

ASPIRE



A researcher newsletter of the Aspiring Scholars Directed Research Program

August 16 2022

Issue #4

This Saturday, August 20, 2022

ASDRP
Aspiring Scholars Directed Research Program

**SUMMER
2022
SYMPOSIUM &
EXPO**

**SATURDAY - AUGUST 20, 2022
10:00 AM - 12:00 PM
IN PERSON**

**MISSION COLLEGE
SANTA CLARA, CA**

The ASDRP Summer 2022 Semester Research Symposium and Expo will showcase some of the original scientific findings of 600+ high school students, who conducted research across 80+ projects in a wide array of STEM fields. Students come from throughout Bay Area, across the U.S., and internationally! The Symposium features students presenting the research they completed throughout the Summer during their participation in ASDRP.

These scientific projects conducted by students are original research with cutting edge results, completed on \$3M+ worth of research equipment with highly qualified research mentors, and are not traditional “science lab” projects whose results are known. This event is a premier opportunity for high school students to be exposed to genuine research, scholarship, peer review, scientific reading and writing, and scientific presentation at a young age before college.

At the completion of the Symposium, the students will be able to leverage their own published works in demonstrating their competitive advantage as they prepare to matriculate to college! We invite you to join us in the beginning of a wonderful journey for these young scientists! Please come, view research posters, ask the students questions, listen to oral presentations, support these great kids, celebrate their accomplishments, and have fun!

The Symposium will be held on Saturday, August 20, 2022 @ 10:00am-12:00pm (PDT) at Mission College, Santa Clara, CA.

All interested persons are invited!

To register for the event, please visit our [Summer 2022 Symposium and Expo Website](#)

Find ASDRP on LinkedIn

ASDRP is now on LinkedIn!
Find us [here](#) to follow us and connect.



Publication Spotlights

Congratulations to research groups who are in the process of publishing their research.

In this issue we are highlighting:

1. Xina Wang, Julia Vu, Charissa Luk, *Edward Njoo*, “Benchtop 19F nuclear magnetic resonance spectroscopy enabled kinetic studies and optimization of the synthesis of carmofur.” [Applied Spectroscopy, Submitted]
2. Kara Tran, Aashi Shah, Rittika Saha, Claire Song, Emily Liang, *Edward Njoo*, “Mechanistic Deconvolution of Autoreduction in Tetrazolium-based Cell Viability Assays.” [Journal of Emerging Investigators, In Review]
3. Shelley Li, Kavya Pandrangi, *Edward Njoo*, “High-Throughput Virtual Screening and

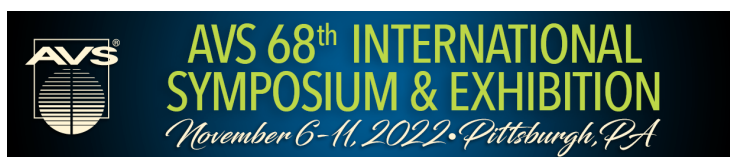
Homology Modeling Enables the Identification of Hit Analogs of Efavirenz.” [Journal of Emerging Investigators, In Review]

4. Emily Shu, Madeleine Lloyd, Anika Kulkarni, Anushree Marimuthu, Srishti Venkatesan, Rosie Chen, Samyukta Athreya, Riya Kulkarni, Jonathan Wang..., *Raymond Chen, Akira Yamamoto, Edward Njoo*

Upcoming Conference Highlights

Four principal research investigators and their researchers are attending conferences this fall!

1. Sahar Jahnika (Cognitive Neuroscience) and researchers, *Society for Neuroscience* (San Diego, CA)
2. Clinton Cunha (Bioinformatics) and researchers, *American Chemical Society National Meeting* (Chicago, IL)
3. Neelima Sangeneni (Materials Science) and researchers, *AVS International Symposium & Exhibition*
4. Edward Njoo (Organic Chemistry) and researchers, *American Chemical Society National Meeting* (Chicago, IL)



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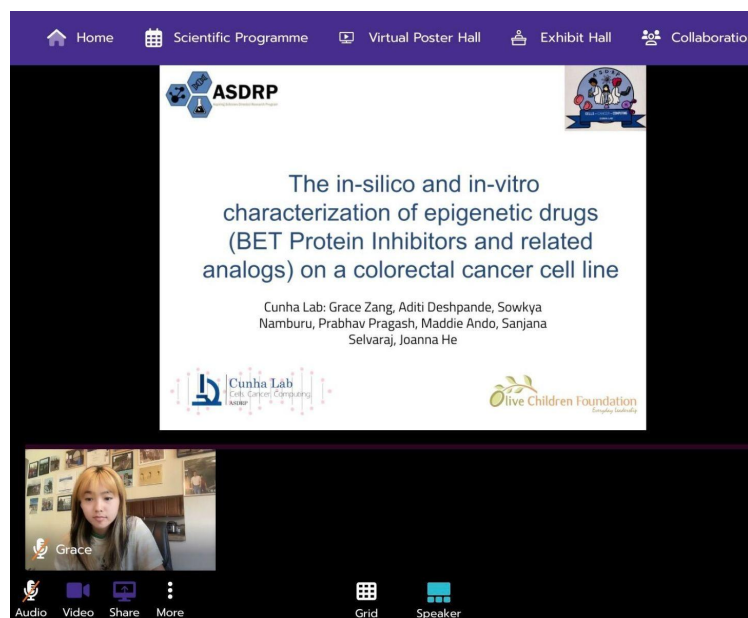


Past Conference Highlights

Intelligent Systems For Molecular Biology 2022 Conference

Submitted by Grace Zang, Crosspoint High School

Grace Zang (grade 12) of the Cunha Lab, presented at the Intelligent Systems For Molecular Biology 2022 Conference which ran from July 10-14, 2022. Grace was the main presenter of the poster "The in-silico and in-vitro characterization of epigenetic drugs (BET Protein Inhibitors and related analogs) on



a colorectal cell line (HCT116)". She was able to discuss her research with several seasoned researchers and learn from others' research as well. Topics covered throughout the conference ranged from RNA Mapping to Endometriosis. Overall, Grace found that she learned a lot despite the high-level nature of the conference, and found interactions with the other researchers to be the most rewarding.

