Workflow on SynBioHub, SBOLDesigner, and iBioSim

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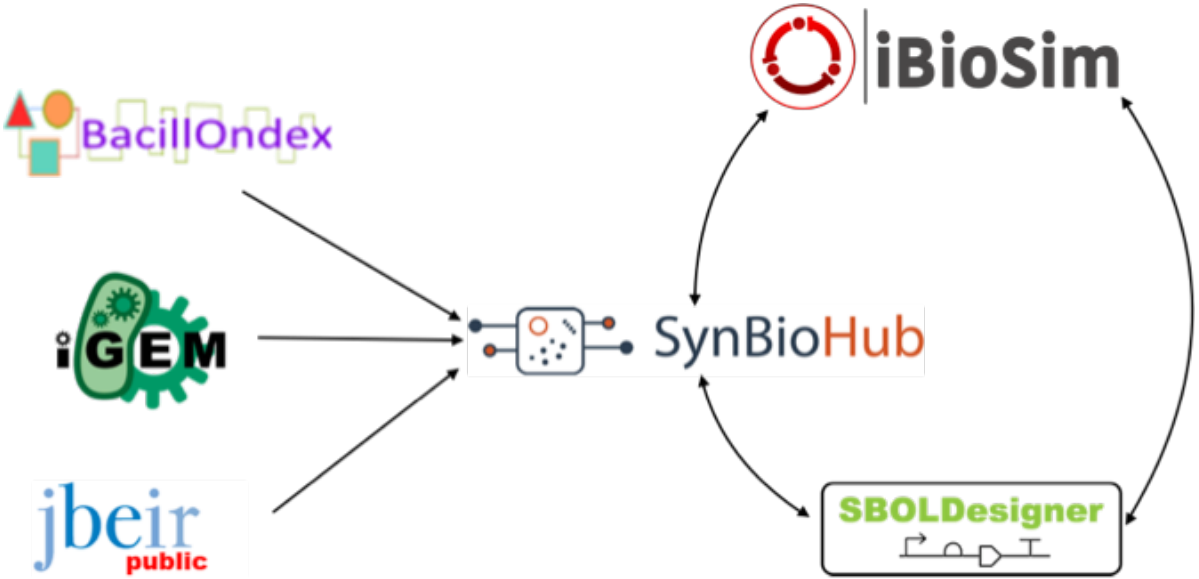
Software for Synthetic Biology Workflows Workshop
June 7th, 2018

Summary

- Demo of tools chained into a workflow
  - SynBioHub
  - SBOLDesigner
  - iBioSim



- Online data repository
- RDF triple store
- SynBioHub instances
- Supports SBOL data model and SBOL visual

