Q9. **Mentor Research Application for Summer 2020 (June 1 - August 7)**

Welcome to the UTHealth - Cancer Prevention & Research Institute of Texas (CPRIT) Fellowship in Innovation for Cancer Prevention Research - UTHealth’s training program for undergraduates, pre- and post-doctoral fellowships in cancer prevention.

This program goes beyond being a quality cancer education and career development program to focus on helping those seeking a career in cancer prevention and control research to learn to ask the important research questions, apply cutting-edge methods, and move the field of cancer forward.

We appreciate your willingness to take on the mentorship of one of our undergraduate trainees. This application will help orient you with the goals and expectations of our summer mentors and trainees.

All applications must be submitted by 11:59 PM on Friday, January 17, 2020.

---

**Q10. Faculty Mentor Information**

Q1. First name

Walid

Q2. Last name

Fakhouri

Q11. Phone number

713-4862519

Q12. E-mail address

Walid.D.Fakhouri@uth.tmc.edu

---

**Q4. School/Campus Affiliation**

- [ ] UTHealth School of Public Health- Houston
- [ ] UTHealth School of Biomedical Informatics
- [ ] UTHealth School of Dentistry
Q13. **Research Projects**

Each fellow is expected to spend an average of 40 hours/week on his/her research project, organized seminars and innovation generation course.

Applicants will click on the titles of projects they are interested in to see the description. Give your project an inviting name! Acceptable projects do not need to be externally funded.

Q15. Project title

| Computational model for predicting deleterious non-coding DNA variations in cancer |

Q14. Lay summary of the project (100 words maximum). Examples of project descriptions can be found [here](#).

If pasting or deleting text into this field, please make sure to press the space bar after the last word in order to see your accurate word count.

Fakhouri’s lab is developing a computational model that predicts deleterious non-coding DNA variations in cancer. The project focuses on regulatory elements that contain cis-overlapping motifs (CisOMs) for the transcription factors P53 and bHLH family members. Although computational programs were generated to predict damaging coding variations for disease risk assessment, the computational knowledge needed to develop a predictive model for pathological non-coding DNA variations is currently unavailable. Integration of experimental and bioinformatic data is utilized to identify the importance of CisOMs on gene expression, and how DNA variants within CisOMs shift the balance to accelerate proto-oncogenes expression while inhibiting tumor suppressors.
Q16. Project will require contact with:

<table>
<thead>
<tr>
<th>Public</th>
<th>Patients</th>
<th>Biological samples</th>
<th>Animals</th>
<th>None of these</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Q17. Does the project require IRB approval?

☐ Yes  
☐ No

Q18. If yes, please provide the IRB number below.

_This question was not displayed to the respondent._

Q19. Does the project have a Laboratory Safety Protocol?

☐ Yes  
☐ No

Q20. If yes, please provide the Protocol Number below.

IBC-14-0205

Q21. Will the summer fellow be added to the protocol?

☐ Yes  
☐ No

Q22. **End Products of Summer Fellowship**

Q23. **End products for all Fellows:**
1. Complete a project explicitly using the tools of innovative thinking.
2. Prepare and present a research poster on their project, including how you applied tools for innovative thinking.
3. Participate in the 90-second elevator speech competition.

Q25. **Project-specific end products (determined by Mentor):**

Examples:
1. GIS map to track whether and other environmental conditions for day laborer “corners” throughout Houston
2. Design for a social network platform for follow-up with research participants, manuscript on xxx to be submitted for publication
3. Abstract on yyy to be submitted to a scientific meeting

1. Establish three cancer cell line cultures and confirm the expression of P53, P63, P73, cMYC, TWIST1, and HIF-1a by western blot in Human colorectal carcinoma (HCT116), human epithelial beast cancer MCF7 and Human Burkitt lymphoma cells (Raji; CCL-86). 2. Validate the effect of non-coding DNA variations within cis-overlapping motifs using luciferase assay 3. Contribute to the computational model by writing computer codes in Python or Mathlab. 4. Write an abstract and generate figures by the end of the summer training project

Q27. Fellows' Activities

Q28. Activities for all fellows:
1. Complete the Massive Open Online Course (MOOC) on Innvovation Generation
2. Participate in weekly MOOC reviews and occasional cancer-related seminars in Houston and/or remotely via ITV
3. Apply the tools of innovative thinking in project discussions
4. Participate in two elevator speech workshops
5. Provide mid-course and final evaluation feedback
6. Meet with the preceptor or representative to discuss the training experience, progress, and challenges
7. Prepare and present a poster on the summer research
8. Present a 90-second elevator speech

Q29. Project-specific Trainee Activities (determined by Mentor):
Example: Fellow will commit to the design and analysis of a mini project YYY as part of a larger project

1. Participate in a weekly lab meeting and discussion
2. Apply knowledge of innovative thinking to the project
3. Present the data at appropriate seminars and meetings
4. Provide final evaluation and feedback
5. Prepare and present a poster on the summer research

Q31. Learning Objectives:
By the end of the summer experience, the following objectives should be achieved.

Q32. Objectives for all fellows:
1. Describe and apply the tools of innovative thinking to increase creativity
2. Develop communication and presentation skills

Q33. Project-specific Learning Objectives (determined by Mentor):
Examples:
1. Fellow will be able to write instructions for low literacy audiences
2. Fellow will design a mini project with supervision
1. Fellow will learn how to handle cell culture and detect protein expression.
2. Fellow will learn cloning methods and luciferase assay.
3. Learn how to present experimental data in lab meeting.
4. Lean how to apply computational knowledge for translational purposes.

Q34. Are there any special fellow characteristics that would be desirable?
Examples: major, interests, language, or culture

Basic knowledge in molecular biology and computer science

Q35. Mentor Responsibilities
1. Attend the closing ceremony (elevator speech competition and poster presentation) on August 7, 2020.
2. Provide feedback on the program experience to the program coordinator.
3. Meet with the fellow weekly to discuss training experience, progress, and challenges.
4. Encourage the use of the tools for innovative thinking.
5. Notify Dr. Mullen if the intern is not meeting the agreed upon responsibilities as early as possible to allow problem-solving.
6. Complete an evaluation of the fellow at mid-course and end of the program.

Q36. If you plan to delegate some of the supervision to another lab member, please list their name and contact information so that we can copy them on all correspondence.

<table>
<thead>
<tr>
<th>Full name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest degree held</td>
</tr>
<tr>
<td>Job title</td>
</tr>
<tr>
<td>E-mail address</td>
</tr>
<tr>
<td>Phone number</td>
</tr>
</tbody>
</table>

Q37. Will you be out of lab for more than 2 weeks during the training period (June 1, 2020 - August 7, 2020)?

- [ ] Yes
- [ ] No

Location Data