**Agent Summary: Vesicular Stomatitis Virus (VSV)**

**Agent information:**

* A member of the Vesiculovirus genus, in the family Rhabdoviridae. VSV is a bullet-shaped, enveloped virus, approximately 70 nm in diameter and 170 nm in length, and has a single-stranded, negative-sense RNA genome.
* VSV has eight main serotypes (Indiana, New Jersey, Cocal, Alagoas, Isfahan, Chandipura, Maraba, and Piry) as well as three laboratory adapted strains (VSV-Indiana, VSV-San Juan, and VSV-Glasgow).
* Mode of transmission:
* bite of an infected sand fly;
* by direct contact with abrasions on the skin;
* by contact with infected domestic animals;
* by inhaling aerosols via the nasopharyngeal route

The virus can also been transmitted via accidental autoinoculation or inhalation of aerosols in a laboratory setting. There is no documented evidence of person-to-person transmission of VSV.

* A wide range of incubation periods have been reported from 30 hours to 6 days.
* Virus hosts: humans (except for Maraba and Cocal viruses), horses, cattle, pigs, mules, sand flies, grasshoppers, and rodents.
* Most human infections with Indiana and New Jersey VSV serotypes appear to be subclinical. In patients that show clinical manifestations, the initial symptom is high fever. Subsequent symptoms are “flu-like” including severe malaise, headaches, myalgia, arthralgia, retrosternal pain, eye aches, and nausea. Vesicle formation on the oral mucosa, lips, and nose is possible, but these are rare symptoms of vesicular stomatitis (VS). Human infections with Alagoas virus have only been reported in Brazil, with flu-like symptoms that resolved within 3-4 days. Chandipura virus has only been reported in India, where it mostly infects children. Symptoms include fever, sensory disorders, convulsions, vomiting, diarrhea, and encephalitis leading to coma and death. Reports on the pathogenicity of Piry virus in humans are inconsistent and virtually absent from the primary literature; however, Piry virus is closely related to Chandipura virus, based on glycoprotein sequence analysis.
* In the laboratory, VSV virus has been engineered to target cancer cells or to stimulate immunity against diseases such as AIDS or influenza.
* Chandipura and Piry serotypes require biosafety level 3 containment (BSL3). Infected animals require ABSL 3 containment.
* Indiana, Cocal, Alagoas, New Jersey, Isfahan and Maraba seroptypes and laboratory adapted VSV-Indiana, VSV-San Juan, and VSV-Glasgow strains require BSL 2 containment. Infected animals require ABSL 2 containment.

**References:**

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)
2. [Pathogen Safety Data Sheets: Infectious Substances-Vesicular stomatitis virus (VSV)](https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment/vesicular-stomatitis-virus.html)

Enter the following information:

1. Name of the Principal Investigator: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_
2. Applicable IBC protocol number(s) (approved or submitted): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. List the laboratory work locations (Building/room[s]) for laboratory adopted VSV-Indiana strain, a BSL2 agent:
* Procedures:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and Storage: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
1. List the animal facility building/room(s) for laboratory adopted VSV-Indiana strain, ABSL2 containment:
* Procedures:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and Housing:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\*Note: confirm with ULAR that the rooms listed above are suitable for ABSL2 animals.

1. Date of Agent Summary form completion: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_