedghogs (*Erinaceus albiventris*), guinea fowl and domestic chiken and laboratory mice were studied.

The intensity and pattern of the serological response varied with hosts and inoculation route. Virus reisolation occured in some cases (*Mastomys*, rabbit, guinea pig, mice).

Certain domestic and peri-domestic animals that were naturally infected appeared to replicate the virus occasionaly at a low titer and develop variable immunity. Pathogenicity seems to be limited, with no major clinical involvment in any of the species studied. These results combined with field observations (serosurveys and virus isolations) are used to propose a putative natural cycle of *CCHFV* in the west african environment.

P70-011

VACCINIA AND BACULOVIRUS VECTORED EXPRESSION OF THE EBOLA VIRUS GLYCOPROTEIN AND NUCLEOPROTEIN

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The cloned viral sequences encoding the glycoprotein and nucleoprotein of the Zaire biotype of Ebola virus were inserted into shuttle vectors for foreign gene expression in vaccinia virus and baculovirus systems. Expression in both systems resulted in the production of authentic nucleoprotein, as demonstrated by SDS-PAGE and reactivity with specific monoclonal and polyclonal antibodies in indirect fluorescent antibody, immunoprecipitation, and western blot assays. The glycoprotein also reacted with specific antibodies, but in both systems differed slightly in SDS-PAGE migration from wild-type glycoprotein. Large amounts of nucleoprotein and glycoprotein were produced in insect cells infected with recombinant baculoviruses, and were evaluated as antigens in diagnostic assays. Data aimed at determining the efficacy of vaccinia recombinant viruses as vaccines (using non-human primates) against wild-type Ebola virus challenge will be presented.

P70-012

SURVEILLANCE FOR HUMAN INFECTIONS AFTER EXPOSURE TO ANIMALS WITH NEWLY DISCOVERED EBOLA-LIKE FILOVIRUSES

S. Ostroff, J. McCormick, S. Fisher-Hoch, et al. *Centers for Disease Control*, Atlanta, GA, USA.

In November 1989 and January 1990, infections caused by two distinct Ebola-like filoviruses were discovered in nonhuman primates at quarantine facilities in Virginia and Pennsylvania. The infected animals, cynomolgus monkeys of Philippine origin, made stops in Amsterdam and New York during transport. In Virginia the infected animals were housed for 6 weeks before detection of virus, where as the infected Pennsylvania animals were present for <2 weeks. In Virginia 140 persons were placed under surveillance for 21 days and tested for Ebola antibodies because of contact with animals or their blood/tissues. Fourteen persons required surveillance in Pennsylvania, as did 9 persons in New York who had direct exposure to the animals during transit. Although 22 persons were considered to have high- or medium-risk exposures for Ebola infection, no Ebola-compatible illnesses occurred. One of the medium-risk persons had Ebola IgG antibodies confirmed by IFA and Western blot. Rigorous use of barrier precautions may have limited exposure and infection with these filoviruses. However, further studies are needed to explore the pathogenic potential and human health risks of these newly discovered agents.

Developing experimental models of Crimean-Congo haemorrhagic fever virus (CCHFV) using strains and hosts from West Africa

