

Pneumocystis jiroveci pneumonia (PJP)

CHARACTERISTICS

Synonym or Cross Reference	Pneumocystis jiroveci pneumonia (PJP), formerly known as Pneumocystis carinii pneumonia (PCP)
Disease	Pneumocystis pneumonia
Morphology	Pneumocystis jirovecii cysts are thick-walled, rounded, and approximately 5-8 µm in size.
Zoonosis	Not a zoonosis

RISK GROUP & CONTAINMENT REQUIREMENTS

ABSL2	For all procedures utilizing infected animals.
BSL-2	All procedures must be performed in a BSC, unless otherwise approved and stated in lab-specific manual. If oncogenic transgenes are used, the containment level should be raised to BSL-2+
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	Many people are exposed to Pneumocystis as children, but they likely do not get sick because their immune systems prevent the fungus from causing an infection. The fungus is concerning to people with a weakened immune system.
Sources	Samples described in IBC protocol.
Lab Acquired Infections (LAIs)	Not known

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	Pneumocystis organisms require a living host to survive and remain unculturable in vitro. Additionally, they lack many genes involved in the biosynthesis of essential nutrients and, instead, rely on mechanisms to scavenge nutrients from the host. They are ill-equipped to survive outside their hosts.

HEALTH HAZARDS

Host Range	It is important to note that Pneumocystis is host-specific with Pneumocystis jirovecii found in humans, Pneumocystis carinii in rats, and Pneumocystis murina in mice.
Incubation Period	7 to 188 days
Infectious Dose	Unknown
Modes of Transmission	PCP spreads from person to person through the air. Some healthy adults can carry the Pneumocystis in their lungs without having symptoms and it can spread to other people, including those with weakened immune systems.
Signs and Symptoms	The symptoms of PCP can develop over several days or weeks and include fever, cough, difficulty breathing, chest pain, chills, and fatigue (tiredness). Contact your healthcare provider if you have symptoms that you think are related to PCP.

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	See Treatment below.
Surveillance	The exact number of cases of PCP in the United States is difficult to determine because there is no national surveillance for the disease.
Treatment	The most common form of treatment is trimethoprim/sulfamethoxazole (TMP/SMX), which is also known as co-trimoxazole and by several different brand names, including Bactrim, Septra, and Cotrim. This medicine is given by mouth or through a vein for 3 weeks.
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>	CDC-DPDx <a href="http://tiny.cc/cdc-dpdx-pjp">http://tiny.cc/cdc-dpdx-pjp</a>
NIH Guidelines <a href="http://tiny.cc/nih-bio-secure">http://tiny.cc/nih-bio-secure</a>	Canadian PSDS <a href="http://tiny.cc/canada-gov-psds">http://tiny.cc/canada-gov-psds</a>
Virginia Tech <a href="http://tiny.cc/vt-psds">http://tiny.cc/vt-psds</a>	Montana State University <a href="http://tiny.cc/msu-psds">http://tiny.cc/msu-psds</a>
ASM Journals <a href="https://journals.asm.org/">https://journals.asm.org/</a>	Mount Sinai <a href="http://tiny.cc/mtsinai-pjp">http://tiny.cc/mtsinai-pjp</a>

