Gene Block Resuspension

Overview

This protocol covers resuspension of IDT gBlocks to the working concentration of 0.1 pmol/µL.

Background

Gene fragments also called gBlocks (IDT), are synthesized linear dsDNA sequences which can be used for a number of applications. Gene fragments are useful in that they enable the creation of complex sequences without PCR, as well as in that they allow for a gene or genetic circuit to be designed and cloned without access to template sequences. The largest limiting factor for gene fragments is their cost, as well as their limitations on sequence length[i] (though for cloning, multiple gene fragments may be used instead of a single large one). This protocol assumes the use of IDT gBlocks, but theoretically any gene fragment[ii] should use a similar protocol. The resuspension concentration of 0.1 pmol/µL was chosen due to its utility in Gibson Assembly[iii]. Note that this concentration is the same as a concentration of 0.1µM, which could be useful if you intend to use your gene fragment for a different application (e.g. 3G assembly).

Note that IDT's gBlocks can be amplified via PCR, though it is important that a high fidelity polymerase such as Q5 is used.

Materials

- gBlocks Gene Fragment
    - For each gBlock, note the number of **ng delivered** as well as the number of **fmol/ng**
    - For reference, there are 1000 fmols/1 pmol
- Nuclease Free Water (NFW)

Procedure

1. Spin down gBlock
    - Use green benchtop centrifuge
2. Add the appropriate amount of (µL) of NFW to each gBlock
    - Amount of NFW in µL should be $\frac{[ng\ delivered]*[\frac{fmol}{ng}]}{100}$
3. Vortex for 0.5 seconds. Spin down.
4. Store in gBlocks box at -20C

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[i] Typically around 3kb max length

[ii] The next most commonly used company for gene fragments is Twist Bioscience, though there are many other companies that make gene fragments. E.g. Thermofisher, Genscript, Genewhiz and many many more.

[iii] Since we typically think in pmols for Gibson Assemblies.