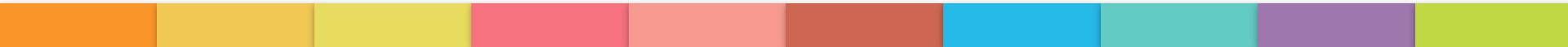
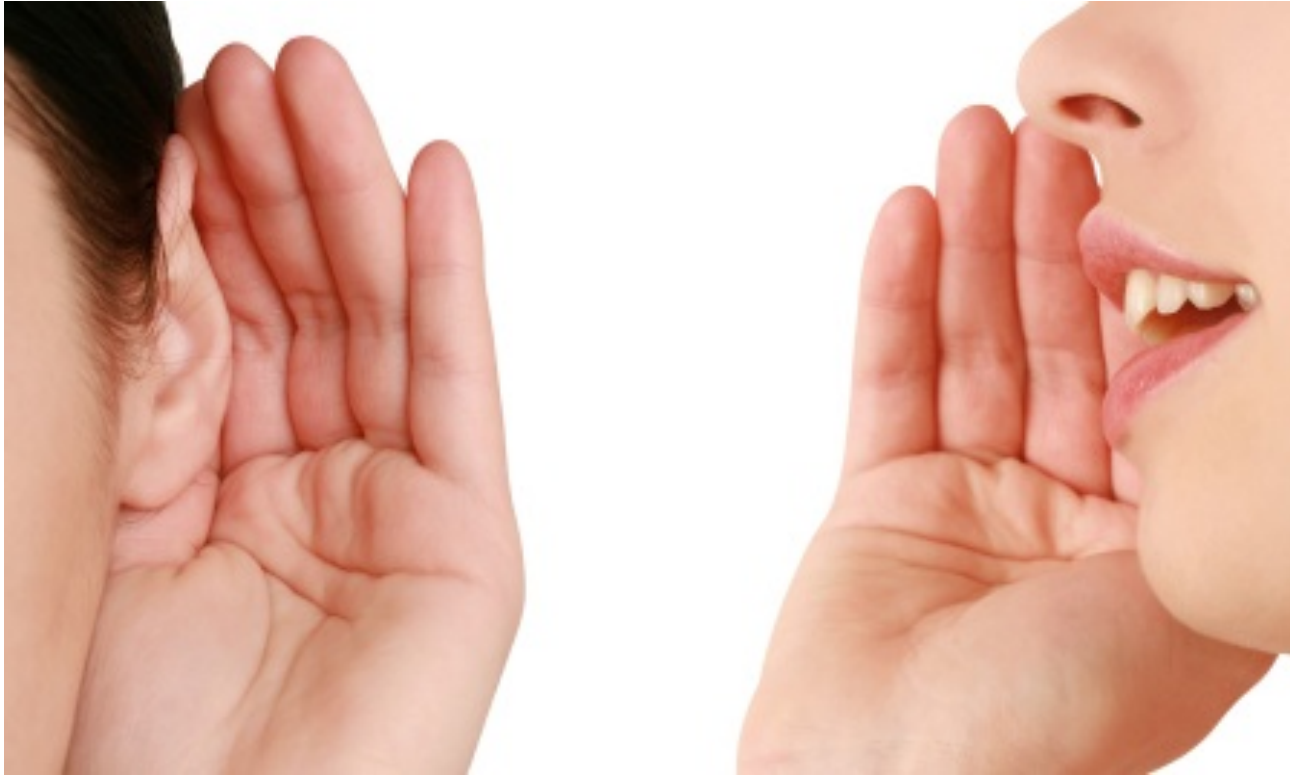


