# BIOE.44

## *Synthetic Biology Lab*

***8 April 2010 Lecture / Discussion notes***

http://openwetware.org/wiki/Stanford/BIOE44

# Today's take aways:

*1. Features of BB_AS#10*

*2. Problems with BB_AS#10*

*3. Which standard should you use?*

*4. Your questions (controls, strains, induction, repressors, anything)*

# 1. Features:

*1. Works*

*2. Idempotent*

*3. Used widely*

*4. Geometric assembly*

Thursday, April 8, 2010

## Welcome to the Registry of Standard Biological Parts.

**The Registry is a continuously growing collection of genetic parts that can be mixed and matched to build synthetic biology devices and systems. Founded in 2003 at MIT, the Registry is part of the Synthetic Biology community's efforts to make biology easier to engineer. It provides a resource of available genetic parts to iGEM teams and academic labs.**

The Registry is based on the principle of "get some, give some". Registry users benefit from using the parts and information available from the Registry in designing their engineered biological systems. In exchange, the expectation is that Registry users will, in turn, contribute back information and data on existing parts and new parts that they make to grow and improve this community resource.

Catalog of parts & devices

Help

Users & groups
(Apply for an account)

DNA repositories

### Registry tools

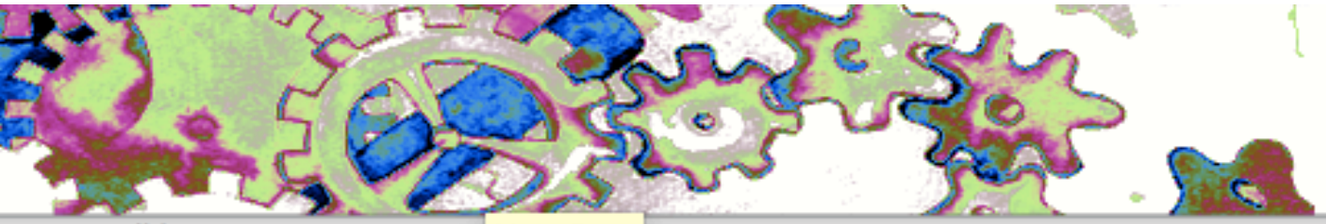
- Search parts (?)
- Add a part
- Request a part
- Send parts to the Registry
- Sequence analysis

You'll notice some significant changes to the Registry recently. In particular, the Registry catalog of parts has been entirely redesigned to allow for easier browsing of the available parts and devices. You can now browse parts and devices by type, by function, by chassis and by standard. You'll also notice that the documentation and help pages for each class of parts have been greatly enhanced.

The Registry of Standard Biological Parts is *always* a work in progress. Please browse the new catalog and let us know what you think, or feel free to edit and improve the pages further.

## Registry news

- **June 22, 2009**: You can now link to part pages directly from the iGEM wiki by typing the following `<partinfo>BBa_B0015</partinfo>`.
- **June 11, 2009**: We are considering changing the license terms of the Registry so that we can share our information with other databases. Go here to read the proposal or add your comments.



Registry of Standard Biological Parts

Go Search

non-wiki Main Page Log in / create account

## SynBERC Statistics Snapshot

Interesting statistics about the parts from SynBERC Labs and affiliated iGEM Teams

| | |
|---|---|
| Total parts | 11393 |
| Total synberc parts | 3062 |
| Total synberc parts used | 1046 |
| Total usage of synberc parts | 24349 |

| Lab or Team | Total Parts | Parts Used | Total Uses |
|---|---|---|---|
| Endy Lab | 714 | 318 | 6730 |
| Knight Lab | 611 | 182 | 2173 |
| Prather Lab | 8 | 5 | 1490 |
| Arkin Lab | 111 | 24 | 126 |
| Keasling Lab | 10 | 0 | 0 |

