E.ADEM v0.0.4.4

2009.7.18

2009.5.3

75 days

2009.7.18

103 days

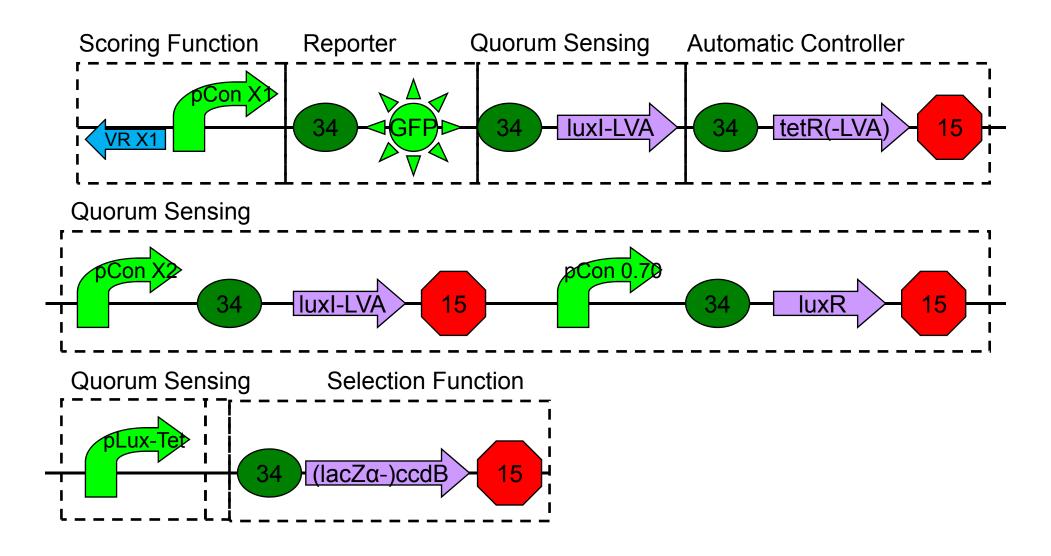
2009.10.30

Outline

- Assembly
- Measurement
 - GeneralConditions
 - -GFP
 - -AHL
 - -CcdB
 - -LacZα

- Wiki
 - Team project description
 - Notebook
- Instructional Videos

Assembly



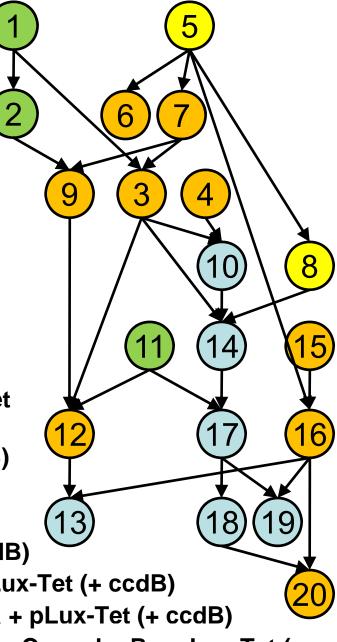
- 1. pLux-Tet
- 2. pLux-Tet + GFP
- 3. pCon + luxR + pLux-Tet
- 4. ccdB×2
- 5. $pCon \times 8$
- 6. pCon \times 8 + GFP
- 7. pCon + luxR
- 8. $pCon \times 7 + luxl$ (AHL detection by 9 or GC-MS?)
- 9. pCon + luxR + pLux-Tet + GFP (AHL)
- 10.pCon + luxR + pLux-Tet + ccdB \times 2 (AHL)
- 11.tetR×2
- 12.tetR \times 2 + pCon + luxR + pLux-Tet (+ GFP)
- 13.(VR + pCon) \times 8 + tetR \times 2 + pCon + luxR + pLux-Tet (+ GFP) (AHL/aTc)
- 14.(pCon \times 7 +) luxl + pCon + luxR + pLux-Tet (+ ccdB)
- 15. VR×8
- 16.(VR + pCon) \times 8
- 17.tetR + pCon + luxI + pCon + luxR + pLux-Tet (+ ccdB)
- 18.GFP + luxl + tetR + pCon + luxl + pCon + luxR + pLux-Tet (+ ccdB)
- 19.(VR + pCon) \times 8 + tetR + pCon + luxl + pCon + luxR + pLux-Tet (+ ccdB)
- 20.(VR + pCon)×8 + GFP + luxl + tetR + pCon + luxl + pCon + luxR + pLux-Tet (+ ccdB)

