

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) Arpie Bakhshian

Title of Project The Development of a CRISPR/Cas9 System with Nanoblades

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

Arpie was not involved with the development of the hypothesis or research question, since they were already developed before she came into the lab. When she came into the lab with interest in the project, I assigned the project to Arpie such that she would work alongside the post-doctoral fellow who was developing methodology to CRISPR defined susceptibility loci for IBD in primary human embryonic stem cells. This decision was also based on whom in my lab nurtured Arpie the most and interacted with her most frequently. The goal was then to derived colonic organoids from modified cells, and study their response to defined communities of commensal bacteria and fungi.

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

Arpie was involved in the design of gRNAs and their introduction and cloning into the lentiviral vectors. She then used the

- c. analyzed and interpreted data

Arpie analyzed the different results that she got from the cloning experiment and was able to choose the positive clones. Arpie transduced multiple cell lines and she was able to analyze the efficiency of the transduction. She also determined the cleavage efficiency of the CRISPR/Cas9 system. She was able to analyze and interpret the data presented to her with the guidance of a post-

(Continued on next page)

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

Student's Name(s) Arpie Bakhshian

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.

Arpie was involved in procedures including creating Viral Vectors and Viral-like particles, which included ligations, digestions, minipreps, maxipreps, and cloning. She also transduced multiple cell lines including Caco2 Cells, and Embryonic Stem Cells and conducted a transfection with HEK-293T Cells. In order to analyze data, she conducted PCRs and a surveyor nuclease assay (with the guidance of a post-doctoral fellow), and she used the data to draw conclusions about the efficiency of transductions with these virus-like particles.

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)?

No, she did not work in a group.

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.

Julie Magarian Blander
Supervising Adult's Printed Name

J Magarian Blander
Signature

Digitally signed by J Magarian Blander
Date: 2019.12.04 23:08:24 -05'00'

Professor
Title

Weill Cornell Medicine, Cornell University
Institution

413 East 69th Street, BB-728, New York, NY 10021
Address

12/04/2019
Date Signed (must be after experimentation) (mm/dd/yy)
jmblander@med.cornell.edu/646-962-6741
Email/Phone