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# Microbiology Spectrum

## ***Staphylococcus aureus* Breast Implant Infection Isolates Display Recalcitrance to Antibiotic Pocket Irrigants**

Jesus Duran Ramirez, Jana Gomez, Blake Hanson, Taha Isa, Terence Myckatyn, and Jennifer Walker

*Corresponding Author(s): Jennifer Walker, University of Texas Health Science Center at Houston*

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### **Review Timeline:**

Submission Date:	July 25, 2022
Editorial Decision:	October 20, 2022
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*Editor: Artem Rogovskyy*

*Reviewer(s): Disclosure of reviewer identity is with reference to reviewer comments included in decision letter(s). The following individuals involved in review of your submission have agreed to reveal their identity: Maria Tomas (Reviewer #1)*

### **Transaction Report:**

(Note: With the exception of the correction of typographical or spelling errors that could be a source of ambiguity, letters and reports are not edited. The original formatting of letters and referee reports may not be reflected in this compilation.)

**DOI:** <https://doi.org/10.1128/spectrum.02884-22>

October 20, 2022

Dr. Jennifer N Walker  
University of Texas Health Science Center at Houston  
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Houston 77030

Re: Spectrum02884-22 (*Staphylococcus aureus* Breast Implant Infection Isolates Display Recalcitrance to Antibiotic Pocket Irrigants)

Dear Dr. Jennifer N Walker:

Thank you for submitting your manuscript to Microbiology Spectrum. When submitting the revised version of your paper, please provide (1) point-by-point responses to the issues raised by the reviewers as file type "Response to Reviewers," not in your cover letter, and (2) a PDF file that indicates the changes from the original submission (by highlighting or underlining the changes) as file type "Marked Up Manuscript - For Review Only". Please use this link to submit your revised manuscript - we strongly recommend that you submit your paper within the next 60 days or reach out to me. Detailed instructions on submitting your revised paper are below.

Link Not Available

Below you will find instructions from the Microbiology Spectrum editorial office and comments generated during the review.

ASM policy requires that data be available to the public upon online posting of the article, so please verify all links to sequence records, if present, and make sure that each number retrieves the full record of the data. If a new accession number is not linked or a link is broken, provide production staff with the correct URL for the record. If the accession numbers for new data are not publicly accessible before the expected online posting of the article, publication of your article may be delayed; please contact the ASM production staff immediately with the expected release date.

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Sincerely,

Artem Rogovskyy

Editor, Microbiology Spectrum

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Reviewer comments:

Reviewer #1 (Comments for the Author):

The manuscript titled "Staphylococcus aureus Breast Implant Infection Isolates Display Recalcitrance to Antibiotic Pocket Irrigants" is interesting work and it is very well developed.

Only I have a major comment to consideration of the authors in relation in the experiments. The studies of the all work were developed for triplicate? Did the authors make the standard deviation of it? Please, add it the all Figures to improve the analysis. It is common to report both the standard deviation of the data and the standard error of the estimate. This point is very important to publish it in the Microbial Spectrum journal.

The conclusions of this work are appropriate and important to the clinical settings.

Reviewer #2 (Comments for the Author):

The authors of this paper have done an extensive analysis of Staph aureus and PA isolates and their response to common antibiotic cocktail used.

Some limitations include:

- There is no discussion about the proposed mechanism behind the differences noted between the staph strains. Given that the authors have access to the WGS data they can at least look at virulence factors among the strains and present that data.
- It is unclear why both long and short read sequencing was done, the authors should clarify their reasoning
- Similarly there is no discussion on what increased aggregation of a strains means clinically, and if virulence genes among these strains correlate with the phenotypes.

Staff Comments:

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- Point-by-point responses to the issues raised by the reviewers in a file named "Response to Reviewers," NOT IN YOUR COVER LETTER.
- Upload a compare copy of the manuscript (without figures) as a "Marked-Up Manuscript" file.
- Each figure must be uploaded as a separate file, and any multipanel figures must be assembled into one file.
- Manuscript: A .DOC version of the revised manuscript
- Figures: Editable, high-resolution, individual figure files are required at revision, TIFF or EPS files are preferred

For complete guidelines on revision requirements, please see the journal Submission and Review Process requirements at <https://journals.asm.org/journal/Spectrum/submission-review-process>. **Submissions of a paper that does not conform to Microbiology Spectrum guidelines will delay acceptance of your manuscript. "**

Please return the manuscript within 60 days; if you cannot complete the modification within this time period, please contact me. If you do not wish to modify the manuscript and prefer to submit it to another journal, please notify me of your decision immediately so that the manuscript may be formally withdrawn from consideration by Microbiology Spectrum.

