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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: *Histoplasma capsulatum*

SYNONYM OR CROSS REFERENCE: Histoplasmosis; *Ajecllomyces capsulatus*

CHARACTERISTICS: Dimorphic fungus, mold form in soil, yeast form in animals and human hosts

SECTION II - HEALTH HAZARD

PATHOGENICITY: Systemic mycosis of varying severity with primary lesion in lungs; disease appears as a mild, flu-like respiratory illness with symptoms including malaise, fever, chest pain, dry or non-productive cough, headache, loss of appetite, shortness of breath, joint and muscle pain, chills; five clinical forms - asymptomatic, acute benign respiratory, acute disseminated, chronic disseminated, chronic pulmonary; some forms can be fatal; asymptomatic infection provides partial resistance to re-infection

EPIDEMIOLOGY: Focal infections are common worldwide; clinical disease and severe progressive disease less frequent; 80% of population show hypersensitivity to *H. capsulatum* in eastern and central North America; outbreaks in families or groups exposed to bird or bat droppings or recently disturbed contaminated soil; prevalence increases from childhood to 15 years of age

HOST RANGE: Humans, dogs, cats, cattle, horses, rats, skunks, opossums, foxes and other animals

INFECTIOUS DOSE: 10 spores lethal inoculum in mice

MODE OF TRANSMISSION: Inhalation of airborne conidia; small size of infective conidia (< 5 µm) is conducive to airborne dispersal and intrapulmonary retention

INCUBATION PERIOD: Symptoms appear within 3-18 days after exposure, commonly 10 days

COMMUNICABILITY: Not transmitted from person-to-person

SECTION III - DISSEMINATION

RESERVOIR: Soil (particularly in high-nitrogen content soil), caves harbouring bats, and around starling roosts; around older houses sheltering the common brown bat; other soils with high organic content and in decaying trees

ZOONOSIS: Yes, although not direct zoonosis; organism grows particularly well in soil contaminated with fecal material of birds or bats

VECTORS: None

SECTION IV - VIABILITY

DRUG SUSCEPTIBILITY: Sensitive to amphotericin B, ketoconazole, itraconazole

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

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

SURVIVAL OUTSIDE HOST: Spores are resistant to drying and may remain viable for long periods of time

SECTION V - MEDICAL

SURVEILLANCE: Monitor for symptoms; confirm by culture, microscopic examination of specimens, and serologic response

FIRST AID/TREATMENT: Amphotericin B for disseminated or chronic pulmonary cases; conazole drugs may be added or used in rotation for therapy in immunocompromised patients because relapse is common

IMMUNIZATION: None

PROPHYLAXIS: None

SECTION VI - LABORATORY HAZARDS

LABORATORY-ACQUIRED INFECTIONS: Documented hazard in laboratories conducting diagnostic or investigative work; 71 reported cases with 1 death - pulmonary infection from handling mold from cultures, local infection from skin puncture during autopsy, accidental needle inoculation of viable culture

SOURCES/SPECIMENS: Infective stage (conidia) present in sporulating mold from cultures and in soil from endemic areas; yeast form in tissues or fluids from infected animals or humans (may produce local infection following parental inoculation)

PRIMARY HAZARDS: Inhalation of infective conidia, contact with broken skin or mucus membranes, accidental parenteral inoculation

SPECIAL HAZARDS: Collecting and processing soil samples from endemic areas has caused pulmonary infections in laboratory workers

SECTION VII - RECOMMENDED PRECAUTIONS

CONTAINMENT REQUIREMENTS: Biosafety level 3 practices, containment equipment and facilities for processing mold cultures, soil, or other material known or likely to contain infectious conidia

PROTECTIVE CLOTHING: Laboratory coat; gloves and gown with tight wrists and ties in back when working with agent

OTHER PRECAUTIONS: Appropriate precautions and practices to minimize the production of infectious aerosols

SECTION VIII - HANDLING INFORMATION

SPILLS: 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: March, 2001

Prepared by: Office of Laboratory Security, PPHB

Although the information, opinions and recommendations contained in this Material Safety Data Sheet are compiled from sources believed to be reliable, we accept no responsibility for the accuracy, sufficiency, or reliability or for any loss or injury resulting from the use of the information. Newly discovered hazards are frequent and this information may not be completely up to date.

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