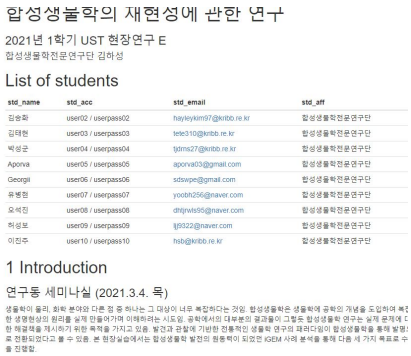
# 210318 수업

## Team A

- Team name: A

## Rsudio 사용법

- 파일 업로드
- 파일 다운로드



합성생물학의 재현성에 관한 연구

2021년 1학기 UST 현장연구 E

합성생물학전문연구단 김하성

List of students

| std_name | std_acc | std_email | std_aff |
|---|---|---|---|
| 김영화 | user02 / userpass02 | hayleykim97@kribb.re.kr | 합성생물학전문연구단 |
| 김태현 | user03 / userpass03 | tete310@kribb.re.kr | 합성생물학전문연구단 |
| 박성균 | user04 / userpass04 | tjdms27@kribb.re.kr | 합성생물학전문연구단 |
| Aporva | user05 / userpass05 | aporva03@gmail.com | 합성생물학전문연구단 |
| Georgii | user06 / userpass06 | sdswpe@gmail.com | 합성생물학전문연구단 |
| 유병현 | user07 / userpass07 | yoobh256@naver.com | 합성생물학전문연구단 |
| 오석진 | user08 / userpass08 | dhtjrwls95@naver.com | 합성생물학전문연구단 |
| 허성보 | user09 / userpass09 | ljj6922@naver.com | 합성생물학전문연구단 |
| 이진주 | user10 / userpass10 | hsb@kribb.re.kr | 합성생물학전문연구단 |

1 Introduction

연구동 세미나실 (2021.3.4. 목)

생물학이 물리, 화학 분야와 다른 점 중 하나는 그 대상이 너무 복잡하다는 것임. 합성생물학은 생물학에 공학의 개념을 도입하여 복잡한 생명현상의 원리를 실제 만들어가며 이해하려는 시도임. 공학에서의 대부분의 설계들이 그렇듯 합성생물학 연구는 실제 문제에 대한 해결책을 제시하기 위한 목적을 가지고 있음. 발견과 관찰에 기반한 전통적인 생물학 연구의 패러다임이 합성생물학을 통해 발명으로 전환되었다고 볼 수 있음. 본 현장실습에서는 합성생물학 발전의 원동력이 되었던 iGEM 사례 분석을 통해 다음 세 가지 목표로 수을 진행함.

- 이미지 넣기
- 참고문헌(Benner and Sismour 2005)

' code chunk short-cut: Ctrl + Alt + i ' Short-cut for executing a line in a code chunk: Ctrl + Enter

```
team_name <- c("Tainan", "Valencia_UPV", "Vilnius-Lithuania", "William_and_Mary","Marburg", "Vilnius-Li
organization <- c("NCKU", "Harvard", "Vilnius_university", " College_of_ William_and_Mary", " Philipps-U
title <- c("Oh_My_Gut", "printeria", "SYN_ORI", "SPEED", "VIBRIGENS", "flavoflow")
track <- c("Therapeutics", "New_Application", "Foundational_Advance", "Foundational_Advance", "Foundatio
wiki_page <- c("https://2019.igem.org/Team:NCKU_Tainan", "http://2018.igem.org/Team:Valencia_UPV", "http
prombs <-c("treating _CKD", "High_barriers_of_access_to_SB", " Building_a_multi-plasmid_system", "Contro
solution <-c("targeting the root", "fully_equipped_bioengineering_device", "Making_synOri", "Gene_ Expr
vector_map <-c("pSB1C3", "pSB1C3", "BBa_K2259092", "pTet_pLac_pBad", "pSB1C3", "X")
v_df <- data.frame(team_name, organization, title, track, wiki_page, prombs, solution, vector_map)
v_df
```

```
##           team_name                  organization     title
## 1            Tainan                          NCKU Oh_My_Gut
## 2      Valencia_UPV                       Harvard printeria
## 3 Vilnius-Lithuania            Vilnius_university   SYN_ORI
## 4  William_and_Mary  College_of_ William_and_Mary     SPEED
## 5           Marburg          Philipps-University VIBRIGENS
## 6 Vilnius-Lithuania            Vilnius_university flavoflow
##                  track                                    wiki_page
## 1         Therapeutics       https://2019.igem.org/Team:NCKU_Tainan
```

```
## 2      New_Application       http://2018.igem.org/Team:Valencia_UPV
## 3 Foundational_Advance  http://2017.igem.org/Team:Vilnius-Lithuania
## 4 Foundational_Advance   http://2017.igem.org/Team:William_and_Mary
## 5 Foundational_Advance            http://2018.igem.org/Team:Marburg
## 6          Environment https://2020.igem.org/Team:Vilnius-Lithuania
##                                          prombs
## 1                                treating _CKD
## 2                  High_barriers_of_access_to_SB
## 3                 Building_a_multi-plasmid_system
## 4 Controling the dynamical properties of circuits
## 5                    Control of Vibrio_natriegens
## 6             Trouble in Growing fish consumption
##                                                    solution     vector_map
## 1                                        targeting the root         pSB1C3
## 2                      fully_equipped_bioengineering_device         pSB1C3
## 3                                             Making_synOri   BBa_K2259092
## 4 Gene_ Expression_Speed/Orthogonal_Degradation_Tags/Modeling pTet_pLac_pBad
## 5                          Conducting basic microbial research         pSB1C3
## 6                            Recirculating Aquaculture Systems              X
```