# SBOL Visual

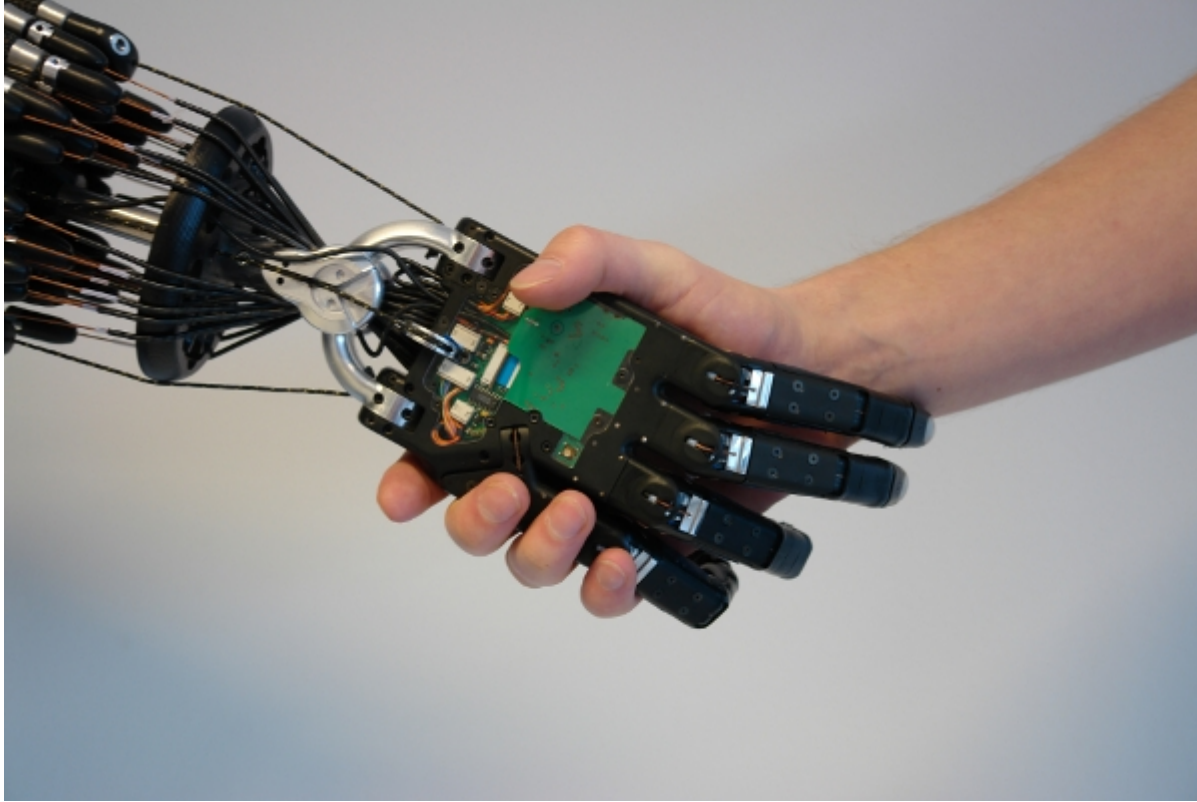
Jackie Quinn  
Cesar A. Rodriguez



# Data Exchange



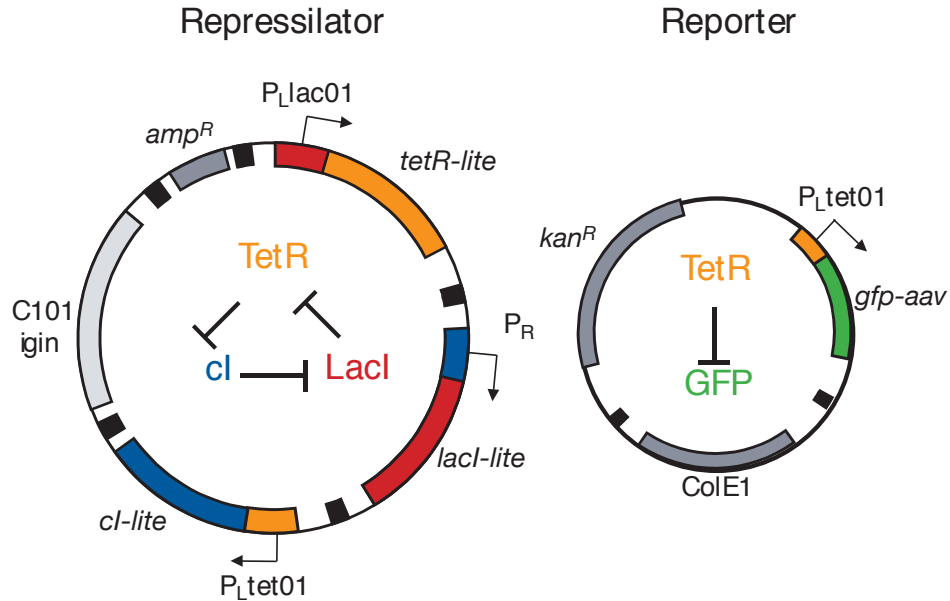
# Data Exchange



# Data Exchange






















# Convention

