

# M2D2: Measuring System Performance

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10/16/12

# Lab Announcements

1. Journal Club slides due at **Midnight** on Thursday.
2. Sign up for a ~~time~~<sup>day</sup> slot for presentation

## Day sign-up

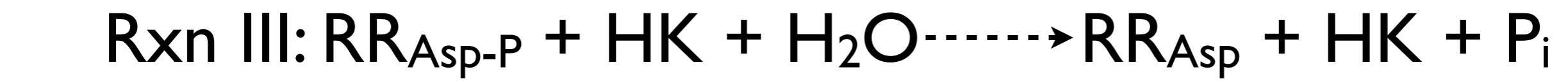
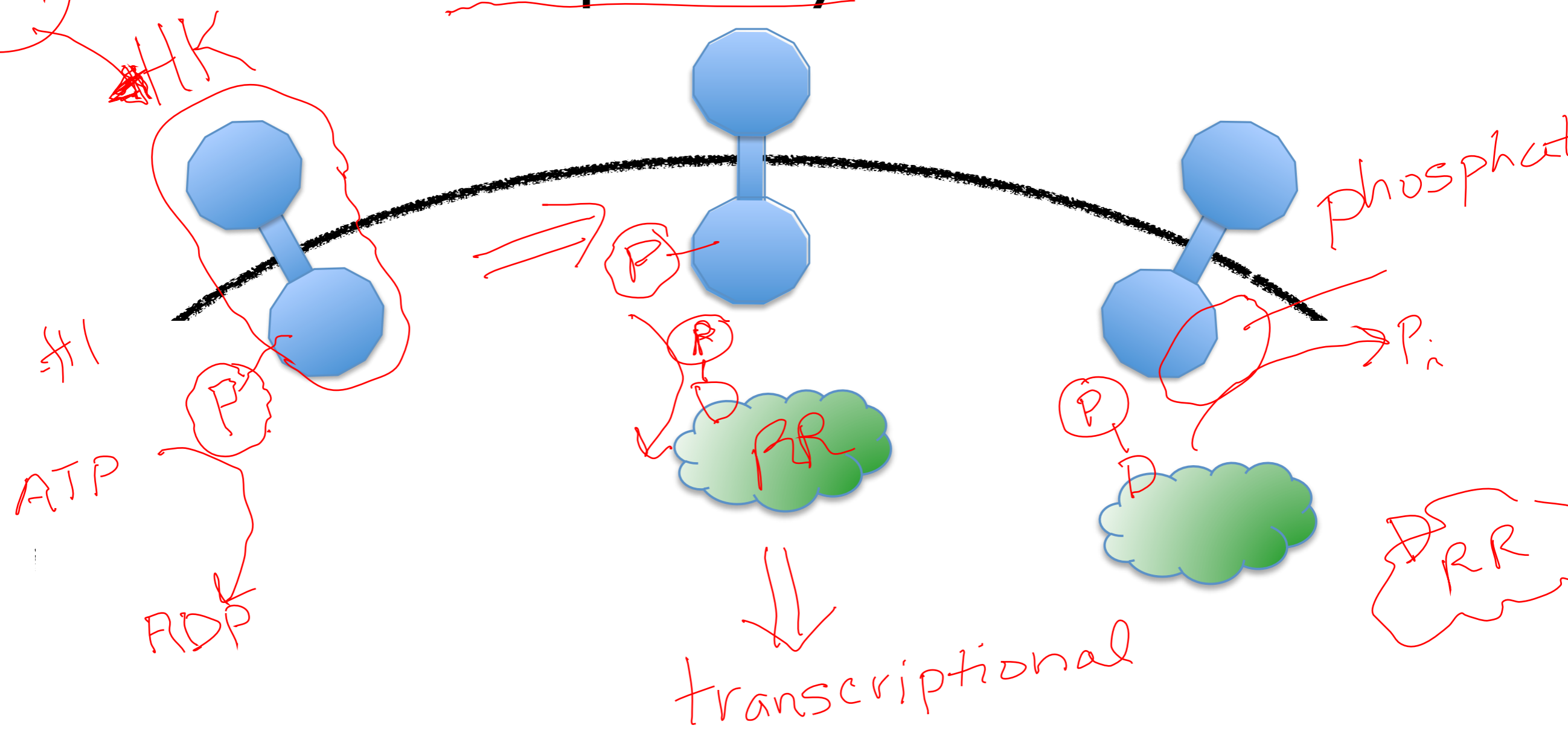
[\[edit\]](#)

Please put your name under the day you wish to present. There are 7-8 slots on each day, depending on lab section. Slot location does not determine speaker order.

