



## Student Science Training Program 2019

1–12 July 2019

Institute of Molecular Biosciences, Mahidol University

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The Institute of Molecular Biosciences, Mahidol University offers a Student Science Training Program for enthusiastic students, aged 14–18, who are interested in advancing their scientific knowledge and skills in molecular biology, neuroscience and chemistry. In this 10-day course, the students will learn key scientific concepts and practical techniques by doing hands-on experiments and carrying out investigations like a real scientist in a manner that encourages team working and independent problem solving skills. The language of instruction and communication is English.

In addition, SSTP participants and alumni who are interested in gaining research experience in the future will have the opportunity to join on-going research projects or initiate their own under supervision of members of the academic staff of the Institute of Molecular Biosciences through internships.

Dates:	1–12 July 2019
Duration:	10 days
Target group:	Students aged 14–18 (Grades 9–12, Years 10–13, Fourth–Sixth Forms, Upper Secondary)
Training activities:	Lectures and hands-on laboratory sessions
Program fee:	30,000 Baht (a 5% discount applicable for early bird registration with full payment)
Early registration:	No later than 3 May 2019
Registration:	<a href="http://www.mb.mahidol.ac.th/SSTP2019">http://www.mb.mahidol.ac.th/SSTP2019</a> open until 7 June 2019

For further information, please contact Ms Kaewklao Banjong, International Relations Officer at [Kaewklao.ban@mahidol.ac.th](mailto:Kaewklao.ban@mahidol.ac.th)

## Student Science Training Program 2019

1–12 July 2019

### Day 1 (Monday, 1 July 2019)

- 08:45 – 09:00 Welcome and introduction
- 09:00 – 10:00 Lecture and demonstration on “Laboratory Safety”  
*Dr Sirirat Kumarn*
- 10:00 – 11:00 Lecture on “DNA Cloning by PCR”  
*Dr Arpaporn Sutipatanasomboon*
- 11:00 – 12:00 Lecture on “PCR-based Site-directed Mutagenesis”  
*Dr Chalongrat Noree*
- 12:00 – 13:00 **Lunch**
- 13:00 – 14:00 Laboratory session on “Mutagenesis PCR”  
*Dr Chalongrat Noree and team*
- 14:00 – 14:30 Laboratory session on “*DpnI* Treatment”  
*Dr Chalongrat Noree and team*
- 14:30 – 16:00 Laboratory session on “Agarose Gel Electrophoresis, Purification of *DpnI*-treated PCR Product and Measuring the Concentration of Purified PCR Product”  
*Dr Chalongrat Noree and team*
- 16:00 – 16:30 Laboratory session on “Ligation”  
*Dr Chalongrat Noree and team*

### Day 2 (Tuesday, 2 July 2019)

- 09:00 – 12:00 Computer lab session on “Primer Design and Sequence Analysis (CN)”  
*Dr Chalongrat Noree and Ms Naraporn Sirinonthanawech*
- 12:00 – 13:00 **Lunch**
- 13:00 – 16:00 Laboratory session on “Bacterial Transformation”  
*Dr Chalongrat Noree and team*

### Day 3 (Wednesday, 3 July 2019)

- 09:00 – 09:30 Laboratory session on “Counting Colonies”  
*Dr Chalongrat Noree and team*
- 09:30 – 10:00 Laboratory session on “Master Plate Preparation”  
*Dr Chalongrat Noree and team*
- 10:00 – 10:30 Laboratory session on “Liquid Culture Preparation”

*Dr Chalongrat Noree and team*  
10:30 – 12:00 Laboratory discussion  
*Dr Chalongrat Noree and team*  
12:00 – 13:00 **Lunch**  
13:00 – 16:00 Laboratory session on “Confocal Imaging”  
*Dr Chalongrat Noree and team*

#### **Day 4 (Thursday, 4 July 2019)**

09:00 – 10:00 Lecture on “Thalassemia”  
*Dr Kittipong Paiboonsukwong*  
10:00 – 12:00 Laboratory session on “DNA Analysis for Alpha-Thalassemia”  
*Dr Kittipong Paiboonsukwong, Ms Thongperm Munkongdee and team*  
12:00 – 13:00 **Lunch**  
13:00 – 16:00 Laboratory session on “DNA Analysis for Alpha-Thalassemia” (cont.)  
*Dr Kittipong Paiboonsukwong, Ms Thongperm Munkongdee and team*