#Parts of Tainan

| Name | Type | Length |
|---|---|---|
| BBa_K2259000 | Project | 670 |
| BBa_K2259001 | Project | 669 |
| BBa_K2259002 | Project | 668 |
| BBa_K2259003 | Project | 673 |
| BBa_K2259004 | Project | 669 |
| BBa_K2259005 | RNA | 117 |
| BBa_K2259006 | RNA | 117 |
| BBa_K2259007 | RNA | 117 |
| BBa_K2259008 | RNA | 117 |
| BBa_K2259009 | RNA | 117 |
| BBa_K2259010 | Coding | 189 |
| BBa_K2259011 | DNA | 366 |
| BBa_K2259014 | Regulator | 81 |
| BBa_K2259015 | Regulator | 81 |
| BBa_K2259016 | Regulator | 65 |
| BBa_K2259017 | Regulator | 65 |
| BBa_K2259018 | Coding | 180 |
| BBa_K2259019 | Coding | 618 |
| BBa_K2259022 | RNA | 117 |
| BBa_K2259024 | RNA | 117 |
| BBa_K2259025 | RNA | 117 |
| BBa_K2259026 | RNA | 117 |
| BBa_K2259029 | RNA | 117 |
| BBa_K2259031 | RNA | 117 |
| BBa_K2259086 | RNA | 111 |
| BBa_K2259088 | Regulator | 789 |
| BBa_K2259092 | Plasmid | 1370 |
| BBa_K2259093 | Temporary | 1117 |

#Parts of Valencia_UPV

| Name | Type | Description | Designer | Length |
|---|---|---|---|---|
| BBa_K2656000 | Regulatory | T7 phage strong promoter | Adrian Requena Gutierrez, Carolina Ropero | 27 |
| BBa_K2656001 | Regulatory | Heat Shock Promoter | Adrián Requena Gutiérrez | 102 |
| BBa_K2656002 | Regulatory | Promoter HSL-mediated luxR repressor | Adrián Requena Gutiérrez | 34 |
| BBa_K2656003 | Regulatory | Promoter HSL-mediated luxR | Adrián Requena Gutiérrez | 65 |
| BBa_K2656004 | Regulatory | Constitutive promoter J23106 | Adrian Requena Gutierrez, Carolina Ropero | 39 |
| BBa_K2656005 | Regulatory | Constitutive promoter J23102 | Adrian Requena Gutierrez, Carolina Ropero | 39 |
| BBa_K2656006 | Regulatory | Minimal pBAD promoter | Adrián Requena Gutiérrez | 308 |
| BBa_K2656007 | Regulatory | Constitutive promoter J23101 | Adrian Requena Gutierrez, Carolina Ropero | 39 |
| BBa_K2656008 | RBS | Very Weak Ribosome Binding Site J61100 | Adrian Requena Gutierrez, Carolina Ropero | 24 |
| BBa_K2656009 | RBS | Strong Ribosome Binding Site B0030 | Adrián Requena Gutiérrez, Carolina Ropero | 25 |
| BBa_K2656010 | RBS | Weak Ribosome Binding Site B0032 | Adrián Requena Gutiérrez, Carolina Ropero | 27 |
| BBa_K2656011 | RBS | Medium Ribosome Binding Site B0034 | Adrian Requena Gutierrez, Carolina Ropero | 22 |

Benner, Steven A, and A Michael Sismour. 2005. “Synthetic Biology.” Nature Reviews Genetics 6 (7): 533-43.