Waiting

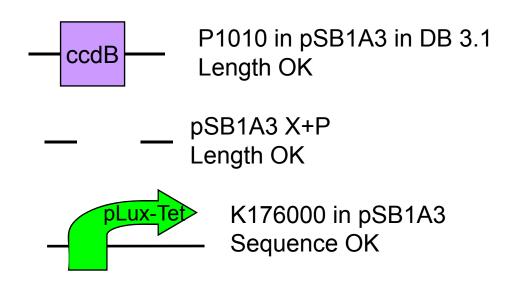
Working

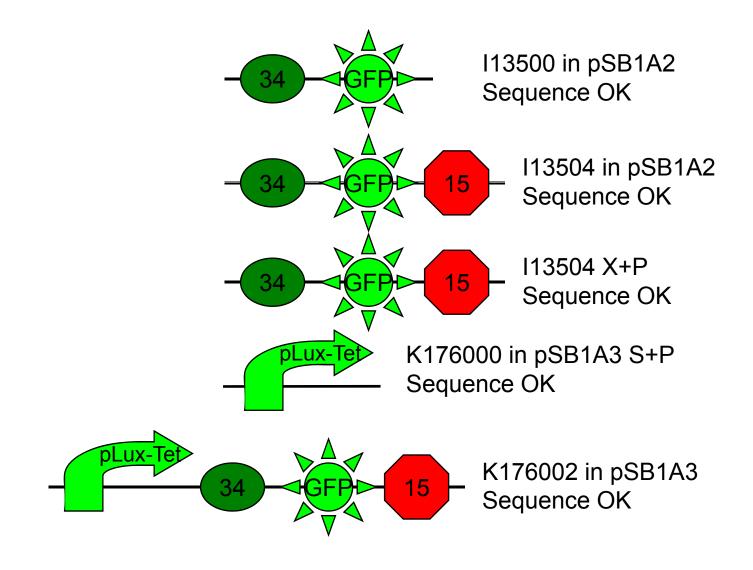
Sequenced

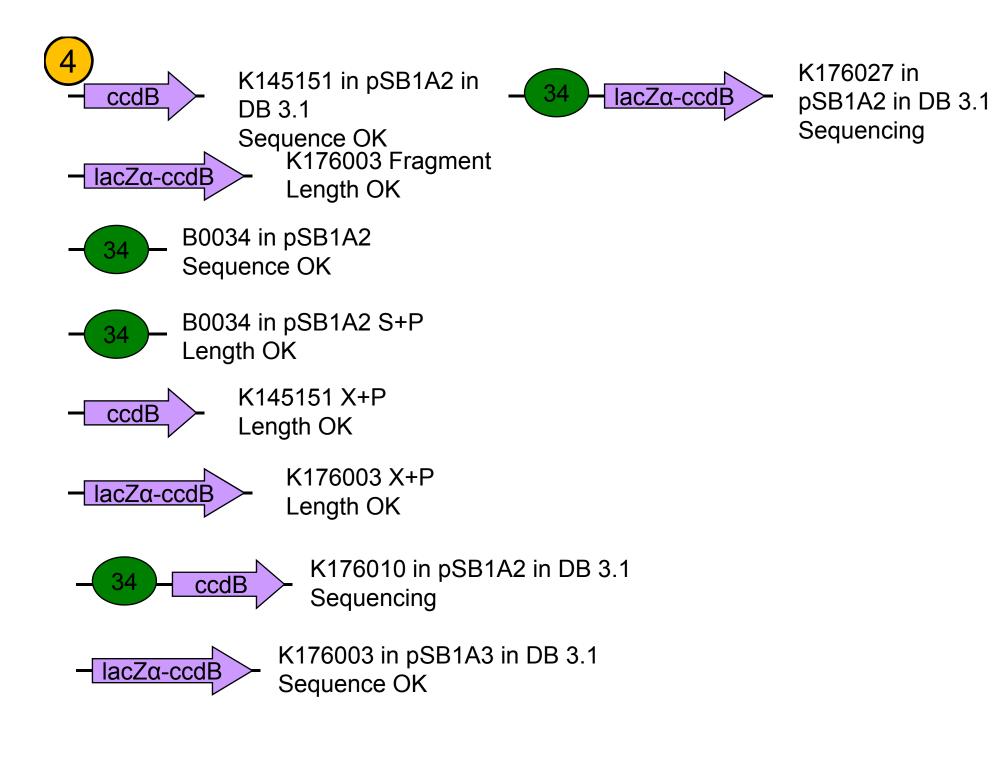
Done

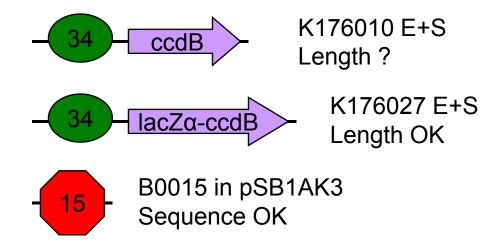


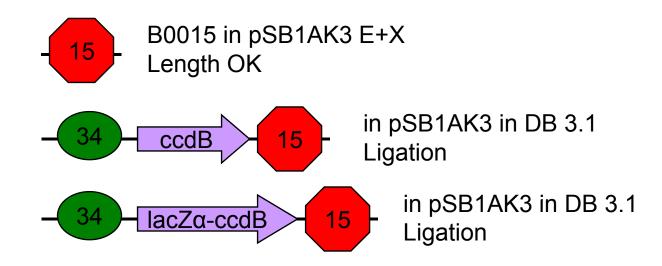




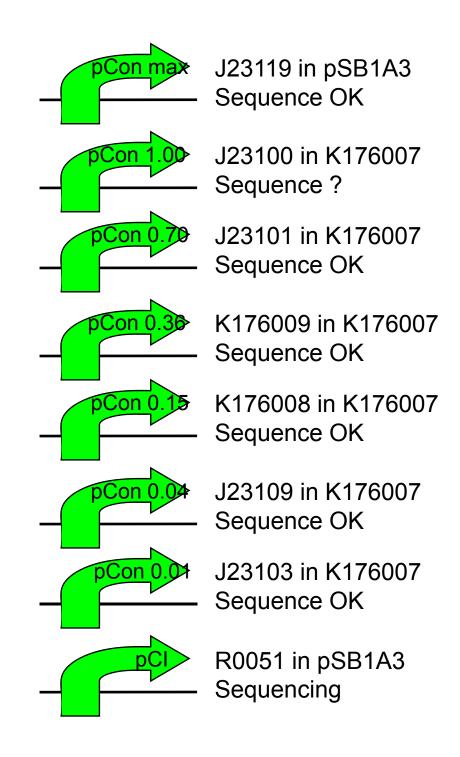


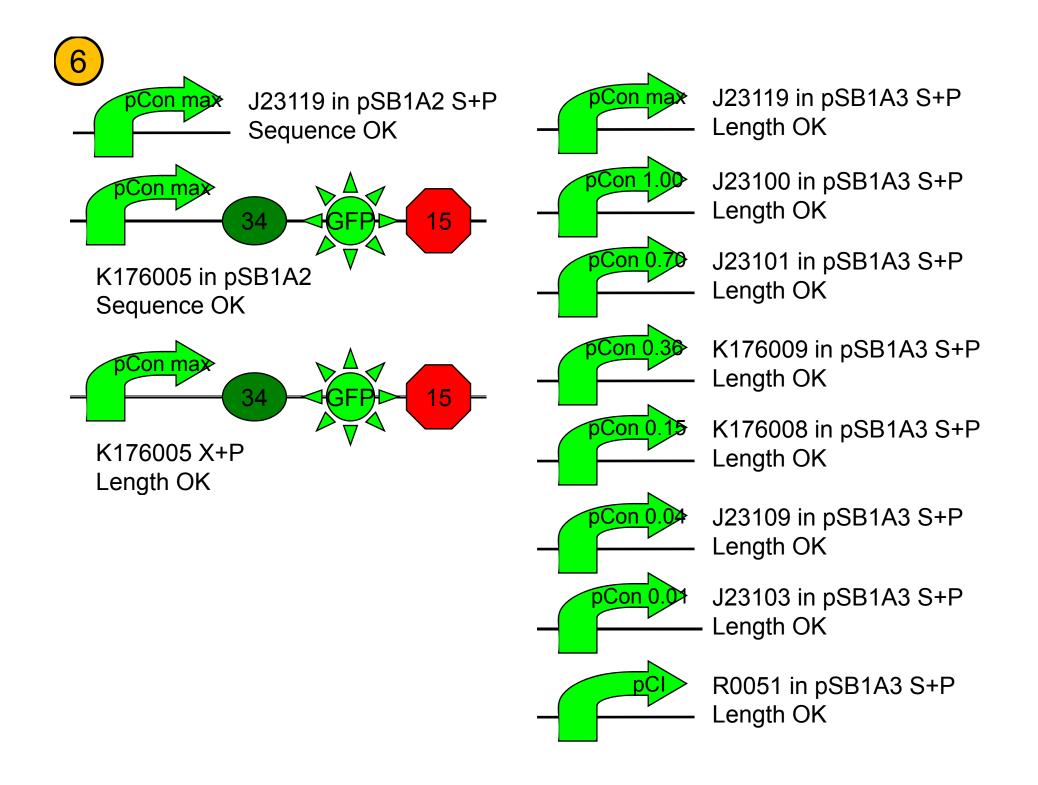


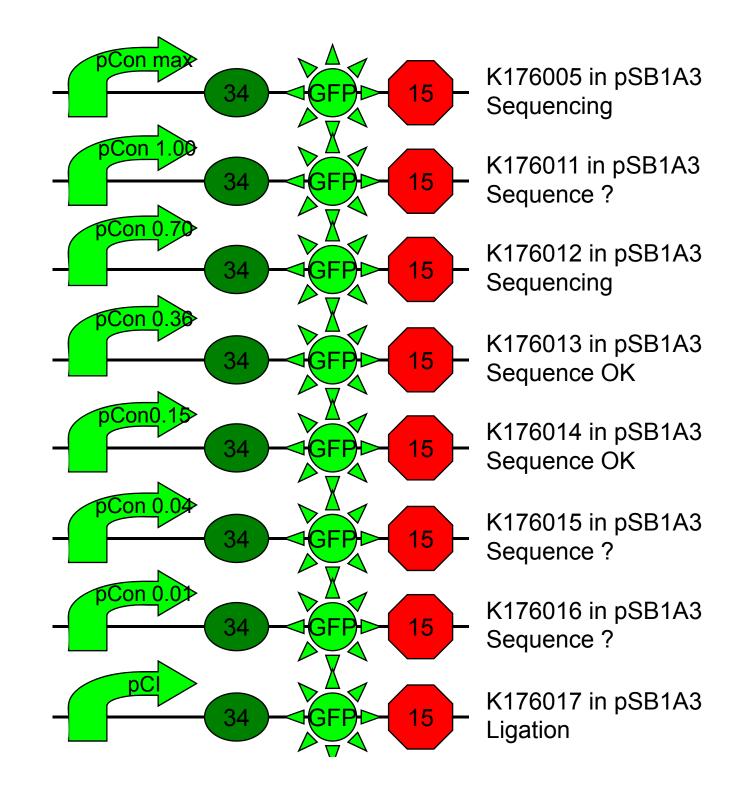


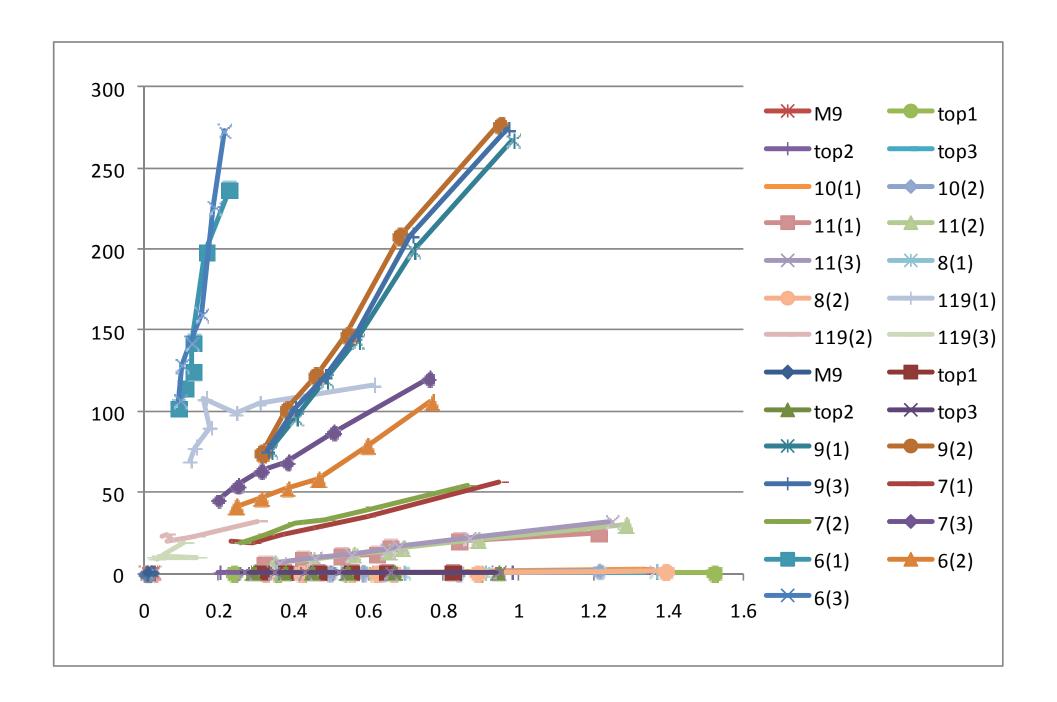


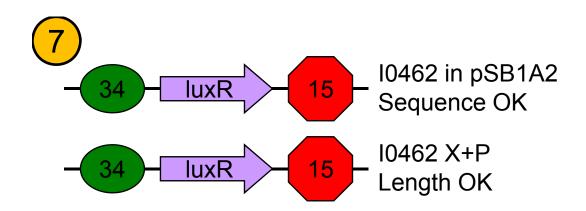


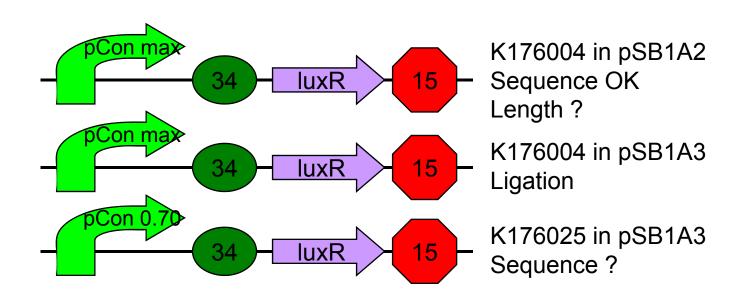


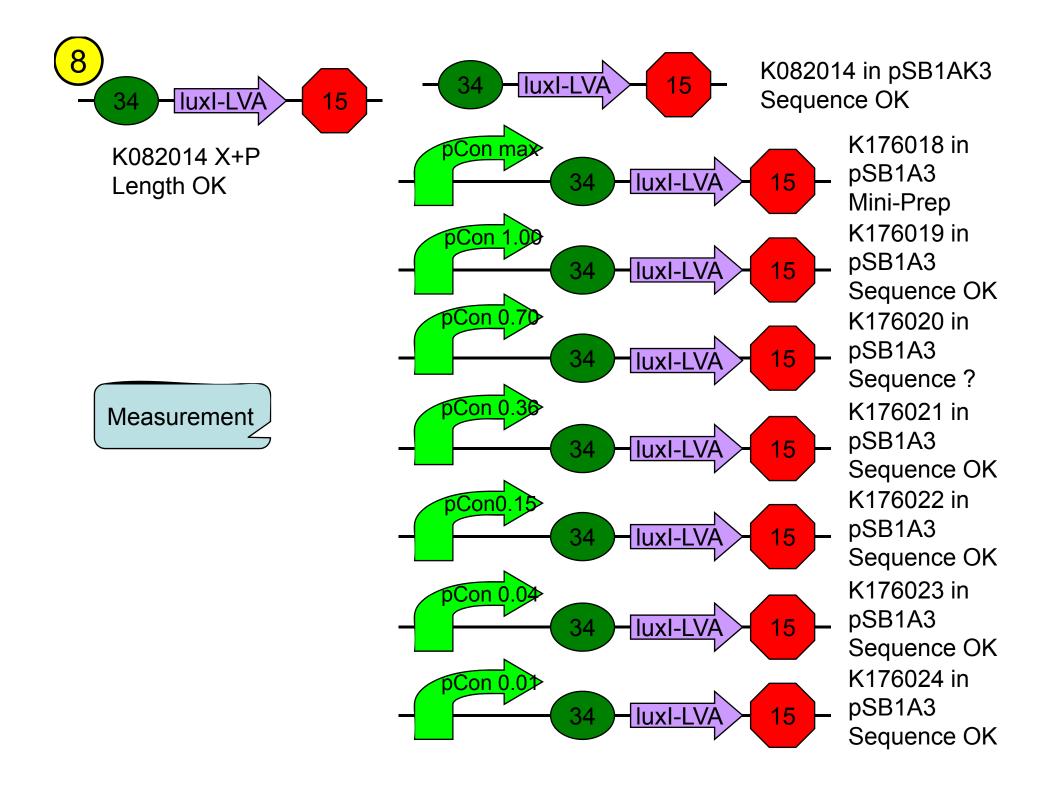




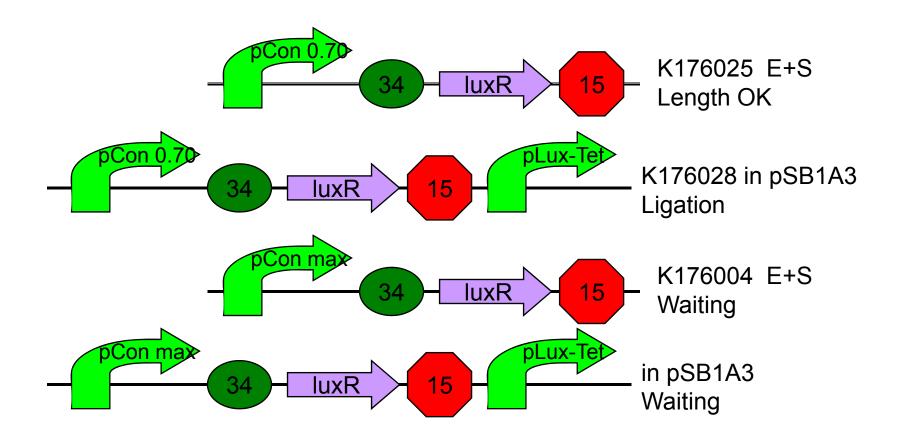


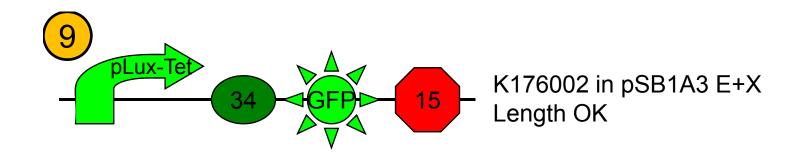


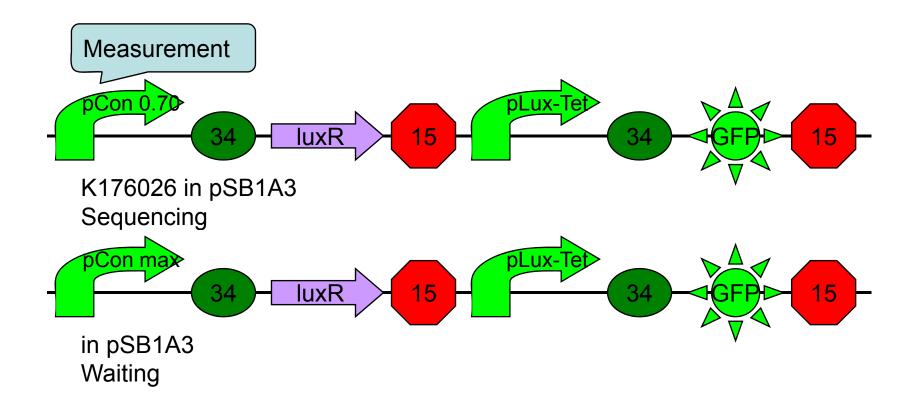


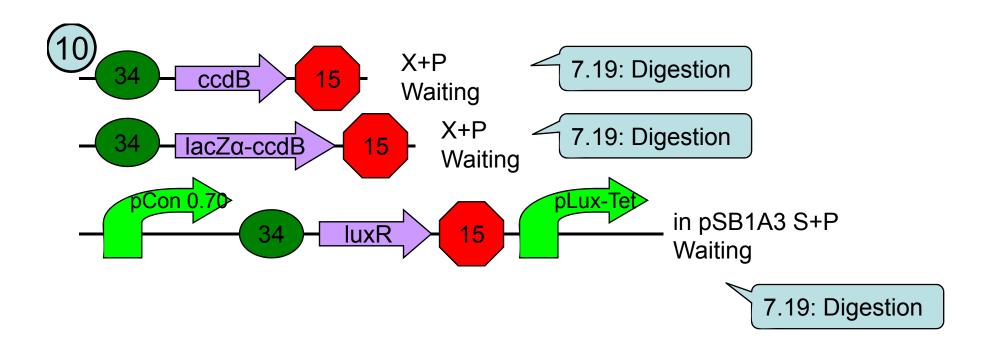


