

# Fungal mycelia and bacterial thiamine establish a mutualistic growth mechanism

Gayan Abeysinghe, Momoka Kuchira, Gamon Kudo, Shunsuke Masuo, Akihiro Ninomiya, Kohei Takahashi, Andrew Utada, Daisuke Hagiwara, Nobuhiko Nomura, Naoki Takaya, Nozomu Obana, and Norio Takeshita

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Corresponding author(s): Norio Takeshita, University of Tsukuba and Nozomu Obana, University of Tsukuba

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## Review Timeline:

Submission Date:	2020-08-16
Editorial Decision:	2020-08-18
Revision Received:	2020-08-20
Editorial Decision:	2020-08-21
Revision Received:	2020-08-25
Editorial Decision:	2020-09-04
Revision Received:	2020-09-07
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Scientific Editor: Shachi Bhatt

## 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.)

Please note that the manuscript was previously reviewed at another journal and the reports were taken into account in the decision-making process at Life Science Alliance. Since the original reviews are not subject to Life Science Alliance's transparent review process policy, the reports and author response cannot be published.

August 18, 2020

Re: Life Science Alliance manuscript #LSA-2020-00878-T

Dr. Norio Takeshita  
University of Tsukuba  
Faculty of Life and Environmental Sciences  
Tennodai 1-1-1  
Tsukuba 305-8572  
Japan

Dear Dr. Takeshita,

Thank you for submitting your manuscript entitled "Fungal mycelia and bacterial thiamine establish a mutualistic growth mechanism" to Life Science Alliance (LSA). The manuscript was assessed by LSA editors and deemed appropriate for publication at LSA with minor revisions.

For a brief overview: The manuscript was peer-reviewed at another journal and the authors chose to transfer the reviewer comments, their point-by-point response, and the revised manuscript to LSA. The main criticisms raised by the reviewers pertained to conceptual advance and a hazy understanding of the relationship between the bacterium and the fungus about thiamine production, uptake and use. Given that this is the first time such a mutualistic relationship has been shown between a non-auxotrophic fungi and *B. subtilis*, the advance was considered to be sufficient for LSA.

We encourage you to re-submit your revised manuscript to LSA with the following minor edits:

- + The abstract needs to be improved for clarity and sentence structure (sentence 1, sentence 3, last line)
- + please elaborate the discussion about the the complex relationship b/w the bacterium and the fungus about thiamine production, uptake and use in the revised manuscript

To upload the revised version of your manuscript, please log in to your account:  
<https://lsa.msubmit.net/cgi-bin/main.plex>

You will be guided to complete the submission of your revised manuscript and to fill in all necessary information. Please get in touch in case you do not know or remember your login name.

We would be happy to discuss the individual revision points further with you should this be helpful.

While you are revising your manuscript, please also attend to the below editorial points to help expedite the publication of your manuscript. Please direct any editorial questions to the journal office.

Thank you for this interesting contribution to Life Science Alliance. We are looking forward to receiving your revised manuscript.

Sincerely,

Shachi Bhatt  
Executive Editor  
Life Science Alliance

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A. THESE ITEMS ARE REQUIRED FOR REVISIONS

-- An editable version of the final text (.DOC or .DOCX) is needed for copyediting (no PDFs).

-- High-resolution figure, supplementary figure and video files uploaded as individual files: See our detailed guidelines for preparing your production-ready images, <http://www.life-science-alliance.org/authors>

-- Summary blurb (enter in submission system): A short text summarizing in a single sentence the study (max. 200 characters including spaces). This text is used in conjunction with the titles of papers, hence should be informative and complementary to the title and running title. It should describe the context and significance of the findings for a general readership; it should be written in the present tense and refer to the work in the third person. Author names should not be mentioned.

B. MANUSCRIPT ORGANIZATION AND FORMATTING:

Full guidelines are available on our Instructions for Authors page, <http://www.life-science-alliance.org/authors>

We encourage our authors to provide original source data, particularly uncropped/-processed electrophoretic blots and spreadsheets for the main figures of the manuscript. If you would like to add source data, we would welcome one PDF/Excel-file per figure for this information. These files will be linked online as supplementary "Source Data" files.

