



The University of Texas at Tyler
Environmental Health and Safety
BIOLOGICAL AGENT REFERENCE SHEET

Characteristics	
Risk Group	2 - Agents that are associated with human disease which is rarely serious and for which preventive or therapeutic interventions are often available.
Agent Type	Biohazard
Description	<p>Streptococcus pyogenes is an aerobic, gram-positive extracellular bacterium. It is made up of non-motile, non-sporing cocci that form chains and large colonies greater than 0.5 mm in size. It has a β-hemolytic growth pattern on blood agar and there are over 60 different strains of the bacterium. The bacterium causes streptococcal sore throat characterized by fever, enlarged tonsils, tonsillar exudate, sensitive cervical lymph nodes and malaise. The bacterium also causes Scarlet fever, impetigo and pneumonia. Less common are: septicaemia, otitis media, mastitis, sepsis, cellulitis, erysipelas, myositis, osteomyelitis, septic arthritis, meningitis, endocarditis, pericarditis, and neonatal infections. The bacterium can stay as a carrier in the body for months and is transmissible in this state. The bacterium is susceptible to : penicillin, as well as erythromycin, clindamycin, imipenem, rifampin, vanomycin, macrolides and lincomycin; however, certain strains of the bacterium have been found to resistant to macrolides, lincomycin, chloramphenicol, tetracyclines and cotrimoxazole.</p> <p>ref: Streptococcus pyogenes. Genome. NCBI.</p>
Host Range	Humans; cows can be vectors for the disease
Exposure route	Aerosol/inhalation, direct contact, dairy products
Incubation period	1-3 days

Laboratory Hazards	
High Energy	Centrifugation, sonication, vortexing
Sharps	Needles, broken glass

Aerosols	Shaking, liquid culturing, pipetting, coughing, sneezing
Equipment	Easily adhere to and stay on unsanitary equipment
Exposed body	skin, eyes, mucous membranes
Notes	

Laboratory Handling Guidelines

Biosafety Level	2 - refer to Biosafety Manual; contact EH&S for a copy
Training	EH&S Biosafety Training; Lab specific training
Engineering controls	use in BSL II only
PPE	Eye protection, gloves and lab coat
Waste	Biohazard - put in red biohazard bins

Agent Viability

Disinfection	1% bleach, 70% ethanol
Survival outside host	The bacterium can survive on a dry surface for up to 6.5 months; ice-cream for 18 days, raw and pasteurized milk for 96 hours, room temperature butter for 48 hours and several days in cold salad
Engineering controls	BSC if working with liquids; lids while working with high energy equipment
PPE	Eye protection, gloves, long sleeve or lab coat
Waste	Biohazard - put in red biohazard bins

Exposure and Spill procedures

Mucous membranes	flush eyes, nose, mouth/throat for 15 minutes
Skin contact	Wash with soap and water for a minimum of 30 second for bare skin contact; for broken skin wash with soap and water for 15 minutes
Minor (small) spills	Notify all persons present in the area. Allow aerosols to settle. While wearing protective clothing, gently cover the spill with absorbent paper towel and apply appropriate disinfectant, starting at perimeter and working towards the centre. Allow sufficient contact time before clean up.
Major (large) spills	Contact EH&S immediately; after-hours contact University Police
Waste	Decontaminate all wastes before disposal by incineration, chemical disinfection or steam sterilization

References

Streptococcus pyogenes. <https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment/streptococcus-pyogenes.html>

