

Regulated Research Institutional/Industrial Setting Form (1C)

This form must be completed **AFTER** experimentation by the adult supervising the student research conducted in a regulated research institution, industrial setting or any work site other than home, school or field.

Student's Name(s) Theresa Haupt

Title of Project Mechanism of Outer Membrane Vesicle and Tube Formation in Francisella

To be completed by the Supervising Adult in the Setting (NOT the Student(s)) after experimentation:

(Responses must be on the form as it is required to be displayed at student's project booth; please do not print double-sided.)

The student(s) conducted research at my work site:

1. Did you or your proxy (e.g. graduate student, postdoc, employee) mentor or provide substantial guidance to the student researcher? ☒ Yes ☐ No
 - a. If no, describe your and/or your institution's role with the student researcher and his/her project (e.g. supervised use of equipment on site without ongoing mentorship and sign below.
 - b. If yes, complete questions 2–5.
2. Is the student's research project a subset of your ongoing research or work? ☒ Yes ☐ No

Use questions 3, 4 and 5 to detail how the student's project was similar and/or different from ongoing research or work at your site.
3. Describe the independence and creativity with which the student:
 - a. developed the hypotheses or engineering goals for the research project

See attached document

- b. designed the methodology for his/her research project

See attached document

- c. analyzed and interpreted data

See attached document

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Continued

Student's Name(s) Theresa Haupt

4. Detail the student's role in conducting the research (e.g. data collection, specific procedures performed). Differentiate what the student observed and what the student actually did.

Theresa learned all the necessary laboratory techniques. She then performed all experiments herself, with occasional assistance when needed, including amplification of the selected genes, generating the gfp-fusions, cloning the fusion products into selected plasmids, transforming both E. coli and Francisella strains with the required plasmids, culturing and extracting the plasmids, running agarose gels, and analyzing the data.

5. Did the student(s) work on the project as part of a group?
If yes, how many individuals were in the group and who were they (e.g. high school students, graduate students, faculty, professional researchers)?

☐ Yes ☒ No

I attest that the student has conducted the work as indicated above and that any required review and approval by institutional regulatory board (IRB/IACUC/IBC) has been obtained. Copies are attached if applicable.
I further acknowledge that the student will be presenting this work publicly in competition and I have communicated with the student research regarding any requirements for my review and/or restrictions of what is publicized.

Maheen Rashid

Supervising Adult's Printed Name

Stony Brook Univeristy

Institution

100 NICOLLS ROAD, 295 CMM BLDG, STONY BROOK, NY 11794-5120

Address

Maheen

Signature

GRADUATE STUDENT

Title

11/10/19

Date Signed (must be after experimentation) (mm/dd/yy)

maheen.rashid@stonybrook.edu

Email/Phone 631-997-8432

Form 1C

3. Describe the independence and creativity with which the student:

a. developed the hypotheses or engineering goals for the research project

The goal of this research project is to identify mechanisms controlling the process of outer membrane vesicle and tube (OMVT) formation by *Francisella* bacteria. In particular, Theresa investigated the roles of the *fumA* and *FTN_1037* genes in this process. *Francisella* has been shown to produce OMVT under conditions of amino acid starvation. A recent genetic screen for mutants identified *fumA* and *FTN_1037* as mutants that produce lower levels of OMVT compared to wild-type bacteria. Based on this observation, Theresa conducted an independent review of the literature, as well as relevant data available in the lab, to develop a hypothesis on the potential roles of these genes in the mechanism of OMVT formation.

b. designed the methodology for his/her research project

To determine the potential role of *fumA* and *FTN_1037* in OMVT formation, Theresa designed an experiment to study their sub-cellular localization and determine if they are situated within close vicinity of the tubes during the process of OMVT formation. To do this, Theresa used molecular biology techniques to tag these genes with green fluorescent protein.

c. analyzed and interpreted data

Theresa analyzed her data independently and made her own interpretations. She then discussed her findings and interpretations with her lab mentors.