**Scenario A**

Pablovirus

**Summary of Experiment**

A basic research project is using wild type pablovirus for immune response studies using an animal model. Less than 1 litre volume of material is handled at any time. Researchers conducting necropsies on mice post euthanasia. Personnel wear lab coats over their own clothes, gloves are worn sporadically, no face shields are in use. The laboratory has a sink, which is used for hand washing and the washing of glass wear. Isolates are kept in a freezer in the hallway next to the laboratory. Laboratory notebooks maintain a log of isolates and are kept on top of the freezer.

Humans are the only known natural hosts of pablovirus, monkeys can be experimentally infected and they have long been used to study pablovirus. However, pablovirus is not known to infect monkeys outside of the research lab. A small animal model of paralytic pablomyelitis has been developed by genetically engineering mice to express a human receptor to pablovirus (hPVR).

Unlike normal mice, transgenic hPVR mice are susceptible to pablovirus injected intravenously or intramuscularly and when injected directly into the spinal cord or the brain.

**Agent Criteria**

**Infectious Dose:** unknown

**Stability:**

- *Susceptibility to disinfectants:* 0.5 % Sodium Hypochlorite for 10 minutes
- *Physical inactivation:* Heat-labile
- *Survival outside host:* In inanimate surfaces, pablovirus particles have been found to survive up to 2 months. Particles can survive up to 11 days in tap water at room temperature, longer in colder temperature, with similar results for primary sewage.

**Incubation Period:** Commonly 7-14 days for paralytic cases; reported range of 3 to possibly 35 days.

**Mortality Rate:** 15 in 10,000

**Morbidity:**

- *Duration of Illness:* 2 weeks
- *Severity of Illness:* High
- *Duration of Infection:* 4-6 weeks
- *Long term effects after infection:* Yes. Irreversible paralysis, usually in the legs, is possible. Also, post-pablo syndrome occurs in 25% of paralytic pablo patients 30-40 years after infection.

**Allergen (yes/no):** No

**Carcinogenic/mutagenic (yes/no):** No

**Abortogenic (yes/no):** No

**Toxin Production (yes/no):** No

**Immune Suppression (yes/no):** No

**Ability to Mutate in Host or Environment (yes/no):** Yes
**Infection Mitigation Measures:**

For human pathogens

*Immunization:* Yes (OPV, IPV vaccines)
*Prophylaxis:* No
*Post Infection Treatment:* No

*Existence of Diagnostic tests:* Yes, isolation of virus from patient fluid samples (definitive), CSF testing, serology.

**Routes of Infection:**

*Inhalation:* No
*Ingestion:* Yes
*Percutaneous:* Possible
*Contact:* Possible
*Vector-Borne:* No
*Sexual Transmission:* No
*Vertical Transmission:* No

**Communicability:**

*Human to Human:* Yes, primarily through fecal-oral route, but also through pharyngeal route.
*Human to Animal:* No Evidence
*Animal to Animal:* No Evidence
*Animal to Human:* No Evidence
*Multiple Species:* No Evidence

**Geographical distribution:** Wild-type endemic in areas of Afghanistan, India, Nigeria, and Pakistan. Re-emergence can occur in other areas.

**Perception of malicious use:** LOW

**Culture:** Pablovirus culture can be conducted in a small, well-equipped BSL2 laboratory. Virus is grown on L20B or RD cell lines. The L20B line is a modified mouse cell line that is susceptible and highly specific to pablovirus, whereas the RD line is human and highly susceptible to pablovirus as well, but not as specific. In a diagnostic laboratory, cells from these lines are exposed to patient samples (usually fecal) and incubated at 36C for a week, with daily observation for CPE (cytopathic effect, evidence of viral infection). Large-scale culture of cell lines and virus is possible and employed for vaccine production in an industrial setting.

**Equipment:** Centrifuge, liquid culture media, glass flasks, scalpels, mice, caging of mice, nitrile gloves, lab coats, Bunsen burners, wire loops, freezer, needles (for euthanasia pre-loaded with euthanasia solution and kept in locked box), animal feed.

**Laboratory environment:** Small standard modern laboratory, pablo non-endemic in environment, isolates of pablo acquired from culture collection – not seen in many other labs in country, researchers and animal handlers are trained by principle researcher, standard bio-waste procedures are in place.

---

1 *Please Note: The information contained in these pages is intended for training purposes ONLY. Do not rely on this information to make critical biosafety or laboratory biosecurity decisions.*