Temple University

Guidance on Institutional Oversight of Life Sciences Dual Use Research of Concern and Pathogens with Enhanced Pandemic Potential

I. Purpose of this Guidance

This Temple University Dual Use Research of Concern (DURC) and Pathogens with Enhanced Pandemic Potential (PEPP) Guidance (hereinafter, this "Guidance") complies with the United States Government Policy for Oversight of Dual Use Research of Concern and Pathogens with Enhanced Pandemic Potential (release date May 2024). This Guidance ensures that Temple University identifies DURC and PEPP, and implements risk mitigation measures, as applicable. This Guidance sets the rules and procedures for the individuals and committees at Temple University who are responsible for the implementation of the University's requirements with respect to DURC/PEPP.

II. Definitions

Dual Use Research of Concern (DURC): DURC is life sciences research that, based on current understanding, can be reasonably anticipated to provide knowledge, information, products, or technologies that could be directly misapplied to do harm with no, or only minor, modification to pose a significant threat with potential consequences to public health and safety, agricultural crops and other plants, animals, the environment, materiel, or national security.

Institutional Contact for Dual Use Research (ICDUR): The ICDUR is the official designated by the University to serve as an internal resource for application of this policy as well as the liaison with the relevant funding agencies. Vice President for Research Dr. Josh Gladden has been designated as the ICDUR for Temple University.

Institutional Review Entity (IRE): The DURC IRE is the committee which is charged with executing the institutional oversight responsibilities of this program. The membership composition will meet the requirements of the U.S. Government DURC policy. Members will be appointed by Temple University's Vice President for Research.

Pathogen with Enhanced Pandemic Potential (PEPP): A pathogen with pandemic potential resulting from experiments that enhance a pathogen's transmissibility or virulence, or disrupt the effectiveness of pre-existing immunity, regardless of its progenitor agent, such that it may pose a significant threat to public health, the capacity of health systems to function, or national security. Wild-type pathogens that are circulating in or have been recovered from nature are not PEPPs but may be considered PPPs because of their pandemic potential.

Pathogen with Pandemic Potential (PPP): A pathogen that is likely capable of wide and uncontrollable spread in a human population and would likely cause moderate to severe disease and/or mortality in humans.

Reasonably Anticipated: An assessment of an outcome such that, generally, individuals with scientific expertise relevant to the research in question would expect this outcome to occur with a non-trivial likelihood. It does not require high confidence that the outcome will definitely occur and excludes

experiments in which experts would anticipate the outcome to be technically possible, but highly unlikely.

III. **Research Projects and Agents Covered by this Guidance**:

This Guidance applies to all projects involving life sciences research, regardless of the funding source, that are conducted at Temple University or one of its affiliated subcontracting institutions. Temple University and its researchers will review research involving these agents to determine whether it can be anticipated to result in specified experimental effects, and if so, whether these projects constitute DURC and/or PEPP. This Guidance specifies the responsibilities of Principal Investigators (PIs), the ICDUR, the IRE, and the University with respect to research subject to the DURC Policy. All new and renewal awards issued on applications submitted on or after May 6, 2025 are subject to this Guidance. Research projects initiated prior to May 6, 2025 will be reviewed and included in the program upon their annual renewal dates.

Research which falls under this Guidance is divided into two categories. If a research project meets the definition of both Category 1 and Category 2 the research is designated as Category 2 research. If a research project does not initially meet the inclusion criteria for either Category 1 or Category 2, the researchers are encouraged to continually evaluate the project for any changes that may alter the assessment in the future.

Category 1 Research

Category 1 research meets three criteria: (1) it involves one or more of the biological agents and toxins listed below; (2) it is reasonably anticipated to result, or does result, in one of the experimental outcomes specified below; **and** (3) based on current understanding, the University and/or funding agency assesses that the research can be reasonably anticipated to provide, or does provide, knowledge, information, products, or technologies that could be misapplied to do harm with no, or only minor, modification to pose a significant threat with potential consequences to public health and safety, agricultural crops and other plants, animals, the environment, materiel, or national security.