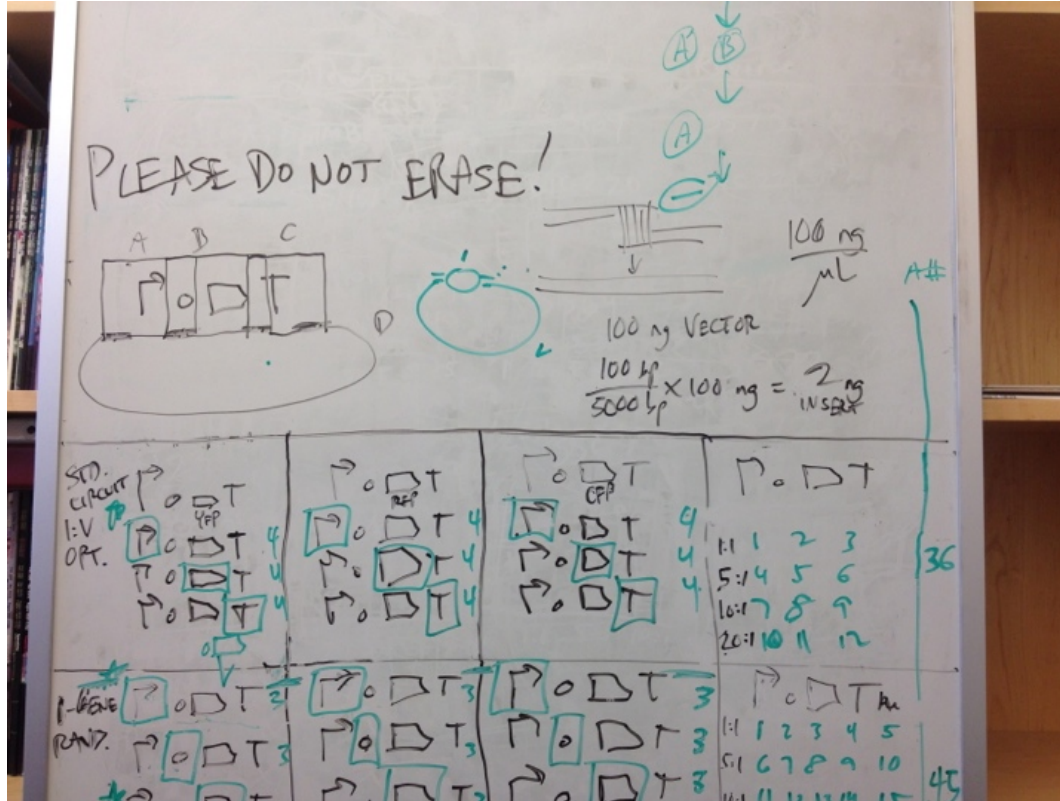




# SBOL Visual

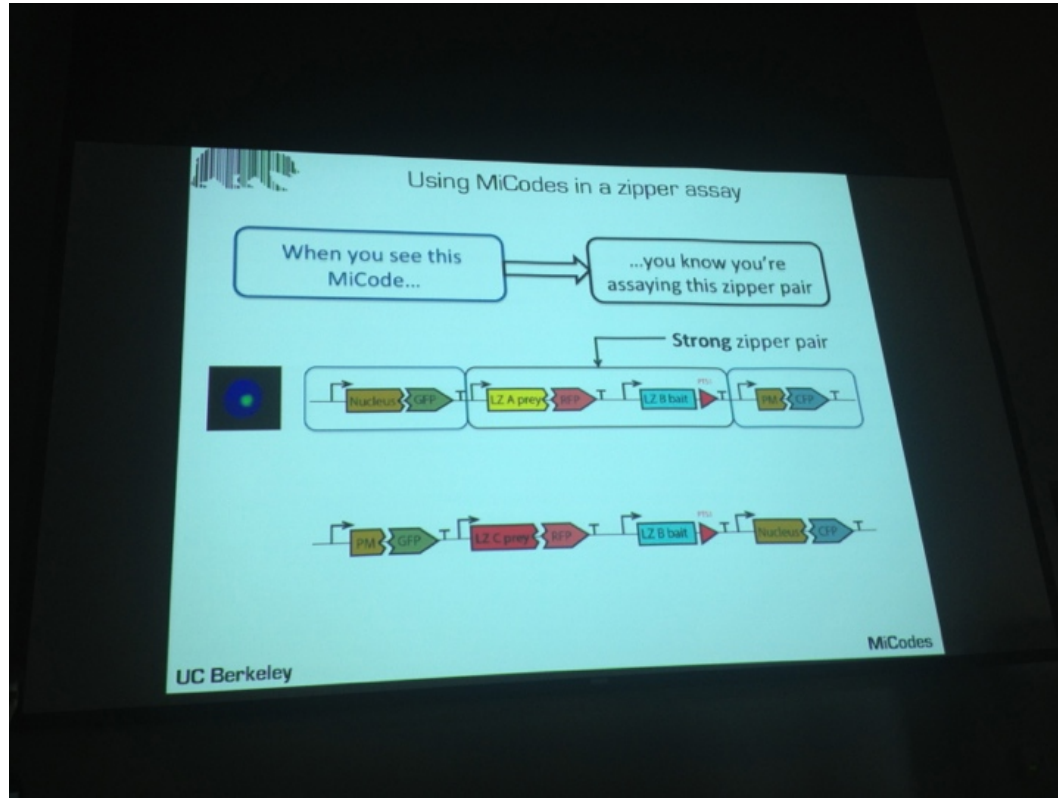
 promoter	 origin of replication
 cds	 primer binding site
 translational start site	 restriction enzyme recognition site
 transcriptional terminator	 5' overhang
 operator	 3' overhang
 insulator	 restriction site with no overhang
 ribonuclease site	 assembly junction
 rna stability element	 signature
 protease site	 user-defined
 protein stability element	

