



NIH Guidelines - Covered Experiments

1. Whole Animal Experiments

A. BL1-N Experiments (Appendix C-7 thru C-8, III-E-2-b-5, III-E-3(a), III-D-4 a-b)

Experiment	Section
Purchase or transfer of transgenic rodents requiring BL1-N containment. Includes subsequent use of these animals provided no recombinant or synthetic DNA/infectious material is used.	Exempt, Appendix C-7
Generation of transgenic rodents via breeding requiring BL1-N containment	Exempt, Appendix C-8
Creation of transgenic rodents in which the animal's genome has been altered by stable introduction of recombinant or synthetic nucleic acid molecules, or nucleic acids derived therefrom, into the germ-line	III-E-3(a)
Experiments with recombinant or synthetic nucleic acid molecule-modified arthropods or small animals associated with plants or microorganisms, have no recognized potential for serious detrimental impact on managed or natural ecosystems .	III-E-2-b-5
Creation of transgenic animals <u>other than rodents</u> requiring BL1-N	III-D-4-b
Creation of rDNA modified arthropods requiring BL1-N	III-D-4-b
Experiments with transgenic animals and rDNA modified invertebrates not associated with plants requiring BL1-N	III-D-4-b
Introduction of less than 2/3 of eukaryotic viral genome into a non-human vertebrate or invertebrate organism requiring BL1-N	III-D-4-a
Propagation of animals containing viral vector sequences not leading to transmissible infection	III-D-4-a

B. BL2-N or Higher Experiments (Section III-D-1, Section III-D-4 a-b)

Experiment	Section
Purchase or transfer of transgenic animals requiring BL2 containment	III-D-4(a)
Experiments with RG2 rDNA modified microbes in any animal (<u>transgenic or otherwise</u>) requiring BL2-N	III-D-1
Experiments with rDNA <u>involving whole animals</u> NOT covered by Sections III-D-1 or III-D-4(a)	III-D-4-b
Experiments with <u>transgenic animals including rodents</u> at BL2-N or higher (Biosafety Level determined by IBC)	III-D-4-b IBC sets BSL
Experiments with rDNA modified arthropods not associated with plants requiring BL2-N or higher	III-D-4(a)

C. BL3-N Experiments (Section III-D-1-b)

Experiment	Section
Experiments with RG3 rDNA modified microbes in any animal (transgenic or otherwise) requiring BL3-N	III-D-1-b

D. BL4-N Experiments (Section III-D-1-Cc III-D-1-d)

Experiment	Section
Experiments with RG4 rDNA modified microbes in any animal (transgenic or otherwise) requiring BL4-N	III-D-1-c
Experiments with rDNA modified restricted agent in any animal (transgenic or otherwise) at BL4-N	III-D-1-d

BioSafety

2. Experiments involving host-vector systems; cloned DNA; formation of < 2/3 of the genome of a eukaryotic virus; helper virus

A. BL1 Experiments (Section III-E-1, III-E-2, III-D-3-e)

Experiment	Section
Formation of no more than 2/3 of the genome of any eukaryotic virus. (COMS Policy Exception: Lentiviral vectors would be conducted under BL2 containment)	III-E-1
Helper virus: Infectious or defective animal viruses in the presence of helper virus NOT requiring BL2 or higher containment, e.g. NOT covered by section III-D-3-a through d	III-D-3-e
Experiments that don't fall into any other category, e.g., experiments involving the introduction of RG1 DNA into RG1 organisms such as <i>E. coli</i> BL21, or non-viral RG1 or RG2 rDNA used in tissue culture systems.	III-E
Plant Experiments: with rDNA containing plants that are not noxious weeds or cannot interbreed with noxious weeds in the immediate area and non-exotic microorganisms/arthropods that have no recognized potential for rapid and widespread dissemination or serious detrimental impact on local ecosystems	III-E-2-a

B. BL2 Experiments (Section III-D-1-a, III-D-2-a, III-D-3-a, III-E-2-b)

Experiment	Section
Host-vector: Introduction of rDNA into RG2 agents	III-D-1-a
Cloned DNA: DNA from RG2 or RG3 agents transferred into nonpathogenic prokaryotes or lower eukaryotes	III-D-2-a
Helper virus: Infectious RG2 animal viruses in the presence of helper virus	III-D-3-a
Plants Experiments: that are modified with rDNA and are noxious weeds or can interbreed with noxious weeds in the immediate area, experiments with microorganisms/arthropods that are non-exotic and/or that may have detrimental impact on local ecosystems, experiments with exotic microorganisms/arthropods that have no detrimental impact on local ecosystems	III-E-2-b

C. BL3 Experiments

Experiment	Section
Host-vector: Introduction of rDNA into RG3 agents	III-D-1-b
Helper virus: Infectious or defective RG3 animal viruses in the presence of helper virus	III-D-3-b
Experiments involving whole plants, transgenic, using rDNA, propagation or used with exotic microorganisms/ arthropods containing rDNA that require BL3-P	III-D-5

D. Containment determined by NIH OBA on a case-by-case basis

Experiment	Section
Cloned DNA: DNA from restricted agents transferred into nonpathogenic prokaryotes or lower eukaryotes	III-D-2-b
Helper virus: Infectious or defective restricted poxviruses in the presence of helper virus	III-D-3-d

3. Exempt Experiments involving *E. coli* K12, *Saccharomyces*, *B. subtilis*, or *B. lichenformis* host vector systems; PCR and sequencing (Section III-F)

BL1 Experiments

Experiment	Section
Experiments which use RG1 or 2 DNA inserted into <i>E. coli</i> K12, <i>Saccharomyces</i> , <i>B. subtilis</i> , or <i>B. lichenformis</i> host-vector systems. (See exceptions in appendix CII, CIII, CIV)	III-F-6 (App. C1-C-IV)
rDNA not in organisms or viruses.	II-F-1
rDNA consisting of DNA segments from a single non-chromosomal or viral DNA source.	III-F-2
rDNA consisting of DNA from prokaryotic host when propagated only in that host or transferred to another host by well established physiological means.	III-F-3
rDNA consisting of DNA from an eukaryotic host when propagated only in that host (or closely related host). See natural exchangers list in Appendices A-I through A-VI.	III-F-4 (App. A1-AVI)
rDNA consisting of DNA segments from different species that exchange DNA by known physiological processes.	III-F-5

4. Large Scale Experiments involving more than 10 L of culture (Section III-D-6)
The appropriate containment will be determined by the IBC. Use [Appendix K](#) for large scale containment conditions.

5. Experiments Requiring External (Federal) Review (Section III-A, III-B, III-C)

Experiment	Section
Deliberate transfer of a drug resistant trait that compromises the control of disease agents in medicine	III-A-1-a
Cloning toxins that have an LD50 less than 100ng/kg body weight	III-B-1
Experiments with a rDNA modified restricted agent in a whole animal	III-B
Deliberate transfer of rDNA into human participants	III-C-1

Definitions:

1. rDNA refers to recombinant DNA molecules and DNA or RNA derived from recombinant DNA molecules and their synthetic equivalents.
2. Transgenic animals: foreign DNA is deliberately introduced into the animal using rDNA technology and is transmitted through the germ line resulting in every cell, including germ cells of the animal, containing the same modified genetic material.

NIH Risk Group classifications:

Listed in [Appendix B of the Guidelines](#)

NIH Containment requirements:

Outlined in [Appendix G of the Guidelines](#)

Please contact Harvard EHS Biosafety Office at 617.496.3797 or biosafety@harvard.edu if you need assistance determining which section of the Guidelines apply to your experiments.