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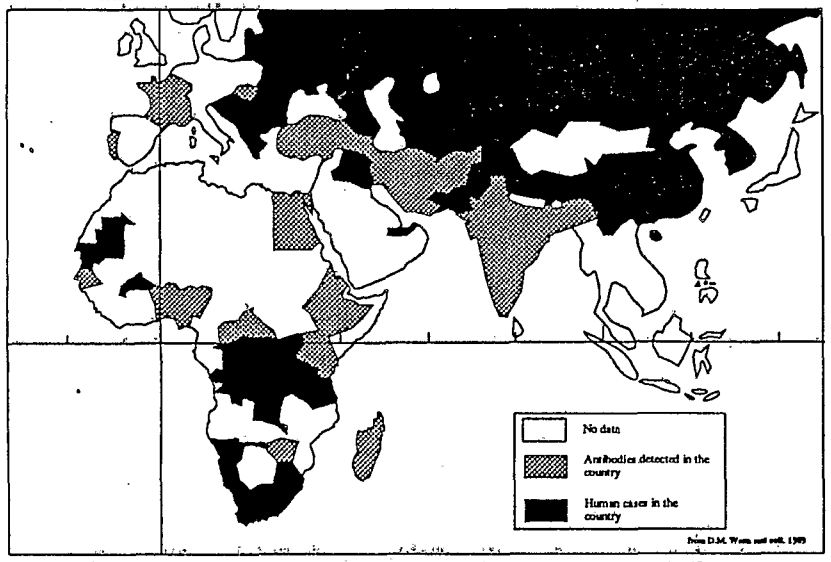
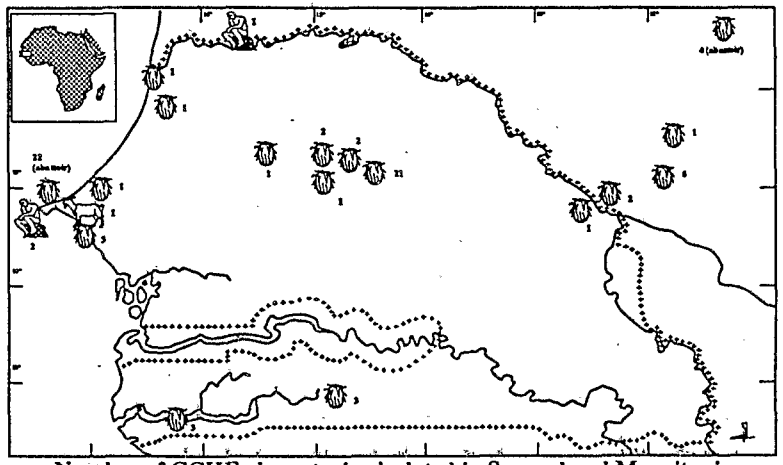


Geographical distribution of Crimean Congo Hemorrhagic Fever



Number of CCHF virus strains isolated in Senegal and Mauritania
(data from CRORA 1990)