#### **Day 5 (Friday, 5 July 2019)**

09:00 – 10:30 Lecture on “Genome editing using CRISPR/Cas9”  
*Asst. Prof. Dr Alisa Tubsuwan*  
10:30 – 12:00 Lecture on “Animal Cell culture”  
*Dr Chutima Thepparit*  
12:00 – 13:00 **Lunch**  
13:00 – 16:00 Laboratory session on “Functional test of the guide RNA”  
*Dr Chutima Thepparit, Asst. Prof. Dr Alisa Tubsuwan and team*

#### **Day 6 (Monday, 8 July 2019)**

09:00 – 12:00 Laboratory session on “Function test of the guide RNA”  
(Result interpretation and discussion)  
*Dr Chutima Thepparit, Asst. Prof. Dr Alisa Tubsuwan and team*  
12:00 – 13:00 **Lunch**  
13:00 – 14:00 Lecture on “Exploring Microalgae as Fuel”  
*Assoc. Prof. Dr Wipa Chungjatupornchai*  
14:00 – 16:00 Laboratory session on “Bioenergy”  
*Assoc. Prof. Dr Wipa Chungjatupornchai and team*

### Day 7 (Tuesday, 9 July 2019)

- 09:00 – 10:00      Lecture on “Basic Techniques for Studying Brain Tissue”  
*Asst. Prof. Dr Kittikun Viwatpinyo*
- 10:00 – 12:00      Laboratory session on “How to make a microscopic slide of brain tissue”  
*Asst. Prof. Dr Kittikun Viwatpinyo and his team*
- 12:00 – 13:00      **Lunch**
- 13:00 – 14:00      Lecture on “Learning Memory Research in Animal Study”  
*Asst. Prof. Dr Sukonthar Ngampramuan*
- 14:00 – 16:00      Laboratory session on “Learning Memory Research in Animal Study”  
*Asst. Prof. Dr Sukonthar Ngampramuan and her team*

### Day 8 (Wednesday, 10 July 2019)

- 09:00 – 10:30      Lecture on “Analyzing the Diversity of Neurons in the Mammalian Brain”  
*Assoc. Prof. Dr Paul Klosen*
- 10:30 – 12:00      Laboratory session on “Chemical Neuroanatomy techniques 1”  
*Assoc. Prof. Dr Paul Klosen and his team*
- 12:00 – 13:00      **Lunch**
- 13:00 – 16:00      Laboratory session on “Chemical Neuroanatomy techniques 2”  
*Assoc. Prof. Dr Paul Klosen and his team*

### Day 9 (Thursday, 11 July 2019)

- 09:00 – 10:00      Lecture on “Protein Expression and Purification”  
*Assoc. Prof. Dr Chartchai Krittana*
- 10:00 – 12:00      Laboratory session on “Protein Expression and Purification”  
(Bacterial culture, protein expression, protein preparation)  
*Dr Chonticha Saisawang, Dr Phattara-orn Havanapan,  
Dr Duangnapa Kovanich*
- 12:00 – 13:00      **Lunch**
- 13:00 – 16:00      Laboratory session on “Protein Expression and Purification” (cont.)  
*Dr Chonticha Saisawang, Dr Phattara-orn Havanapan,  
Dr Duangnapa Kovanich*

### Day 10 (Friday, 12 July 2019)

- 09:00 – 12:00      Laboratory session on “Protein Expression and Purification” (cont.)  
*Dr Chonticha Saisawang, Dr Phattara-orn Havanapan,*

*Dr Duangnapa Kovanich*

12:00 – 13:00

**Lunch**

13:00 – 14:00

Lecture on “Stem Cell”

*Asst. Prof. Dr Narisorn Kitiyanant*

14:00 – 15:00

Lecture on “Application of Molecular Biology Techniques”

*Dr Poochit Nonejuie*

15:00 – 15:15

Closing ceremony

*Dr Alita Kongchanagul*