Newcastle University

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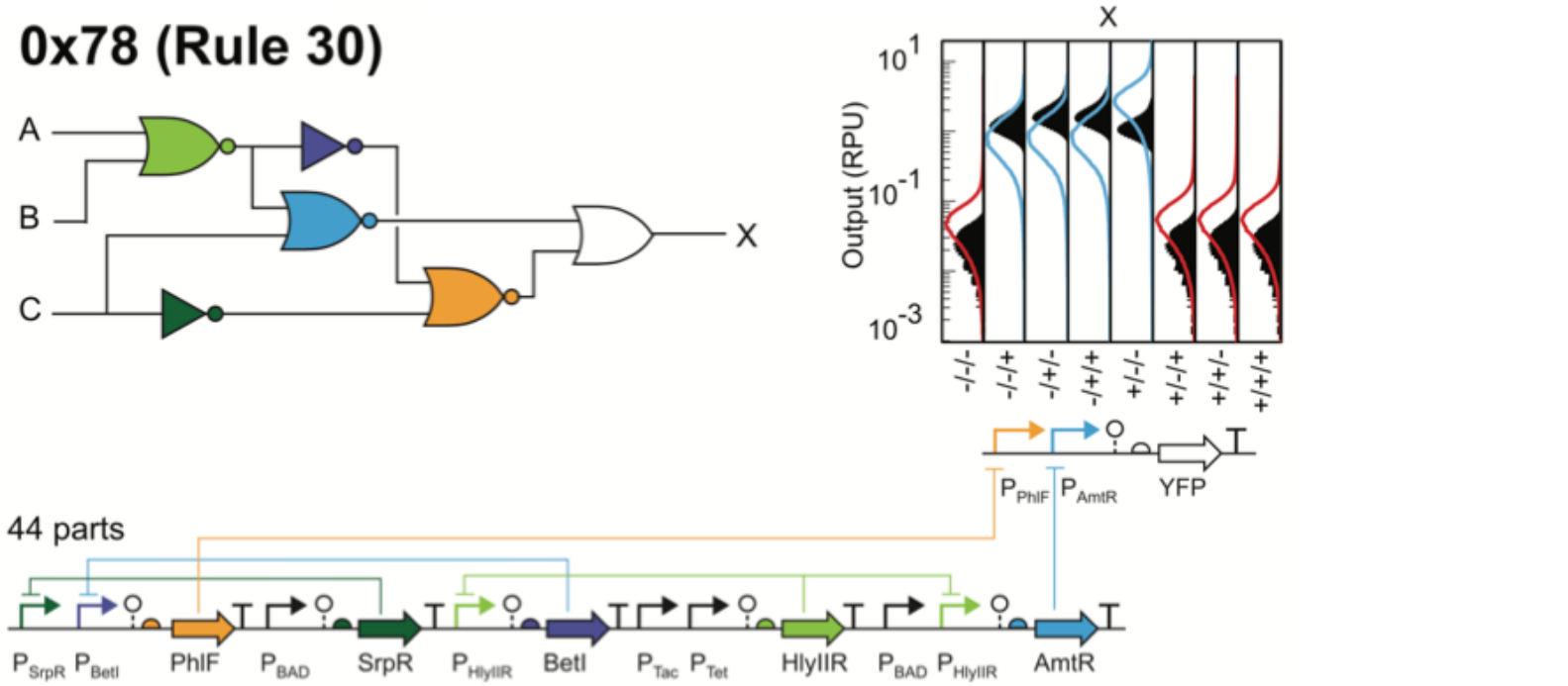
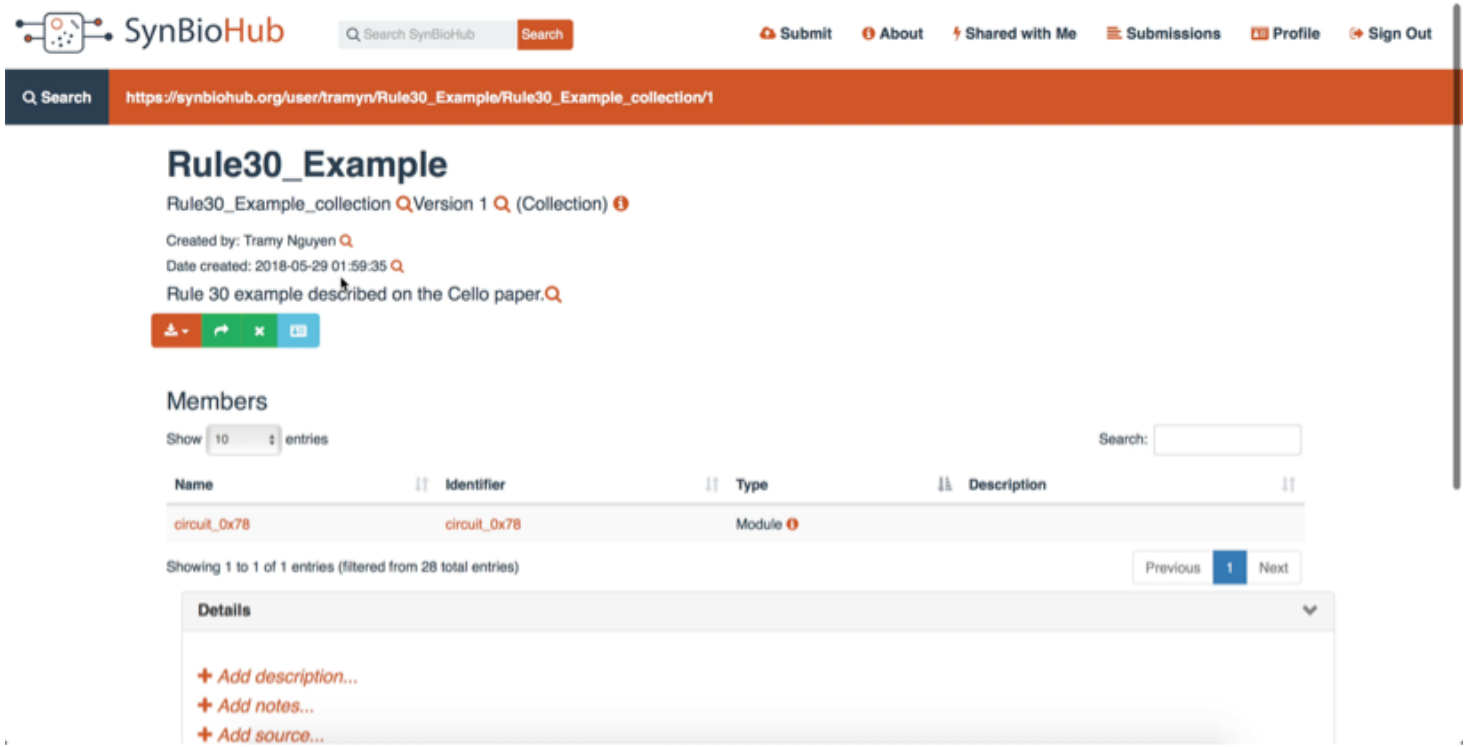
Rule 30 Example