Ticks (*Hyalomma truncatum, Amblyomma variegatum*) naturally and experimentally infected with CCHFV have been monitored for virus replication throughout stadial development.
Sheep were infected with CCHFV either by infestation of experimentally infected ticks or by inoculation. Viremia, including reisolation using suckling mice and serological response (IgM capture & IgG Elisa) have been monitored over 6 months.
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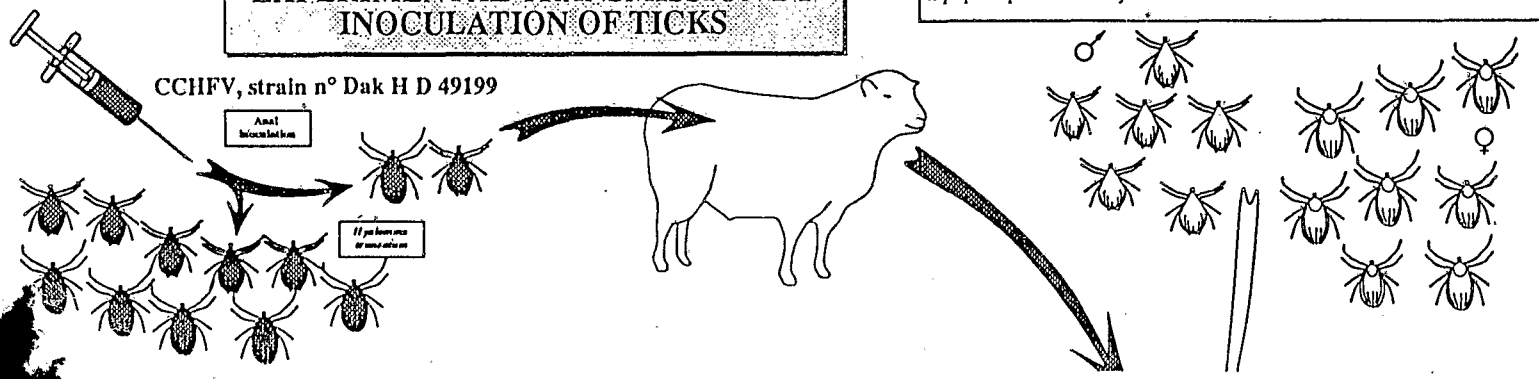
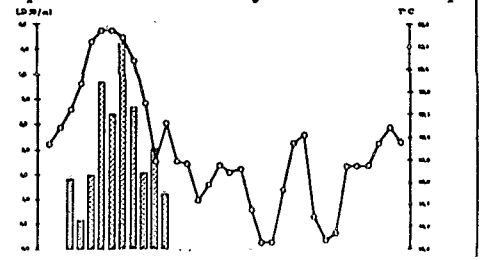
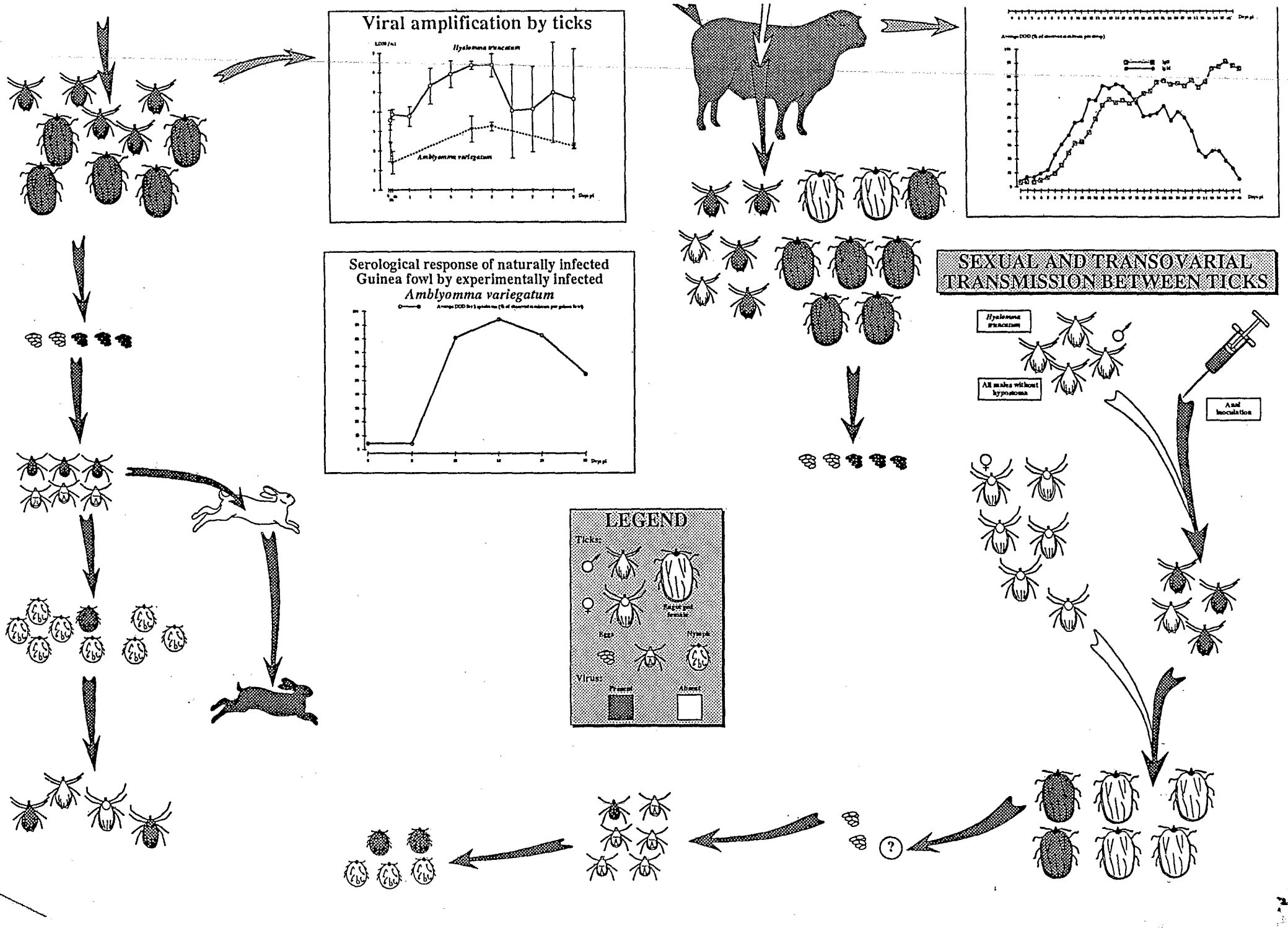
EXPERIMENTAL TRANSMISSION BY INOCULATION OF TICKS

CCHFV, strain n° Dak H D 49199



Clinical, virological and serological response of naturally infected sheep




Viral amplification by ticks
Hyalomma truncatum
Amblyomma variegatum
Serological response of naturally infected Guinea fowl by experimentally infected Amblyomma variegatum
SEXUAL AND TRANSOVARIAL TRANSMISSION BETWEEN TICKS
Hyalomma truncatum
All males without hypostoma
Anal inoculation
LEGEND
Ticks:
Virus:
Present
Absent
?