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Corresponding authors may [join or renew ASM membership](#) to obtain discounts on publication fees. Need to upgrade your membership level? Please contact Customer Service at [Service@asmusa.org](mailto:Service@asmusa.org).

Thank you for submitting your paper to Microbiology Spectrum.

## **Spectrum02884-22: Review**

The manuscript titled "*Staphylococcus aureus* Breast Implant Infection Isolates Display Recalcitrance to Antibiotic Pocket Irrigants" is interesting work and it is very well developed.

Only I have a major comment to consideration of the authors in relation in the experiments. The studies of the all work were developed for triplicate? Did the authors make the standard deviation of it? Please, add it the all Figures to improve the analysis. It is common to report both the standard deviation of the data and the standard error of the estimate.

This point is very important to publish it in the Microbial Spectrum journal.

The conclusions of this work are appropriate and important to the clinical settings.

We thank Dr. Artem Rogovsky for the opportunity to revise our manuscript and we would like to also thank the reviewers for their insightful comments and suggestions, which we think strengthen our manuscript. We have addressed and incorporated the reviewer's comments and concerns in the manuscript and marked them by underlining them, as well as in a point-by-point fashion below:

Response to Reviewer comments:

Reviewer #1 (Comments for the Author):

1. Only I have a major comment to consideration of the authors in relation in the experiments. The studies of the all work were developed for triplicate? Did the authors make the standard deviation of it? Please, add it the all Figures to improve the analysis. It is common to report both the standard deviation of the data and the standard error of the estimate. This point is very important to publish it in the Microbial Spectrum journal.

*We thank the reviewer for bringing this unintended omission to our attention. We have added additional text within the figure legends to include the statistical test used, the p value cutoff, and the SD and SE estimates.*

Reviewer #2 (Comments for the Author):

1. There is no discussion about the proposed mechanism behind the differences noted between the staph strains. Given that the authors have access to the WGS data they can at least look at virulence factors among the strains and present that data.

*We thank the reviewer for this suggestion. We used the VFDB database to identify virulence determinants that might be unique to the BIAIs and added details in the Results section (lines 169-180), Discussion (lines 357-367), and the Materials and Methods (lines 456-457). Additionally, we added a Ven diagram of genes shared across all strains, those share among 2 strains, and those unique to each isolate in the supplemental materials. Using the VFDB database of known virulence factors, there were 6 genes present in BIAI strains that were absent in JE2. These genes were part of the capsule operon, cap8H, cap8I, cap8J, cap8K, and enterotoxins SEC and selK. Genes with known roles in biofilm including proteases, polysaccharide intercellular adhesin, and host matrix protein binding proteins, were encoded by all three strains.*

2. It is unclear why both long and short read sequencing was done, the authors should clarify their reasoning

*We thank the reviewer for bringing this to our attention. We added additional details to the materials and methods section to explain why Short and Long read methods were used. Specifically, lines: 449-452 state that we used long reads to fully and accurately assemble the genomes of the clinical isolates, which can have highly variable accessory genomes, including plasmids, that can be hard to resolve with short reads, and we used short-read sequencing to ensure the accuracy of the sequence.*

3. Similarly there is no discussion on what increased aggregation of a strains means clinically, and if virulence genes among these strains correlate with the phenotypes.

*We thank the reviewer for bringing this unintended omission to our attention. We have added additional clinical context to the relevance of increased bacterial community formation of particular strains clinically, and how the accumulation of virulence genes by a particular strain could manifest clinically (lines: 376-390). Here we note that breast implants can harbor bacteria in the absence of clinical sequelae, but that the accumulation of particularly virulent strains can lead to pathology.*

November 8, 2022

Dr. Jennifer N Walker  
University of Texas Health Science Center at Houston  
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Re: Spectrum02884-22R1 (*Staphylococcus aureus* Breast Implant Infection Isolates Display Recalcitrance to Antibiotic Pocket Irrigants)

Dear Dr. Jennifer N Walker:

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Thank you for submitting your paper to Spectrum.

Sincerely,

Artem Rogovskyy  
Editor, Microbiology Spectrum

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Supplemental Material: Accept