**Agent Summary: West Nile Virus**

**Agent Information:**

* West Nile Virus (WNV), genus Flavivirus, family Flaviviridae, is the causative agent of West Nile fever, also known as West Nile encephalitis and West Nile disease.
* WNV is an icosahedral, enveloped virus of 40 to 50 nm in diameter with a single-stranded, positive-sense RNA genome. WNV belongs to the Japanese encephalitis antigenic complex.
* The primary reservoir for WNV is birds, particularly passerine species. Hosts include birds, mosquitoes, ticks, humans, and a broad range of common North American wild and domestic mammals and small rodents.
* The main route of zoonotic transmission of WNV is via the bite of a mosquito that has fed on WNV-infected birds. Humans, like most mammals, do not produce sufficient viremia to infect mosquitoes and, consequently, are dead-end hosts. However, human-to-human transmission can occur via infected breast milk, organ transplantation, blood transfusion, and via vertical transmission (from mother to child during pregnancy).
* WNV may be present in blood, serum, tissues, and CSF of infected humans, birds, mammals, and reptiles. The virus has also been found in the oral fluids and feces of birds.
* Most humans infected with WNV remain asymptomatic. When West Nile fever develops, it is typically a mild 3-6 day illness. Symptoms may include sudden onset of fever with chills, rash, malaise, headache, backache, arthralgia, myalgia and eye pain. Other non-specific manifestations may also occur including nausea, vomiting, anorexia, diarrhea, rhinorrhea, sore throat, and cough.
* Meningitis, encephalitis, and/or acute flaccid paralysis develop in less than 1% of WNV-infected individuals.
* No vaccines or specific treatments are available for West Nile virus infection.
* BSL-2 practices, containment equipment, and facilities are recommended for activities with human diagnostic specimens or for processing field collected mosquito pools.
* Biosafety containment Level 3 (BSL3) facilities, equipment, and operational practices are required for work with West Nile Virus, involving infectious or potentially infectious materials, animals (ABSL3), or cultures.

**References:**

# Berlin Londono-Renteria and Tonya M Colpitts, 2016, A Brief Review of West Nile Virus Biology. In: Colpitts T. (eds) West Nile Virus. Methods in Molecular Biology, vol 1435. Humana Press, New York, NY. [https://link.springer.com/protocol/10.1007%2F978-1-4939-3670-0\_1](https://link.springer.com/protocol/10.1007/978-1-4939-3670-0_1)

* [*Biosafety in Microbiological and Biomedical Laboratories*, 6th edition. U.S. Department of Health and Human Services; CDC](https://www.cdc.gov/labs/pdf/SF__19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf)  (BMBL6)
* Public Health Agency of Canada. Pathogen Safety Data Sheets: <https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment/mycobacterium.html>
* CDC: <https://www.cdc.gov/westnile/index.html>

Enter the following information:

1. Name of the Principle Investigator: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Applicable IBC protocol number(s) (approved or submitted): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. List the laboratory locations (building/room[s]) for work with West Nile virus (BSL2/3):
* Procedures:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and Storage: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
1. If introducing West Nile virus into animals, list the animal facility locations (building/room[s]) for these animals. Minimally, ABSL3 containment is required.
* Currently, Temple University does not provide ABSL3-dedicated space.
* Procedures:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and Housing:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
1. Date of Agent Summary form completion: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 v7/30/20