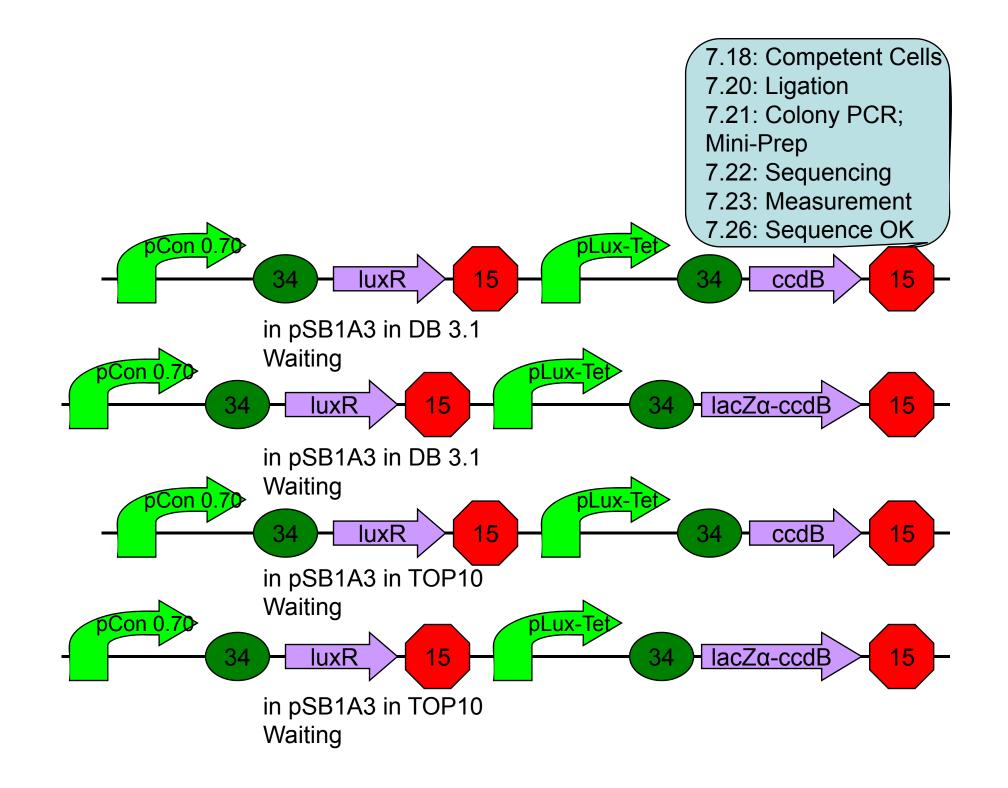


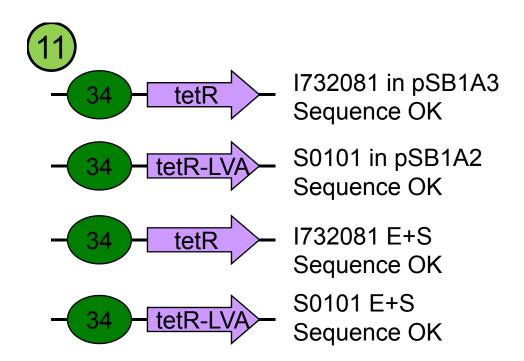


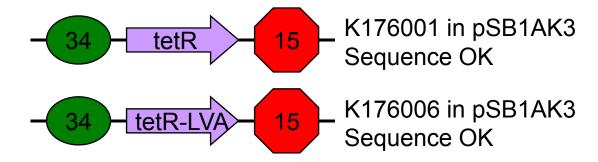


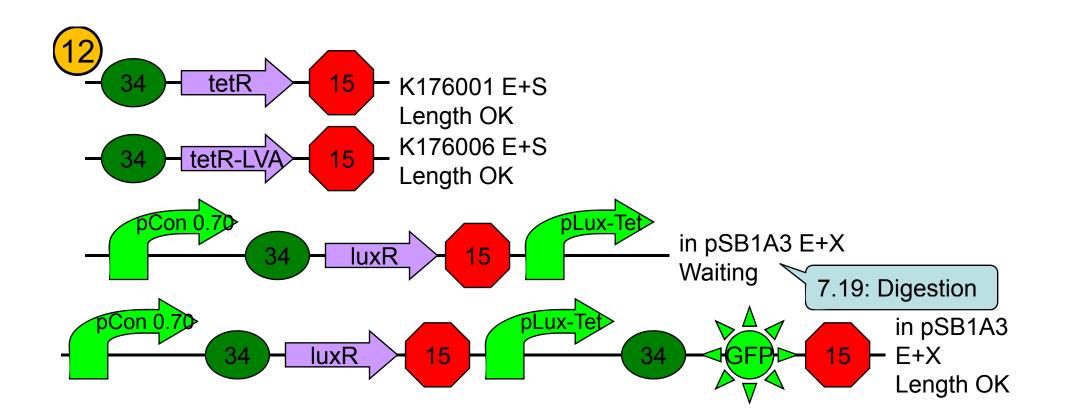


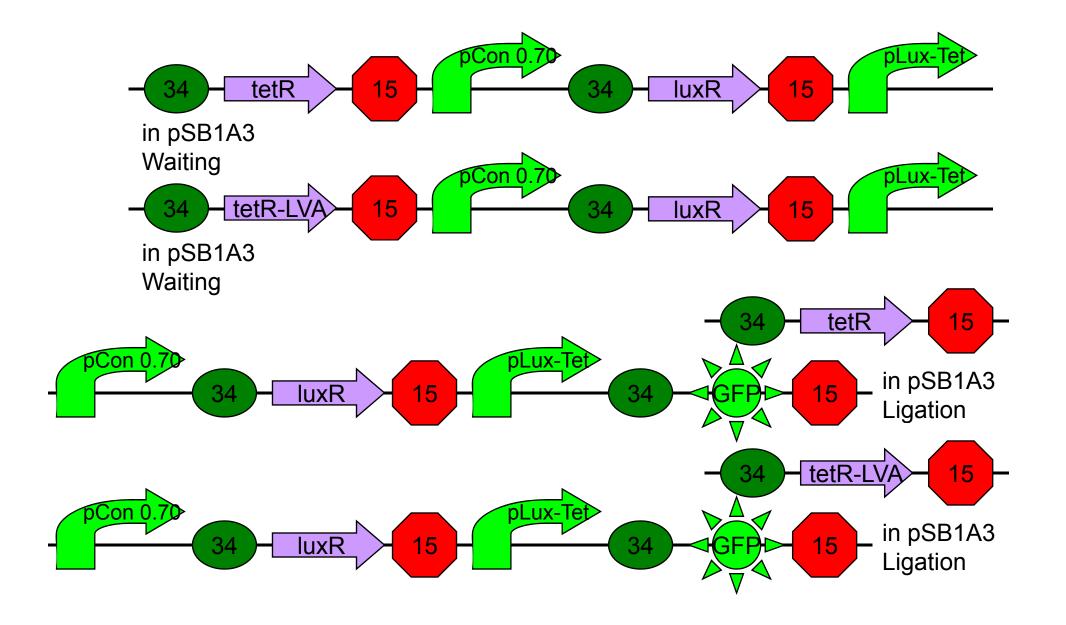


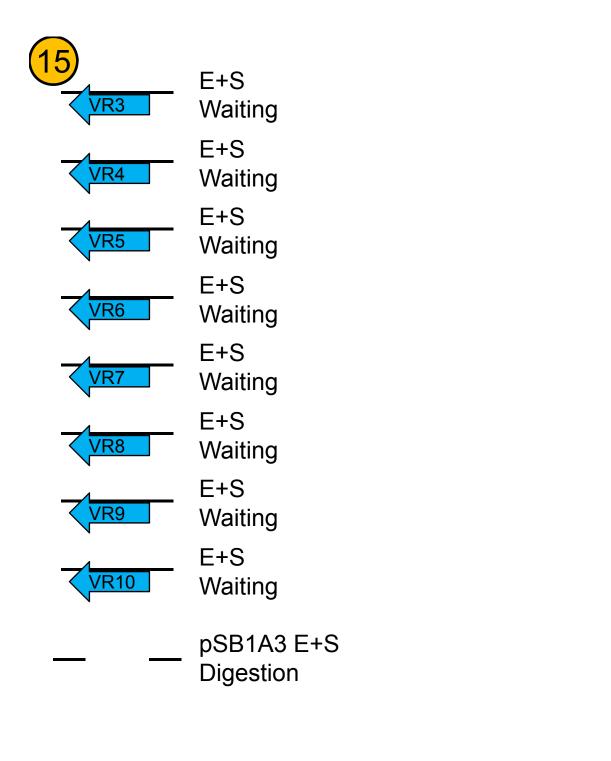


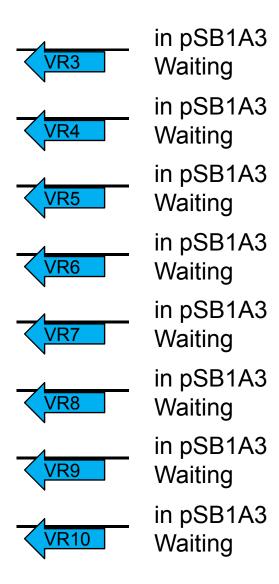


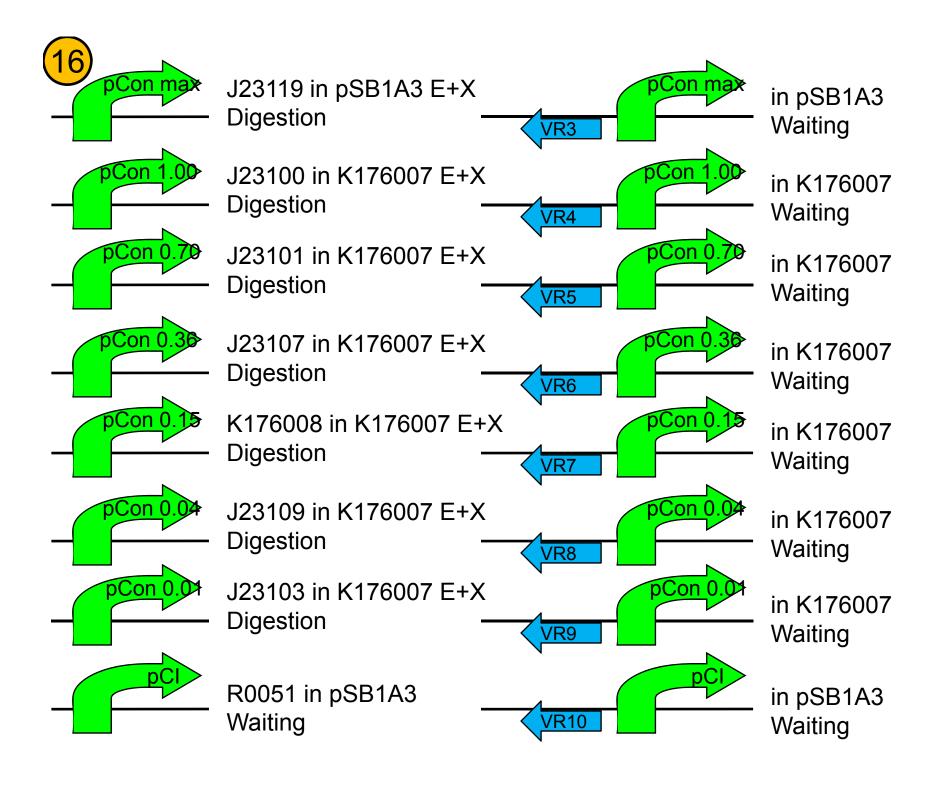












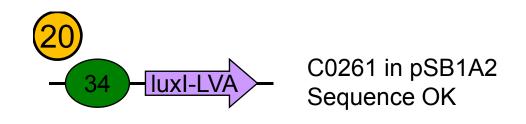












COTO ECCOTORIM TOMINT MILE

Favorite USTC 2009 iGEM Team Parts

Edit

-?-	Name	Type	Description	Designer	Length

USTC 2009 iGEM Team Parts Sandbox

Edit

- Nam	ne	Туре	Description	Designer	Length
BBa_K17	76000 F	Regulatory	pLux/Tet Hybrid Promoter: (LuxR+,TetR-)->PoPS	Danqian Liu, Chao Li, Hao Jiang	72
BBa_K17	76001	Generator	PoPS->RBS+TetR(without LVA)+T	Chao Li,Danqian Liu,Hao Jiang	782
