CU-BMB Summer Camp (CU-BSC2024) Schedule

Round 1: 2 - 5 July 2024 (9 a.m. – 4 p.m.)

Venue: Room 521, 5th Floor, Klum Watcharobol Building (Sci10)

Department of Biochemistry, Faculty of Science, Chulalongkorn University

Round 1/Day	Morning	Afternoon
2 July	Lab safety + General Lab skills	How do bacterial infections kill shrimp?
3 July	Exploring plant cells for the production of active substances	Let there be light: fluorescent protein purification and characterization
4 July	Structure based drug discovery	Valuable Bioproducts from Algae
5 July	Track your food intake & blood glucose	Phage therapy: A new strategy to beat superbugs

2 July 2024	
09.00 – 09.15 09.15 – 10.00	**Opening speech from Head of Department** **Lab safety and Ice breaking activity (Room 521)** Associate Prof. Dr. Kunlaya Somboonwiwat
10.00 – 10.30	Break
10.30 – 12.00	**General Lab skills** Associate Prof. Dr. Kunlaya Somboonwiwat Associate Prof. Dr. Tanakarn Monshupanee Associate Prof. Dr. Supaart Sirikantaramas Associate Prof. Dr. Vorrapon Chaikeeratisak Assistant Prof. Dr. Pattana Jaroenlak Assistant Prof. Dr. Pawinee Panpetch Dr. Veerasak Srisuknimit Dr. Karan Wangpaiboon Dr. Napol Kaewkascholkul
12.00 – 13.00	Lunch Break
	How do bacterial infections kill shrimp? Associate Prof. Dr. Kunlaya Somboonwiwat Dr. Napol Kaewkascholkul Dr. Supitcha Wanvimonsuk
13.00 – 13.15	Lecture on RNA interference technology
13.15 – 13.45	Production of double-stranded RNA in *E. coli* system
13.45 – 14.30	Double-stranded RNA challenge and sample collection
14.30 – 14.45	Break
14.45 – 15.30	Determination of gene silencing efficiency
15.30 – 15.50	Total hemocyte counting and electron microscopy analysis
15.50 – 16.00	Discussion and Q&A session

3 July 2024	
	Exploring plant cells for the production of active substances Associate Prof. Dr. Teerapong Buaboocha Associate Prof. Dr. Supaart Sirikantaramas
09.00 – 09.30	Lecture - Plant natural products: engineering (transient expression) and applications
09.30 – 09.55	Lab – Coloring your plants (agroinfiltration)
09.55 – 10.20	Lab – Metabolite extraction and analysis
10.20 – 10.50	Break
10.50 – 11.10	Lecture – Stable transformation and generation of transgenic plants
11.10 – 11.50	Lab – GUS staining
11.50 – 12.00	Conclusion
12.00 – 13.00	Lunch Break
	Let there be light: fluorescent protein purification and characterization Assistant Prof. Dr. Kittikhun Wangkanont Assistant Prof. Dr. Pattana Jaroenlak
13.00 – 13.15	Lecture on recombinant protein expression
13.15 – 14.15	Protein purification
14.15 – 14.45	SDS-PAGE analysis
14.45 – 15.05	Break
15.05 – 15.30	Strain/De-strain/Work on the worksheet
15.30 – 15.45	Kahoot
15.45 – 16.00	Discussion/Group photos

4 July 2024	
	Structure based drug discovery Associate Prof. Dr. Kuakarun Krusong Associate Prof. Dr. Thanyada Rungrotmongkol
09.00 – 10.00	Lecture and Hand-on “Introduction to Protein Databank and Web-based visualization”
10.00 – 10.30	Lecture “Molecular docking of SARS-CoV2 main protease with Andrographolide analogs as inhibitors
10.30 – 10.50	Break
10.50 – 12.00	Hand-on “Molecular docking and Complex visualization with Discovery studio software”
12.00 – 13.00	Lunch Break
	Valuable Bioproducts from Algae Associate Prof. Dr. Saowarath Jantaro Associate Prof. Dr. Tanakarn Monshupanee
13.00 – 13.10	Introduction about algae and valuable products
13.10 – 13.20	3 groups/3 stations Station: Spectrum Scanning of Algal Pigments Station: Pigment extraction and TLC separation Station: Lipid staining and visualization under light microscope
13.20 – 14.00	Station 1 of each group
14.00 – 14.30	Break

14.30 – 15.10	Rotate to Station 2
15.10 – 15.50	Rotate to Station 3
	Note: Learn to make algal immobilization

5 July 2024	
	Track your food intake & blood glucose Associate Prof. Dr. Manchumas Prousoontorn Assistant Prof. Dr. Rath Pichyangkura Assistant Prof. Dr. Pawinee Panpetch Dr. Karan Wangpaiboon
09.00 – 09.45	Lecture: Starch and sugars; Structure and metabolism Glycemic index (GI) and its importance
09.45 – 10.00	Break
10.00 – 10.30	Lab 1: Carbohydrate identification & determination in various food products (DNS assay)
10.30 – 11.30	Lab 2: Enzymatic assay for starch degradation by α amylase (TLC)
11.30 – 12.00	Lab 3: Test your blood glucose (volunteer!) (GOD assay) & Wrap
12.00 – 13.00	Lunch Break
	Phage therapy: A new strategy to beat superbugs Associate Prof. Dr. Vorrapon Chaikeeratisak Dr. Veerasak Srisuknimit
13.00 – 13.15	Let's grow the cells! (Handout Page 7 or Flow chart A)
13.15 – 13.45	Lecture on Phage therapy
13.45 – 14.15	Molecular Cloning by Gibson Assembly (Handout Page 5 – 6 or Flow chart B & C)
14.15 – 14.30	Break
14.30 – 14.45	Slide preparation (Handout Page 7 or Flow chart D)
14.45 – 15.45	Rotation to the scope room (4 section; 15 min each)
15.45 – 16.00	Discussion and Q&A session
16.00 – 16.15	Certificate presentation and closing ceremony