

# BBa\_F2620

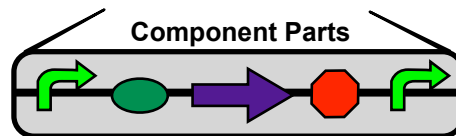
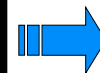
3OC<sub>6</sub>HSL → PoPS Receiver

## Mechanism & Function

A transcription factor (LuxR) that is active in the presence of a cell-cell signaling molecule (3OC<sub>6</sub>HSL) is controlled by a regulated operator (P<sub>LtetO-1</sub>). Device input is 3OC<sub>6</sub>HSL. Device output is PoPS from a LuxR-regulated operator. If used in a cell containing TetR then a second input such as aTc can be used to produce a Boolean AND function.

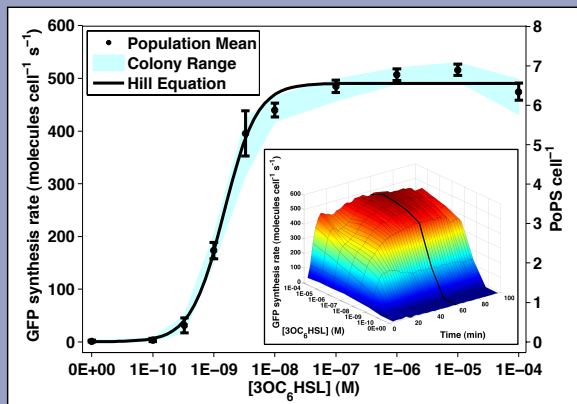


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R0040 B0034 C0062 B0015 R0062  
P<sub>LtetO-1</sub> RBS luxR Term. P<sub>luxR</sub>

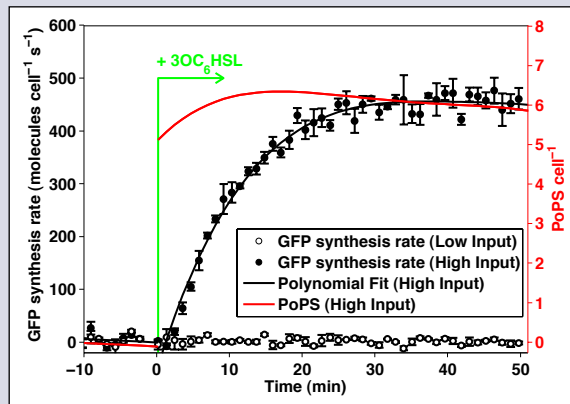
## Static Performance\*



$$P_{out} = \frac{P_{max} [3OC_6HSL]^n}{K^n + [3OC_6HSL]^n}$$

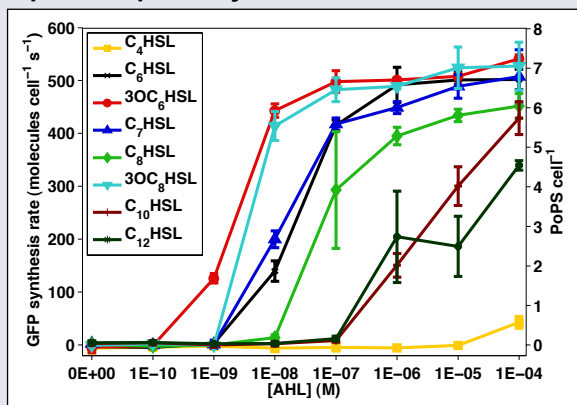
$P_{max}$ : 6.6 PoPS cell<sup>-1</sup>  
 $K$ : 1.5E-09 M 3OC<sub>6</sub>HSL  
 $n$ : 1.6

## Dynamic Performance\*



BBa\_F2620 Response Time: <1 min  
 BBa\_T9002 Response Time: 6±1 min  
 Inputs: 0 M (Low), 1E-07 M (High) 3OC<sub>6</sub>HSL

## Input Compatibility\*



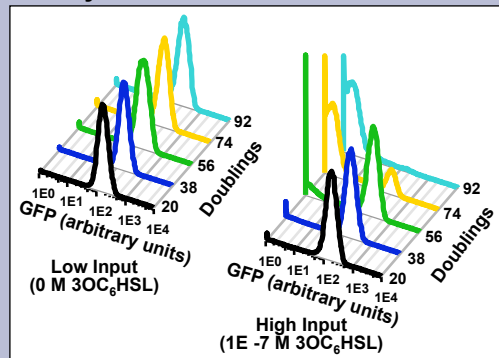
## Part Compatibility (qualitative)

Chassis: MC4100, MG1655, and DH5α  
 Plasmids: pSB3K3 and pSB1A2  
 Devices: E0240, E0430 and E0434

## Transcriptional Output Demand (low/high input)

Nucleotides: 0 / 6xNt nucleotides cell<sup>-1</sup> s<sup>-1</sup>  
 Polymerases: 0 / 1.5E-1xNt RNAP cell<sup>-1</sup>  
 (Nt = downstream transcript length)

## Reliability\*\*



Genetic: >92/>56 culture doublings  
 Performance: >92/>56 culture doublings  
 (low/high input during propagation)

## Conditions (abridged)

Output: PoPS measured via BBa\_E0240  
 Culture: Supplemented M9, 37°C  
 Plasmid: pSB3K3  
 Chassis: MG1655  
 \*Equipment: PE Victor3 multi-well fluorimeter  
 \*\*Equipment: BD FACScan cytometer