INSTITUTIONAL BIOSAFETY COMMITTEE MEETING

The University of Tennessee at Chattanooga

May 18, 2026 Minutes

ZOOM

I. CALL TO ORDER: 1:13 PM

II. ATTENDANCE:

Affiliated: Paula Jo Peters, David Giles, Bradley Harris, Jessica Sanders, Jose Barbosa
Non-Affiliated: Jennifer Eve, Evelyn Mobley
Ex-Officio: Lacy Bobo, Cheryl Murphy, Brandon Williams

III. APPROVAL OF APRIL 27, 2026 MINUTES:

- **A.** Motion: Approve as written
- **B.** Vote: In Favor- 7 Against- 0 Abstentions- 3

IV. ADMINISTRATIVE REPORT:

- **A.** Approvals (FCR): SPROTO202600000008 (New Registration, David Giles, BIOL 4220L – Principles of Microbiology Lab, Approved 5/4/2026)
- **B.** Administrative Approvals: None
- **C.** Inspections conducted: Grote 105 (Inspected 4/30/2026)

V. NEW BUSINESS

- **A. New Registration: SPROTO202600000024: Understanding the Role of the Ubiquitin Proteasome System (UPS) in Regulation of Eukaryotic Gene Expression – Jannatul Ferdoush**
    a. All training is current for study team members.
    b. BSL-1 and BSL-2: All human cell line work will be conducted under BSL-2 containment, even if RG-1, per BMBL Ed.6.
    c. For non-rsDNA projects:
        i. The Caco-2 (human colon adenocarcinoma, BSL-1, ATCC HTB-37™) and A-498 (human kidney cancer cell line, BSL-1, ATCC A-498) cell lines serve as comparative models for studying UPS-related protein levels. Manipulations are limited to routine cell culture maintenance (passaging, media changes) and total protein harvest by cell lysis, followed by SDS-PAGE and Western blotting to analyze endogenous protein expression levels.
    d. For rsDNA projects:
        i. This research falls under the following NIH Guidelines categories:
            1. Section III-D-1-a (introduction of recombinant nucleic acids into Risk Group 2 agents — HEK293T transfection);
            2. Section III-F-8-C-II (exempt experiments using *E. coli* K-12 host-vector systems); and
            3. Section III-F-8-C-III (exempt experiments involving *Saccharomyces cerevisiae* host-vector systems).
        ii. *E. coli* K-12 and *S. cerevisiae* are Risk Group 1 non-pathogenic organisms with well-established laboratory safety profiles. HEK293T cells are a human embryonic kidney-derived cell line (Risk Group 2 by virtue of human origin) with no known adventitious agents and low risk to healthy individuals. The plasmids used encode only ubiquitin or ubiquitin-fusion proteins, which are

endogenous regulatory proteins with no known pathogenic, oncogenic, or environmental risk.

iii. The pUB221 plasmid is propagated in *E. coli* K-12 via standard transformation and miniprep extraction, then introduced into *S. cerevisiae* by lithium acetate transformation. Yeast cells are lysed by glass bead disruption, and proteins are analyzed by SDS-PAGE and Western blot using anti-His-tag antibodies. In HEK293T cells, the HA-Ubiquitin plasmid (Addgene #18712) is introduced by calcium phosphate transfection; ubiquitinated proteins are subsequently isolated by Ni^{2+}-NTA affinity purification and analyzed by Western blot. A Tap-Tagged TAF7 *S. cerevisiae* strain (Horizon Discovery) is used as received to study UPS-mediated regulation of transcription factors.

iv. The 6×His-tagged ubiquitin insert in pUB221 is derived from *Saccharomyces cerevisiae*. The HA-tagged ubiquitin plasmid is derived from *Homo sapiens*. In both cases, ubiquitin is native to the respective host organism.

v. Both inserts are structural genes encoding the full-length ubiquitin protein fused to an epitope/affinity tag (6×His or HA) for detection and purification purposes. Neither insert is an oncogene, toxin gene, or sequence of concern. Neither construct represents more than two-thirds of any viral genome.

vi. The host-vector systems are: (1) *E. coli* K-12 / pUB221 (2µ-based high-copy plasmid) for plasmid propagation; (2) *S. cerevisiae* / pUB221 for ubiquitination studies in yeast; and (3) HEK293T human cells / HA-Ubiquitin plasmid for human cell ubiquitination studies.

vii. Expression of recombinant protein is attempted in both yeast and human cell systems. In *S. cerevisiae*, the pUB221 plasmid drives expression of 6×His-tagged ubiquitin. In HEK293T cells, the HA-Ubiquitin plasmid drives expression of HA-tagged ubiquitin. The proteins produced are 6×His-tagged ubiquitin and HA-tagged ubiquitin, respectively.

e. Additional committee concerns:
   i. Clarification was requested surrounding transportation to the autoclave, use of the Caco-2 and A-498 agents, the specific K-12 strain(s) being used, the "standard" S. cerevisiae strain being used, removal of the III-E-1 category, Caco-2 and A-498 listed as a host, and autoclaving all human-derived cell waste.

f. Determination:
   i. Motion: Approve pending modifications; with administrative review upon completion of the modifications required.
   ii. Vote: In favor- 7 Against- 0 Abstentions- 3

B. Additional items for discussion:

a. The Committee discussed the timing of CR and de novo submissions: PIs need to submit these as soon as they begin receiving email notifications since they need to be fully approved in the system by the due date to prevent a lapse in registration.
b. IBC SOP #4 – Laboratory Inspections - Discussion Tabled
c. IBC SOP #5 – Escalation Procedures for Noncompliance - Discussion Tabled

VI. NEXT MEETING: July 27, 2026

VII. ADJOURNMENT: 2:10 PM