

How to think about biosafety in my projet?

What are the possible applications of my system?

Application #2
Application #3
Application #4

Application #1

In which circonsstances could my GEO escape its intended environment?

In which environment will my GEO be used?

In which environment(s) could it be found if it was escape?

Unnatural confine environment

Unnatural open environment

Natural inhabitat/ecological niche
Can I use another chassis instead of reducing the risk of dissemination?

Natural inhabitat/
ecological niche

How likely is my GEO to survive/proliferate in this environment?

Can I control/reduce its survival in the environment?
For eg: my GEO is aerobic and this environment is anaerobic or my GEO does not survive in high salt concentration and this environment is highly salty

Can I reduce the risk of horizontal gene transfert?

Is my chasis devoid of conjugative elements/sytems?

Is my chasis devoid of mobile genetic elements?

Do I need plasmid?

No

Yes

Can I integrate my construct in the chromosome?

Which system(s) can I implement to avoid plasmid transfer?

Can I use/design a chassis that would reduce the fitness in this environment? For eg: abolish the possibility to form biofilm, to take up iron, reduced /minimal genome (if compatible with the intended application)

Can I implant a bio-safety system that will result in the death regulation of my GEO in this environment?

Conditional plasmid replication

I will design a new one

Toxin/antitoxin system

Auxotrophic selection