

Bryan Chen

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Second-year Microbiology student at UC San Diego with laboratory research, student mentoring, and team leadership experience. Research interests include extracellular vesicles and the biology of neural interfaces.

EDUCATION

University of California, San Diego

B.S. Microbiology | John Muir College | Expected June 2029

Relevant coursework: Genetics (BICD 100); General Chemistry II and III (CHEM 6B, 6C); Mechanics (PHYS 1A); Data Analysis and Design for Biology (BILD 5).

RESEARCH EXPERIENCE

Undergraduate Research Intern | Shen Lab

National Taiwan University | Taipei, Taiwan | July - August 2026

PI: Prof. Shen Tang-Long

- Completed six weeks of full-time research, isolating extracellular vesicles from *Cordyceps* liquid culture and supplying characterized preparations to the neuronal cell team.
- Ran a multi-step preparation workflow: prepared and autoclaved peptone-yeast extract broth; maintained and subcultured the strain; grew mycelium in submerged culture; and harvested through filtration, low-speed clearing spins, and 0.22 μm sterile filtration.
- Concentrated and washed vesicles by differential ultracentrifugation with PBS resuspension between spins; trained on tangential flow filtration as an alternative concentration method.
- Characterized particle size and concentration by nanoparticle tracking analysis, quantified protein content, and aliquoted and stored preparations at $-80\text{ }^{\circ}\text{C}$ for downstream assays.
- Grew solid-state *Cordyceps* cultures on rice, then used the lyophilizer to freeze-dry harvested material and milled it to powder.

TECHNICAL AND PROFESSIONAL SKILLS

Extracellular vesicles: Differential ultracentrifugation, nanoparticle tracking analysis (NTA), sterile filtration, protein quantification, aliquoting and sample banking; training in tangential flow filtration (TFF).

Microbiology: Aseptic technique, media preparation and autoclaving, strain maintenance and subculturing, submerged and solid-state fungal culture, bacterial culture, lyophilization.

Molecular biology: PCR, gel electrophoresis, plasmid construction, Golden Gate assembly, BioBrick-based cloning, protocol optimization.

Communication and tools: Scientific writing, literature review, presentations, student mentoring, team coordination, wiki editing, Excel, Canva, slide design, and video editing.

Languages: Mandarin (native); English (fluent).

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Curriculum vitae | Research, teaching, and leadership

SYNTHETIC BIOLOGY EXPERIENCE

Instructor and Mentor | WIST iGEM Team | 2025

- Mentored high school students in experimental design, slide preparation, and wiki content for the international synthetic biology competition.
- Taught plasmid construction, Golden Gate assembly, BioBrick-based cloning, competition structure, and research ethics and safety.

Student Leader | GEMS-Taiwan iGEM Team | 2024

- Served as one of several leaders of a 28-member team, coordinating project direction, experimental progress, and competition deliverables.
- Worked across wet lab, dry lab, and human practices, contributing PCR, gel electrophoresis, bacterial culture, literature review, and scientific communication.
- Contributed to a dengue-control project combining recombinant biolarvicidal toxins, a beetroot-peel mosquito attractant, and a sticky ovitrap.

Member | WIST iGEM Team | 2023

- Joined the school's first iGEM team and contributed across wet lab, dry lab, and human practices.

SELECTED PROJECTS

Software projects built with Claude as a coding partner.

LIGATE: An educational plasmid-design and assembly-planning project developed from experience teaching cloning to high school iGEM students. [View project.](#)

Growth Curve Analyzer: Browser tool that turns plate-reader growth curves into growth rate, doubling time, and lag. [View project.](#)

VesiScope: Quality-control app for EV size data (NTA/DLS as CSV); tested on synthetic data.

Kerr renderer: Ray tracer for light around a spinning black hole; 14 of 14 physics validation gates pass.

VOLUNTEERING AND STUDENT LEADERSHIP

Event Organizer | Crafting Joy for Elders: Organized crafts and games for elderly residents, coordinated volunteers, and adapted activities to participants' needs.

Vice Class President | Washington High School: Represented classmates, coordinated events, and worked with school staff on student concerns.

AWARDS AND RECOGNITION

2025 | WIST iGEM: Silver Medal.

2024 | GEMS-Taiwan iGEM: High School Grand Prize, Gold Medal, Best New Basic Part, Best Wiki, and Best Project Promotion Video.

2023 | WIST iGEM: Best Education nomination.

Academic recognition: AP Scholar with Honor.