

Our School's Two Teams Triumphed at the International Genetically Engineered Machine Competition (iGEM) 2024, Winning Gold and Silver Medals, along with Two Nominations on Research Achievements, Gaining International Acclaim

This year, our school formed two joint teams with several other local secondary schools to participate in the International Genetically Engineered Machine Competition (iGEM). The team "HK-Joint-School" is composed of students from Kowloon True Light School, TWGHs Mrs. Wu York Yu Memorial College, Hoi Ping Chamber of Commerce Secondary School, Baptist Lui Ming Choi Secondary School and Carmel Pak U Secondary School and our school. The "HK-United" team is composed of teachers and students from Tsung Tsin Christian Academy, Pope Paul VI College, Christian and Missionary Alliance Sun Kei Secondary School, Pui Ching Middle School, Wah Yan College, Kowloon and our school.

Both teams traveled to Paris in mid-October to attend the iGEM Grand Jamboree, where they achieved remarkable results: the HK-Joint-School team won the Gold Medal, Best Education Nomination, and Best Model Nomination, while the HK-United team secured the Silver Medal.

Founded by the Massachusetts Institute of Technology in 2003, iGEM is the most prestigious and established competition in the international biotechnology sector, attracting high school students, university students, and researchers from around the world each year. This year, iGEM featured over 410 research teams from 48 countries, with a total of 9,507 participants.

The HK-Joint-School team conducted research on "Synthesizing Anti-Cancer Peptides with Potential Value for Lung Cancer Treatment," developing novel anti-cancer peptides using artificial intelligence. During their research, the team interviewed cancer survivors, biomedical startups, traditional Chinese medicine practitioners, and medical experts including Professor Dennis Lo Yuk Ming, the incoming president of CUHK, and Professor Tony Mok Shu Kam, BBS, a lung cancer specialist. They also applied their knowledge to educate both their peers and the community, raising awareness about lung cancer.

On the other hand, the HK-United team focused on "Synthesizing a Fusion Protein of Ginsentide TP-1 and Lupin Peptide P5 with Potential Value for Treating Cardiovascular Diseases", which aimed to reduce the manufacturing costs of the newly discovered potential drugs. The team advocated knowledge on the role of synthetic biology in producing traditional Chinese medicine active ingredients, conducted workshops in primary schools and elderly care centers, and presented their research findings at science exhibitions to promote public science education. Students from our school developed various educational materials, such as ATGC card games designed by student leader Lam Hin Kwan, tabletop games created by student Lam Chun Ming and his friends, and resources like experimental kits, medicinal recipes, promotional flyers, and booklets to make synthetic biology education more engaging.

Dr. Lau Sui Yee, the principal of our school, believes that biotechnology can change human evolution and history. Students must have sufficient knowledge and wisdom to effectively utilize biotechnology for the benefit of humanity. Dr. Lau expressed full support for students participating in international research activities. Our school's biotechnology curriculum, combined with advanced facilities, actively nurtures talents in the biotechnology sector.

Dr. Yuen Man Leuk, the supervising teacher, noted that the era of combining biotechnology with artificial intelligence has arrived, as the winners in the three major scientific fields of this year's Nobel Prize have made such evident. Promoting relevant education is an inevitable trend, and he is grateful that all the participating students and teachers from the teams have dedicated themselves wholeheartedly to collaboration.

The Head of the Biology Department and STEAM Coordinator, Ms. Leung Hoi Yan, stated that our school has made history by forming two teams with multiple schools to participate in the competition, showcasing the extensive applications of biotechnology in various fields. Ms. Leung hopes that students will explore the limitless possibilities of biotechnology together.

In the iGEM competition, students not only learned advanced scientific knowledge and experimental techniques, but also developed skills in teamwork, problem-solving, communication, and public speaking. Form 4 student Sun Zhi Shan believes that

participating in the competition has sparked her interest in biology, and she is grateful to have met like-minded friends, realizing the importance of teamwork in solving challenges. Form 6 student Cheung Wai Kit expressed that this competition has widened his horizons and made him aware of societal issues related to biomedical science, and he hopes to use the experience gained from the competition to give back to society.

This year, our school has two joint teams participating in the International Genetically Engineered Machine Design Competition (iGEM) 2024. The list of members is as follows:

	HK-United	HK-Joint-School
Form 3	3A Kwok Tsz Lam, 3B Lee Tsz Kiu Cassandra, 3D Chen Xinru	3B Wang Junxi, 3C Choy Pui Yee, Wong Yuet Esther
Form 4	4C Chung Ka Ching, 4D Leu Tsz Ling Chow Wing Hei Elise, Sun Zhi Shan Julian	4D Chan Yik Lok, Guo Cyrus
Form 5	5D Lam Hin Kwan, Lam Tsun Ming, Lam Yan Lui Nefarian	5B Fu Hoi Ka Hannah, Lau Yuen Kwan, Chan Ho Yin, 5D Xu Ka Ning, Lam Hin Kwan, Lam Yan Lui Nefarian
Form 6	6D Lam Ming Xin, 6E Tsang Audrey	6D Banh Chun Hei, Cheung Wai Kit

Responsible Teachers: Dr. Yuen Man Leuk, Ms. Leung Hoi Yan, Ms. Ng Tsz Tung

Advisors: Mr. Lam Ho Wah

2024 HK-United research content webpage : <https://2024.igem.wiki/hk-United/>

2024 HK-Joint-School research content webpage : <https://2024.igem.wiki/hk-joint-school/>

