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) Nina Su

Title of Project Identification of Novel Modulators of mTORC2 Activity

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

Nina's research project was part of a larger project aimed at identifying and characterizing novel activators of the mTORC2 protein complex. While the overall project was designed by my mentor, Dr. Pavletich, and I, Nina provided valuable assistance by asking critical questions about experiment design.

   b. designed the methodology for his/her research project

Nina was exposed to a wide variety of techniques in mammalian cell culture and biochemistry. These included passaging and maintaining multiple human cell lines concurrently, optimizing insulin treatment conditions, making cell lysates, running SDS-PAGE, performing western blots and performing immunoprecipitation experiments.

   c. analyzed and interpreted data

Nina quantified western blot data using using Excel, ImageJ, and Graphpad Prism software. This allowed us to normalize signals and better understand the level of mTORC2 activity under different treatment conditions. We also collaborated with the mass-spectrometry core at MSKCC to identify new interactors. Nina aided in parsing the large dataset of interactors to identify statistically significant "hits".

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

Student's Name(s) Nina Su

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 overall goal of Nina's summer research project was to identify novel activators of the mTORC2 protein complex. Nina's first aim was to optimize insulin treatment conditions to measure robust mTORC2 activation in 4 human cell lines. Nina was tasked with passaging, maintaining and treating those cells with insulin in timepoint experiments. Nina was also responsible for preparing lysates from these cells, quantifying protein concentrations via Bradford assay, running lysates on SDS-PAGE, and performing western blots against specific markers of mTORC2 activation.

Nina's second aim was collaborative with the MSKCC mass-spectrometry (MS) facility. Nina performed multiple replicates of immunoprecipitation (IP) experiments from treated & untreated cell lysates. Nina then submitted IP'd material to the MS facility for identification of mTORC2 interacting proteins, statistical analyses were then performed to identify candidate activator proteins.

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)?

Nina worked directly under me for the first 2 weeks in the lab. After that point Nina was mostly independent in treating and passaging cells, making lysates, running SDS-PAGE, and performing western blots. Nina also performed multiple immunoprecipitation experiments and was doing these experiments independently within a few weeks. We collaborated with the MSKCC mass-spectrometry facility to identify mTORC2 associated proteins.

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.

Christopher Warren		Postdoctoral Researcher
Supervising Adult's Printed Name	Signature	Title
Memorial Sloan Kettering Cancer Center		1/28/20
Institution		Date Signed (must be after experimentation) (mm/dd/yy)
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