

THE ROLE OF MACROPHAGES AND ANTI-VIRAL ANTIBODIES IN WEST NILE VIRUS PATHOGENESIS

David Garcia-Tapia

Dr. Steven B. Kleiboeker, Dissertation Supervisor

ABSTRACT

The ability of West Nile virus to infect horse monocytes and CD+ lymphocytes was demonstrated. We also report the ability of sub-neutralizing dilutions of immune horse serum to induce ADE of WNV infection of horse macrophages and mouse macrophages *in vitro*. The same sub-neutralizing dilution of immune horse serum failed to induce ADE *in vivo*, but instead induced protection, which perhaps is driven by an up-regulation of IL-12 in early stages of the WNV infection. In brain, the chemokines IP-10 and MCP-5 seem to play an important role in the beginning of the encephalitis caused by WNV. The ability of the virus to infect monocytes and CD4+ lymphocytes as well as the high viral titers observed in blood and spleen suggests a that the virus travels from subcutaneous tissue to brain by a hematogenous way.