

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) Saba Gulzar Teresa Duong

Title of Project Evaluating the viability of skin organotypic through a comparison of the contraction of hydrogels

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? 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.

☒ Yes ☐ No

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

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

The students investigated the effects of extrusion via the nozzle of a bioprinter on the functionality of dermal fibroblasts and proposed comparing its effect on the formation of skin organotypic analogues which were prepared via printed vs standard casting methods. The focus on our labs is on different aspects of cell organization in skin analogues, while the students project consisted of replicating the skin analogue work BUT forming the analogues via a bioprinter.

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

The students learned G code which is required to use the printer--and they wrote the programs which would generate skin layers of fibroblasts and keratinocytes.

- c. analyzed and interpreted data

They did all the analysis of the images after staining and ran the statistical programs to determine significance.

(Continued on next page)

Regulated Research Institutional/Industrial Setting Form (1C) Continued

Student's Name(s) Saba Gulzar, Teresa Duong

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.

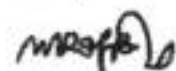
The students made the hydrogel inks with and without cells. The students printed the skin layers, cultured the cells according to published protocols, and prepared the samples for a pathologist who performed the sectioning and staining. The students analyzed the images to quantify differences in morphology and thickness, performed statistical analysis to determine significance. They also plated dermal fibroblasts in collagen and performed the collagen contraction experiments. They measured the degree of contraction as a function and determined statistical significance.

5. Did the student(s) work on the project as part of a group? ☒ Yes ☐ No
If yes, how many individuals were in the group and who were they (e.g. high school students, graduate students, faculty, professional researchers)?

The group consisted of two faculty, one graduate student, 5 undergraduates. Another group of 5 high school students were peripherally involved, since they trained together with these two students in use of the bioprinter. The other group of students was involved in the development of new printing inks, not used for this project.

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.

Dr. Miriam Rafailovich



Distinguished Professor

Supervising Adult's Printed Name

Signature

Title

Stony Brook University

1/16/2020

Institution

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

322 Engineering Bldg. Stony Brook, NY

Miriam.Rafailovich@stonybrook.edu

Address

Email/Phone