INSTITUTIONAL BIOSAFETY COMMITTEE (IBC)

Meeting Minutes

April 9, 2026, 1:00 PM, Zoom

Members Present

(All names except the Chair will be redacted from the publicly-posted minutes)
Adams (Chair and BSO), xxx (BB), xxx (External), xxx (EHS), xxx (External) (quorum of ≥ 3 met)

April Meeting Lab Declaration Form Reviews

- At this **April 2026 meeting**, the committee **reviewed and approved** the following IBC Declaration Forms and Control Plans:
    - Biomedical Engineering (BME): 10 forms remaining from the previous meeting
    - Chemistry and Biochemistry (CBC): 14 forms
    - Civil and Environmental Engineering (CEE): 5 forms
    - Chemical Engineering (ChE): 8 forms
    - Massachusetts Academy: 1 form
    - Mechanical Engineering (ME): 3 forms
    - Physics (PH): 3 forms
    - Practice Point (PP): 3 forms

April Meeting Special Discussion Items

- **Discussion of Implantation of Vascular Scaffolds into Mice:**
    - The committee discussed an IACUC protocol to allow a PI to implant spinach leaf decellularized vascular scaffolds (LeaVS) into mice as a platform for facilitating the growth of skin epidermal cells (for future burn patients).
    - Because the protocol involves injecting biological material into live mice, it is overseen by both WPI's IBC and IACUC committees.
    - The IBC's representative to IACUC (the IBC Chair) helped review the IACUC application, and determined that the scaffold was sterile before injection, and was thoroughly de-cellularized (containing mostly chemical scaffold proteins such as collagen). The scaffold does not induce tumors upon injection. It serves as an attachment point for epidermal cell growth.
    - The IBC and IACUC saw no reason to boost this protocol beyond ABSL-1.

- **Cholera Toxin:**
    - The committee discussed the use of cholera toxin in one lab.
    - The lab uses it in small quantities (0.1 nM) in cell culture media to boost cell division.
    - The LD_{50} is 250 µg/kg body weight. This is less potent than is required for reporting to the IBC ($LD_{50} \leq 100$ µg/kg) but we do list it as an example toxin in our table.
    - A lethal dose would be about 15 mg (for a 62 kg person), which is 30X more than the total 0.5 mg amount remaining in the PI's lab (although smaller amounts can be toxic to the liver and intestine).
    - The lab handles only microgram amounts of it per experiment (as working stock solutions) in biosafety cabinets while wearing PPE.

- **CT Scanner Imaging of Human Patients:**
    - The committee discussed an experiment declared by one PI that imaged human subjects in a CT scanner.
    - The work was discussed in four new papers by the PI.
    - The committee determined that the subjects were imaged at the nearby University of Massachusetts Medical School (UMMS) under their IRB approvals, and that no imaging occurred here.

- The WPI PI is licensed for performing CT scans on human subjects, but it was not done at WPI for these specific experiments.

- **Unscreened Human Tissue:**
  - The committee discussed the addition of a new unscreened human tissue sample by a lab.
  - The committee determined that this work falls under the same lab's previously approved BSL-2 work with similar tissues: it was obtained from a reliable vendor, and the personnel work with universal precautions assuming the tissue could contain a pathogen.

- ***C. elegans* Mutant with Altered Lipid Metabolism:**
  - The committee discussed the addition of a new mutant stain of *C. elegans* by a PI.
  - The strain was created at another site, but was later handled here. It is altered in lipase enzyme function which affects lipid metabolism.
  - The PI will assay for changes in membrane lipid composition using mass spec.
  - The committee determined that this work falls under the previously-approved BSL-1 category for this lab to create *C. elegans* mutants with altered lipid compositions.

- **CRISPR Experiment in *C. elegans*:**
  - The committee discussed an experiment using CRISPR to mutate the *C. elegans* gene GNAI-1 (a G-protein) to mimic seven types of mutations found in human patients with a disorder characterized by developmental delay, intellectual disability, hypotonia, and epilepsy.
  - The lab determined that GNAI1 is required for ciliogenesis while creating a whole-organism *C. elegans* model to study GNAI1 disease.
  - The committee saw no reason to boost this work beyond BSL-1 because the promoters used in *C. elegans* are not functional in humans, and the CRISPR gene editing is transient (not ongoing) (the Cas-9 is only transiently expressed).

- **New Lab Course: Bio-Materials for Women's Health:**
  - The committee discussed a new course lab on women's health.
  - It is a short 1-hour demonstration performed in the PI's own research lab using their previously-declared RG-1 agents or BSL-2 human cell lines.
  - The lab will be for a small number of students as part of the PI's NSF grant on outreach to women.
  - The students will complete lab and biosafety trainings, and will work under the PI's supervision on a demo.
  - The committee saw no reason to boost this work beyond BSL-2 (for the human cell lines), and BSL-1 (for growing RG-1 agents).