BBa_K17	76002 F	Reporter	pLux/Tet(K176000)(LuxR+,TetR-)->RBS+GFP+T	Chao Li,Danqian Liu,Hao Jiang	955
BBa_K17	76003	Coding	lacZalpha-ccdB coding sequence	Zongxiao He, Hao Jiang	480
BBa_K17	76004	Generator	pCon max(J23119)->RBS+LuxR+T	Chao Li,Danqian Liu,Hao Jiang	979
BBa_K17	76005 F	Reporter	pCon max(J23119)->RBS+GFP+T	Chao Li,Danqian Liu,Hao Jiang	918
BBa_K17	76006	Generator	PoPS->RBS+TetR(with LVA)+T	Chao Li,Danqian Liu,Hao Jiang	840
N BBa_K17	76007 F	Plasmid_Backbone	pSB1A3 with the suffix of J61002 (mRFP)	Hao Jiang, Danqian Liu, Chao Li	3026
BBa_K17	76008 F	Regulatory	constitutive promoter family member J23115 actual sequence	Hao Jiang, Danqian Liu, Chao Li	35
BBa_K17	76009 F	Regulatory	constitutive promoter family member J23107 actual sequence	Hao Jiang, Danqian Liu, Chao Li	35
BBa_K17	76010	Translational_Unit	PoPS->RBS+ccdB->PoPS	Zongxiao He, Hao Jiang	324
BBa_K17	76011 F	Reporter	pCon 1.00(J23100)->RBS+GFP+T	Chao Li, Danqian Liu, Hao Jiang	918
BBa_K17	76012 F	Reporter	pCon 0.70(J23101)->RBS+GFP+T	Chao Li, Danqian Liu, Hao Jiang	918
BBa_K17	76013 F	Reporter	pCon 0.36(K176009)->RBS+GFP+T	Chao Li, Danqian Liu, Hao Jiang	918
BBa_K17	76014 F	Reporter	pCon 0.15(K176008)->RBS+GFP+T	Chao Li, Danqian Liu, Hao Jiang	918
BBa_K17	76015 F	Reporter	pCon 0.04(J23109)->RBS+GFP+T	Chao Li, Danqian Liu, Hao Jiang	918
BBa_K17	76016 F	Reporter	pCon 0.01(J23103)->RBS+GFP+T	Chao Li, Danqian Liu, Hao Jiang	918
