



biodesign works

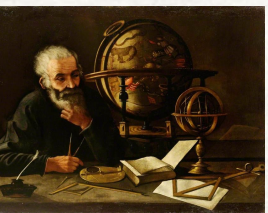


Carrie Eckert Director

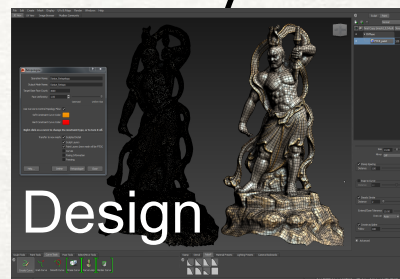


a world-leading Center for biodesign and engineering that enables the  
option of new paradigms for forward engineering of biological systems

## Current Practice



synthesis at a time  
investment: 10 FTEs,  
million in capital



TRMR (2010)



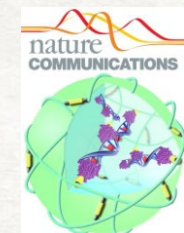
CREATE (in review)



biodesign works



TRACE (2015)



bTRACE (in review)



Test



Build



# Engineering (CREATE)

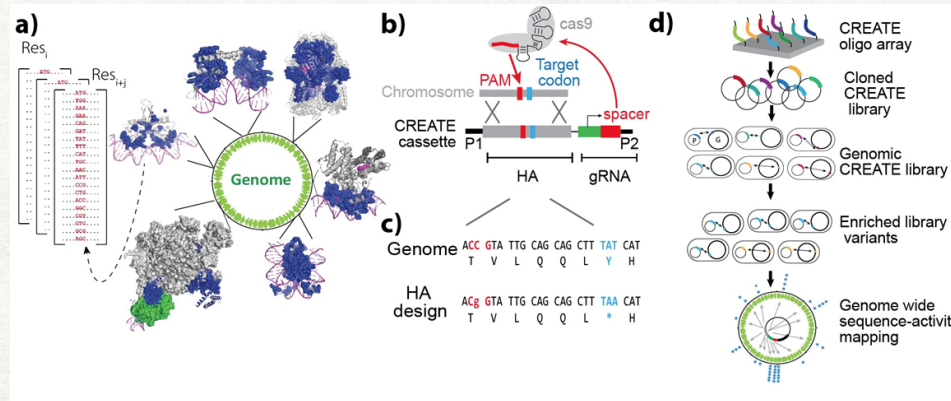
for academic projects,  
collaborations



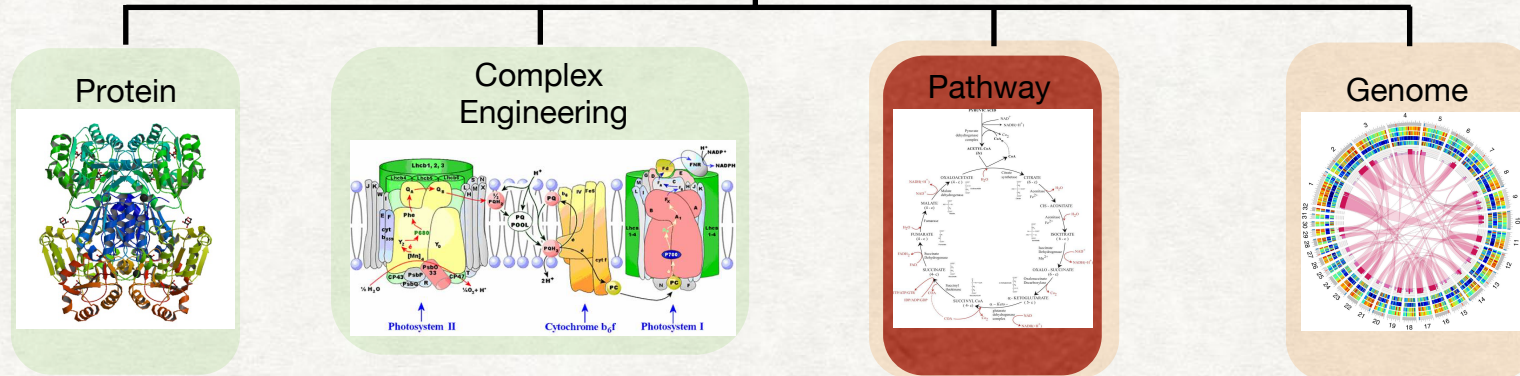
Library design software development  
(ForgeCrafter), industry R&D support



<http://www.musebio.com>



Garst et al., Nature Communications, In Final review. IP: CREATE-CARPE PCT.  
Priority date Feb 2014. Covers all aspects of editing strategies.



Thousands of targeted genome edits can be constructed to evaluate enzyme, complex, and/or whole genome functions of interest at time scales (~1 week) and cost (\$1000/go) that are significantly less than state of the art.

1. Array Library Design: gRNA/targeted mutation, ~200 nt (ForgeCrafter, MuseBio)  
2. Library purification and cloning into CREATE vector  
3. Transformation of pooled library vectors into CRISPR-enabled strain for integration  
4. Screen/Select for desired phenotype (improved growth, tolerance, activity, etc.)  
5. Mid prep isolated/pooled culture for Next Gen sequencing to identify enriched





## **1: Support Research**

case effort led by collaborator

provide design and library construction, data analysis

e varies based on project(s) (e.g. library size, sequencing requirements, FTE input for consultation/analysis)

## **2: Collaborative research relationships**

case effort led by collaborator

provide design and some customization of technology in addition to library construction and analysis

0-250K/yr. FTE time included.

## **3: Core Research.**

technology development effort led by Biodesign staff

0K+/yr. 1 or more FTEs.