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Galaxy-SynBioCAD: tools and automated pipelines for Synthetic Biology Design and Metabolic Engineering

Équipe BioRetroSynth



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1 — Context

- Many tools, but few interoperability
- The (in-)accessibility of command line interface
- Not everyone owns a computing cluster “at home”

2 — The Galaxy-SynBioCAD portal

- Collection of Galaxy-ready tools and workflows
- Interoperable and standardized input / output:
 - SBML (metabolic pathways)
 - SBOL (genetic constructs)
- Use case workflows released so far:
 - biosynthesis pathway design
 - pathway analysis and scoring
 - genetic / plasmid design
 - sensing-enabling pathway design

3 — From specification to bio-producing strains

- Showcase: automate design and construction of lycopene-producing strains at the bench

4 — Under the hood: CI/CD integration process



- Git commits trigger GitHub actions
- Tools released as conda packages
- Wrappers validated with Planemo
- Tools available from the Galaxy ToolShed
- Integration with the IUC repo in progress



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