BBa_K17	76017 F	Reporter	pCl(R0051)(lambda Cl-)->RBS+GFP+T	Chao Li, Danqian Liu, Hao Jiang	932
BBa_K17	76018	Signalling	pCon max(J23119)->RBS+LuxI-LVA+T	Danqian Liu, Chao Li, Hao Jiang	841
BBa_K17	76019	Signalling	pCon 1.00(J23100)->RBS+LuxI-LVA+T	Danqian Liu, Chao Li, Hao Jiang	841
BBa_K17	76020	Signalling	pCon 0.70(J23101)->RBS+LuxI-LVA+T	Danqian Liu, Chao Li, Hao Jiang	841
BBa_K17	76021	Signalling	pCon 0.36(K176009)->RBS+LuxI-LVA+T	Danqian Liu, Chao Li, Hao Jiang	841
BBa_K17	76022	Signalling	pCon 0.15(K176008)->RBS+LuxI-LVA+T	Danqian Liu, Chao Li, Hao Jiang	841
BBa_K17	76023	Signalling	pCon 0.04(J23109)->RBS+LuxI-LVA+T	Danqian Liu, Chao Li, Hao Jiang	841
BBa_K17	76024	Signalling	pCon 0.01(J23103)->RBS+LuxI-LVA+T	Danqian Liu, Chao Li, Hao Jiang	841

