GENERAL GUIDELINES

III-A. Experiments that require IBC approval, RAC review, and NIH director approval before initiation.

1. Deliberate release into the environment of any organisms containing recombinant DNA, except certain plants.
2. Deliberate transfer of a drug resistance trait to microorganisms that are not known to acquire it naturally.
3. Deliberate transfer of certain recombinant DNA molecules into a human subject that are deemed Major Actions by the NIH (see Appendix D of the *NIH Guidelines* for examples).

III-B. Experiments that require both NIH/ORDA and IBC approval before initiation.

1. Experiments involving the cloning of toxin molecules with LD50 of less than 100 nanograms per kilogram body weight. Examples: botulinum, tetanus, and diphtheria toxins; S. dysenteriae neurotoxin.

III-C. Experiments that require IBC approval and NIH/ORDA registration before initiation.

1. Experiments involving the deliberate transfer of recombinant DNA or DNA or RNA derived from recombinant DNA into a human subject.

Note: IBC approval must be obtained from each institution at which recombinant DNA material will be administered to human subjects (as opposed to each institution involved in the production of vectors for human application and each institution at which there is ex vivo transduction of recombinant DNA material into target cells for human application).

III-D. Experiments that require IBC approval before initiation of the experiment (generally BL2 or higher containment required).

1. Work using human or animal pathogens (risk groups 2, 3, 4 or restricted agents) as host-vector systems.

a. introduction of recombinant DNA into risk group 2 agents can be carried out at BL2.

b. introduction of recombinant DNA into risk group 3 agents can be carried out at BL3.

c. introduction of recombinant DNA into risk group 4 agents can be carried out at BL4.

d. introduction of recombinant DNA into restricted agents is a case-by-case situation to be decided after NIH/ORDA review.

e. in all cases, whole animal experiments will require containment levels equivalent to the risk group.

2. Work in which DNA from risk group 2, 3, 4, or restricted human or animal pathogens is cloned in nonpathogenic prokaryotic or lower eukaryotic host-vector systems.

a. cloning of DNA from risk group 2 or 3 agents can be carried out at BL2.

b. cloning of DNA from risk group 4 agents can be carried out at BL4 unless a totally and irreversibly defective fraction of the genome was cloned (BL2).

c. cloning of DNA from restricted agents is a case-by-case situation.

d. specific lowering of containment to BL1 for particular experiments can be approved by IBC.

e. many of these experiments may be deemed exempt by the IBC.

3. Work involving the use of infectious viruses or defective viruses in the presence of helper virus in tissue culture systems.

a. risk group 2 agent work can be carried out at BL2.

b. risk group 3 agent work can be carried out at BL3.

c. risk group 4 agent work can be carried out at BL4.

d. restricted agent work is a case-by-case situation.

Note: Murine retroviral vectors to be used for human transfer experiments (less than 10 liters) that contain less than 50% of their respective parental viral genome and that have been demonstrated to be free of detectable replication competent retrovirus can be maintained, handled, and administered, under BL1 containment.

4. Experiments involving the generation of transgenic animals and experiments involving viable recombinant DNA-modified microorganisms tested on whole animals (not lower than BL2 containment).

5. Introduction of recombinant DNA (ie, naked DNA injections) into a non-human vertebrate or invertebrate organism (BL1), unless the DNA represents greater than two-thirds of a eukaryotic viral genome.

6. Work involving more than 10 liters of culture (IBC will determine containment level).

III-E. Experiments that require IBC notification at the time of initiation. (BL1 containment required).

1. Work involving no more than two-thirds of any eukaryotic viral genome (except risk group 3, 4, or restricted agents; see III-D) when performed in tissue culture in the absence of helper virus.

2. Experiments involving the generation of transgenic rodents judged to require only BL1 containment.

III-F. Experiments that are exempt (BL1 containment suggested). It is UTHSC policy that all research utilizing recombinant DNA must be registered, even if it meets the exempt criteria. The UTHSC IBC will make the determination as to whether the research will be classified as exempt.

1. Those experiments involving recombinant DNA molecules that:

a. are not in organisms or viruses.

b. consist entirely of DNA segments from a single nonchromosomal or viral DNA source, though one or more of the segments may be a synthetic equivalent.

c. consist entirely of DNA from a prokaryotic host including its indigenous plasmids or viruses when propagated only in that host (or a closely related strain), or when transferred to another host by well established physiological means.

d. consist entirely of DNA from a eukaryotic host including its mitochondria or plasmids (but excluding viruses) when propagated only in that host (or a closely related strain).

e. consist entirely of DNA segments from different species that exchange DNA by known physiological processes.

f. contain less than one-half of any eukaryotic viral genome from risk groups 1 or 2, and are propagated and maintained in cells in tissue culture. However, experiments that involve the deliberate introduction of genes coding for the biosynthesis of molecules toxic to vertebrates or whose other aspects warrant a section.

2. Experiments which use *E. coli* K-12 host-vector systems provided that the *E. coli* host contains no conjugation-proficient plasmids or generalized transducing phages, and that lambdoid or Ff phages or non-conjugative plasmids are used as vectors.

3. Experiments involving *S. cerevisiae* or *S. uvarum* host-vector systems.

4. Experiments involving any asporogenic *B. subtilis* or asporogenic *B. licheniformis* host-vector system.

5. Experiments involving recombinant DNA molecules derived entirely from extrachromosomal elements and maintained in the natural host from a number of *Bacillus, Listeria, Pediococcus, Staphylococcus,* and *Streptococcus* species (see NIH Guidelines for a specific listing).

6. The purchase or transfer of transgenic rodents for experiments that require BL1 containment.