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Population and Public Health Branch (PPHB)

Office of Laboratory Security

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MATERIAL SAFETY DATA SHEET - INFECTIOUS SUBSTANCES

SECTION I - INFECTIOUS AGENT

NAME: *Cryptococcus neoformans*

SYNONYM OR CROSS REFERENCE: Cryptococcosis, Torulosis, European blastomycosis

CHARACTERISTICS: Yeast; often budding, surrounded by a wide mucopolysaccharide capsule

SECTION II - HEALTH HAZARD

PATHOGENICITY: Mycosis presenting as a subacute or chronic meningitis; infection of lung, kidney, prostate, bone or liver may occur; skin lesions, ulcers or subcutaneous tumour-like masses; untreated meningitis terminates fatally within several months

EPIDEMIOLOGY: Sporadic cases occur worldwide; males infected twice as frequently as females, mainly adults; important mycosis in immunocompromised patients leg. (Patients with AIDS or severe combined immunodeficiency)

HOST RANGE: Humans; cats, dogs, horses, cows, monkeys and other animals

INFECTIOUS DOSE: Low level of pathogenicity for normal immunocompetent adults

MODE OF TRANSMISSION: Presumably by inhalation

INCUBATION PERIOD: Unknown; pulmonary disease may precede brain infection by months or years

COMMUNICABILITY: Not transmitted directly from person to person

SECTION III - DISSEMINATION

RESERVOIR: Saprophytic growth in external environment; isolated consistently from old pigeon nests, pigeon droppings and from soil in many parts of world



ZOONOSIS: Not transmitted from animals to humans

VECTORS: None

SECTION IV - VIABILITY

DRUG SUSCEPTIBILITY: Sensitive to amphotericin B, 5-fluorocytosine, fluconazole, ketoconazole

DRUG RESISTANCE: Resistant strains to all of the above drugs have been isolated

SUSCEPTIBILITY TO DISINFECTANTS: Susceptible to 1% sodium hypochlorite, iodine, phenolics, glutaraldehyde, formaldehyde; susceptibility to 70% ethanol questionable

PHYSICAL INACTIVATION: Inactivated by moist heat (121°C for at least 15 min)

SURVIVAL OUTSIDE HOST: Survives for months to years, especially in pigeon droppings

SECTION V - MEDICAL

SURVEILLANCE: Monitor for symptoms; confirm by microscopic examination of specimens (usually CSF, may also be present in urine or pus); confirm by culture or histopathology

FIRST AID/TREATMENT: Combination therapy with amphotericin B and 5-fluorocytosine or ketoconazole

IMMUNIZATION: None

PROPHYLAXIS: None

SECTION VI - LABORATORY HAZARDS

LABORATORY-ACQUIRED INFECTIONS: Respiratory infections from laboratory exposure not recorded; 1 recorded case as a result of laceration by a scalpel blade contaminated with encapsulated yeast cells

SOURCES/SPECIMENS: Clinical specimens and tissues (blood, CSF); soil, pigeon droppings and other environmental sources

PRIMARY HAZARDS: Accidental parenteral inoculation of cultures or other infectious materials; bites by experimentally infectious mice; manipulations of infectious environmental materials (pigeon droppings) also represent a potential hazard

SPECIAL HAZARDS: Immunocompromised individuals are particularly at risk

SECTION VII - RECOMMENDED PRECAUTIONS

CONTAINMENT REQUIREMENTS: Biosafety level 2 practices, containment equipment and facilities are recommended for activities with known or potentially infectious materials; processing of soil or other environmental materials likely to contain infectious yeast cells should be conducted in a biological safety cabinet

PROTECTIVE CLOTHING: Laboratory coat; gloves when direct contact with infectious materials is unavoidable

OTHER PRECAUTIONS: Good sanitation, cleaning and disinfection important

SECTION VIII - HANDLING INFORMATION

SPIILLS: Allow aerosols to settle; wearing protective clothing, gently cover spill with paper towels and apply sodium hypochlorite, starting at perimeter and working towards the centre; allow sufficient contact time (30 min) before clean up

DISPOSAL: Decontaminate before disposal; steam sterilization, incineration, chemical disinfection

STORAGE: In sealed containers that are appropriately labelled

SECTION IX - MISCELLANEOUS INFORMATION

Date prepared: February 2000

Prepared by: Office of Laboratory Security, PPHB

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Last Updated: 2001-01-23

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