Measurement

- General
 Conditions
 - -Medium
 - LB
 - M9
 - Minimal
 - Supplemented
 - EZ Rich Define
 - pH-buffered TBK
 - pH-buffered LBK

- Temperature
 - 37°C
 - 30°C
 - 34°C
- Pre-warm
- -Shake
- Dilution
- Wash

http://openwetware.org/wiki/M9_medium/http://openwetware.org/wiki/M9_medium/minimal

http://openwetware.org/wiki/M9_medium/supplemented

http://openwetware.org/wiki/Neidhardt_EZ_Rich_Defined

http://www.genome.wisc.edu/resources/protocols/ezmedium.htm

GFP (PoPS)

- Fluorospectrophotometer
- Plate Reader
- Flow Cytometer (FACS)
- Blotting
 - Northern
 - Western
- Realtime RT-PCR

- http://partsregistry.org/Measurement
- http://openwetware.org/wiki/The_BioBricks_ Foundation:Standards/Technical/Measur_ ement
- Engineering the interface between cellular chassis (Barry Canton PhD thesis)
- Applying engineering principles to the design and construction of transcriptional devices (Reshma P. Shetty PhD thesis)

STEP1: Streak 3 plates



A: TOP10 B: BBa_I20260 C: Your promoter!



STEP 2: Pick 3 colonies from each plate to start overnight cultures in Supplemented M9 Media at 37 C (9 tubes)





37C



10

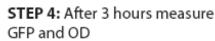
1.8 1.6 1.6 1.4 1.2 1.2 1.0 0.8 0.6 0.6 0.4 0.2 0.0 J23113 J23116 J23150 J23151 J23102 R0040 R0011

Standard Promoter Units

STEP 3: Dilute 1/100 into fresh, pre-warmed media incubate at 37C (9 tubes)



Your Promoter









STEP 5: After another half hour measure GFP and OD again





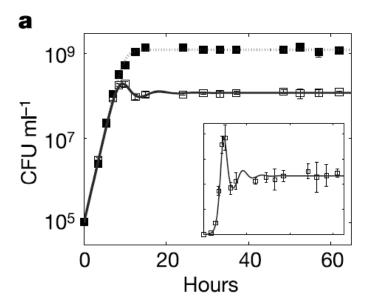
2006 Berkeley **J23100~J23119** Reported activities of the promoters are given as the relative fluorescence of these plasmids in strain TG1 grown in LB media to **saturation**. See part J61002 for details on their use.

AHL

- Rapid Screening of Quorum-Sensing Signal N-Acyl Homoserine Lactones by an In Vitro Cell-Free Assay
- Detection of N-acylhomoserine lactones in lung tissues of mice infected with Pseudomonas aeruginosa
- Detecting and characterizing N-acyl-homoserine lactone signal molecules by thin-layer chromatography
- Detection of N-acyl homoserine lactones using a tral-luxCDABEbased biosensor as a high-throughput screening tool
- On-line high-performance liquid chromatography-mass spectrometric detection and quantification of N-acylhomoserine lactones, quorum sensing signal molecules, in the presence of biological matrices
- Detection of quorum-sensing N-acyl homoserine lactone signal molecules by bacterial biosensors

CcdB & LacZa

- Programmed population control by cell cell communication and regulated killing
- A synthetic Escherichia coli predator
 –prey ecosystem
- LacZα
 - X-gal
 - ONPG
 - http://parts.mit.edu/igem07/index.php/USTC/BetaG alactosidaseAssay



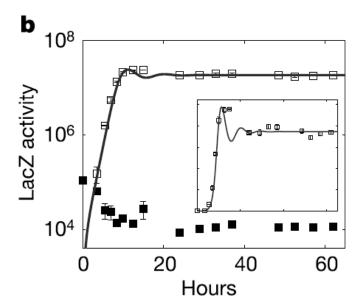


Figure S2:

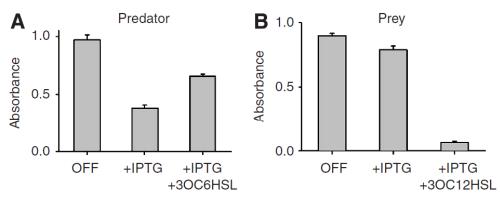
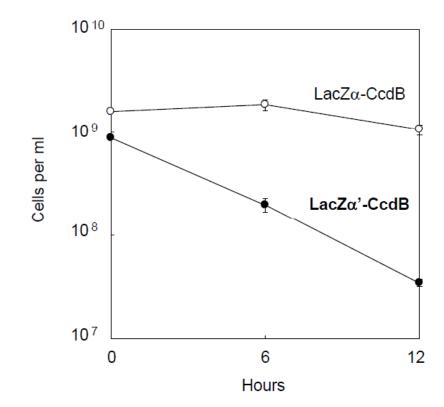


Figure 1 Individual growth behaviors (without interactions) of ($\bf A$) predator and ($\bf B$) prey cells in liquid media. For each condition, 6 ml LBK medium containing chloramphenicol and kanamycin was inoculated with a single bacterial colony and was divided into three 2 ml cultures: 'OFF' cultures contained no inducers, '+IPTG' cultures contained 1 mM IPTG and '+IPTG + AHL' contained 1 mM IPTG and 100 nM AHL, respectively. After 20 h of incubation (light gray bars), optical densities (ODs) of these cultures were measured with a microplate reader (see Supplementary information). Error bars represent standard deviation of triplicate cultures.



Wiki

- Team project description
- Notebook
 - Meetings
 - Lab Work
 - Sample Naming Sheets
- Other
 - Team
 - Project
 - Parts
 - Modeling
 - Human Practice

Calendar of Events

31 March

IGEM 2009 Calendar of Events

Note: Dates in grey have not been finalized yet. Make sure to check the calendar periodically for any changes!

19 February IGEM 2009 registration opens

IGEM 2008 registration closes; Team registration fee due

13 May DNA Distribution sent to teams (target deadline; subject to change)

16/17 May iGEM Workshop, MIT, USA

1 June Visa invitation letter requests due

20/21 June iGEM Workshop, Europe

27/28 June iGEM Workshop, Asia

15 June Preliminary team rosters due

1 August Team project descriptions due

TBD Jamboree attendance fee due

TBD Request for variance due (notice and description of any use of non-standard parts or devices schemes due

Track selection due

Project abstracts due

TBD Team rosters due

TBD Project and part documentation due, including documentation for all medal criteria

BioBrick Part DNA needs to be received by the Registry

30 Oct - 2 Nov iGEM Competition Jamboree, MIT, USA

Home Team Project Parts Modeling Human Practice Notebook

Team: USTC/Notebook

Contents [hide]

- 1 Team: USTC/Notebook
 - 1.1 Meetings
 - 1.2 Brainstorming
 - 1.3 Lab Work
 - 1.4 Sample Naming Sheets

Meetings

All the reports information, slides and audio records of our meetings are arranged here.

