ESTABLISHMENT OF MONOCLONAL ANTIBODIES TO THE GLYCOPROTEINS OF FELINE HERPESVIRUS 1

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Four hybridoma cell lines producing monoclonal antibodies to the envelope glycoproteins of feline herpesvirus 1 were established. These monoclonal antibodies were characterized according to their biological activities.

By ELISA, it was shown that each of these monoclonal antibodies bound to viral antigens at high titers; 1 : 900,000 (F–5–B, IgG3), 1 : 690,000 (F–6–C, IgG), 1 : 94,000 (B–9–C, IgG2a) and 1 : 3,800,000 (E–11–G, IgG1). The monoclonal antibodies did not inhibit the hemagglutination of ether-disrupted virus or viral infectivity. Indirect fluorescein antibody testing with feline anti–FHV–1 serum showed the presence of antigens both in the cytoplasm and on the cytoplasmic membrane. However antigens to the monoclonal antibodies were detected only on the cytoplasmic membrane.

These results indicate that the 4 monoclonal antibodies do not recognize capsid proteins, but do recognize the envelope antigens. Coloidal-gold immune electron-microscopy revealed that coloidal-gold particles did not bind to viral capsid but to rosettes and small spherical structures, indicating that these monoclonal antibodies recognize the envelope projections. The results of Western-blotting of the immune complexes showed that the monoclonal antibodies F–5–B and F–6–C precipitated the protein 155kDa, and E–11–G precipitated 135kDa and 155kDa proteins. The two bands found with E–11–G were also detected under non-reducing conditions. These two bands were stained with Con A, indicating that these 4 monoclonal antibodies recognized the envelope glycoproteins of FHV–1.

These monoclonal antibodies could be useful for the analysis of the functions of the envelope glycoproteins of FHV–1.