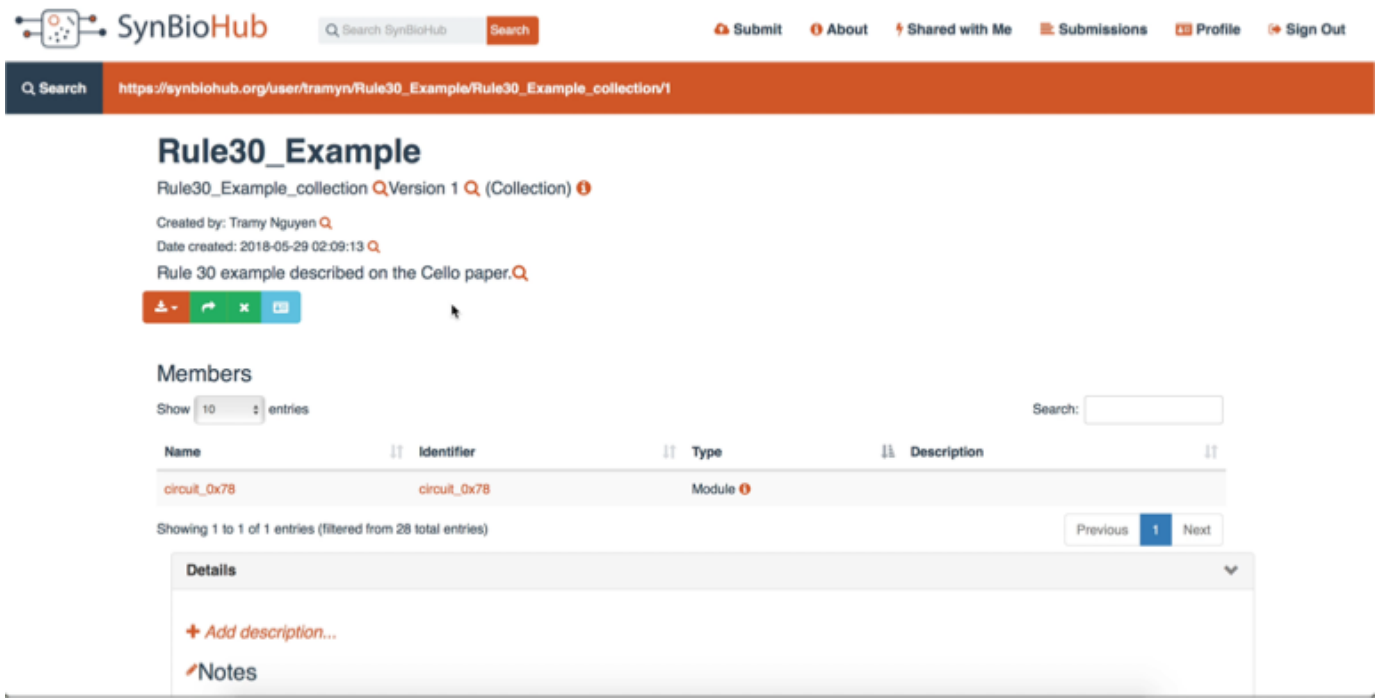
Nielsen et al. *Science*, 2016

Uploading and Downloading Designs

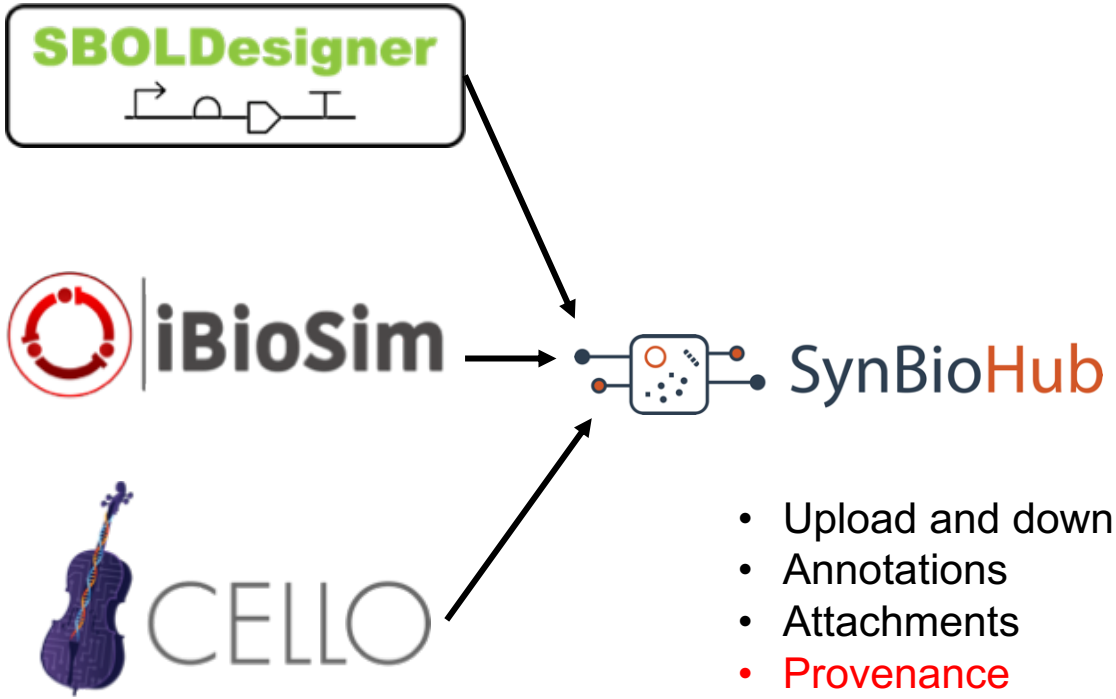
Annotating Design



Attaching Information to a Collection



SynBioHub Visualizes Provenance



- Upload and download designs in SBOL format
- Annotations
- Attachments
- Provenance