Biological Agents and Toxins within the scope of Category 1 Research include (see Appendix A for a complete list of covered agents and toxins):

- All Select Agents and Toxins included in the Federal Select Agent Program
- All Risk Group 4 pathogens listed in Appendix B of the NIH *Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules* (NIH *Guidelines*)
- A subset of Risk Group 3 pathogens listed in Appendix B of the NIH *Guidelines*
- Biological agents affecting humans that have not been assigned a Risk Group in the NIH *Guidelines*, but where the current edition of *Biosafety in Microbiological and Biomedical Laboratories* (BMBL) recommends the agents be handled at Biosafety Level 3 or Biosafety Level 4.

Category 1 Research Experimental Outcomes

Research projects included within the scope of Category 1 are those projects with a biological agent or toxin listed above that are reasonably anticipated to achieve any of the following:

- Increase transmissibility of a pathogen within or between host species

- Increase the virulence of a pathogen or convey virulence to a non-pathogen
- Increase the toxicity of a known toxin or produce a novel toxin
- Increase the stability of a pathogen or toxin in the environment, or increase the ability to disseminate a pathogen or toxin
- Alter the host range or tropism of a pathogen or toxin
- Decrease the ability for a human or veterinary pathogen or toxin to be detected using standard diagnostic or analytical methods
- Increase resistance of a pathogen or toxin to clinical and/or veterinary prophylactic or therapeutic interventions
- Alter a human or veterinary pathogen or toxin to disrupt the effectiveness of preexisting immunity, via immunization or natural infection, against the pathogen or toxin
- Enhance the susceptibility of a host population to a pathogen or toxin

Category 2 Research

Category 2 research meets three criteria: (1) it involves, or is reasonably anticipated to result in, a Pathogen with Pandemic Potential (PPP), or any pathogen that will be modified in such a way that is reasonably anticipated to result in a PPP; (2) it is reasonably anticipated to result, or does result, in one or more of the experimental outcomes or actions specified below; **and** (3) based on current understanding, the University and/or funding agency assesses that the research is reasonably anticipated to result in the development, use, or transfer of a PEPP or an eradicated or extinct PPP that may pose a significant threat to public health, the capacity of health systems to function, or national security.

Category 2 Research Experimental Outcomes or Actions

Research projects included within the scope of Category 2 are those experimental outcomes or actions with a pathogen defined in Category 2 that are reasonably anticipated to:

- Enhance transmissibility of the pathogen in humans
- Enhance the virulence of the pathogen in humans
- Enhance the immune evasion of the pathogen in humans such as by modifying the pathogen to disrupt the effectiveness of pre-existing immunity via immunization or natural infection
- Generate, use, reconstitute, or transfer an eradicated or extinct PPP, or a previously identified PEPP

IV. **DURC Review and Reporting**

1. It is the PI's responsibility to make the initial assessment as to whether proposed or ongoing life science research may meet the definition of DURC, regardless of the source of funding. The "PI Self-Assessment Form for DURC Determination" is a tool which is available to aid in this determination.
2. The PI is responsible for submitting the determination to the funding agency with the grant application package. When the funding agency has completed merit review of the proposed research, and if it is considering funding the proposed research, the agency notifies the University and/or PI.
3. The self-assessment form is then submitted to the IRE for review of the submission to confirm the PI's determination.