# Whiteboard



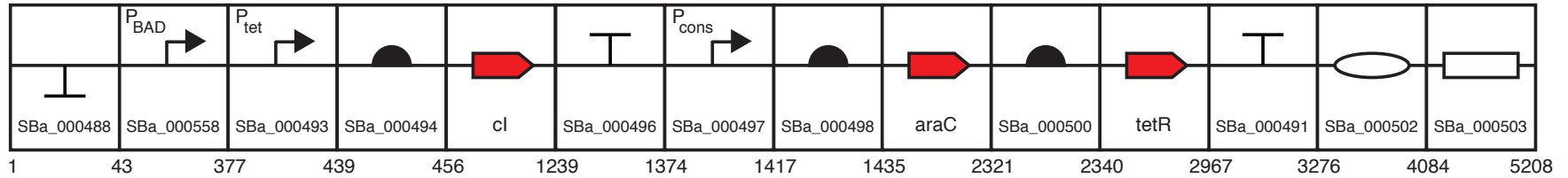


# Slide Presentation

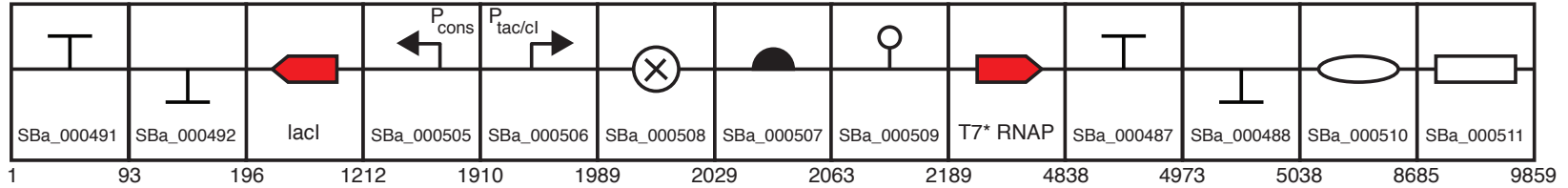


# Scientific Publication

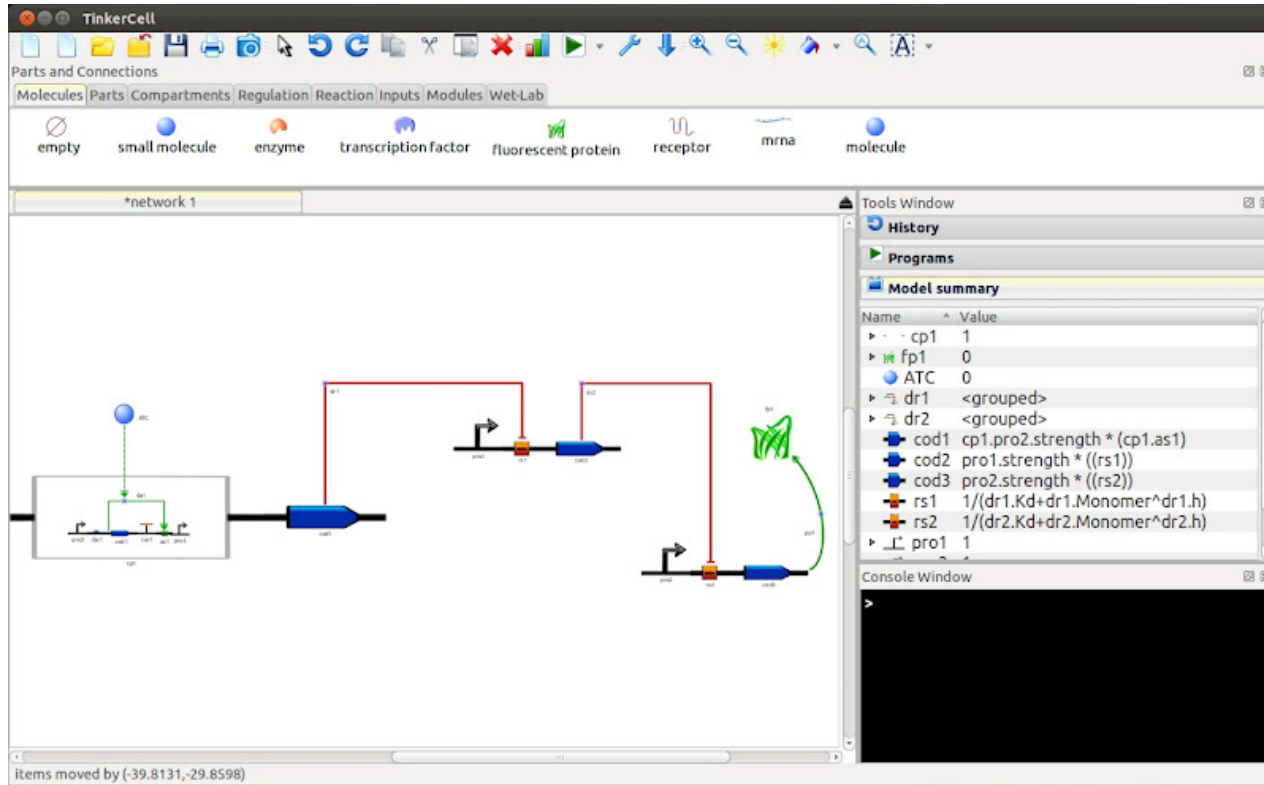
Plasmid SBa\_000559



Plasmid SBa\_000560





# Tinkercell



# Device Editor

File Edit

J5  

Example\_Design

Parts Collections

simple\_plasmid

BBR1-ori

RBS

GFPuv

ORF

dblterm

terminator

origin

GFP\_no\_stop\_codon

dblterm

Part Info Collection Info

Collection Name

J5 Ready: **False**

Combinatorial: **True**

☒ Circular ☐ Linear

Bin ...	Item	DSF	FRO	FAS	5' Ex	3' Ex
origin	1	false				
RBS	0	false				
ORF	1	false		PCR		
termin	1	false		Direct		


Add Bin Remove Bin

DSF: Direct Synthesis Firewall  
FRO: Forced Relative Overhang  
FAS: Forced Assembly Strategy  
5' Ex: 5' Extra CPEC overhang bps  
3' Ex: 3' Extra CPEC overhang bps

Bin Contents






GFPuv PCR

# GenoCAD



CAD Software for Synthetic Biology

Welcome, Guest | [Sign Up](#) | [Log In](#)



STEP 1: PARTSSTEP 2: DESIGNSTEP 3: SIMULATE









Grammar/Library:   [New Design](#) [Load Design...](#)