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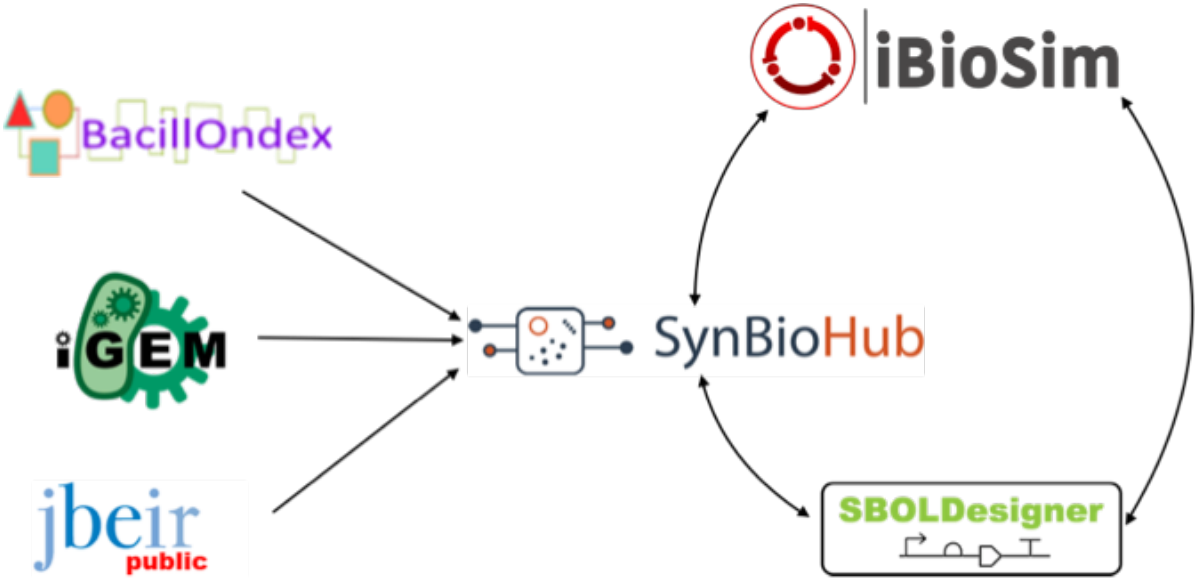
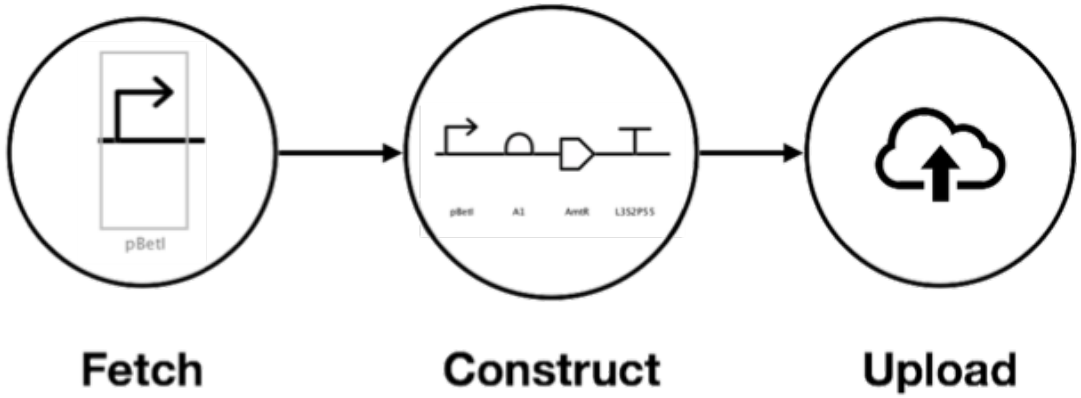


