Risk Group and Biosafety Containment Level

Risk Group (NIH Guidelines)	Biosafety Containment Level	Examples
Risk Group 1: Agents are *NOT* associated with disease in healthy adult humans. (Low risk)	**BSL-1** • Work is done on open bench tops and special containment equipment is not required • Standard microbiological practices are observed	Escherichia coli; K12 derivatives (DH5a, JH109, pBluescript, psi2); All EXEMPT rDNA work
Risk Group 2: Agents are associated with human disease which is rarely serious. There are often preventive or therapeutic interventions available. (Moderate risk)	**BSL-2** • All BSL-1 containment and practices plus the following: • Laboratory access is restricted when experimental work is in progress • Personnel have specific training in handling of agents • Biological safety cabinets (BSC) or other physical containment devices are used for potential aerosol generation procedures • Biohazard signs must be posted • Specific PPE (personnel protective equipment) and entrance requirements	• Adenovirus all types; human • All human blood-contaminated specimens: HIV/SIV infected animals • Human cell lines eg. HEK 293 • Herpes Simplex Virus • Rabies Virus • Pseudorabies Virus
Risk Group 3: Agents are associated with serous or lethal human disease for which preventive or therapeutic interventions *MAY* be available. (High risk)	**BSL-3** • All BSL-2 containment and practices plus the following: • Specific facility design parameters must be followed, including requirements for location, ventilation, room integrity and security	• Bartonella • Coxiella burnetii • Mycobacterium bovis • Poxviruses • Retroviruses
Risk Group 4: Agents are likely to cause serious or lethal human disease for which preventive or therapeutic interventions are *NOT USUALLY* available. (Extreme risk)	**BSL-4** • NO current facilities exist to accommodate risk group 4 agents at Oklahoma State University.	• Arenaviruses • Filoviruses

Risk Group and Biosafety Containment Level for Animal, Plant, or rDNA not related to risk in Humans

Risk Group (NIH Guidelines)	Biosafety Containment Level	Examples
Risk Group 1: Experiments that do not pose a risk to the environment – release would not result in surviving in the environment. (Low risk)	**BSL-1** • Work is done on open bench tops and special containment equipment is not required • Standard microbiological practices are observed	Escherichia coli; K12 derivatives (DH5a, JH109, pBluescript, psi2); All EXEMPT rDNA work; *Rhizobium, Agrobacterium*
Risk Group 2: Experiments that involve work agents or transgenics that if released would be viable in the environment but would have a negligible impact or could be readily managed. (Moderate risk)	**BSL-2** • All BSL-1 containment and practices plus the following: • Laboratory/Facility/Greenhouse access is restricted when experimental work is in progress • Personnel have specific training in handling of agents • Biological safety cabinets (BSC) or other physical containment devices are used for potential aerosol generation procedures • Biohazard signs must be posted • Specific PPE (personnel protective equipment) and entrance requirements	• rDNA work on plants that could become established if released • Potentially harmful microorganisms to other animals or plants but that are manageable •Exotics that pose no potential harm to managed or natural ecosystems • Herpes Simplex Virus • Rabies Virus • Pseudorabies Virus
Risk Group 3: Experiments that a release outside the lab would have significant detrimental impact on the environment. (High risk)	**BSL-3** • All BSL-2 containment and practices plus the following: • Specific facility design parameters must be followed, including requirements for location, ventilation, room integrity and security	• Exotic infectious agents capable of causing serious environmental harm • Plants containing genes from exotic infectious agents • Mycobacterium bovis
Risk Group 4: Experiments with exotics that are serious pathogens of major US crops and agriculture, and would have a devastating impact on the environment. (Extreme risk)	**BSL-4** • NO current facilities exist to accommodate risk group 4 agents at Oklahoma State University.	