**\*\*\*IMPORTANT:** It is Life Science Alliance policy that if requested, original data images must be made available. Failure to provide original images upon request will result in unavoidable delays in publication. Please ensure that you have access to all original microscopy and blot data images before submitting your revision.**\*\*\***

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August 21, 2020

RE: Life Science Alliance Manuscript #LSA-2020-00878-TR

Dr. Norio Takeshita  
University of Tsukuba  
Microbiology Research Center for Sustainability (MiCS)  
Tennodai 1-1-1  
Tsukuba 305-8572  
Japan

Dear Dr. Takeshita,

Thank you for submitted your revised manuscript entitled "Fungal mycelia and bacterial thiamine establish a mutualistic growth mechanism". We would be happy to publish your paper in Life Science Alliance (LSA) pending final revisions necessary to meet our formatting guidelines.

Along with the points mentioned below, please also make the following edits so as to meet LSA's formatting guidelines:

Order of manuscript parts -

- References need to be written as 10 authors et al in the Reference list
- add supplemental figure legends right after the figure legends
- add supplemental table legends in the manuscript after the supplemental figure legends
- add movie legends in the manuscript after the supplemental table legends
- add supplemental references to the main list of references

Manuscript edits required:

- Large datasets, sequences should be deposited in one of the relevant public databases and the accession codes should be included in the data availability section
- Is the "unpublished data" mentioned on Pg 10 from the same lab as this paper? If it is from a different lab, please provide an authorization in writing by those involved and submit it to the editorial office.

Callouts -

- Please add callouts for Fig 4C, 4E, S1B, S6C,

Figures -

- Figure 2D the box in the 2D 17h does not perfectly match with the zoomed in image on the right - please place the dotted box correctly
- The spacing between Fig 4A and 4B needs to be improved so that there is a clearer distinction between the 2 panels
- Add scale bar for Fig S4B
- Figure S7A - the box in S7A (B+F Thi-) does not exactly match with the zoomed in images below - please place the dotted box correctly
- Please provide supplemental figures as 1 file & 1 page per figure

Tables -

--Table S2 and S3 need to be in portrait format

Figures & Fig legends match? -

--Some parts of the manuscript say "Fig.", some say "Figure", some say "Fig"- please reconcile

--Fig 1 legend - For Figure 1A - please clarify that the green fluorescence seen corresponds B. subtilis

--Fig 2 legend - for Figure 2B - please specify what the dotted white arrow represents in the legend

Source Data is missing

Guidelines for source data: One file per figure, or per figure panel. If there are several files per figure panel then they must be Zipped together, no more than one file per figure panel. Source data for Supplementary figures need to be placed in a folder per figure and ZIPped all together (using zipr). ZIP files need to be uploaded as file type 'Supplemental Material'.

Additional information on Author guidelines can be found here: <http://www.life-science-alliance.org/authors>

If you are planning a press release on your work, please inform us immediately to allow informing our production team and scheduling a release date.

To upload the final version of your manuscript, please log in to your account:

<https://lsa.msubmit.net/cgi-bin/main.plex>

You will be guided to complete the submission of your revised manuscript and to fill in all necessary information. Please get in touch in case you do not know or remember your login name.

To avoid unnecessary delays in the acceptance and publication of your paper, please read the following information carefully.

#### A. FINAL FILES:

These items are required for acceptance.

-- An editable version of the final text (.DOC or .DOCX) is needed for copyediting (no PDFs).

-- High-resolution figure, supplementary figure and video files uploaded as individual files: See our detailed guidelines for preparing your production-ready images, <http://www.life-science-alliance.org/authors>

-- Summary blurb (enter in submission system): A short text summarizing in a single sentence the study (max. 200 characters including spaces). This text is used in conjunction with the titles of papers, hence should be informative and complementary to the title. It should describe the context and significance of the findings for a general readership; it should be written in the present tense and refer to the work in the third person. Author names should not be mentioned.

#### B. MANUSCRIPT ORGANIZATION AND FORMATTING:

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[alliance.org/authors](http://alliance.org/authors)

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**\*\*Submission of a paper that does not conform to Life Science Alliance guidelines will delay the acceptance of your manuscript.\*\***

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**\*\*Reviews, decision letters, and point-by-point responses associated with peer-review at Life Science Alliance will be published online, alongside the manuscript. If you do want to opt out of having the reviewer reports and your point-by-point responses displayed, please let us know immediately.\*\***

Thank you for your attention to these final processing requirements. Please revise and format the manuscript and upload materials within 7 days.

Thank you for this interesting contribution, we look forward to publishing your paper in Life Science Alliance.