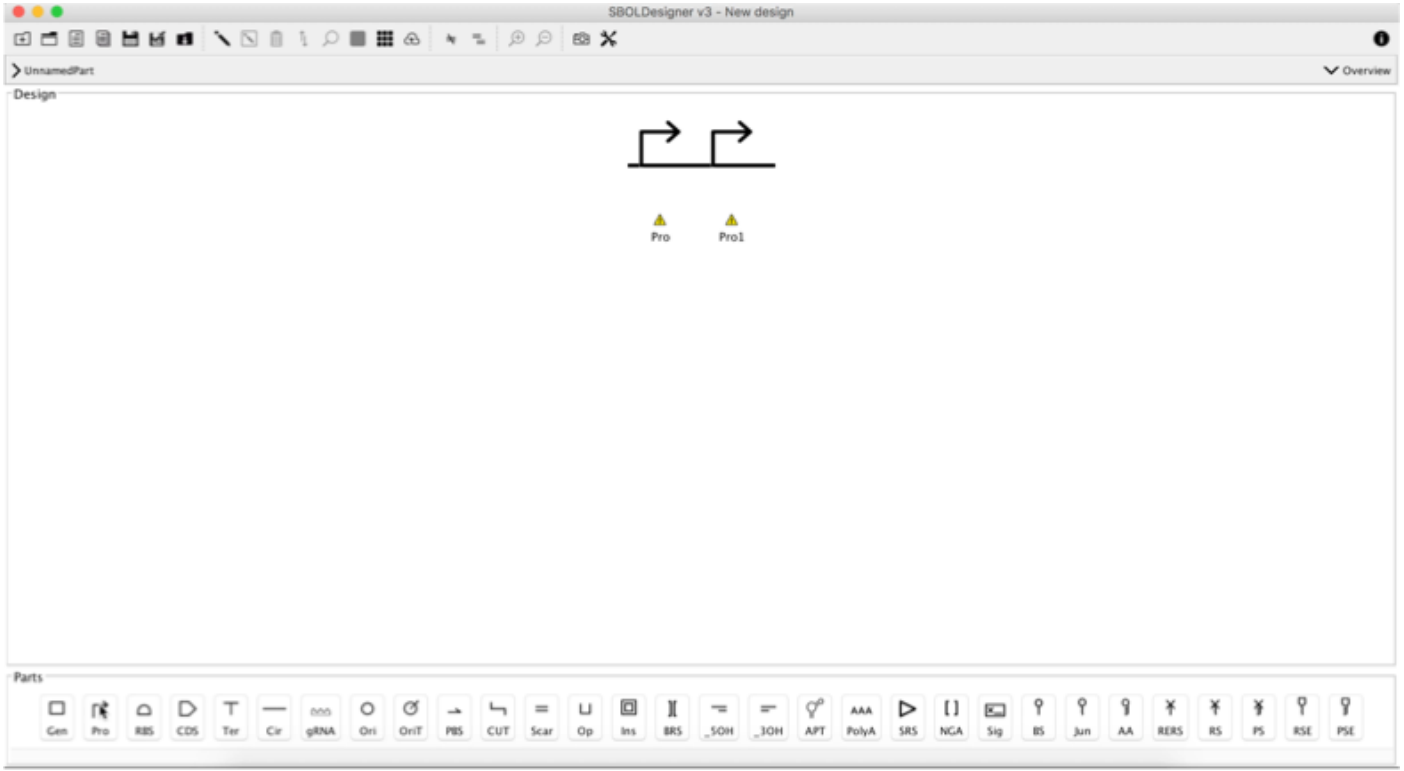
SBOLDesigner



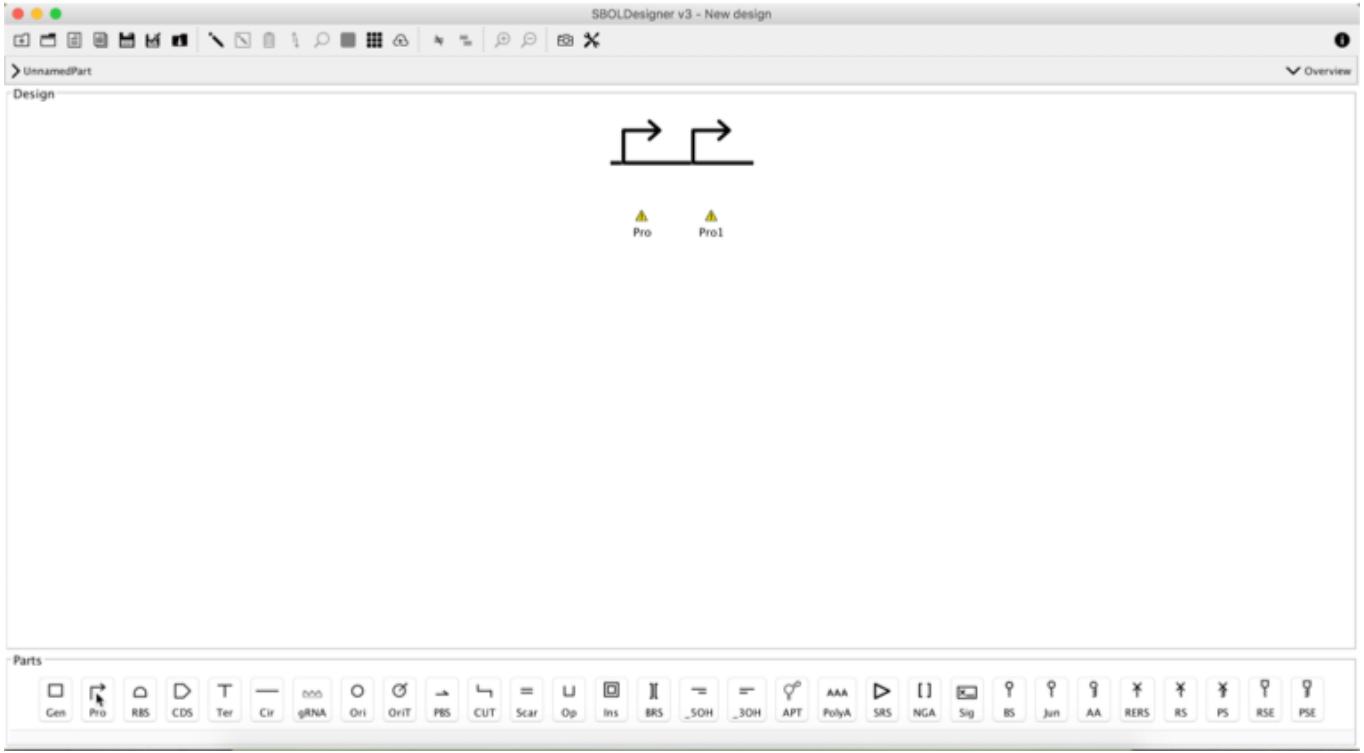
Zhang et al. *ACS Synth. Biol*, 2017

- Computer Aided Design Tool (CAD)
- Focus support on DNA level designs
- Supports SBOL data model and SBOL visual

