

THE UNIVERSITY OF TEXAS AT TYLER
INSTITUTIONAL BIOSAFETY COMMITTEE
January 21, 2026

MEMBERS' PRESENT:

Dr. Galina Florova – IBC Chair – Professor Cellular and Molecular Biology
Dr. Buka Samten – IBC Member - Associate Professor of Microbiology
Dr. Wei-Chin Ho – IBC Member – Assistant Professor of Biology
Dr. Dustin Patterson – IBC Member - Professor of Chemistry & Biochemistry
Dr. Hua Tang – IBC Member – Professor of Biochemistry
Mr. Chris Frydenlund - Senior Manager Research Compliance & Biosafety Officer
Ms. Beth R. Filla – Local Non-affiliated member - Bachelor of Science in Agricultural Development
Mr. Michael Medford- Local Non-affiliated member - P.E., CPESC

OTHERS PRESENT:

Recorder Secretary

MEMBERS ABSENT:

Dr. Ho leaves the meeting at 1:47 p.m.

OLD BUSINESS:

The committee continues to meet via TEAMS.

I. **CALL TO ORDER:**

The meeting was called to order at 1:33 p.m.

II. **APPROVAL OF MINUTES:**

Minutes from November 19, 2025 IBC meeting were approved with minor changes:
Specify that Mr. Michael Medford is a non-affiliated member.

The committee reviewed the minutes, and a motion was made to approve the minutes.

APPROVE: 8 ABSTAIN: 0 OPPOSE: 0

III. **REVIEW OF IORRC MINUTES:**

The minutes from the October 15, 2025, meeting were reviewed by the IBC.

IV. **CHAIRMAN'S REPORT:**

None

V. **OLD BUSINESS:**

None

VI. NEW BUSINESS:

Recombinant DNA protocols - Protocol 251 Amendment 1

rDNA Protocol 251-1

Protocol	(PI)	Project Title	BSL	ABSL	Campus
251-1	Dr. Abdelaziz	<i>“Studying Bacterial Protein-Protein Interactions”</i>	2		Main Campus

Project overview - Our lab is studying two component systems (TCS) in *Staphylococcus aureus* (*S. aureus*). These systems are made of two interacting paired components, a sensor histidine kinase paired with a response regulator. The interaction between each pair in allows the bacteria to receive and respond to external signals. There are sixteen different TCS in *S. aureus* (a total of 32 components), some of them are key in coordinating how the bacteria respond to antibiotic stress and how it becomes resistant. Our objective is to study the bacterial signaling network by investigating if components from different TCS can interact together; This will reveal if there is a signal overlap that allows the bacteria to coordinate response and resistance using several TCS systems at the same time i.e. the crosstalk between different TCS. We have 4 plasmids that were purchased from Euromedex. These plasmids work in pairs that have two halves of an enzyme called adenylate cyclase. TCS components will be copied from regular (Newman) and methicillin resistant (USA300) *S. aureus* strains and attached either at the C- or N-terminal of the two halves of the adenylate cyclase enzyme. Upon expression in *Escherichia coli* (DHM1 and BTH101 strains), if interaction happens between the two components from the two different plasmids, this brings the two halves of the adenylate cyclase enzyme together forming a functional enzyme. The activity of the produced enzyme in the cells indicates the strength of the interaction between the two components. We will study the possible interactions between all sixteen TCS of *S. aureus* using this system. The experiments will allow us to see which TCS components have overlapped in the signal (i.e. crosstalk).

Amendment –

- Removing previous lab members: Liaqat Ali and Aryanna Blakeney
- Adding new lab members: Saif Ullah and Motun Abegunde.

Applicable NIH Guidelines: Section II-A-3, III, and IV-B-2-b

Major points of discussion: Addendum 251-1

The following will be communicated to the PI:

- Please update the addendum to remove N/A from the scientific objective section and state the scientific objective of the protocol
- Please remove N/A from the “Explain and justify the addendum” section and state the scientific objective of the protocol.

The committee reviewed the protocol, and a motion was made to approve the addendum pending minor corrections.

APPROVE: 8

ABSTAIN: 0

OPPOSE: 0

Recombinant DNA protocols - Protocol 257 Amendment 1

rDNA Protocol 257-1

Protocol	(PI)	Project Title	BSL	ABSL	Campus
257-1	Dr. Abdelaziz	“Generating Gene Deletions in Staphylococcus”	2		Main Campus

Project overview - We are studying 16 two-component systems in *Staphylococcus aureus* (*S. aureus*). Each system is a pair of two genes, a kinase and a response regulator. We will eliminate (knock out) these 16 pairs one at a time. We will do that using the plasmid pKOR1 after we modify it for each knocked-out system. This will generate 16 *S. aureus* strains that lack these genes and are expected to be more sensitive to antibiotics and less virulent than the parent strain. After studying the bacteria with deleted genes, we will reintroduce back one half of each system, the response regulator, inside a carrier plasmid: pCN51. This will create 16 strains of *S. aureus* with only one-half of the TCS system. After reintroducing the response regulator alone in the absence of its partner kinase, it will express in the bacteria, and we will track its function. This will allow us to study and understand the function of these systems and how they interact with each other in detail.

