



E3BTE001C

(Token- required)

Biotechnology Course (Level III): Trends in Modern Biotechnology I

Dr CHAN Kwok Keung

(Biology teacher, SKH Bishop Baker Secondary School)



Application Deadline
31 Oct 2022 12:00 noon

Result Release
11 Nov 2022

Intended Learning Outcomes

Upon completion of the programme, participants should be able to:

1. describe the basic knowledge of modern biotechnology and its trends nowadays, e.g. genetic engineering;
2. recognise the latest techniques in modern biotechnology;
3. explain the concepts of practical experiments of recombinant DNA technology;
4. perform experiments of genetic engineering, e.g. bacterial transformation with plasmid DNA and forensic DNA fingerprinting;
5. discuss the ethical and moral issues of modern biotechnology.



◆ Introduction

In this course, we will have an overview on the latest trends in modern biotechnology – from the fundamental knowledge of molecular biology to recombinant DNA technology and genetic engineering. Furthermore, some new techniques in modern biotechnology (e.g. animal and plant cloning, transgenic animals) will also be discussed. Besides, hands-on experiments are designed to demonstrate the techniques in genetic engineering. To arouse students' awareness about modern biotechnology-related ethical and moral issues, topics such as application of modern biotechnology, pros and cons of stem cell therapy, etc. will be explored and discussed.

This programme is co-organised with SKH Bishop Baker Secondary School.

Remark: Trends in Modern Biotechnology II (E3BTE002C) will be organised in Jul – Aug 2023 (tentative). Graduates of E3BTE001C have priority to join E3BTE002C.

◆ Schedule

Session	Date	Time	Venue *
1	17 Dec	9:00 a.m. – 12:00 noon	Classroom 406
2	23 Dec		Classroom 406 Biology Laboratory
3	24 Dec		Biology Laboratory Classroom 406
4	28 Dec		Biology Laboratory
5	29 Dec		Classroom 406
6	31 Dec	9:00 a.m. – 1:00 p.m.	Biology Laboratory

*Address: SKH Bishop Baker Secondary School, 10 Fung Yau Street South, Yuen Long, N.T. ([MAP](#))

◆ Target Participants

- S3 to S6 HKAGE student members
- Class size: 30

◆ Pre-requisite

- Students with primary interest on biology, chemistry and biotechnology;
- Biology and chemistry knowledge of S3 or above level is preferred.

◆ Medium of Instruction

English with English Handouts

◆ Screening

Please answer the screening questions in the online application form.

*The screening questions are designed to help the applicant understand the course level and the course content. The questions must be answered by the student applicant and it can only be attempted once. The answers cannot be changed once the application is submitted. Selection is based on students' performance in answering the questions. Only students who can demonstrate motivation and knowledge of biotechnology in the screening questions can be enrolled in the programme.

◆ Certificate

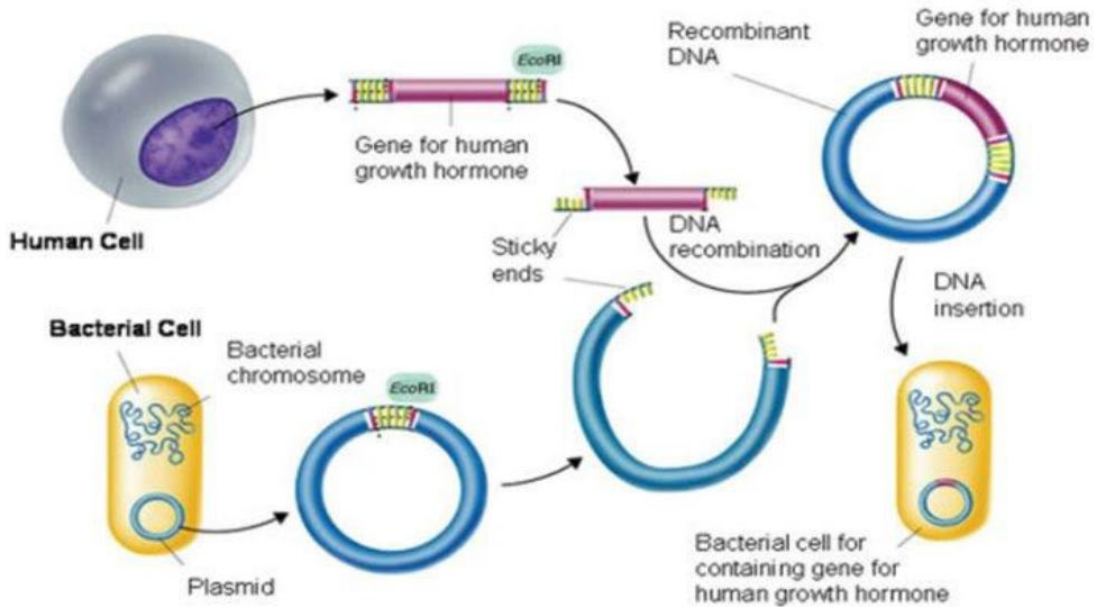
E-Certificate will be awarded to participants who have:

- attended at least 5 sessions; and
- completed all the assignments with satisfactory performance.



◆ **Sample Notes**

Recombinant DNA Technology



One hundred forty-six DNA nucleotides entwine in two loops around eight histone proteins, forming a nucleosome. Nucleosomes in turn wind into a cable three times thicker than an individual nucleosome. The DNA and associated histone proteins form chromatin, which comprises chromosomes. When DNA is transcribed, it unwinds from its protein support.