4. If the research does NOT meet the definition of DURC based on the PI and IRE's evaluation, the IRE signs the form and returns it to the PI for submission to the funding agency. The funding agency is then responsible for reviewing the determination to confirm the decision.
5. If the research meets Category 1 or Category 2 research based on either the PI or the IRE's evaluation, the determination is noted on the form.
6. If the PI does not agree with the IRE's determination, they may appeal the decision. The PI will contact the IRE Chair in writing, providing additional information or clarification to their point. The IRE will then review this information and present the PI with the final determination.
7. If a project is determined to meet Category 1 or Category 2 research, the PI will conduct a Risk-Benefit Assessment and develop a draft Risk Mitigation Plan for the conduct and communication of research. Guidance on this process is available in Sections V and VI of this document. The IRE is responsible for reviewing and approving these materials. These documents are then submitted to the funding agency for their review.
8. For Category 1 projects, the funding agency determines whether the potential benefits justify the potential risks and adequate safety measures are in place prior to the funding decision.
9. For Category 2 projects, the funding agency refers the proposed research for Department-level review (for example, the National Institutes of Health, the Department of Health and Human Services, or the National Science Foundation). The Department convenes a multidisciplinary review entity to evaluate the research and safety measures prior to making a funding decision.
10. The IRE must notify the funding agency within 30 calendar days of the institutional review as to whether the project does or does not meet the definition of Category 1 or Category 2 research. The IRE must provide a copy of the Risk Mitigation Plan to the funding agency for review within 90 calendar days of the IRE review.
11. All laboratory personnel (PI, researchers, and students) involved in a Category 1 or Category 2 project must be trained and educated on all research oversight policies and processes prior to initiating work on the project.
12. Research which meets Category 1 must be reviewed on an annual basis, and Category 2 must be reviewed on a semiannual basis by the IRE. These progress reports must be provided to the funding agency.
13. Risk Mitigation Plans must be reviewed by the PI and IRE at least annually.
14. Records of Category 1 and Category 2 research reviews and Risk Mitigation Plans must be maintained by the IRE for at least three years after completion of the project or longer if required by other laws or regulations.
15. The University must provide formal assurance to relevant funding agencies that the University is operating consistent with these Guidelines on an annual basis. The IRE will be required to report to the funding agencies any failure to comply with Risk Mitigation Plans for Category 1 or Category 2 research.

If research is identified as potentially within the scope of Category 1 or Category 2 during the project but after the initial negative assessment, the PI must halt further work, notify the IRE and the funding agency, and work with the IRE to perform the necessary assessments.

V. Risk-Benefit Assessments

The first step after identifying research meets the Category 1 or Category 2 criteria is to perform a Risk-Benefit Assessment in order to determine the acceptable level of risk. The potential benefits to public health, agriculture, food security, economic security, or national security from the research must be considered. In considering risks, some assessments will entail judgments which will be more qualitative

than quantitative. The likelihood of events may be based on limited data and varying degrees of uncertainty. All of these factors must be included during the discussion and formulation of the assessment.

Responsible communication of Category 1 and Category 2 research findings is an important principle of the scientific research enterprise. Open communication can provide vital, real-time information to researchers, clinicians, first responders, community members, and policymakers. However, there is also the concern that entities may misuse knowledge gained from the research for malicious ends. It is essential that responsible communication strategies are established at the onset of a research proposal in order to minimize these hazards. Responsible communication of results is part of the criteria that will be used by funding agencies in the review and approval of research subject to Category 2 oversight.

The risk-benefit analysis of a communication plan should be developed in a way in which the research information is shared to the fullest extent possible in order to realize the potential benefits while effectively managing the risk of potential misuse of the information. After consideration of the risks and benefits of communicating the findings of Category 1 and/or Category 2 research methods and results, decisions about how to responsibly communicate that information should address the content, timing, and possible extent of distribution of the information.

VI. Risk Mitigation Plan

Risk Mitigation Plans should provide sufficient details on the research to enable the funding agency to adequately assess the research institution's plan for managing the risks associated with Category 1 and/or Category 2 research identified by the IRE. Many control measures already exist for DURC research, and these should be included in the plan. The appropriate biosafety level must be identified and followed, along with the standard biosafety procedures outlined in the Temple biosafety program, *BMBL*, and NIH *Guidelines*. If the agents fall under the Federal Select Agent Program the controls identified for that program will also apply to DURC. All researchers involved in the project must be trained in biosafety as well as the Risk Mitigation Plan.