- **Discussion of an Experiment to Develop a Hand-Held Sensor for Detecting Viral Antigens:**
  - The committee discussed a new experiment to develop a hand-held sensor for detecting viral antigens.
  - The committee determined that the work was mostly done in China.
  - The viral antigens used to test the device were purchased commercially in China and handled there: SARS-CoV-2 S-antigen, #40150-V08B1, Influenza-A H1N1 HA protein, #40717-V8H, and Influenza-B HA1 protein, #40498-V8H1.
  - The committee determined that no viral antigens or viruses were handled here.

- **Discussion of Vipoxin Toxin Experiment:**
  - The committee discussed an experiment with the snake toxin Vipoxin.
  - The experiment was a collaboration of a WPI PI with a professor from the Bulgarian Herpetological Society.
  - The Bulgarian professor used ion-exchange chromatography to isolate Vipoxin from the crude venom of the long-nose viper *Vipera ammodytes meridionalis*. He then brought the toxin to WPI as part of a Fullbright scholarship project.
  - At WPI, the PI's former PhD student (while wearing PPE and working in a BSC) added the toxin to their previously-declared BSL-2 human breast epithelial cells, and then analyzed the cells by atomic force microscopy (AFM) to detect alterations in membrane mechano-properties.
  - They cleaned their AFM tips between uses with 70% ethanol.
  - The Vipoxin LD_{50} in mice is about 1.0 mg/kg (10X less potent than the 100 ug/kg cutoff for our table, but included anyway). A fatal dose would be approximately 62 mg for a 62 kg individual, while the lab

possessed only 1 mg of the toxin. Anti-venom treatment is available, and the Bulgarian professor traveled with it when he brought the toxin.
    - The toxin waste was inactivated by bringing it to pH 4.0 overnight, then disposing it as Hazardous (acidic) waste.

Key Information from Previous Minutes:

List of 2026 IBC Members

(all names except the Chair will be redacted from the final publicly-posted minutes)

- **Adams, Dave**
    - IBC Chair and Biosafety Officer
    - Professor Emeritus, Biology and Biotechnology
    - Contact Information: gr-IBC@wpi.edu
- **xxx** (Institutional Member, Professor BB)
- **xxx** (Community Member)
- **xxx** (EHS Safety Technician)
- **xxx** (Community Member)

Requirements for Conducting IBC Business

- Because WPI performs recombinant DNA (rDNA) research, the City of Worcester requires WPI to follow the *NIH Guidelines for Recombinant DNA Research*.
- According to the guidelines, each IBC committee decides their **own rules for conducting business**.
- In a previous meeting, WPI's IBC agreed to follow the recommendation of Michelle Johnson-Lancaster (Director of NIH's Office of Science Policy) (the office oversees all IBCs) to **have a minimum of the following members** present to conduct business:
    - Committee Chair and Biosafety Officer
    - At least one external member
    - Sufficient scientific expertise to discuss the research items at hand
    - Simple quorum (our IBC has **5 members**, so a **quorum is ≥ 3 members**)

Plan for 2026 Form Reviews

- **Information Gathering and Initial Chair Review:**
    - The IBC Chair obtains the following information from all **bio-related** WPI principal investigators (PIs) and enters it on the form:
        - **Courses Taught** (a list of the courses taught by each bio-related PI for that year and noting whether the course has a lab component).
        - **Papers Recently Published** (a list of papers published by each bio-related PI since the last IBC meeting and whether the papers used any biological agents).
        - **IACUC Protocols** (a list of PI's approved by WPI's IACUC committee to perform research on live vertebrate animals (mice, rats, and pigs). WPIs IBC co-oversees live animal work with IACUC if it involves biological agents (such as injecting human cell lines into mice).
    - The Chair lists the new information on the declaration form (in a different colored font to allow easy identification by the committee members).
    - The Chair contacts each PI to show them the information obtained for their lab and to obtain any new information they also need to declare.
    - The Chair helps the PI add new information to the form.
    - The Chair briefly summarizes the new information in a **summary file** to be presented at the IBC meetings to expedite discussion.
    - The Chair places the files on the IBC share-drive in view-only mode, and notifies committee members they are ready for committee review.
- **Meeting Discussions:**
    - During the IBC meetings, the Chair uses the summary file to introduce the new information to the committee, and records any discussions for inclusion in the minutes.
    - In some cases, further research is required to answer a question, so the committee formulates a plan to obtain that information either from the PI or from published articles.
    - The Chair adds any new information to the forms.

- **Minutes:**
    - The Chair prepares the minutes from the IBC meeting, listing which forms were discussed, and briefly summarizing key items of discussion.
    - The Chair emails a copy to committee members.
    - If the members approve, the chair redacts any personnel names from the minutes (except the chair), and emails to xx who **posts the redacted copy on WPI's EHS website** (as per NIH recommendation).