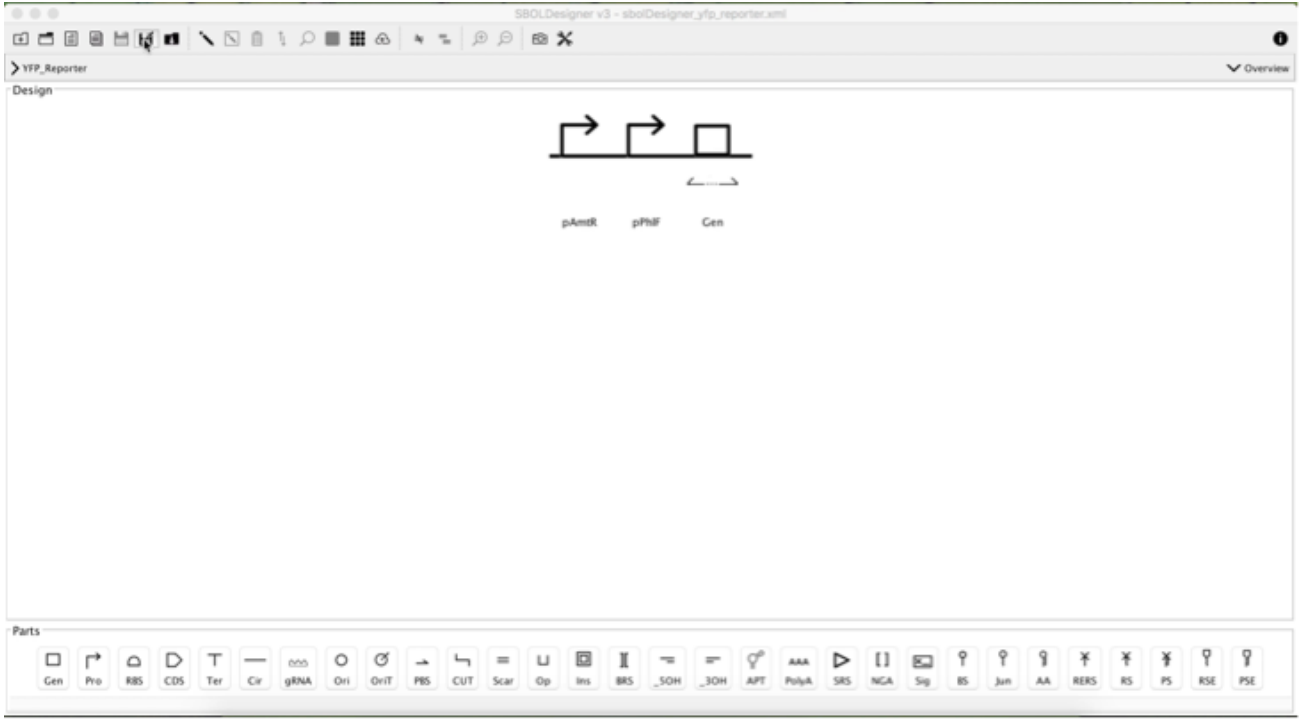
Part Annotation in SBOLDesigner



Building Designs using Hierarchy



Uploading to SynBioHub in SBOLDesigner



