Appendix J—NIH Oversight of Research Involving Recombinant Biosafety Issues

The locus for oversight of research subject to the *NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules (NIH Guidelines)* within NIH is the Office of Science Policy (OSP), which is located within the Office of the Director of the NIH, and is responsible for the oversight of research involving recombinant or synthetic nucleic acid molecules. The key elements in the biosafety oversight framework for such research are the *NIH Guidelines* and Institutional Biosafety Committees (IBCs) or equivalent resource. NIH OSP promotes the science, safety, and ethics of research subject to the *NIH Guidelines* with the primary goals of enabling the safe conduct of research and of helping to advance all fields of science that employ recombinant or synthetic nucleic acid molecules.

The *NIH Guidelines* specify appropriate biosafety practices and procedures for research involving the construction and handling of recombinant or synthetic nucleic acid molecules, as well as cells, organisms, and viruses that contain such molecules. Recombinant or synthetic nucleic acid molecules are defined in the *NIH Guidelines* as:

1. Molecules that a) are constructed by joining nucleic acid molecules and b) that can replicate in a living cell (i.e., recombinant nucleic acids);
2. Nucleic acid molecules that are chemically, or by other means, synthesized or amplified, including those that are chemically or otherwise modified but can base pair with naturally occurring nucleic acid molecules (i.e., synthetic nucleic acids); or
3. Molecules that result from the replication of those described in (1) or (2).

Compliance with the *NIH Guidelines* is a term and condition of NIH funding, and the *NIH Guidelines* are applicable to all research conducted at or sponsored by an institution that receives any funding from the NIH for recombinant or synthetic nucleic acid molecule research, regardless of the funding source of an individual project. The broad reach of the *NIH Guidelines* promotes the consistency of biosafety practices across the institution to better protect the safety of laboratory workers, the public, and the environment.

The *NIH Guidelines* were first published in 1976 and are revised as technological, scientific, and policy developments warrant. They outline the roles and responsibilities of various entities involved in the conduct or oversight of recombinant or synthetic nucleic acid molecule research, including institutions, investigators, IBCs, biosafety officers, and the NIH (Section IV of the *NIH Guidelines*). They classify agents into one of four Risk Groups (Appendix B of the *NIH Guidelines*) based on their potential to cause disease in a healthy adult human and describe four levels of physical containment practices (Appendix G of the *NIH Guidelines*)

that should be employed for research with the agents based on the potential risk. The *NIH Guidelines* establish different levels of review and approval for recombinant or synthetic nucleic acid molecule research, based on the nature of the activity. These levels are:

1. Approval from the NIH Director and the IBC before initiation of the research.
2. Approval from NIH OSP and the IBC before initiation of the research.
3. Approval from the IBC before initiation of human gene transfer research.
4. Approval from the IBC prior to initiation of the research.
5. Notification of the IBC simultaneous with initiation of the research with subsequent IBC review and approval.

See Section III of the *NIH Guidelines* for additional details. In all instances, it is important to note that review and approval by an IBC is required.

The roles and responsibilities of IBCs, as well as membership, procedures, and functions are outlined in Section IV-B-2 of the *NIH Guidelines*. Institutions that are ultimately responsible for the effectiveness of IBCs may define additional roles and responsibilities for these committees in addition to those specified in the *NIH Guidelines*. For example, some institutions may set a policy that their IBC will also review certain research that is not subject to the *NIH Guidelines* (e.g., research involving non-recombinant pathogens). The *NIH Guidelines* are available at https://osp.od.nih.gov/biotechnology/nih-guidelines/.

Additional information regarding NIH OSP, the *NIH Guidelines*, and the roles and responsibilities of IBCs can be found at http://osp.od.nih.gov.