She reported:

"The event's goal is to bring together scientists from computer science, molecular biology, mathematics, statistics and related fields in order to increase understanding of the current frontiers of computational biology and beyond. At the conference, the goal is to foster innovative conversation that will inspire and educate in many ways.

This event enables a community of researchers to gather and discuss the latest frontiers of computational biology and other related topics, creating novel ideas in the process. It promotes the involvement of the community and showcases the latest updates in technology and science to the world as one of the biggest computation biology conferences.

This conference was certainly a high level one, and I often found myself confused on certain topics being covered as they were extremely advanced. However, speakers were always open to questions, and I still learned a lot even with my limited knowledge. Hopefully, the Cunha Lab can continue to attend conferences similar to ISCB, and progress in our research to develop novel cancer therapeutics."

Student Research Updates

Rivastigmine

Submitted by Anshika Sahu of Monta Vista High School, with Reya Sankar, Finna Wang, Mahaksh Dalal, Sania Shah
Renganathan Research Group

Our project's goal is to determine the effects of Rivastigmine on neurodegenerative diseases through a *Caenorhabditis elegans* model. Rivastigmine inhibits acetylcholinesterase and butyrylcholinesterase which prevents the breakdown of acetylcholine, a neurotransmitter believed to affect neurodegenerative diseases. Today, 10.6% of Americans 65 or older suffer from Alzheimer's disease alone, a number that is expected to grow in the future.

So far, we have cultured wild-type N2 worms and have transferred and maintained transgenic CL2122, NL5901, and OW13 worms to agar plates. The wild-type worms are the control group in our assay, and

NL5901 will be used as the experimental group. An ongoing struggle in our protocol is preventing contamination from spreading into our plates. We plan to perform age synchronization in preparation for the Nile Red Assay. This will allow us to determine the lipid concentration in the worms, a characteristic affected by acetylcholine.

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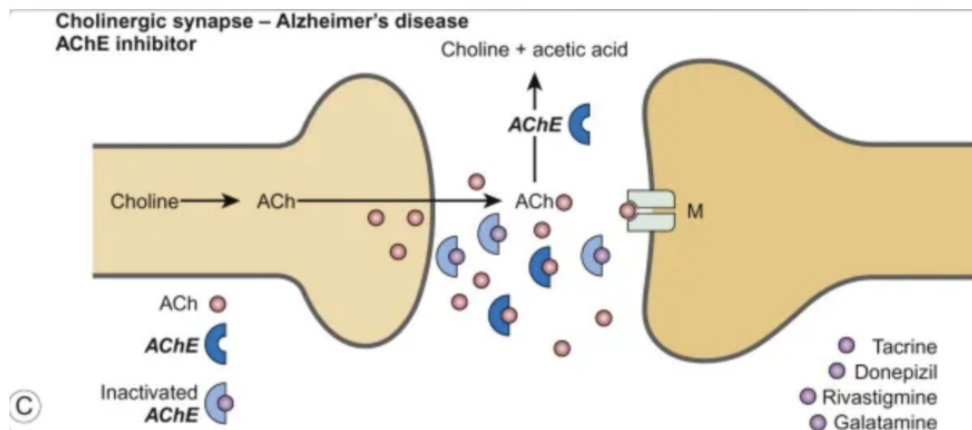


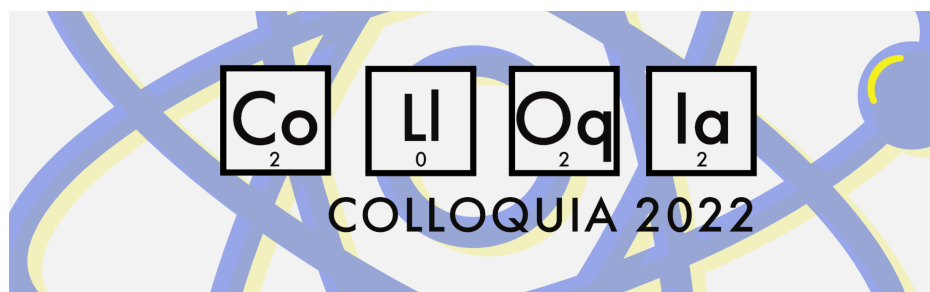
Photo caption: Rivastigmine acting as an inhibitor

Fall-Summer Research Transition

All researchers please note that Transition for Summer-Fall is due **August 19, 2022, @ 11:59 PM PDT**. Please check your email and visit www.asdrp.org/check-in



New Parent Lobby Open
Enjoy wifi, water, and amenities!



Every week, some of our senior researchers in each department at ASDRP give public seminars presenting the current state of the field, and disseminating how their research at ASDRP fits into the broader context of the frontiers of modern science and engineering. Colloquia are public events, and anyone can join. Click [here](#) for the latest Colloquia Information and Presenters.



We are excited to announce the Summer 2022 Researcher Interview Series! In this series of interviews, website and communications manager Sophia Linnevers sits down with researchers to talk about their research and experience at ASDRP. The Interviews are posted to our [ASDRP YouTube channel](#), where beyond the interviews, you can find colloquia recordings, and seminars.