There will also be additional measures which are specific to each project, such as specific or enhanced biosafety and biosecurity measures. The researchers must have a management plan for the full life-cycle of the agent(s) or toxin(s) generated from the research; from time of creation, appropriate inventory and access controls, tracking (if transferred to or shared with third parties), and ultimate safe destruction ("cradle to grave" tracking). The venue and mode of communication (addressing content, timing, and possibly the extent of distribution of the information) to communicate the research responsibly must be included, as well as a plan and methodologies for responsibly communicating the findings of the research and/or voluntary redaction of the research publications or communications.

VII. Requirements for Principal Investigators

Below are the responsibilities and expectations of a PI:

- Be knowledgeable about and comply with the DURC regulation
- Assess research projects at the proposal stage and continuously throughout the project to determine whether it may be reasonably anticipated to fall under the scope of Category 1 or Category 2 work

- Submit the determination as to whether the research falls under the DURC Policy to the funding agency with the application package. The "PI Self-Assessment Form for DURC Determination" can be used in making this determination. Maintain the copy of the form if needed for further project review by the IRE
- If the funding agency is considering funding the project, work with the IRE to review whether the project is covered under these regulations, then develop the Risk-Benefit Assessment and Risk Mitigation Plan as needed
- Notify the University and the funding agency if any ongoing research is identified to fall under this program during the course of the project
- Conduct Category 1 and Category 2 research in accordance with the Risk Mitigation Plan approved by the University and funding agency
- Ensure that Category 1 and Category 2 agents or toxins are properly accounted for and destroyed when no longer needed
- Provide annual progress reports for Category 1 research and semiannual progress reports for Category 2 research and when requested by the funding agency
- Ensure that lab personnel conducting research within the scope of this policy have been trained on the policies and the Risk Management Plan
- Communicate Category 1 and Category 2 research in a responsible manner as outlined in the Risk Management Plan

VIII. Requirements for the University and IRE

Below are the requirements and expectations of the University and IRE:

- The University will establish an IRE for review of research. Composition of the committee is defined in the policy
- The IRE will review research submitted by the PI which is being considered for funding to determine whether it meets Category 1 or Category 2, and within 30 calendar days of the review, notify the funding agency of its determination
- The IRE will work with the PI to develop a Risk-Benefit Assessment and Risk Mitigation Plan which will be submitted to the funding agency within 90 days from the time that the University determines the work meets Category 1 or Category 2
- Establish a procedure for a researcher to notify the IRE if at any time the research may change and then fall under Category 1 or Category 2
- Provide training for PIs, researchers, and IRE members on research oversight for Category 1 and Category 2 research. Maintain records of personnel training for at least 3 years after the completion of the funded project
- Maintain records of IRE reviews and completed Risk Mitigation Plans for the term of the project plus at least 3 years
- Report instances of failure to follow the policy within 30 calendar days of awareness or notification of failure to the funding agency
- On an annual basis, the University will provide a formal assurance to relevant funding agencies that the University is operating consistent with this policy
- Make relevant information available to local authorities on Category 1 and Category 2 research as appropriate

IX. Training

CITI DURC Training is required for all researchers on DURC protocols as well as all IRE committee members. This training must be refreshed annually for all researchers on DURC protocols and refreshed every two years for all IRE committee members. DURC training is offered online through citiprogram.org. Training records must be maintained for at least 3 years after completion of the project.

References

Centers for Disease Control and Prevention, & National Institutes of Health. (2020). Biosafety in Microbiological and Biomedical Laboratories, 6th. Ed. Washington: U.S. Government Printing Office. https://www.cdc.gov/labs/bmbl/?CDC_AAref_Val=https://www.cdc.gov/labs/BMBL.html

Federal Select Agent Program https://www.selectagents.gov/regulations/index.htm

National Institutes of Health. (April 2024). Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules. (89 FR 24016). https://osp.od.nih.gov/wp-content/uploads/NIH_Guidelines.pdf

