

A general purpose organism engineered from scratch

When ensemble theory should not be used on ensembles such as turn over of light activation under constant illumination.

Electromagnetic induction controlled transcription in bacteria

Can we fold proteins through applied electrical fields/electromagnetic induction on purpose and directed

Cell to Cell communication using luciferase to activate LOV domains.

Optimizing probabilities of many probability systems
http://en.wikipedia.org/wiki/Particle_swarm_optimization

How many memories can be stored if neuronal connections are the way they are stored?

Controlling bacteria with magnets http://en.wikipedia.org/wiki/Magnetotactic_bacteria

Manipulating DNA with AC/DC current.

Manipulating protein with AC/DC current
<http://www.sciencemag.org/content/309/5737/1096.full>

Molecular Event propagation - studying propagation of molecular events through protein/water/&c.

Metaforces - force that takes on new characteristics when in a group

Communicating with bacteria

Need 3 things

1. Memory storage
2. Response algorithm
3. Response method

<http://www.sciencedirect.com/science/article/pii/S0022283612000113>

Communicate with light and respond by light.

two different types of light pulses. Long pulse and short pulse.

Long pulse activates a DNA binding protein that has very poor binding. So it needs many activations to activate a gene. Then this gene downregulates the short pulse activation. The genes also have a positive feedback mechanism. The long pulse gene stores a long signal, 1, in memory and a short pulse stores a 0. A 1 signal will remove any 0 signal. A stop signal can be

used to identify end of pulse or end of “word” and can allow a response. The stop signal could be from a red light responsive proteins such as a phytochrome.

The response system will be expression of GFP or RFP, &c. The expression of one will downregulate the expression of the other.

Real life molecular biology based game.

Non sequence protein structure classifier

tracking events in elite athletes lives and using statistical analysis to determine what makes people perform better.

Machine learning for molecular dynamics sampling

Crowd sourced molecular biology experiment

Small molecule antibacterial screening(done, made a kit)

Combinatorially measure the effect of expression of one gene on another using light activated transcription and fluorescent tags

communities of bacteria that perform a function then activate another bacteria or function when done creating a functional cascade. for use in terraforming or some such. breaking down compounds to completion.

Bacterial memory storage

Bacterial or inner cell turbulence using light activated protein motion

Can we stick bacterial cell contents in a yeast/eukaryotic cell membrane

Neurons from bacteria in a patterned biofilm

Using chlamydiae for organism engineering

Geobacter light activated voltage production

neurons for electrical circuit!! Linux device driver?
UDP over axons

Generating heat with proteins

Protein interactions determined by dynamics

Self organizing dynamics based on multi timescale dynamics in proteins

Use a device that flashes light to transmit data to a cell phone camera or through touch interface

bacterial timer

who folds faster? using light activation and fluorescence measurements to specifically time transcription.translation in cells

Think about movies/things in a new biotechnology context

Light activated sunscreen expression in bacteria

Using magnetotactic bacteria and light(to release or bind) to deliver payloads

RNA seq of different expression levels using light to identify complex networks.

Biohacker conference(done)

Bacteria that can optimize their own protein expression

metaprogramming, create a program that can solve problems by writing programs

protein from bacteria for humans to consume

Developing new human skills

What is the most engineerable and evolvable form of DNA

Bacteria that are evolved to activate an LED to control a gene

Storing information in an ensemble by shifting the equilibrium

Disequilibria and life simulations. What kind of disequilibria in a chemical system indicates life?

Proteins as the first macromolecules not RNA or maybe both

An app that tells everyone how fast to drive to create the perfect flow of traffic under the conditions.

Modelling what is the best method for evolution of proteins!!!!

Brain gym, people come each day and spend time with brain trainers

collective consciousness, people sharing their every minute everyday through a network of video, audio

how many tasks can a human hold in their focus at one time? Can we train ourselves to do more?

Organisms and events outside our timescale

Create a theoretical engineered human genome

Machine learning for random protein sequence prediction will it fold?

Make crops grow as tall as a tree

Fetal Bovine Serum project(lots of people working on this now) i.e. making a FBS replacement

Nanomolecular gastronomy in e coli

Organisms whose lifespan is outside our timeframe do they experience evolution the same?

Can we eat a perfect diet so we don't excrete?

Browsable Database of functional proteins

Connected consciousness 5 people, videos and audio 24/7

Create a language to communicate faster and better

Personalized music, music that changes in real time based on how we respond to it

Creating an organism from scratch to make it the most optimal(let's start with bacteria)

1. Let's say we need to use DNA, RNA, protein but those are the only rules
2. Let's say we don't need to use DNA, RNA and protein

Engineer user level security in a cell

Can you buffer overflow or somehow exploit cellular machinery in vivo to do stuff it normally was not supposed to

A Checksum for DNA or mRNA or Proteins

A medical hackerspace

Build a gene drive

Test plasmid transfer between genus and or species(tried bacteria and yeast mixed in a tube, preliminary results were not good.)

Open source DNA vaccine guide(done)

Open source human CrISPr guide(done)

A Video game that last years.

Store information in DNA that can be read out by physiological feedback. i.e. take a drug to activate DNA and the pattern of light flashes in your eyes that only you can see can be decoded.

A virus that hides itself to prevent detection from molecular biology after infection.

Genetic engineering will work by each athlete having a Genetic Index score. Each team can only have so many points and each player that has less in an individual competition gets a "handicap"(similar to para-olympics). The best player in sports history was probably not one of the people we know but someone who was at such a genetic disadvantage and played at such a high level despite that, rather than the person with the best statistics. Similar to para-olympics athlete classification(<https://www.paralympic.org/wheelchair-basketball/classification>).

A self-contained automated breeding system for frogs or some organism. I.e. industrial production of ge animals(tried it, difficult, need to try again)

What makes sun screen stay on the skin and what can that be used for? Gene therapy?

A documentary on telemarketers.

Food delivery but it is just as good as at the restaurant.

A city in the US with the pastry and bread shops like Paris

Find a problem biological computers would actually be good at solving.

Figure out a way to measure remorse or lying with high accuracy

The way illegal drugs are manufactured and distributed without any sort of centralized system. Can that be replicated?

<https://pubs.acs.org/doi/10.1021/acssynbio.0c00286>

<https://www.sciencedirect.com/science/article/pii/S109671761930401X>