# *let's take a look (distribution)*

# 2. Bugs

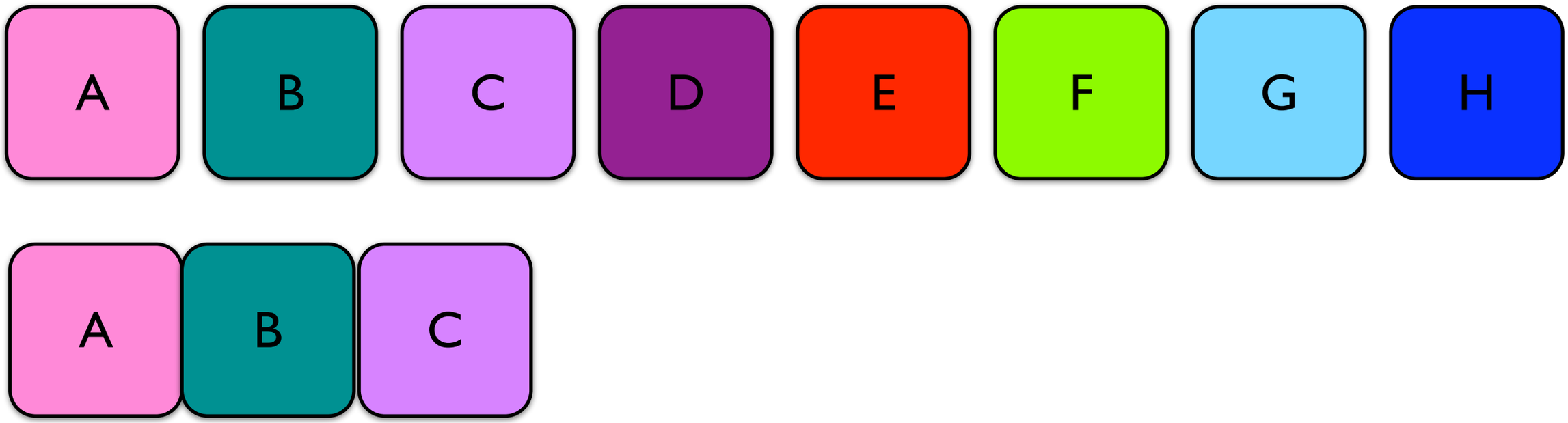
*1. Doesn't support re-work*

*2. Protein fusions???? (no)*

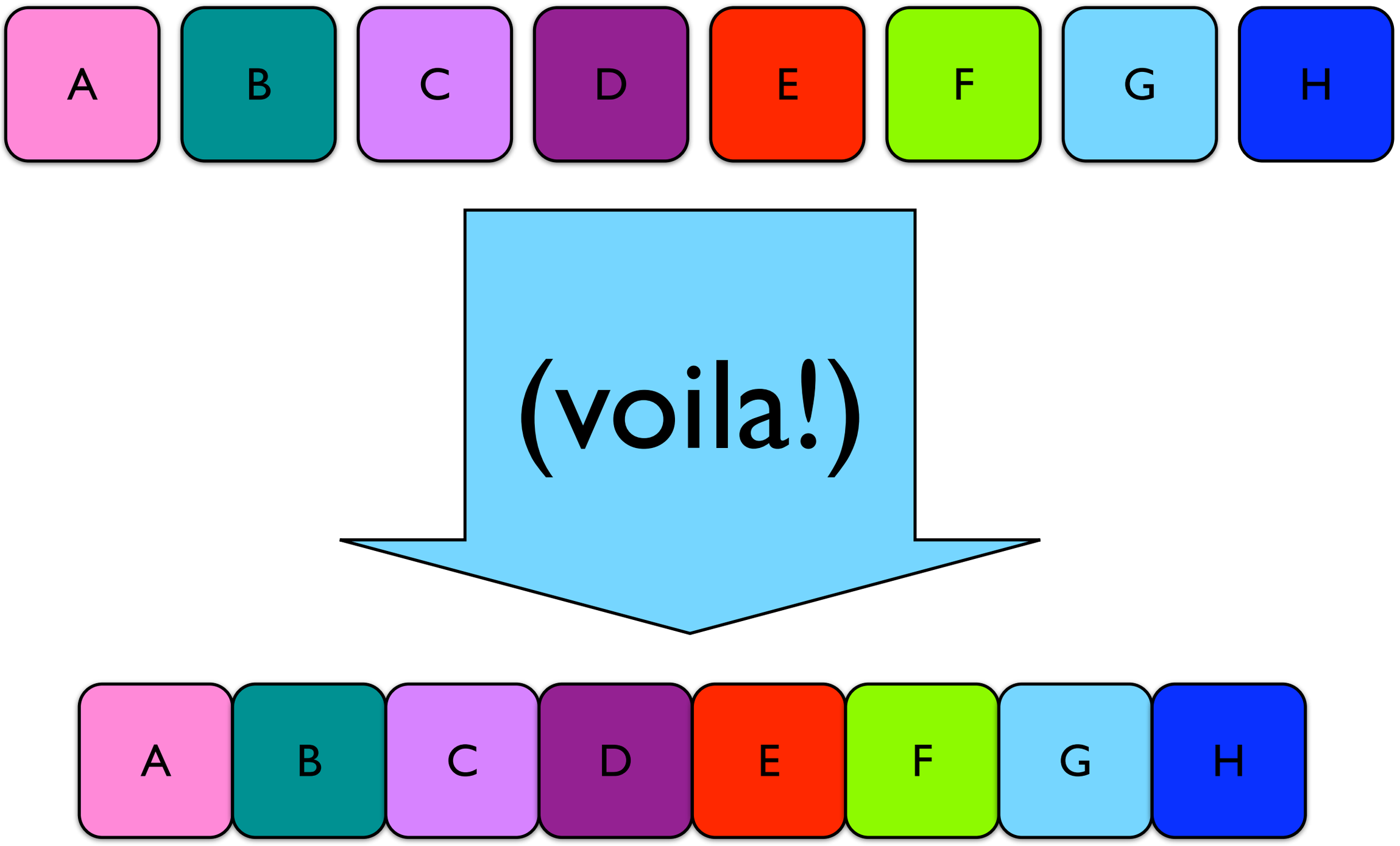
*3. Physical composition only (will it function?)*

