

PSDS

Cryptococcus neoformans

PATHOGEN SAFETY DATA SHEET

CHARACTERISTICS

Synonym or Cross Reference	C. neoformans var neoformans, cryptococcosis, cryptococcal infections, cryptococci, torulosis, European blastomycosis
Disease	Meningoencephalitis (77.2%), pulmonary cryptococcosis (mostly in immunocompromised hosts, 8.2%), and several other diseases.
Morphology	Spherical yeast, 4-6 µm in diam., that produces a capsule containing glucuronoxylomannan (GXM), extending overall diam. to 25 µm or more. Usually has a single bud that pinches off at maturity and may also exist in pseudohyphal form.
Zoonosis	May be encountered in animals; direct transmission from animals to persons not yet proven.

RISK GROUP & CONTAINMENT REQUIREMENTS

ABSL-2	For all procedures utilizing infected animals.
BSL-2/BSL-2+	For all procedures involving suspected or known infectious specimen or cultures, work in a BSC unless otherwise approved and stated in lab-specific manual.
Risk Group 2	Agents that are associated with human disease which is rarely serious and for which preventive or therapeutic interventions are often available.

LABORATORY HAZARDS

Primary Hazards	Inhalation of basidiospores and desiccated yeast cells could be infectious; regard as potentially serious airborne hazards. Accidental parenteral inoculation of infectious materials may also occur.
Sources	Described in IBC protocol. Soil, bird guano, blood, urine, and specimens: bone marrow, brain, CSF, eye, respiratory sites, skin, and mucous membrane.
Lab Acquired Infections (LAIs)	1 case from laceration by a contaminated scalpel blade. 2 cases of eye infections related to surgical procedure. Needlestick to the thumb during blood collection from an AIDS patient with cryptococcal fungemia and two percutaneous cryptococcal inoculations from needlestick.

PERSONAL PROTECTIVE EQUIPMENT

Additional Precautions	Additional PPE may be required depending on lab-specific SOPs and IBC Protocol.
Minimum PPE Requirements	Lab coat, disposable gloves, safety glasses, closed toed shoes, long pants.

SPILL PROCEDURES

Large	Immediately notify all lab personnel and clear the area. Remove any contaminated PPE/clothing before exiting the lab. Lock all entry doors, post warning signage, and deny entry. Call DPS (213-740-4321) and ask to notify EH&S. Inform the PI and/or Lab Manager/Supervisor as soon as possible.
Small	Notify all lab personnel lab. Remove contaminated PPE and don new PPE. Cover spill area with absorbent material and add fresh 1:10 bleach:water. Allow 20 minutes (or as directed) contact time. After 20 minutes, clean up and dispose of materials.

VIABILITY

Disinfection	Use 10 % dilution of household bleach (minimum 0.3% sodium hypochlorite) for 20 to 30 minutes, or an acceptable time approved by IBC and EH&S.
Survival Outside Host	Unknown

HEALTH HAZARDS

Host Range	Humans and various domestic and wild animals (e.g., cats, birds, dogs, horses, cows, monkeys)
Incubation Period	Unknown because C. neoformans can colonize in the host respiratory tract for months to years without causing any clinical symptoms.
Infectious Dose	Unknown
Modes of Transmission	Spores inhaled from environment (found in soil), accidental skin puncture or exposure to open skin.
Signs and Symptoms	Acute, subacute, and chronic meningitis, with symptoms of persistent headache, nausea, dizziness, ataxia, impaired memory and judgment, irritability, somnolence, clumsiness, and confusion. Mortality rate is between 10-30%.

EXPOSURE PROCEDURES

Medical Follow-up	Visit USC’s designated healthcare provider. Bring a copy of this PSDS.
Mucous Membrane	Flush eyes for 5-10 minutes at eyewash station.
Other Exposures	Immediately wash affected area with soap and water for 15 minutes.
Reporting	Immediately report incident to supervisor, notify EH&S, and complete Manager’s Report.

MEDICAL PRECAUTIONS/TREATMENT

Prophylaxis	HIV patients may receive antifungal therapy such as fluconazole when no symptoms of infections are present.
Surveillance	Monitor for symptoms of infection.
Treatment	Appropriate antifungal therapy
USC Requirements	Immediately report any exposures to Environmental Health & Safety.
Vaccines	None available

REFERENCES

BMBL <a href="http://tiny.cc/cdc-bmb1">http://tiny.cc/cdc-bmb1</a>	Canadian PSDS <a href="http://tiny.cc/canada-aspergls-psds">http://tiny.cc/canada-aspergls-psds</a>
CDC <a href="https://www.cdc.gov/">https://www.cdc.gov/</a>	NIH Guidelines <a href="http://tiny.cc/nih-bio-secure">http://tiny.cc/nih-bio-secure</a>
Virginia Tech <a href="http://tiny.cc/vt-psds">http://tiny.cc/vt-psds</a>	