Slot	Day 4 (T/R)	Day 8 (T/R)	Day 4 (W/F)	Day 8 (W/F)
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# Phosphorelay Toolkit

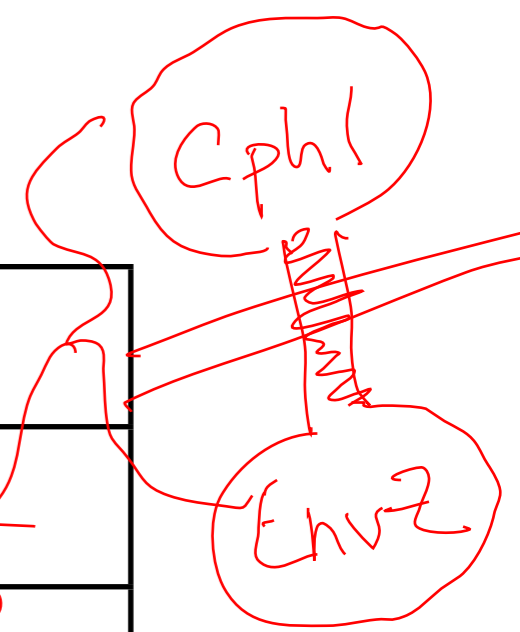
S R O



# Bacterial Photography Review:

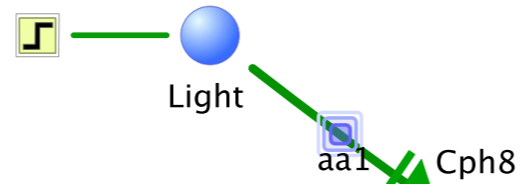
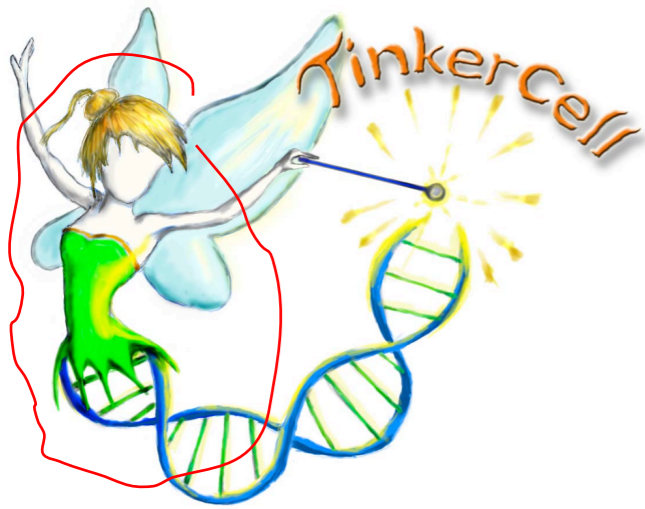


	“Wild Type”	20.109
Sensor / Histidine Kinase	EnvZ	Cph8
Responder / Response Regulator	OmpR	OmpR