December January	February March	April	May							
M T W T F S S M T W T F S S	M T W T F S S M T W T F S S	MTWTFSS	MTWTFSS							
1 2 3 4 5 6 7 1 2 3 4	1 1	1 2 3 4 5	1 2 3							
8 9 10 11 12 13 14 5 6 7 8 9 10 11	2 3 4 5 6 7 8 2 3 4 5 6 7 8	6 7 8 9 10 11 12	4 5 6 7 8 9 10							
15 16 17 18 19 20 21 12 13 14 15 16 17 18	9 10 11 12 13 14 15 9 10 11 12 13 14 15	13 14 15 16 17 18 19	11 12 13 14 15 16 17							
22 23 24 25 26 27 28 19 20 21 22 23 24 25	16 17 18 19 20 21 22 16 17 18 19 20 21 22	20 21 22 23 24 25 26	18 19 20 21 22 23 24							
29 30 31 26 27 28 29 30 31	23 24 25 26 27 28 23 24 25 26 27 28 29	27 28 29 30	25 26 27 28 29 30 31							
	30 31									
June July	August September	October								
M T W T F S S M T W T F S S	M T W T F S S M T W T F S S	MTWTFSS								
1 2 3 4 5 6 7 1 2 3 4 5	1 2 1 2 3 4 5 6	1 2 3 4								
8 9 10 11 12 13 14 6 7 8 9 10 11 12	3 4 5 6 7 8 9 7 8 9 10 11 12 13	5 6 7 8 9 10 11								
15 16 17 18 19 20 21 13 14 15 16 17 18 19	10 11 12 13 14 15 16 14 15 16 17 18 19 20	12 13 14 15 16 17 18								
22 23 24 25 26 27 28 20 21 22 23 24 25 26	17 18 19 20 21 22 23 21 22 23 24 25 26 27	19 20 21 22 23 24 25								
29 30 27 28 29 30 31	24 25 26 27 28 29 30 28 29 30	26 27 28 29 30 31								
	31									

															30 31																						
			J	un	e					,	July	/					Αι	ıgı	st					Sep	ote	m	be	r				Oc	to	be	er		
N	Λ	Т	W	Т	F	S	S	М	т	W	Т	F	S	S	М	т	W	т	F	s	S	M	Т	W	1	Γ	F	S	S	M	Т	W	Т	F	•	S	S
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	8	9	10	11	12	13	14	6	7	8	9	10	11	12	3	4	5	6	7	8	9	7	8	9	1	0 1	11	12	13	5	6	7	8		9 1	10	11
1	5 '	16	17	18	19	20	21	13	14	15	16	17	18	19	10	11	12	13	14	15	16	14	15	16	1	7 1	18	19	20	12	13	14	15	1	6 1	17	18
2	2 2	23	24	25	26	27	28	20	21	22	23	24	25	26	17	18	19	20	21	22	23	21	22	23	2	4 2	25	26	27	19	20	21	22	2	3 2	24	25
2	9 3	30						27	28	29	30	31			24	25	26	27	28	29	30	28	29	30)					26	27	28	29	3	0 3	31	
															31																						

Brainstorming

- **2009-02-10**
- **2009-03-07**
- **2009-03-22**
- **2009-03-30**

Lab Work

We chose to use iPad as our Electronic Lab Notebook. iPad is recommended on OWW [1].

Our work progress is also updated here.

May										J	lun	e			July									Αι	ıgu	st			September								October						
ı	VI	т	W	т	F	s	s	M	т	W	Т	F	s	s	M	т	w	т	F	s	s	М	Т	w	т	F	s	s	M	т	w	т	F	s	s	М	т	W	т	F	s	s	
					1	2	3	1	2	3	4	5	6	7			1	2	3	4	5						1	2		1	2	3	4	5	6				1	2	3	4	
	4	5	6	7	8	9	10	8	9	10	11	12	13	14	6	7	8	9	10	11	12	3	4	5	6	7	8	9	7	8	9	10	11	12	13	5	6	7	8	9	10	11	
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1	25	26	27	28	29	30	31	29	30						27	28	29	30	31			24	25	26	27	28	29	30	28	29	30					26	27	28	29	30	31		
																						31																					

Sample Naming Sheets

We chose to use this wiki page to manage samples. The names are generated with a program written by Jian Zhan.





Instructional Videos

Workshop videos: Videos from the iGEM 2009 spring workshop @ MIT are available below for streaming and download, and higher quality downloads will follow shortly. You can also visit our iGEM channel @ blip.tv.

Welcome to IGEM



A short welcome and introduction to iGEM by Randy Rettberg

Navigating the Registry



Reshma and Randy discuss navigating through partsregistry.org

Introduction to Synthetic Biology



Tom Knight gives an introduction to parts based synthetic biology

Project Ideas



Reshma Shetty gives suggestions on how teams may want to come up with project ideas

Changes for iGEM 2009



Randy Rettberg discusses the changes that have taken place for iGEM 2009, the requirements for the teams, and judging the competition

Standard Assembly



Reshma Shetty shows how parts on the registry are designed for standard assembly

Promoters



Barry Canton discusses the promoter category of parts in the registry

Making and Adding Parts



Reshma and Meagan show how to make and add parts to the registry

Devices



Barry Canton discusses devices in the registry

Favorites and Shipping Parts



Meagan Lizarazo shows how to make your parts "Favorites" and ship them



Measurements



Barry Canton discusses the importance of measuring and documenting the parts on the registry

Software Tools Track



Randy Rettberg discusses the software track for iGEM participants, as well as how software tools are integrated into the registry

Drew Endy: Defining Synthetic Biology



"Make it easier to build things. Define the things you are building with by using standards. Hide biological complexity with abstraction."

Drew Endy: Believe in Synthetic Biology



"Why should you consider changing how you engineer biological systems from doing ad-hoc research to something that's a more scalable engineering framework?"

Drew Endy: What is a Standard Biological Part?



"What does it mean to have a Standard Biological Part - for example, a BioBrick-standard



using the registry

2009 Distribution, QC, and Sequencing



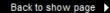
Paul and Vinoo discuss an overview of the creation of the 2009 distribution and the quality control process. Randy discusses the sequencing tools on the registry.

Safety in iGEM



"What safety precautions should my team be taking while participating in iGEM? Why is this important?"

Episodes Archive







iGEM 2009 Spring Workshop: MIT Tom's talk on parts based synthetic biology



iGEM 2009 Spring Workshop: MIT Randy's Welcome Speech



Safety in iGEM



Jam07 - Beginnings and Beyond



Jam07 - From Challenge to Triumph



Interview with Alja Oblak from the iGEM06 Ljubljana Team



Brown iGEM07 Team -Introduction to iGEM



Jam07 - What can synthetic biology do for you?



Jam07 - Calgary - "Developing A Genetic Printer"



Jam07 - Caltech - "Selection for Infection"



iGEM 2007 Jamboree Good Times



iGEM 2007 Jamboree Dance Off



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9

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Tutorial 4.2 - Entering Part Sequence and Features



Tutorial 4.1 - Adding and documenting a basic part



Endy: What is a Standard Biological Part



Endy: Defining Synthetic



Biology





3

It's official.

We have enough stuff now.

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