## New Design

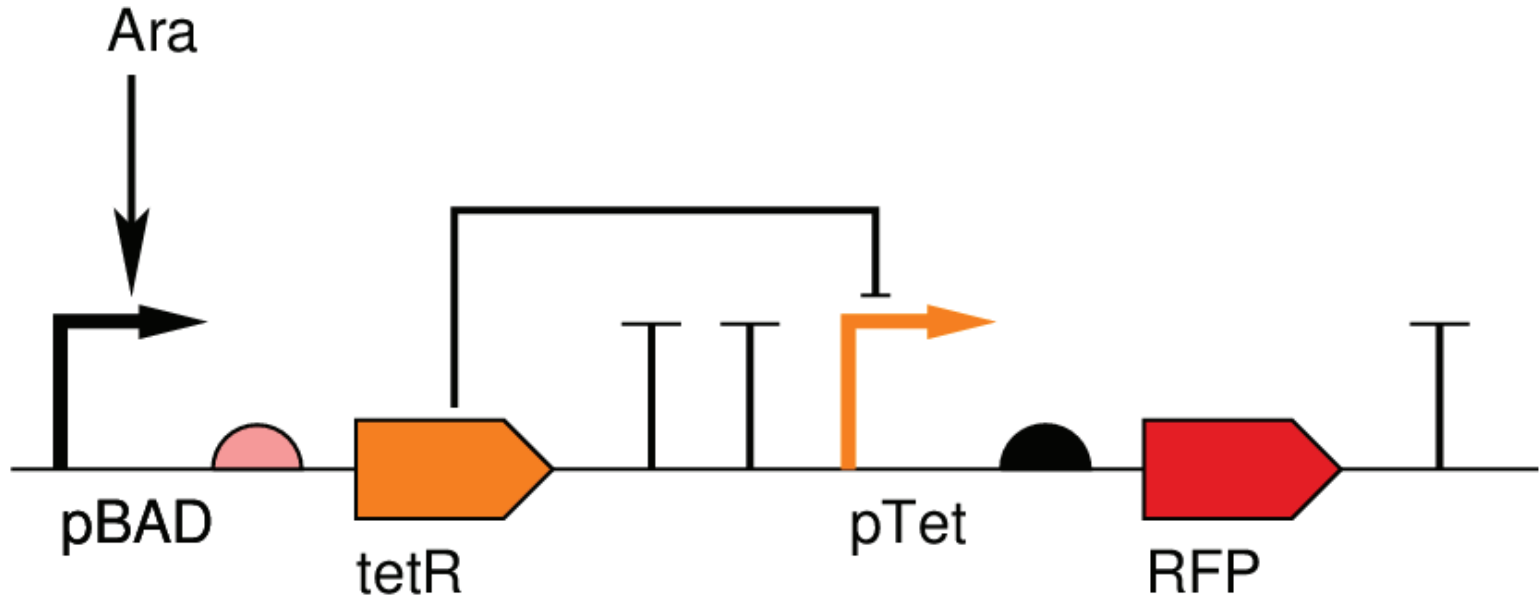
History

Step 1Step 2Step 3Step 4Step 5Step 6Step 7Step 8Step 9Step 10Step 11Step 12

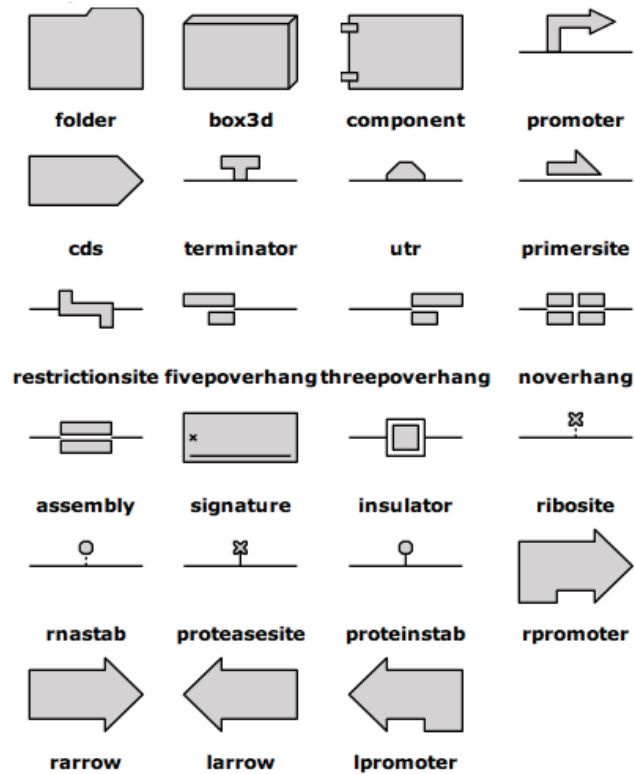
Your sequence is ready! [Download](#) [GenBank](#)

