Launch a professional team that...

(1) Develops micro-architectures that could support precise and reliable engineering of biology's central dogma.



BIOFAB E. coli "C. dog" Expression Operating Unit (EOU) v1

(2) Makes, measures, and tests components that contribute to genome-scale expression operating systems.



*unpublished BIOFAB data c/o Dr. Vivek Mutalik et al. of BIOFAB Emeryville, funded via NSF and several corporate gifts.

Aim for precise & reliable gene expression



*unpublished BIOFAB data c/o Dr.Vivek Mutalik et al. of BIOFAB Emeryville, funded via NSF and several corporate gifts.

Precise and reliable gene expression!

~24 translation levels (low to high)



w/o BIOFAB bicistronic junction BD16 BD22 BD13 BD15 BD1: BD1 BD1 BD2 BD2 BD2 BD1 8D6 BD1 BD2 808 809 8D1 801 803 BD1 804 802 805 BD7 PMK-RFP PA-GFP PA-RFP PMK-GFP LacI-36-GFP TetR-36-GFP cell-GFP cell-RFP RFP GFP sfGFP-36-RFP RFP-36-sfGFP

-13 coding sequences

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AraC-36-GFP

In detail, 2 genes, same parts, same expression

~24 translation levels (low to high)



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Why does a solid "C. dog" foundation matter?



~93% change to hit a factor-of-2 expression window. ~6 fold error reduction from previous best available tools. Design systems with ~10 genes at a time prior to first testing (in place of 1 gene at a time).