# [Trc-LIC] Inducible LuxI Expression Device

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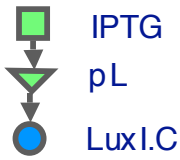
## Schematic

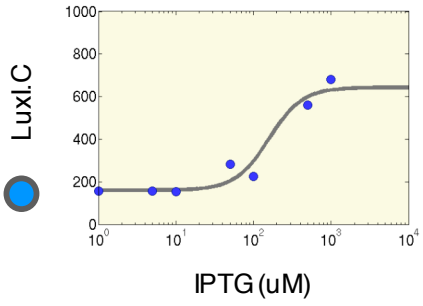



## Characteristics

Protocol: We grew cells overnight in LB. We then transferred them to Glu-M9 minimal medium containing the desired final concentration of IPTG, and allowed them to grow for 12h. The cell density at transfer was chosen so that the final OD600 was < 0.1. Cells were concentrated by centrifugation, and imaged on an epifluorescence microscope. We calculated the fluorescence per unit area of single cells, obtaining data from ~500 cells for each run. We then averaged these values in log space to obtain the final estimate of protein expression. The IPTG mesh was [0 5 10 50 100 500 1000] uM.

Sigmoidal fit:

$$y = a_0 + a_1 \frac{x^n}{K^n + x^n} \qquad a_0 = 160;\ a_1 = 483;\ K = 158;\ n = 2;$$




*Measurements and analysis were carried out by members of the NCBS iGEM 2007 team:*
*Kiran, Krishna, Mukund, Navneet, Nilesh, Senthil, Shashanka, Sugat, Sushant, Varun, Vini, Vivek*

## Host: Ecoli K12Z1

p1.lacI::p2.tetR

## Part: [Trc-LIC]

pL.luxI.C

## Small molecules

•IPTG: Isopropyl β-D-1-thiogalactopyranoside.

## Promoters

•p1: Constitutive LacIq promoter.
•p2: Constitutive N25 promoter.
•pL: Lac promoter.

## Proteins

•LacI: Lac repressor, negative regulator of pL.
•TetR: Tet repressor, negative regulator of pT.
•LuxI: *V. fischeri* LuxI protein, synthesizes AHL.
•C: Cyan fluorescent protein

## Description

IPTG drives the expression of the LuxI protein (monitored using polycistronic CFP). This in turn drives the synthesis of AHL, which is exported.

## Usage and compatibility

This device can be used to drive expression from the promoter LuxpR in any AHL receiver device. It has not been tested with other devices.

**Registry ID: BBa_I726031**