Sincerely,

Shachi Bhatt  
Executive Editor  
Life Science Alliance

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September 4, 2020

RE: Life Science Alliance Manuscript #LSA-2020-00878-TRR

Dr. Norio Takeshita  
University of Tsukuba  
Microbiology Research Center for Sustainability (MiCS)  
Tennodai 1-1-1  
Tsukuba 305-8572  
Japan

Dear Dr. Takeshita,

Thank you for submitting your revised manuscript entitled "Fungal mycelia and bacterial thiamine establish a mutualistic growth mechanism". As we were preparing the manuscript for publication, we realized that some formatting issues still remained. Please address the following to comply with Life Science Alliance's guidelines:

- + Please include Tables and their legends right after the supplemental legends in the main manuscript text file (<https://www.life-science-alliance.org/manuscript-prep#format>)
- + Please include a Author contributions section after Acknowledgements
- + LSA requires large datasets, RNA-seq, mass-spec, to be submitted to public databases, please do so and include the accession number (<https://www.life-science-alliance.org/manuscript-prep#datadepot>)
- + Please include a callout for Fig 4E in the manuscript text
- + The dotted box placed in Figure 2D 17H still does not perfectly match with the zoomed image, please correct
- + Please provide a scale bar for Figure S4B
- + Please combine the Supplemental Figure references with the main text references
- + Please clarify why the Figure S1B and Fig S5 were removed from the revised manuscript. Since the reviewers saw the paper with those figures in, we would require you to include those figures in the published version as well.

To upload the final version of your manuscript, please log in to your account:  
<https://lsa.msubmit.net/cgi-bin/main.plex>

**\*\*Submission of a paper that does not conform to Life Science Alliance guidelines will delay the acceptance of your manuscript.\*\***

**\*\*It is Life Science Alliance policy that if requested, original data images must be made available to the editors. Failure to provide original images upon request will result in unavoidable delays in publication. Please ensure that you have access to all original data images prior to final submission.\*\***

**\*\*The license to publish form must be signed before your manuscript can be sent to production. A**

link to the electronic license to publish form will be sent to the corresponding author only. Please take a moment to check your funder requirements.\*\*

\*\*Reviews, decision letters, and point-by-point responses associated with peer-review at Life Science Alliance will be published online, alongside the manuscript. If you do want to opt out of having the reviewer reports and your point-by-point responses displayed, please let us know immediately.\*\*

Thank you for your attention to these final processing requirements. Please revise and format the manuscript and upload materials within 7 days.

Thank you for this interesting contribution, we look forward to publishing your paper in Life Science Alliance.

Sincerely,

Shachi Bhatt, Ph.D.  
Executive Editor  
Life Science Alliance

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September 14, 2020

RE: Life Science Alliance Manuscript #LSA-2020-00878-TRRR

Dr. Norio Takeshita  
University of Tsukuba  
Microbiology Research Center for Sustainability (MiCS)  
Tennodai 1-1-1  
Tsukuba 305-8572  
Japan

Dear Dr. Takeshita,

Thank you for submitting your Research Article entitled "Fungal mycelia and bacterial thiamine establish a mutualistic growth mechanism". It is a pleasure to let you know that your manuscript is now accepted for publication in Life Science Alliance.

The final published version of your manuscript will be deposited by us to PubMed Central upon online publication.

Your manuscript will now progress through copyediting and proofing. It is journal policy that authors provide original data upon request.

Reviews, decision letters, and point-by-point responses associated with peer-review at Life Science Alliance will be published online, alongside the manuscript. If you do want to opt out of having the reviewer reports and your point-by-point responses displayed, please let us know immediately.

\*\*\*IMPORTANT: If you will be unreachable at any time, please provide us with the email address of an alternate author. Failure to respond to routine queries may lead to unavoidable delays in publication.\*\*\*

Scheduling details will be available from our production department. You will receive proofs shortly before the publication date. Only essential corrections can be made at the proof stage so if there are any minor final changes you wish to make to the manuscript, please let the journal office know now.

#### DISTRIBUTION OF MATERIALS:

Authors are required to distribute freely any materials used in experiments published in Life Science Alliance. Authors are encouraged to deposit materials used in their studies to the appropriate repositories for distribution to researchers.

You can contact the journal office with any questions, [contact@life-science-alliance.org](mailto:contact@life-science-alliance.org)

Congratulations on this very interesting paper. I hope you found the editorial process at Life Science Alliance to be constructive. We look forward to future exciting submissions from your lab.

Sincerely,

Shachi Bhatt, Ph.D.  
Executive Editor  
Life Science Alliance