CU-BMB Summer Camp (CU-BSC2025) Schedule

Round 1: 1 - 4 July 2025 (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
1 July	Lab safety + General Lab skills	Track your food intake and blood glucose
2 July	Valuable Bioproducts from Algae	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	Phage therapy: A new strategy to beat superbugs

1 July 2025	
09.00 – 09.15 09.15 – 10.00	**Opening speech from Head of Department** **Lab safety and Ice breaking activity (Room 521)** Assistant Prof. Dr. Pawinee Panpetch
10.00 – 10.30	Break
10.30 – 12.00	**General Lab skills** Assistant Prof. Dr. Pawinee Panpetch Assistant Prof. Dr. Karan Wangpaiboon Dr. Napol Kaewkascholkul Dr. Supitcha Wanvimonsuk
12.00 – 13.00	Lunch Break
	Track your food intake & blood glucose Assistant Prof. Dr. Rath Pichyangkura Associate Prof. Dr. Manchumas Prousoontorn Assistant Prof. Dr. Pawinee Panpetch Assistant Prof. Dr. Karan Wangpaiboon
13.00 – 13.45	Lecture: Starch and sugars; Structure and metabolism Glycemic index (GI) and its importance
13.45 – 14.00	Break

14.00 – 15.00	**Lab 1**: Determination of starch degradation products by **α**-amylase (by thin layer chromatography (TLC) and 3,5-dinitrosalicylic acid (DNS) assay)
15.00 – 16.00	**Lab 2**: Test your blood glucose (volunteer!) (GOD assay) & Wrap up

2 July 2025	
	Valuable Bioproducts from Algae Associate Prof. Dr. Saowarath Jantaro Associate Prof. Dr. Tanakarn Monshupanee Associate Prof. Dr. Nuchanat Wutipraditkul
09.00 – 09.10	Introduction about algae and valuable products
09.10 – 09.20	3 groups/3 stations Station: Spectrum Scanning of Algal Pigments Station: Pigment extraction and Antioxidant assay Station: Lipid staining and visualization under light microscope
09.20 – 10.00	Station 1 of each group
10.00 – 10.30	Break
10.30 – 11.10	Rotate to Station 2
11.10 – 11.50	Rotate to Station 3
11.50 – 12.00	Note: Learn to make algal immobilization
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 – 13.30	Lab orientation: How do bacterial infections kill shrimp?
13.30 – 14.00	Lab: Production of dsRNA specific to a receptor protein in *E. coli* system
14.00 – 14.15	Break
14.15 – 14.45	Lab: Agarose Gel Electrophoresis of dsRNA
14.45 – 15.15	Lab: Shrimp Tissue Collection
15.15 – 15.45	Lab: Hemocytes morphological changes observation upon bacterial toxin treatment
15.45 - 16.00	Lab Discussion

3 July 2025	
	Exploring plant cells for the production of active substances Prof. Dr. Teerapong Buaboocha 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 2025	
	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 for antiviral drugs against influenza A neuraminidase”
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

	Phage therapy: A new strategy to beat superbugs Associate Prof. Dr. Vorrapon Chaikeeratisak Dr. Veerasak Srisuknimit
13.00 – 13.30	Lecture on Phage therapy
13.30 – 13.45	Let's see how phages are visualized! (Review phage plaques on double layer agars)
13.45 – 14.30	Molecular Cloning by Gibson Assembly (Handout Page 5 – 6 or Flow chart B & C)
14.30 – 14.45	Break
14.45 – 15.00	Slide preparation (Handout Page 7 or Flow chart D)
15.00 – 15.40	Rotation to the scope room (4 section; 10 min each) *The groups on the waiting list : Studying Fiji program* *Gr. 1-2 : 3.00 - 3.10 PM* *Gr. 3-4 : 3.10 - 3.20 PM* *Gr. 5-6 : 3.20 - 3.30 PM* *Gr. 7-8 : 3.30 - 3.40 PM*
15.40 – 16.00	Discussion and Q&A session
16.00 – 16.15	Certificate presentation and closing ceremony