Amendment –

- Removing previous lab members: Liaqat Ali and Aryanna Blakeney
- Adding new lab members: Saif Ullah and Motun Abegunde.

Applicable NIH Guidelines: Section II-A-3, III, and IV-B-2-b

Major points of discussion: Addendum 257-1

The following will be communicated to the PI:

- Please update the addendum to remove N/A from the scientific objective section and state the scientific objective of the protocol
- Please remove N/A from the “Explain and justify the addendum” section and state the scientific objective of the protocol.

The committee reviewed the protocol, and a motion was made to approve the addendum pending minor corrections.

APPROVE: 8 ABSTAIN: 0 OPPOSE: 0

Recombinant DNA protocols - Protocol 258 Amendment 1

rDNA Protocol 258 Amendment 1

Protocol	(PI)	Project Title	BSL	ABSL	Campus
258-1	Dr. Abdelaziz	<i>“VraS Mutants by Recombineering and CRISPR/Cas9 Counterselection”</i>	2		Main Campus

Project overview - *Staphylococcus aureus* is a bacteria normally present in the human body that can cause serious infections. The infection can normally be treated with antibiotics, but often the bacteria develop resistance that renders some antibiotics ineffective. *VraTSR* is a system in *S. aureus* that controls its cell wall synthesis. When the bacteria is exposed to antibiotics that destroy its cell wall, like methicillin and vancomycin, it develops a defense mechanism by regulating cell wall synthesis through activating *VraTSR*. The increase in cell wall synthesis processes overcome the antibiotic effect turning the bacteria resistant.

This project aims to introduce genetic mutations to *vraS*, a gene that encodes a histidine kinase that is part of the *VraTSR* system. Mutations are expected to activate *VraS* and make a normal *S. aureus* strain more resistant to cell wall antibiotics. We will use a technique called recombineering to introduce the mutations in the *S. aureus* genome. This will be done by transforming *S. aureus* with a plasmid that has an enzyme called recombinase and an oligonucleotide that carries the target mutations in *vraS*. This will be followed by another procedure to eliminate the cells that were not mutated using CRISPR/Cas 9 technology - A plasmid that carries the nuclease and a guide RNA, that has the original *vraS* sequence, will be transported to *S. aureus*. The guide RNA will guide Cas 9 to make DNA cuts in cells that don't carry the mutations. To assess the success of the method, we will measure the minimum inhibitory concentration (MIC) of three antibiotics: vancomycin, daptomycin and methicillin on *S. aureus* strain Newman D2C before and after the process. An increase in the MIC should be noticed if the process is successful as they alter bacterial cell wall synthesis.

Amendment

- Removing previous lab members: Liaqat Ali and Aryanna Blakeney
- Adding new lab members: Saif Ullah and Motun Abegunde.

Applicable NIH Guidelines: Section II-A-3, III, and IV-B-2-b

Major points of discussion: Addendum 258-1

The following will be communicated to the PI:

- Please update the addendum to remove N/A from the scientific objective section and state the scientific objective of the protocol
- Please remove N/A from the “Explain and justify the addendum” section and state the scientific objective of the protocol.

The committee reviewed the protocol, and a motion was made to approve the addendum pending minor corrections.

APPROVE: 8 ABSTAIN: 0 OPPOSE: 0

Recombinant DNA protocols - Protocol 264 Amendment 1

rDNA Protocol 264 Amendment 1

Protocol	(PI)	Project Title	BSL	ABSL	Campus
264-1	Dr. Wei-Chin Ho	<i>"Fitness Effects of Mutations in Escherichia Coli"</i>	2		Main Campus

Project overview - The overall goal of research is to investigate the genetic and phenotypic mechanisms underlying the evolution of *Escherichia coli* populations under different environmental conditions and different media. Combining the evolution experiments and bioinformatic analysis, we will choose some candidate mutations that may be responsible for *E. coli*'s change of their growth abilities in different environments. To provide direct evidence for these growth effects, we will design short DNA sequences to introduce these candidate mutations to *E. coli*, generating the mutant type of *E. coli*. We will then grow the *E. coli* with or without the mutation to evaluate how much the mutation affects the growth rate of *E. coli* in focal environments.

Amendment – add a new list of candidate genes for mutations that may affect the growth of *E. coli*

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Applicable NIH Guidelines: Section II-A-3, III, and IV-B-2-b

Major points of discussion: Addendum 264-1

The following will be communicated to the PI:

- Please add title for this addendum in the Addendum section.
- Please state that the addition of new genes does not change the scientific objective of the protocol, as well as provide justification for the changes.

The committee reviewed the protocol, and a motion was made to approve the addendum pending minor corrections.

APPROVE: 7 ABSTAIN: 0 OPPOSE: 0

VII. ADJOURNMENT:

The meeting was adjourned at 2:54 p.m.

Galina Florova

Galina Florova, Ph.D. – Chair
 Institutional Biosafety Committee
 Liz Delet
 Recording Secretary