US Government. (May 6, 2024). Implementation Guidance for the USG Policy for Oversight of Dual Use Research of Concern and Pathogens with Enhanced Pandemic Potential. https://aspr.hhs.gov/S3/Documents/USG-DURC-PEPP-Implementation-Guidance-May2024-508.pdf

Inquiries

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Appendix A
Category 1 Biological Agents and Toxins

HHS Select Agents and Toxins

-Abrin
-*Bacillus cereus* Biovar *anthracis*
-Botulinum neurotoxins
-Chapare virus
-*Clostridium botulinum* and neurotoxin-producing species of *Clostridia*
-Conotoxins (Short, paralytic alpha conotoxins containing the following amino acid sequence X1 CCX2 PACGX3 X4 X5 X6 CX7)
-*Coxiella burnetii*
-Crimean-Congo hemorrhagic fever virus
-Diacetoxyscirpenol
-Eastern equine encephalitis virus
-Ebola virus
-*Francisella tularensis*
-Guanarito virus
-Junín virus
-Kyasanur Forest disease virus
-Lassa fever virus
-Lujo virus
-Machupo virus
-Marburg virus
-Mpox virus Clade I
-1918-1919 H1N1 including reconstructed replication competent forms of the 1918 pandemic influenza virus containing any portion of the coding regions of all eight gene segments (Reconstructed 1918 Influenza virus)
-Omsk hemorrhagic fever virus
-Ricin
-*Rickettsia prowazekii*
-Sabía virus
-Severe acute respiratory coronavirus (SARS-CoV)
-SARS-CoV/SARS-CoV-2 chimeric viruses resulting from any deliberate manipulation of SARS-CoV-2 to incorporate nucleic acids coding for SARS-CoV virulence factors
-Saxitoxin
-Staphylococcal enterotoxins (subtypes A, B, C, D, E)
-T-2 toxin
-Tetrodotoxin
-Tick-borne encephalitis complex virus: Far Eastern subtype
-Tick-borne encephalitis complex virus: Siberian subtype
-Variola major virus (Smallpox virus)
-Variola minor virus (Alastrim)
-*Yersinia pestis*

Overlap Select Agents and Toxins

-*Bacillus anthracis*
-*Bacillus anthracis* Pasteur strain
-*Brucella abortus*
-*Brucella melitensis*
-*Brucella suis*
-*Burkholderia mallei*
-*Burkholderia pseudomallei*
-Hendra virus
-Nipah virus
-Rift Valley fever virus
-Venezuelan equine encephalitis virus

USDA Veterinary Services (VS) Select Agents and Toxins

-African horse sickness virus
-African swine fever virus
-Avian influenza virus [this is included here as a veterinary select agent in 9 CFR 121.3. Low pathogenicity strains are excluded.]
-Classical swine fever virus
-Foot-and-mouth disease virus
-Goat pox virus
-Lumpy skin disease virus
-*Mycoplasma capricolum*
-*Mycoplasma mycoides*
-Newcastle disease virus
-Peste des petits ruminants virus
-Rinderpest virus
-Sheep pox virus
-Swine vesicular disease virus

USDA Plant Protection and Quarantine (PPQ) Select Agents and Toxins

-*Coniothyrium glycines*
-*Peronosclerospora philippinensis (Peronosclerospora sacchari)*
-*Ralstonia solanacearum*
-*Rathayibacter toxicus*
-*Sclerophthora rayssiae*
-*Synchytrium endobioticum*
-*Xanthomonas oryzae*

NIH *Guidelines* Risk Group 4 (RG4) - Viral Agents

- Arenaviruses
    - Guanarito virus
    - Lassa virus

    - Junin virus (except the candid #1 vaccine strain listed in Appendix B-II-D Risk Group2 (RG2) – Viruses)
    - Machupo virus
    - Sabia
- Bunyaviruses (Nairovirus)
    - Crimean-Congo hemorrhagic fever virus
- Filoviruses
    - Ebola viruses
    - Marburg viruses
- Flaviruses - Group B Arboviruses
    - Tick-borne encephalitis virus complex including Absetterov, Central European encephalitis, Hanzalova, Hypr, Kumlinge, Kyasanur Forest disease, Omsk hemorrhagic fever, and Russian spring-summer encephalitis viruses
- Herpesviruses (alpha)
    - Herpesvirus simiae (Herpes B or Monkey B virus)
- Paramyxoviruses
    - Equine Morbillivirus (Hendra virus)
- Hemorrhagic fever viruses as yet undefined

