



Transcript

UIC Case Study Video - Connecting Science & Community

My name is Brian Murphy. I'm a professor in the Department of Pharmaceutical Sciences at the University of Illinois Chicago.

My name is Jin Yi and I am a third year graduate student in Brian's lab. So we are a pretty traditional antibiotic discovery lab. We'll collect soil, we'll collect sponges, macro algae, put 'em in tubes, bring 'em back to the lab, or work with them in the field and we'll try to isolate libraries of bacteria.

And we hope that one of the bacteria from one of these samples will produce the next antibiotic lead. My original dream was to have students doing, you know, real high-end biomedical discovery, but we can't have students working with bacteria because it's not safe.

It was only until we got the high throughput quality picking robot that I realized that we could actually connect university with community and finally realized that this dream I had, we would draw up plans of how we wanted it set up. We would work with Hudson.

Hudson would then optimize the setup.

Our Hudson system entails the Hudson Rapid Pick mp, the plate crane robotic arm.

We have also a plate sealer and the barcode printer and scanners.

This whole setup is contained in a custom biosafety cabinet that Hudson was able to collaborate with Baker to build.

And because we have all of this contained in a biosafety cabinet, it's really allowed us to work with bacteria safely, not just us, but also being able to introduce middle school students to the antibiotic discovery process in a safe way, because they're literally behind the chamber and they're always safe when they're working with these unknown bacterial strains.

So in this program, the students get a lot of ownership over their project.

We want to be able to get them involved in as many aspects of antibiotic discovery as they can.

So they go out and collect samples in the environment. They bring it back. We let them choose what media types and how they wanna plate it.

And then later on we give them a robotics crash course so that they're primed to be able to come to UIC to use the Hudson Robotics setup that we have.

And then later on we also teach them how to analyze bioassay data and work with their hits as well. One of the middle school students that I worked with, she decided to collect some goose poop. 'cause during our outreach program we let them collect anything.

So I ran this sample through my pipeline with her and together we were able to find a strain that produced an antibiotic.

This antibiotic I then isolated and now I'm elucidating the structure of it and we hope to publish this soon.

I've been doing outreach with teams of volunteers for a long time and, and usually it's, we'll do one-off experiments, right? We'll go into a club or a community center, bring the science to them, and then we leave for the day. Right? But I've always wanted to do longer term projects.

It it was getting that robot that allowed me to form this partnership with the Boys and Girls Club.

Our STEM partnership is about 14 weeks long and it runs throughout the academic year. We've taught about 22 students right now, both from middle schools and high schools around underserved communities in Chicago. And I hope that I can continue doing cool science for my career.

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