

# DNABot- Meeting Notes

## Talking Points/Questions:

### Automation 101

#### Capabilities

- Liquid handlers (dispensers) easy, quick setup, not optimal when high precision and expensive reagents
- Acoustic handler (Echo) small volumes ( < 1 uL ) , need special plates (droplets source -> destination)
  - Takes .csv files, easy programming
  - Liquids with ethanol/DSMO/surfactant need special care
- Compact (FELIX) - common formats, small size but niche software
- Large format (Biomek i7) - 2 heads (8/96) / nicer UI/ simulation mode /cooling/heating thermocycler on deck / uses scheduler software for managing different machines
- Automated colony picker - SBS format (96/1536 well) 600 colonies an hour/ filament picks each colony and cuts for each one / filters and different light colours for fluorescent
- Integrated workflows for more complex operations (access platform)

#### Development Process

- Script ( manual protocol to automated )
- Simulation ( confirm steps are performed as intended )
- Liquid handling testing \* using dye, water, glycerol ( adjust offset/ aspiration /dispensing parameters)

- Validation ( real samples and reagents ) , ensure protocol delivers results , do a manual run as control

Why?

- Precision work
- Liquids behave differently
- Robust procedures-> reproducible science

When?

- Return on investment / take advantage of automation
- Routine/standard procedures
- Standard formats (96/384) (tubes/wells)
- Complex liquid handling operations (e.g. normalisation )

BASIC part

>> 100 bp/ functionality / ip and is sequences

BASIC linker

<< 100 bp

API has error handling for common design formats ( validation )

Software dev tools

- GitHub actions for CI/CD (continuous integration /dev)
- Pytest and test-driven environment
- Online documentation (Sphinx)
- Q metric ( automated vs manual ) Walsh et al.2020

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