

WNV Antibody Production: Can birds native to the U.S. defend themselves against West Nile Virus?

Amber Rogers, James Knudson

Northwest College

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Eric Atkinson

Abstract

West Nile Virus heavily impacts modern bird and human populations despite not much being known about it. Through collaboration with our professor, Eric Atkinson, and participating in his PhD research, we intend work together to analyze various bird blood and saliva samples potentially containing various traces of the pathogen to draw conclusions about West Nile Virus. This includes its preferred host, bird antibody production, and WNV in relation to birds native to the US, and more specifically, Wyoming. West Nile Virus arrived in the U.S. in 1999 and has since impacted populations of birds, horses, and humans. It has a four-stage microbial cycle during inoculation and relies on vectors like *Culex spp.* mosquitoes and migratory birds to spread. Because of its recent development and spread in the U.S., researchers have, in the past, questioned and waved aside the possibility that birds native to the states can create antibodies in response to West Nile whatsoever. New evidence suggests the contrary: that not only can birds from antibiotic defenses, but that doing so may change gene expression and furthermore, generational lineages. To contribute to this research, we will be using various lab equipment, like ELISA, to test the samples for viremia concentration and antibody presence. By making progress in discovering the basic properties of West Nile Virus and bird antibody production, flaviviruses may be better understood, including its impact on varying species of birds.