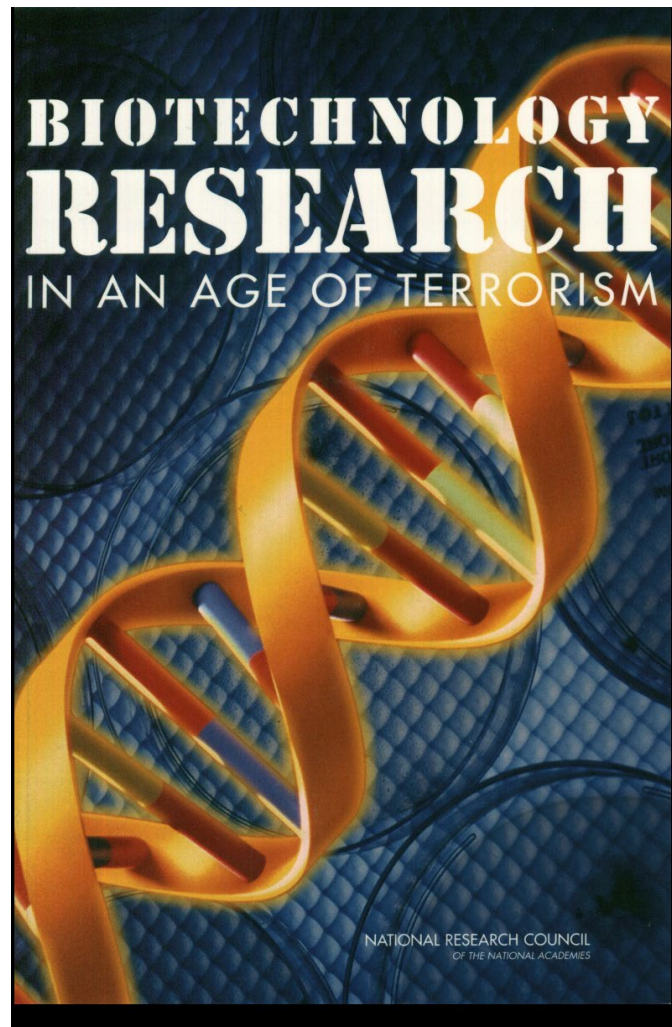


Criteria for Identifying Dual Use Research

National Research Council Perspective: Experiments of Concern

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Report of the Committee on Research Standards and Practices to Prevent the
Destructive Application of Biotechnology
“Fink Committee”
National Research Council
OF THE NATIONAL ACADEMIES

Defining Dual Use

- Activities intended for biowarfare or bioterrorism that are masked as legitimate activities
 - Facilities (e.g. fermentors) being used to produce bioweapons that are alleged to be used for biopesticide production
- Activities that are legitimate life science research that can be misused by bioterrorists
 - Viral synthesis, immune modulation, antibiotic resistance, aerosolizable vaccines

The Fink Committee Proposals

- Develop an architecture to help protect the life sciences scientific community against the potential misuse of biological materials and information.
- Establish a number of stages at which experiments and eventually their results would be reviewed to provide reassurance that advances in biotechnology with potential applications for bioterrorism or biological weapons development receive responsible oversight.
- Establish classes of “experiments of concern” that represent the types of endeavors or discoveries that should require review and discussion by informed members of the scientific and medical community before they are undertaken or, if carried out, before they are published in full detail.

Classes of Experiments of Concern Proposed by the Fink Committee

1. Would demonstrate how to render a vaccine ineffective
2. Would confer resistance to therapeutically useful antibiotics or antiviral agents
3. Would enhance the virulence of a pathogen or render a nonpathogen virulent
4. Would increase transmissibility of a pathogen
5. Would alter the host range of a pathogen
6. Would enable the evasion of diagnostic/detection modalities
7. Would enable the weaponization of a biological agent or toxin

Proposed Experiments for Review

- These seven classes of “experiments of concern” represented those that the committee viewed as of potential concern in the near term.
- The committee recognized that these classes of experiments would change as scientific advances led to new technologies.
- The proposed classes of experiments are process rather than organism based.

Proposed Experiments for Review

- The Fink Committee did not propose to ban research involving “experiments of concern.”
- Rather the classes of “experiments of concern” should be viewed as a filter that could simplify the process of responsible oversight by focusing reviews on particular types of research.
- The NSABB will need to provide further critical guidance on how to protect the Life Sciences against misuse.