## Biological Hazard Operations

<table>
<thead>
<tr>
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<th>BSL 1</th>
<th>BSL 2</th>
<th>BSL3</th>
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| **Examples** | • E. Coli K12  
• Saccharomyces cerevisae | • Human cells, blood, tissue  
• Salmonella sp.  
• Polio Virus | • Mycobacterium tuberculosis  
• Hanta Virus |
| **Agents**               | Not known to cause disease in healthy adults | Associated with human disease. Hazard from percutaneous injury, ingestion, mucous membrane exposure. | Indigenous or exotic agents with potential for aerosol transmission; disease may have serious or lethal consequences. |
| **Review**                | IBC for any rDNA work | | |
| **Work Practices**        | Standard Microbiological Practices | BSL1 Plus:  
• Limit access  
• Biohazard warning signs  
• Sharps precautions  
• Biosafety Manual/SOPs defining any needed waste decontamination or medical surveillance. | BSL2 Plus:  
• Controlled access  
• Decontamination of all waste  
• Decontamination of lab clothing before laundering |
| **Engineering Controls**  | Biosafety cabinet for all manipulations of agents that cause splashes or aerosols of infectious materials, including pipetting, centrifuging, tissue culture & sonication. | | Biosafety cabinet for all open manipulations of agents  
• Constantly monitored directional air flow into lab |
| **PPE**                  | • Lab coat  
• Gloves  
• Face protection based on risk assessment | • Protective lab clothing  
• Gloves  
• Respirator based on risk assessment | |
| **Designated Area**       | Open bench top sink required. | • Secure storage of infectious agents  
• Lab locked when unoccupied | • Physical separation from access corridors  
• Self-closing, double door access  
• Exhaust air not recirculated |