Abstract

We tried to overlap colony on colony. Generally, colony and colony don’t overlap and approach each other, because of the cell-cell communications. Bacteria also have a system, so called quorum sensing, to control of production of signal chemicals depending on the bacteria’s density. We pay attention quorum sensing system. Bacteria produce and secrete autoinducer against other bacteria by quorum sensing system, as a result of the system, bacteria senses other bacteria. Most of Gram-negative bacteria make use of autoinducer named AHL. We applied E. coli to our experiment and we use TA vector and pET vector. We tried to overlap colony on colony. Generally, colony and colony don’t overlap and approach each other, because of the cell-cell communications.

Keywords Of Our Project

Quorum Sensing
Autoinducer
AiiA

Design

Our Goal

Our Circuit Design

Experimental

Future Work

Construction of New plasmid which has AiiA gene.
Approach colony and other colony.
Construction of New plasmid which has AiiA and GFP gene.
Approach colony which has AiiA gene, and other colony which has AiiA and GFP gene.
Pile up colony which has AiiA gene, and other colony which has AiiA and GFP gene.

Background

Bacteria detect the concentration of its friends, called Quorum Sensing, and the sensing system is one of the communication tools between microbes. It is related also to formation of biofilm and to pathogenicity. As the Quorum Sensing of Gram-negative bacteria, Acyl-Homoserine Lactones (AHL) is released to recognize each other. 2007, the team of Chiba University made the bacteria production of AiiA to decrease the AHL. We considered application of the system to make a colony layer on a colony layer by depressing of Quorum Sensing.

Member

• Yuki Shiraiishi
• Megumu Sakoda
• Katumi Terajima
• Yuka Goto
• Takayuki Ikeda
• Yuya Kobayashi
• Ryota Fujita
• Junpei Tsuruta
• Hiroto Shimada
• Ayumi Kida
• Azusa Nomura
• Minoru Adachi