PRO	RBS	CDS	TER	PRO	RBS	CDS	TER
							
<input checked="" type="checkbox"/> a025l	<input checked="" type="checkbox"/> a025t	<input checked="" type="checkbox"/> a0262	<input checked="" type="checkbox"/> a026d	<input checked="" type="checkbox"/> a025g	<input checked="" type="checkbox"/> a025s	<input checked="" type="checkbox"/> a025z	<input checked="" type="checkbox"/> a026c

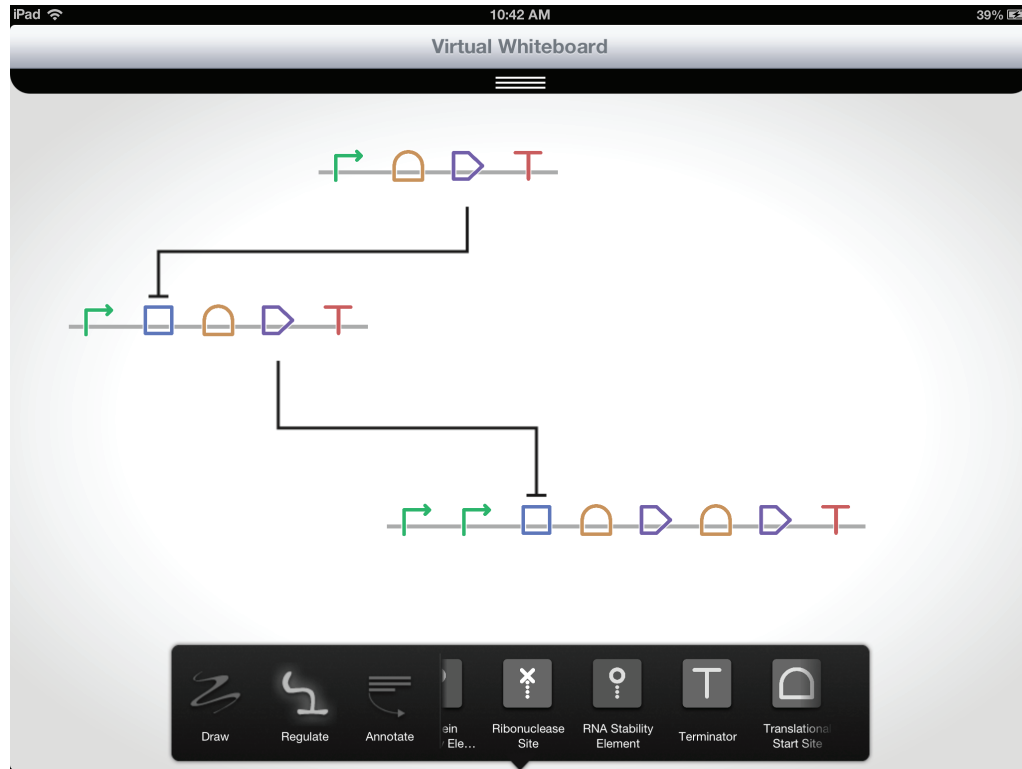
# Pigeon



# GraphViz

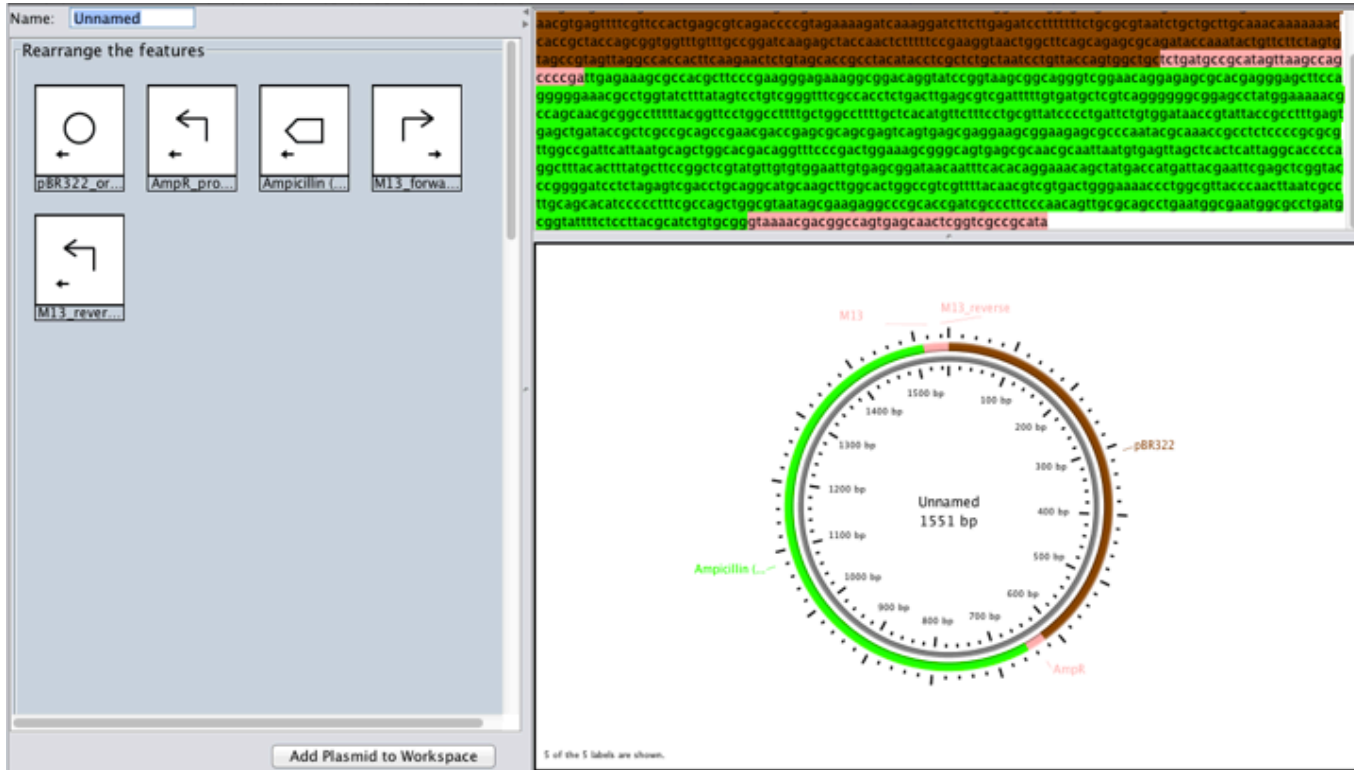


# Wetware Studio





# AutoGene



# MoClo Planner

**Level 0**

Search Promoters RBS CDS Terminators Search All

Search

Browse By Category

- ☐ forward
- ☒ bidirectional

Double terminator (B0010-B0012) Terminator (artificial) Terminator (artificial) Terminator (artificial) Terminator (artificial) Terminator (artificial) Terminator (artificial) Terminator (artificial) T1 from E. coli rmb TE from coliphage T7 TE from coliphage T7 (+/-) double terminator (B0010-B0012) Terminator (H4)

**Level 1**

Promoters RBS CDS Terminators

Promoters: rmb P1 promoter, PLI promoter from P4 phage, AraC Promoter fused with RBS, Promoter (OmpR), +OmpR, AraC Rheostat Promoter

