

# Po Leung Kuk

# Celine Ho Yam Tong College

## International Genetically Engineered Machine (iGEM)

### First Gold in iGEM



Our team used genetically modified *E. coli* as a tool to tackle heavy metal pollution in water. The team won a gold medal when they presented their idea at a worldwide biology event.



▲ Our students presented the research results and explained the operation principle of the heavy metal absorption device B-CAD to the judging panel.

# Returned in Triumph: First Gold For HK High School

Our students are talented in science, they won prize for machine that removes heavy metal pollutants from water. The team's experimental design and findings made them the first secondary school team in Hong Kong to win a gold medal.

## 《MingPao》



### 中學聯校隊伍國際基因工程賽奪金

仁愛堂田家炳中學、匯基書院（東九龍）、五旬節中學、保良局何蔭棠中學及德蘭中學組成的 Hong Kong JSS 聯校隊伍，於合成生物學界最大型國際比賽「國際遺傳工程機器設計競賽（iGEM）」奪得金獎。他們的研究項目為「以基因改造大腸桿菌過濾水中重金屬」，將大腸桿菌改造為金屬銅吸附生物，從而處理重金屬污染水資源問題。

比賽重視以合成生物學方法解決本地問題，要求參賽隊伍以一至兩年時間科研，以基因工程方法解決一個當地社會的問題。賽事設金銀銅獎項，金獎乃最高級別，該研究項目達到世界級水平。每個研究項目均有最少6名具有博士學歷的科學家，就研究的詳細報告網頁、台上演講、答問環節等評審。

## 細菌吸銅機

## 過濾重金屬

## 《WenWeiPo interview》

細菌的基因將之變成「吸銅機器」，為解決食水重金屬問題。他們上月初於全球最大的國際基因工程機器設計競賽（iGEM）中，為香港首度奪得中學聯校組別金獎。記者曾漢基透過他們的體驗，就本港生對基因工程之看法，與他們進行訪問。

曾漢基



## 《SCMP Young Post Features》

## Improving the system



## 《Sky Post》



## 《WenWeiPo》

## 改菌「勁吸金」 港生揚威國際

改造桿菌基因濾重金屬 iGEM 首見港中學隊伍奪金

香港文匯報訊（記者 高鈺）香港年輕一代具備驚人的科研潛能，以創意研究項目揭開國際。由港5所中學學生組成的「iGEM」團隊，在「國際遺傳工程機器設計競賽（iGEM）」中奪得金獎。

該團隊的項目為「以基因改造大腸桿菌過濾水中重金屬」，將大腸桿菌改造為金屬銅吸附生物，從而處理重金屬污染水資源問題。該團隊的項目在「iGEM」中奪得金獎，這是香港中學隊伍首次在該項國際比賽中獲此殊榮。

該團隊的項目在「iGEM」中奪得金獎，這是香港中學隊伍首次在該項國際比賽中獲此殊榮。該團隊的項目在「iGEM」中奪得金獎，這是香港中學隊伍首次在該項國際比賽中獲此殊榮。

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## 《Lion Rock Daily》

## iGEM 首奪金



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# iGEM: 2 Years STEAM Project to Foster Science Talents

F.3

We aimed to cultivate students' scientific literacy and expand their horizons. With STEAM training in school, university coop-programs and opportunity to presentation in public, there are plenty of opportunities for students to stretch their research potential.

Synthetic Biology  
and iGEM camp  
(HKUST)



HK iGEM Symposium  
(CUHK)



High School  
iGEM Meetup



F.4



Biotech Experiments  
in School



F.5



iGEM Jamboree in USA



STEAM R&D

# Elicit High Intellectual Performances

## Support Students Reach For Their Potential



**Shom Man Chun**

**HKU Bachelor of Medicine and Bachelor of Surgery**

In iGEM, we worked inside and outside the lab. Apart from scientific knowledge, we also need to apply our engineering, research and human skills in order to create a positive contribution to the communities.