*4. Geometric < Parallel*

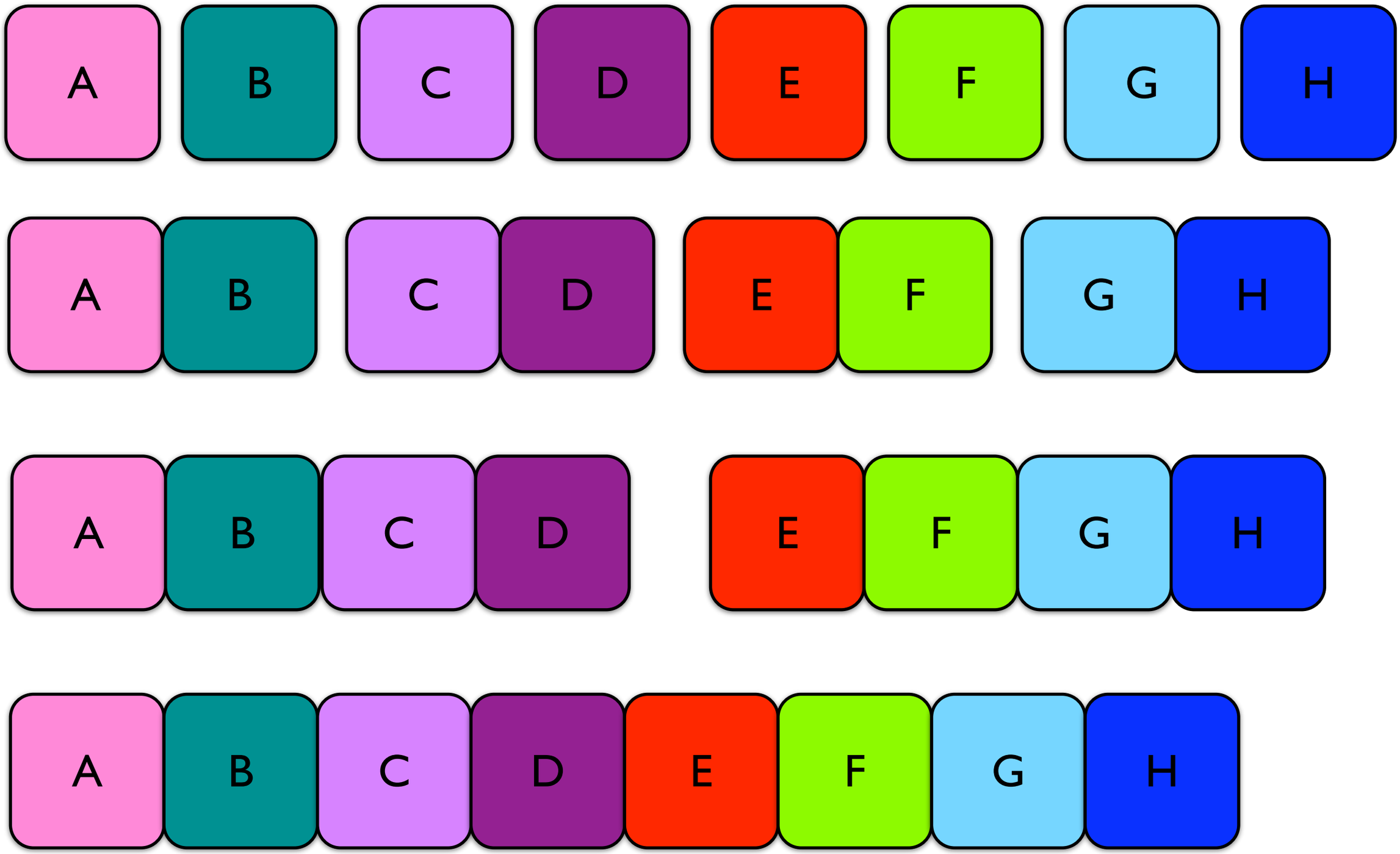
# Linear: (N-1) steps



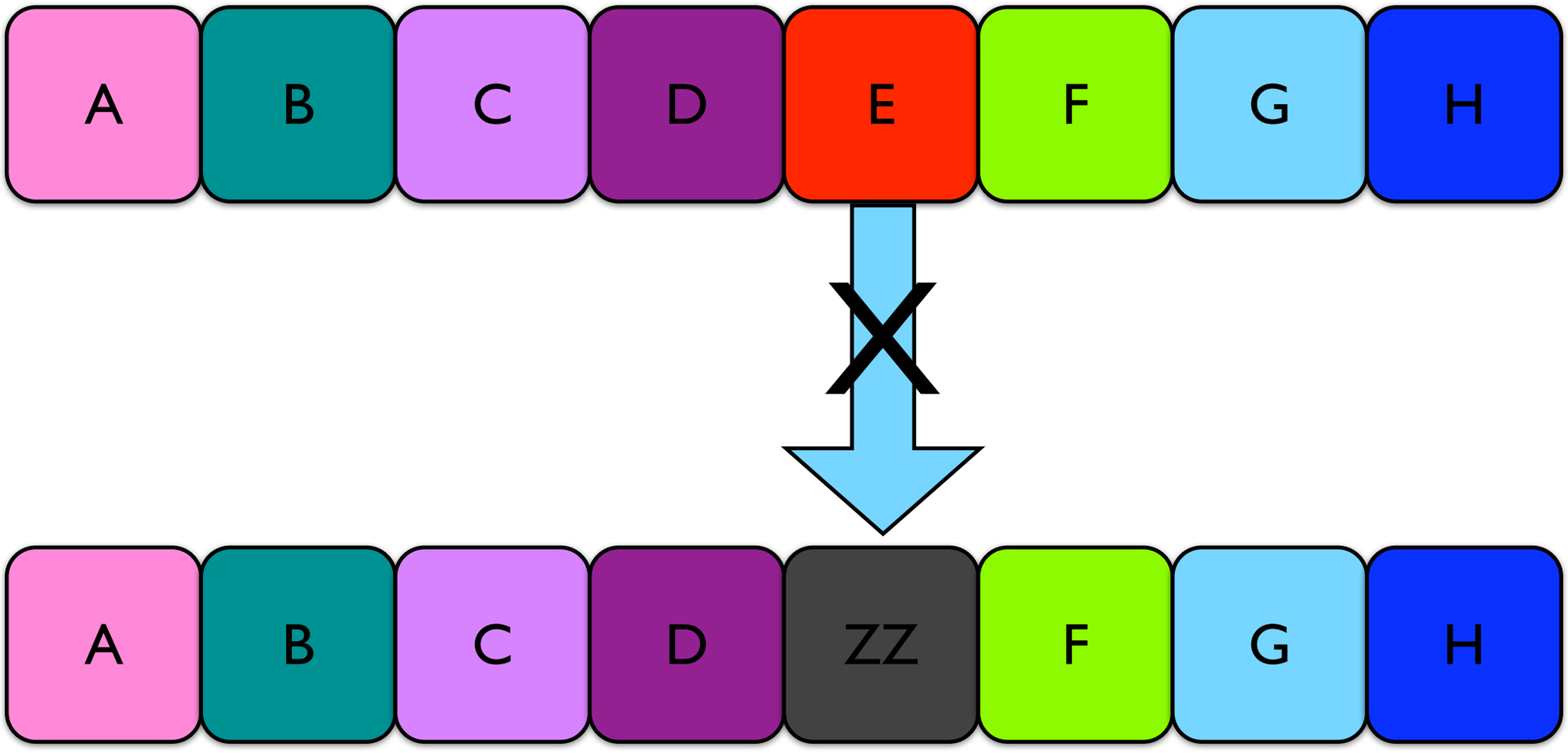
# Parallel: Single step



# Geometric: (log2(N)) steps



# No support for rework:




*(would need to make ZZ:F, and then ZZ:F:G:H, and then ABCDZZFGH).*

So, the first standard isn't perfect.

What do you do?

# Develop improved standards!

*[check out...]*

http://openwetware.org/wiki/The_BioBricks_Foundation:Standards/Technical/Formats

http://partsregistry.org/Catalog#Browse_parts_and_devices_by_standard

You are going to make a new standard biological part soon.

Which assembly standard should you use, if any?

# Significance:

*Imagine a future in which you can call any needed genetic function "off the shelf," and it works, at the scale of 1000s of functions (i.e., genomes)*

# Your questions:

LacI

Inducer

RPU

Strains

Copy #