



2020 LEAD Capstone Poster Session

A User-driven Community Resource Of Reagents

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Abstract

- **PROBLEM:** Resources - including reagents, financial support, and importantly time - are a major rate-limiting determinant of biomedical research. Relatedly, redundancy in research leads to waste in resources as well as labor hours. To initiate new avenues of research, a significant amount of time is spent tracking down resources from local colleagues as well as spending hundreds of dollars on a reagent that may only be used once. While a wealth of reagents and knowledge exists on campus – most of this is shared locally within only a single department or two. Further, it may take days and up to a week for a sample or reagent to be delivered such that the acquisition of reagents via campus-wide sharing will preserve numerous work-days.
- **ACTION:** To create a platform consisting of a database and user-interface to share reagents including cell lines, antibodies, “markers”, plasmids, animals, and expertise.
- **RESULT:** I expect several thousands of dollars a month may be saved per month by numerous labs translating into tens of thousands of dollars per year per lab and in turn \$1-2 million per year across campus combined. Not only will research funds be conserved but also labor hours seeking out reagents and troubleshooting to find the “best antibody” or “right marker.” Furthermore, such networking will likely enhance grant submissions by adding additional preliminary data to strengthen proposed studies and increase the time to publication. Lastly, this infrastructure will not only enhance our community but will likely foster new collaborations capitalizing on UTSW’s greatest resource, its people.



Objectives

- Develop database of reagents willing to be shared
- Develop interactive user-interface for database of reagents with networking functionality
- Seed user-base by recruiting graduate students and postdocs – the catalysts of lab research



Background Information

- Sharing information and networking via the internet has transformed various facets of life including business and science
- A variety of shared resources such as Addgene and Biorxiv have expedited science across the community
- *Yet, no effective means to share reagents and information locally on-campus exists (particularly for trainees)*
- Potentially thousands of dollars are wasted monthly (tens of thousands per year) by each lab on reagents and time that DO NOT produce useful data
 - – to put in context the value of the wasted funds -
a mouse model designed by a company = ~\$20K, salary for a tech = \$30K
- The current situation, which is dated, is via email and scouring websites of UTSW PIs



Project Plan

- Recruit 10 graduate students and postdocs as consultants
 - Rationale: primary user-base, trainees drive the experiments, and need the reagents
- Build initial list of reagents focused on in-house plasmids/markers
 - Rationale: Plasmid sample quality not an issue per se due to ability to retransform
 - Will expand to other reagents in time – don't forget Amazon started with only books!
- Build database
- Build interface
- Access to interface requires "donation" of sharing at least one sample via resource



Application of What You Learned at LEAD

- Capitalize on (local) strengths – UTSW has experts in a variety of research areas
- Collaborate
- Innovate



Proposed Budget

- Total = \$8200 for inaugural year, thereafter just hosting fees
 - ~\$7000 initial investment for salary to develop user interface (e.g. in-house postdoc, bioinformatician)
 - \$1200 annually for hosting site = \$100/month *12 months
 - May save any given lab \$10,000-30,000/year
 - Across campus (200 labs*\$10,000 avg. loss/lab= \$2 million/yr. savings)



Innovation and Significance

- Everything is connected on campus, why aren't the scientists and the science?
- Maximizing technology instead of cold-calling for reagents
- Will provide researchers with access to reagents from in-house investigators prior to publication – giving an edge