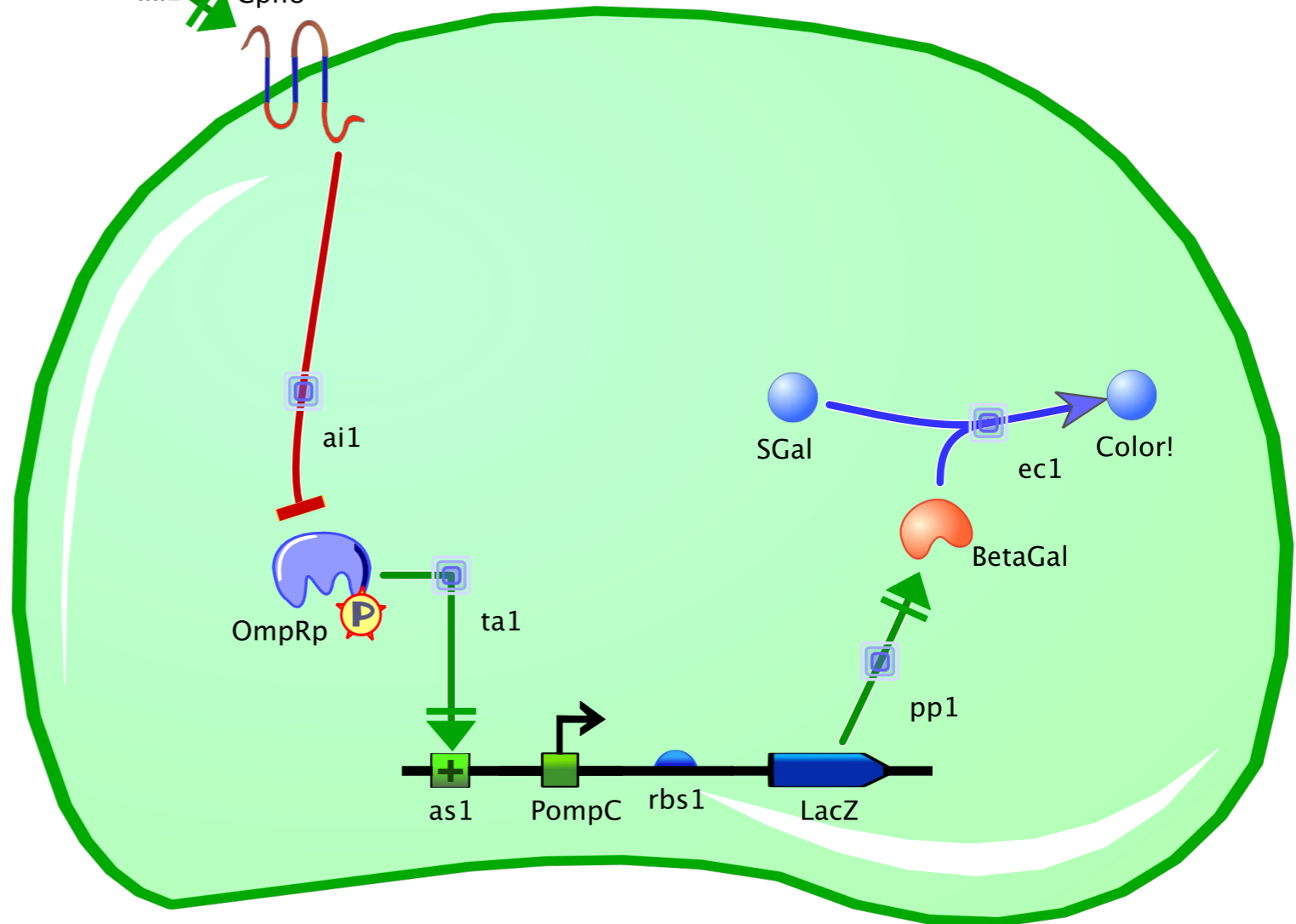


# Bacterial Photography Pathway:

Deterministic



[www.tinkercell.com](http://www.tinkercell.com)



Shannon's e.coli

Our goal: Increase the dynamic range of the system

# $\beta$ -Gal Activity in our Engineered Bacteria:

## $\beta$ -Gal “Miller” Assay:

1. Measure [cell] *→ Abs600*
2. Lyse cells *→ chloroform*
3. Start Reaction *→ ONPG*
4. Stop Reaction *→ NaCO<sub>3</sub>*
5. Get rid of debris *→ centrifuge Abs550*
6. Measure yellow product *→ Abs420*
7. Calculate activity

$$\text{1 Miller Unit} = 1000 * \frac{(\text{Abs420} - (1.75 * \text{Abs550}))}{(t * v * \text{Abs600})}$$

# Plans for today:

1. Lab



2. Measure & observe the “baseline” system performance.

3. Take your own picture of Butterstick!

4. Determine how to ‘virtually’ improve the system.

5. 4pm -- Atissa is here to talk about oral presentation skills.

6. Ask ??s -- engage, shout out, inquire