**Recombinant or synthetic nucleic acid molecules that are exempt from the NIH Guidelines and do not require registration with the Institutional Biosafety Committee (IBC)**

| Recombinant DNA experiments exempt from IBC registration/approval | Specifications/Examples | Exception |
| --- | --- | --- |
| Nucleic acids that:   1. Can neither replicate nor generate nucleic acids that can replicate in any living cell. 2. Are not designed to integrate into DNA. 3. Do not produce a toxin that is lethal for vertebrates at an LD50 of less than 100 ng/Kg body weight. 4. Are not in organisms, cells or viruses and that are not able to penetrate cells (by synthetic or natural vehicles) | Oligonucleotides. |  |
| Experiments that do not present a significant risk to health or the environment. | Recombinant or synthetic nucleic acid molecules in Tissue Culture **as long as they contain less than ½ of any eukaryotic viral genome**. | Except of cloning of Toxin with LD50<100ng/kg Body weight. |
| Except of DNA from Risk Groups 3, 4, or restricted organisms or cells known to be infected with these agents |
| Except of genes encoding for biosynthesis of molecules that are toxic for vertebrates |
| Except of whole plants regenerated from plant cells and tissue cultures containing a single species. |
| E.coli K-12 host-vector systems. |  | Except of E. coli host containing conjugation proficient plasmids or generalized transducing phages |
| DNA/RNA inserted into E. coli K-12, Saccharomyces, Kluyveromyces or non-spore former Bacillus subtillus or Bacillus lichenformis host-vector systems. |  | Except of cloning of Toxin with LD50<100ng/kg Body weight. |
|  | Except of DNA from Risk Groups 3, 4. |
| An exact nucleic acid sequence from a single source that exists in nature (excluding viruses) when propagated only in that host (or a closely related strain of the same species). |  |  |
| Extrachromosomal elements of gram positive organisms. | (see below the list in Appendix C-VI), | Except those that involve cloning of toxin molecules with LD50<100ng/kg Body weight **or large-scale experiments (more than 10 liters of culture).** |
| DNA segments from different species that exchange DNA by known physiological processes. | Appendix A (below) contains a list of the natural exchanges. |  |
| Genomic DNA molecules that have acquired a transposable element, not containing any recombinant and/or synthetic DNA. |  |  |
| Mating of BL1 transgenic rodent lines to form a third unique line, as long as neither parental line nor the line resulting from this breeding contains more than one-half of the genome of a viral genome from a single family of viruses, or incorporation of a transgene that is under the control of a gamma-retroviral long terminal repeat (LTR) |  |  |

**Appendix A (exempted)**

**SUBLISTS OF NATURAL EXCHANGERS**: DNA segments from one or more of the organisms within a sub-list, to be propagated in any of the organisms within a sub-list

Sublist A

Genus Escherichia

Genus Shigella

Genus Salmonella - including Arizona

Genus Enterobacter

Genus Citrobacter - including Levinea

Genus Klebsiella - including oxytoca

Genus Erwinia

Pseudomonas aeruginosa, Pseudomonas putida, Pseudomonas fluorescens, and Pseudomonas mendocina

Serratia marcescens

Yersinia enterocolitica

Appendix A-II. Sublist B

Bacillus subtilis

Bacillus licheniformis

Bacillus pumilus

Bacillus globigii

Bacillus niger

Bacillus nato

Bacillus amyloliquefaciens

Bacillus aterrimus

Appendix A-III. **Sublist C**

Streptomyces aureofaciens

Streptomyces rimosus

Streptomyces coelicolor

Appendix A-IV. Sublist D

Streptomyces griseus

Streptomyces cyaneus

Streptomyces venezuelae

Appendix A-V. Sublist E

One way transfer of Streptococcus mutans or Streptococcus lactis DNA into Streptococcus sanguis

Appendix A-VI. Sublist F

Streptococcus sanguis

Streptococcus pneumoniae

Streptococcus faecalis

Streptococcus pyogenes

Streptococcus mutans

**Appendix C-VI.**

Recombinant or synthetic nucleic acid molecules derived entirely from extrachromosomal elements of the organisms listed below), propagated and maintained in organisms listed below are exempt from these NIH Guidelines.

Bacillus amyloliquefaciens

Bacillus amylosacchariticus

Bacillus anthracis

Bacillus aterrimus

Bacillus brevis

Bacillus cereus

Bacillus globigii

Bacillus licheniformis

Bacillus megaterium

Bacillus natto

Bacillus niger

Bacillus pumilus

Bacillus sphaericus

Bacillus stearothermophilus

Bacillus subtilis

Bacillus thuringiensis

Clostridium acetobutylicum

Lactobacillus casei

Listeria grayi

Listeria monocytogenes

Listeria murrayi

Pediococcus acidilactici

Pediococcus damnosus

Pediococcus pentosaceus

Staphylococcus aureus

Staphylococcus carnosus

Staphylococcus epidermidis

Streptococcus agalactiae

Streptococcus anginosus

Streptococcus avium

Streptococcus cremoris

Streptococcus dorans

Streptococcus equisimilis

Streptococcus faecalis

Streptococcus ferus

Streptococcus lactis

Streptococcus ferns

Streptococcus mitior

Streptococcus mutans

Streptococcus pneumoniae

Streptococcus pyogenes

Streptococcus salivarius

Streptococcus sanguis

Streptococcus sobrinus

Streptococcus thermophilus