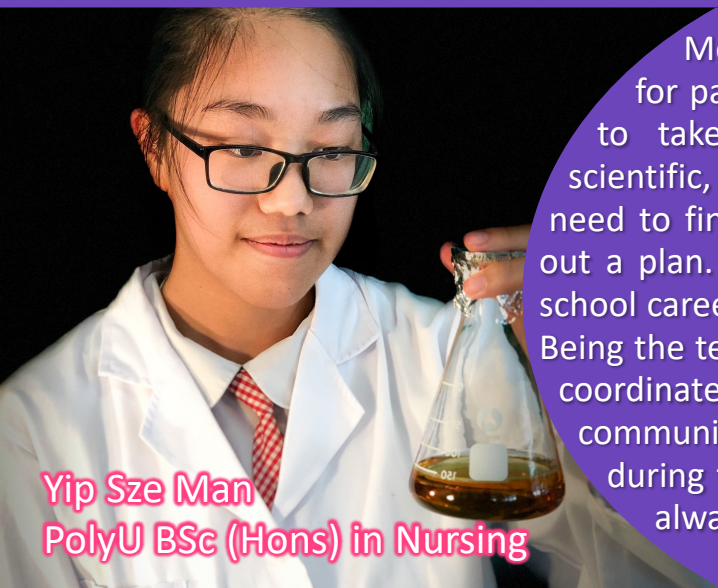
This project gave me hands-on experiences in applying seemingly unrealistic biotechnology to our daily life. During the competition, I learnt from university teams that biotechnology can be integrated with medical care to treat diseases in innovative ways. This inspired me to pursue my dream of becoming a doctor.

We faced many challenges in the research process, but there are more solutions than there are problems. As long as we are not giving up, these problems will inevitably get straightened out. The best thing with iGEM is the motivation and energy that it brings to me. I am pushed to step out from my comfort zone, so that I can create a momentum for personal growth.



**Mo Hau Yu**

**BSc (Hons) in Physiotherapy**



**Yip Sze Man**

**PolyU BSc (Hons) in Nursing**

Most classroom in Hong Kong are configured for passive learning, while the iGEM project let us to take the initiative. The project brings new scientific, engineering and coordination challenges, we need to find information based on the topic and work out a plan. The experience is unforgettable in my high school career.

Being the team's captain, I also needed to communicate, coordinate and work with all my teammates. My communication and interpersonal skills are polished during the course of work, these life skills would be always useful.

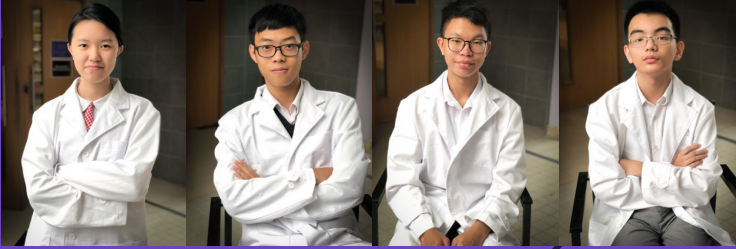
# Passing The Torch

## Cultivating Students' Scientific Talents

2018 : Genetically modified *E. coli* to absorb heavy metals in water

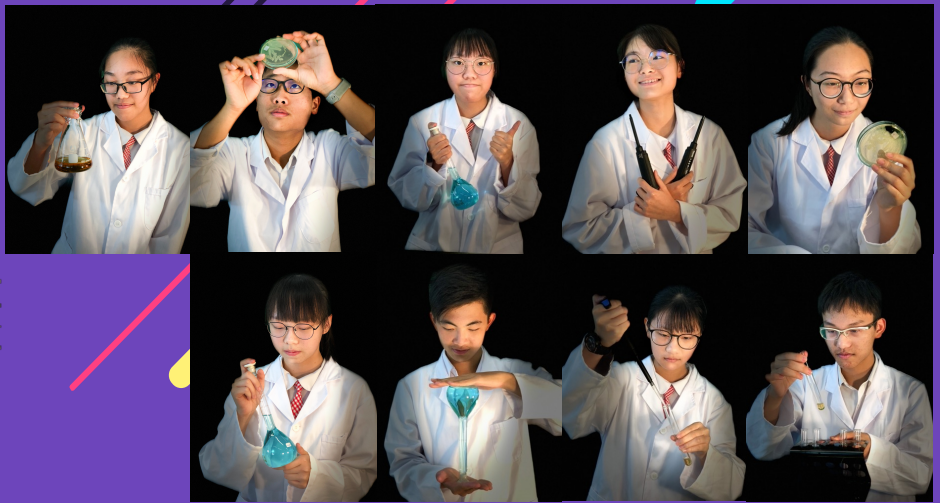


# 2018



2019 : Design B-CAD device to reduce the accumulation of heavy metals in aquaponic systems and improve food safety.

# 2019



2021 : Biomodification of *E. coli* to produce laccase to prevent the contamination of cereals by aflatoxin



# 2021