NIH *Guidelines* Risk Group 3 (RG3) - Bacterial Agents Including Rickettsia*

- *Bartonella*
- *Brucella* including *B. abortus, B. canis, B. suis*
- *Burkholderia (Pseudomonas) mallei, B. pseudomallei*
- *Coxiella burnetii* (except the Phase II, Nine Mile strain listed in Appendix B-II-A, Risk Group 2 (RG2) - Bacterial Agents Including *Chlamydia*)
- *Francisella tularensis* (except those strains listed in Appendix B-II-A, Risk Group 2 (RG2) – Bacterial Agents Including *Chlamydia*)
- *Orientia tsutsugamushi* (was *R. tsutsugamushi*)
- *Pasteurella multocida* type B -"buffalo" and other virulent strains
- *Rickettsia akari, R. australis, R. canada, R. conorii, R. prowazekii, R. rickettsii, R. siberica, R. typhi (R. mooseri*)
- *Yersinia pestis* (except those strains listed in Appendix B-II-A, Risk Group 2 (RG2) - Bacterial Agents Including *Chlamydia*)

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NIH *Guidelines* Risk Group 3 (RG3) - Viruses and Prions*

- Alphaviruses (Togaviruses) - Group A Arboviruses
    - Chikungunya virus (except the vaccine strain 181/25 listed in Appendix B-II-D Risk Group2 (RG2) – Viruses)
    - Semliki Forest virus
    - Venezuelan equine encephalomyelitis virus (except the vaccine strains TC-83 and V3526, see Appendix B-II-D (RG2) – Viruses)
    - Other viruses as listed in the reference source (see Section V-C, Footnotes and References of Sections I through IV)
- Arenaviruses
    - Flexal
    - Lymphocytic choriomeningitis virus (LCM) (neurotropic strains)

- Bunyaviruses
    - Hantaviruses including Hantaan virus
    - Rift Valley fever virus
- Coronaviruses
    - SARS-associated coronavirus (SARS-CoV)
    - Middle East respiratory syndrome coronavirus (MERS-CoV)
- Flaviviruses - Group B Arboviruses
    - Japanese encephalitis virus (except those strains listed in Appendix B-II-D Risk Group2 (RG2) - Viruses)
    - Yellow fever virus
    - Other viruses as listed in the reference source (see Section V-C, Footnotes and References of Sections I through IV)
- Orthomyxoviruses
    - Influenza viruses 1918-1919 H1N1 (1918 H1N1), human H2N2 (1957-1968), and highly pathogenic avian influenza H5N1 strains within the Goose/Guangdong/96-like H5 lineage (HPAI H5N1).
- Poxviruses
    - Monkeypox virus (Clade I & Clade II containing nucleic acids coding for clade I MPVX virus virulence factors)
- Prions
    - Transmissible spongiform encephalopathies (TSE) agents (Creutzfeldt-Jacob disease and kuru agents) (see Section V-C, Footnotes and References of Sections I through IV, for containment instruction)

***EXCLUDED RG3 Agents:**

- Human immunodeficiency virus (HIV) types 1 and 2
- Human T cell lymphotropic virus (HTLV) types 1 and 2
- Simian immunodeficiency virus (SIV)
- Mycobacterium tuberculosis, Mycobacterium bovis
- Clade II of MPVX viruses unless containing nucleic acids coding for clade I MPVX virus virulence factors
- Vesicular stomatitis virus
- Coccidioides immitis (sporulating cultures; contaminated soil)
- Histoplasma capsulatum, H. capsulatum var. duboisii