Background

There is a lasting battle between bacteria and human beings. Since the discovery of penicillin, people gradually rely on various antibiotics to kill bacteria. However, the adaptation ability of bacteria makes us across a big dilemma in drug resistance. Consequently, a new and effective method of killing bacteria is in urgent need.

In order to spread the lethal plasmid, we endow it with the genes that will have a positive affection to the bacterial conjugation —— sweet gene and regulator gene.

The idea derives from the bacteria's spread of drug resistance. Once the number of bacteria having this plasmid reaches a certain threshold, the dead gene switch will turn on, resulting in the death of the host bacteria.

The Story - Toxic Apple

Don’t hide from me, bacteria

Model - SDTC

This project can be flexible according to the different needs in the future. We can change the different parts to respond to multitudinous bacteria. The conjugative transfer mode we choose can not only be transmitted within the same species of bacteria, but also related to the type IV secretion systems (T4SS), which represent versatile transporters facilitating the transfer of different macromolecular substrates (protein or protein/DNA complexes) from the bacterial cytoplasm into various target cells of bacterial.

In a word, the mechanism can be improved more widely.

Prospect

In order to help people adopt new ideas timely and dodge the revolutions of new ideas about Synthetic Biology, we did our human practice as bellow.

We usually held the Brain Storm to motivate innovation.

We held a lecture with a view to spreading relevant knowledge in our school by combining synthetic biology with the project of four teams.

Human Practice

Acknowledge & Contact Us

Biomedical Engineering School, Southeast University
State Key Laboratory of Biomedical Engineering (T4SS), Southeast University
Address: 2 Sipailou, Xuanwu District, Nanjing, China.

Reference

2. NTU@iGEM team