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## SUMMER 2018: UTHealth-CPRIT UNDERGRADUATE INNOVATION IN CANCER PREVENTION RESEARCH FELLOWSHIP: MENTOR RESEARCH OPPORTUNITY

(This is a Word table; use Tab to go from one blank to the next)

Faculty Name           Dung-Fang Lee          

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School/Campus           McGovern Medical School          

### Research Projects

Each fellow is expected to spend an average of 40 hours/week on their 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! Projects that are not funded can also be submitted.

<b>1</b>	Title:	Hereditary bone cancer in a dish	Funding Source:	
Project Description: (100 words max)		Bone cancer is one of the most common primary malignancies in children and adolescents. Patients with Li-Fraumeni syndrome (LFS), a rare inherited autosomal dominant cancer disorder caused by germline mutations in the <i>p53</i> tumor suppressor gene, have increased incidence of osteosarcoma, which provides an ideal genetic model system to study this malignancy. We plan to model LFS-associated brain tumors by differentiating LFS patient induced pluripotent stem cells (iPSCs) to mesenchymal stem cells and then osteoblasts, and apply these cells to identify the molecular mechanisms involved in mutant p53-induced osteosarcoma development. This project will provide potential therapeutic targets to prevent and/or treat LFS patients with osteosarcoma as well as osteosarcoma patients carrying p53 mutations.		
Think of this as an ad. Students will select projects based on these descriptions.				

Contact with:    public     patients     lab samples     animals     none

Project Status	IRB	Yes		No	x
IRB Number					

Laboratory safety protocol	Yes		No	x
Protocol Number				

Will the fellow be added to the protocol?    Yes     No

**NB: Please do not submit more than two projects. Fill out one form per project**

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Source of fellow funding: CPRIT Training grant  Preceptor

If mentor funding, will fellow take part in innovation course, seminars and cancer prevention related research? Yes  No

## 1. End Product(s):

### A. All Fellows:

1. Complete a mini project explicitly using the tools of innovative thinking
2. Prepare and present a research poster on their project
3. Participate in the 90-second elevator speech competition for a prize award
4. Write a 3-page reflection paper, describing the summer experience, including instances of applying skills for innovative thinking, and in what way, if any, the experience has affected career plans, goals (due one week before his/her last day)

### B. Project specific end products:

**Mentors' please specify**, e.g., *GIS map to track whether and other environmental conditions for day laborer "corners" throughout Houston, design for a social network platform for follow-up with research participants, manuscript on xxx to be submitted for publication, abstract on yyy to be submitted to a scientific meeting*

1. Learn how to design the experiments to answer scientific questions.
2. Learn how to analyze the results.
3. Learn how to apply iPSC disease model to study cancer.
- 4.
- 5.

Note to mentors: Any confidentiality agreements regarding the project or data you are using (e.g. unpublished results) should be arranged between you and your fellow.

## 2. Fellows Activities:

### A. All Fellows

1. Complete the Massive Open online Course (MOOC) on Innovation Generation- IMAGINE99x
2. Apply the tools of innovative thinking in a mini-project
3. Participate in 1-hour weekly group meetings and seminars in Houston and via ITV
4. Participate in the elevator speech workshop and feedback sessions
5. Take part in the mid-course review and brainstorming session on the use of the tools for innovative thinking
6. Provide bi-monthly feedback to the program coordinator
7. Meet with the preceptor weekly to discuss the training experience, progress, and challenges: Day and Time
8. Submit a final review of training experience

**NB: Please do not submit more than two projects. Fill out one form per project**

**B. Project specific trainee activities**

*Mentors, please specify additional fellow activities, e.g., Fellow will commit to the design, analysis of a mini project XXX as part of a larger project?*

1. Trainee will commit to perform, design and analyze the research project.
2. Trainee will work with a postdoctoral fellow and learn how to perform experiments.
- 3.
- 4.
- 5.

**3. Learning Objectives: *By the end of the summer experience, fellow will demonstrate that they can***

**A. All Fellows:**

1. Describe and apply the tools of innovative thinking to increase creativity
2. Describe, in the reflection paper, at least 3 instances of applying one or more tools for innovative thinking
3. Recognize potential conflict(s) of interest in scenarios provided in CITI training
4. Develop interviewing skills for graduate school
5. Develop skills for research poster design and presentation

**B. Project specific learning objectives:**

*Mentors, please specify additional learning objectives, e.g. Fellow will be able to write instructions for low literacy audiences, design a mini project with supervision*

1. Learn how to culture iPSCs, mesenchymal stem cells and osteoblasts.
2. Learn how to perform mesodermal lineage differentiation.
3. Trainee will present his/her research results in our lab meeting.
- 4.
- 5.

**4. Are there special fellow characteristics e.g., major, interests, language, culture or other preferences that would be desirable? Please specify:**

Note to mentors: Any confidentiality agreements regarding the project or data you are using (e.g. unpublished results) should be arranged between you and your summer fellow.

N/A

## 5. Mentor Responsibilities

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1. Attend the orientation and the elevator speech competition

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2. Be available for >8 weeks or have suitable substitute

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Will you be out for more than 2 weeks during the training period?    Yes     No

If yes, when would you be gone and for how long?

Who would serve as co-mentor during your absence (name and credentials, please specify)?

Name: Ruiying Zhao

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Job title: Assistant Professor

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3. Meet with the fellow weekly – progress, challenges...

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4. Encourage the use of the tools for innovative thinking

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5. Notify the project coordinator if the fellow is not meeting the agreed upon responsibilities.  
(This should be as early as possible to allow problem solving.)

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6. Complete an evaluation of the fellow at the end of the program

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7. Provide feedback on the program experience to the program coordinator

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