Preceptor Name: Jingchun Sun
Campus: UTHealth campus

Overall grant or other program name: Repurposing Existing Drugs for Cancer Treatment using Bioinformatics Approaches

Briefly describe your overall research program:

In this project, we first collect the FDA-approached drugs used to treat cancer, cancer drug targets, target mutations in cancer, then perform the network analysis to identify network properties, finally design the novel models to predict the non-cancer drugs potentially could be used to treat cancer.

Name of specific project in which a student will participate: Comprehensive analysis of network properties of cancer drugs and their targets

Specific duties of student:
1) Collect the targets from multiple drug-target databases of FDA-approved cancer drugs that we recently collected;
2) Map the target genes to human protein-protein interaction (PPI) networks that we already collected from public sources;
3) Perform the analysis of the network properties compared to randomly selected proteins from the PPI networks. The network properties include degree, betweenness, clustering coefficient;
4) Construct the drug-target-protein networks based on the drug-target association and target-protein interactions;
5) Perform the drug-target-protein network analysis to identify the hubs and critical modules for understanding the molecular mechanisms underlying the cancer treatment.

This would be a good fit for someone with what major or interests?

Students are interested in the bioinformatics and have basic programming skills.

Students begin June 2 (orientation day) and end either July 25 or August 8. If you will be out for a week or more during this time, when would you be gone?

From June 12 to July 2.

Who would serve as preceptor during your absence (name and credentials, please)?
NB: you may submit as many research opportunities as you like, but to be competitive you should probably limit yourself to no more than three.

E-mail your finished form(s) to cpritsummer@uth.tmc.edu