RBS: Ribosome Binding Site Family Member

CDS: Venus YFP, sh2016 signal sequence + GFP fusion for, Fusion Protein of S-Layer SpA and mCherry, Fusion Protein of S-Layer SpA and mCherry, pA (green pigment) from Aspergillus, eyIE

Terminators: Modification of bio bricks part Bba\_B0015, double terminator (B0010-B0012), TE from coliphage T7 (+/-), T1 from E. coli rmb

**Level 2**

Level 1 Modules

Manual Automatic

Generate permutations

Promoter Ribosome Venus YFP Modification of rmb P1 Ribosome vk loxreen TE from AraC Promoter Ribosome Fusion Protein double

# Discussion

- Method for approving symbols
- Method for managing the non-SO identifiers
- Depiction of regulation
- Use cases for the DNA construction symbols
- Status of the manuscript

# Discussion

## Approving Symbols



# Approving Symbols

- Top-down vs. bottom-up
  - Both?
- Members of a version of SBOL Visual
- Associated SO terms

# Discussion

## Non-SO Identifiers



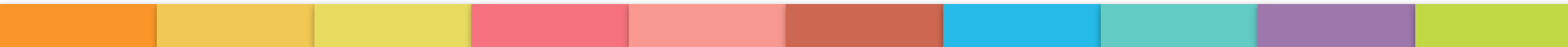
# Discussion

## Depiction of Regulation



# Discussion

## Use Cases for the DNA Construction Symbols





# Discussion

## Status of Manuscript

