

Partial List of BSL1 Biological Agents

Risk Group 1/ Biosafety Containment level 1 (RG1/BSL1) agents pose a minimal potential threat to people and the environment, and unlikely to cause human or animal disease. Generally, these are well- characterized strains of microorganisms not known to consistently cause disease in healthy adult humans. However, some BSL1 agents can act as opportunistic pathogens in the immunocompromised, very young, or elderly individuals.

"Always check your strain!"

Strain identity is very important for microorganisms; generally innocuous species can genetically acquire virulence factors and thereby become RG2/BSL2 organisms (e.g. Escherichia coli O157:H7).

BSL1 Biological Agents	Species	Strain	Comment	
Common Cloning Strains	Escherichia coli	MC1061	isolated in 1920	
		K-12		
		K12 derivatives		
		MG1655		
		MC1061		
		DH5alpha		
		DH10b		
		AD494(DE3)pLysS		also known as TOP10
		NovaBlue		
		HMS174		
		Origami(DE3)		
		B strain		isolated in 1918
		B strain derivatives		
		BL21		
		NEB T7 Express		
BL21(DE3)pLysS				
B834(DE3)pLysS				
Rosetta				
HB101	hybrid of K-12/B strain			
JM110				
Other bacteria	Escherichia coli	Nissle 1917	Mutaflor Probiotic	
	Alcaligenes faecalis			
	Aspergillus niger			
	Bacillus cereus			
	Bacillus megaterium			
	Bacillus subtilis			
	Clostridium sporogenes			
	Enterobacter aerogenes			
	Enterobacter cloacae			
	Kocuria rosea (Micrococcus roseus)			
	Lactobacillus spp.			
	Micrococcus luteus			

BSL1 Biological Agents	Species	Strain(s)	Comments
bacteria contd.	Mycobacterium smegmatis Naegleria gruberi Neisseria sicca Neisseria subflava Penicillium notatum Rhizopus stolonifer Rhodospirillum rubrum Serratia marcescens Staphylococcus epidermidis Streptococcus bovis Streptococcus (Lactococcus) lactis		
Native Plant Pathogens	Fusarium pseudograminearum Fusarium oxysporum Aphanomyces cochlioides Potato virus X (potexvirus, PVX) Potato virus Y (potyvirus, PVY) Phytophthora infestans Pythium ultimum Rhizoctonia solani Wheat streak mosaic virus Barley yellow dwarf luteovirus-SGV Barley stripe mosaic virus Aphanomyces euteiches	Wilga; strains O, N, NTN	potato blight/late blight; potato famine
Miscellaneous	Saccharomyces cerevisiae		yeast
Non-human/non-primate cell lines; each subject to confirmation, based on prior screening for potential pathogens.			
	Sf9 Insect cell line Rodent cell lines		used for protein expression

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Reference sites:

- <https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment.html>
- <https://my.absa.org/tiki-index.php?page=Riskgroups>
- <https://www.cdc.gov/biosafety/publications/bmbl5/bmbl.pdf>