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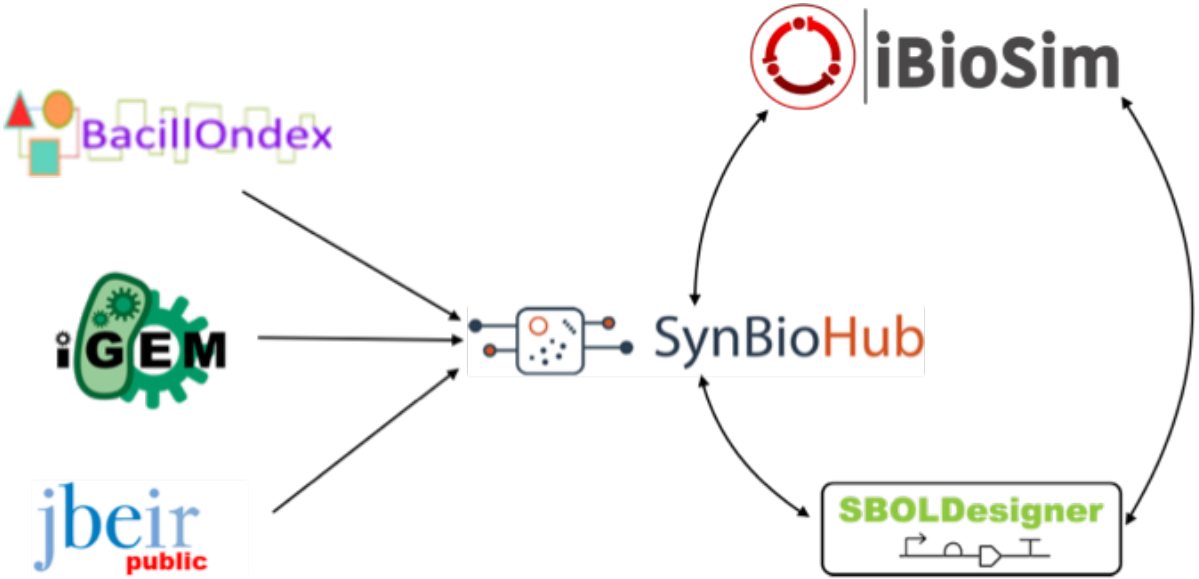
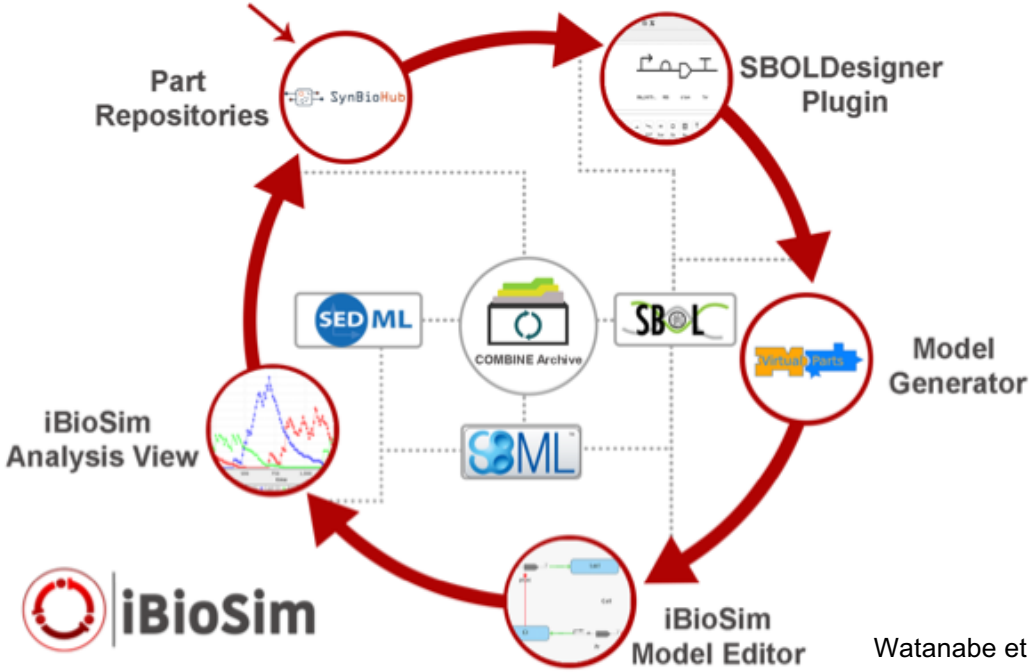
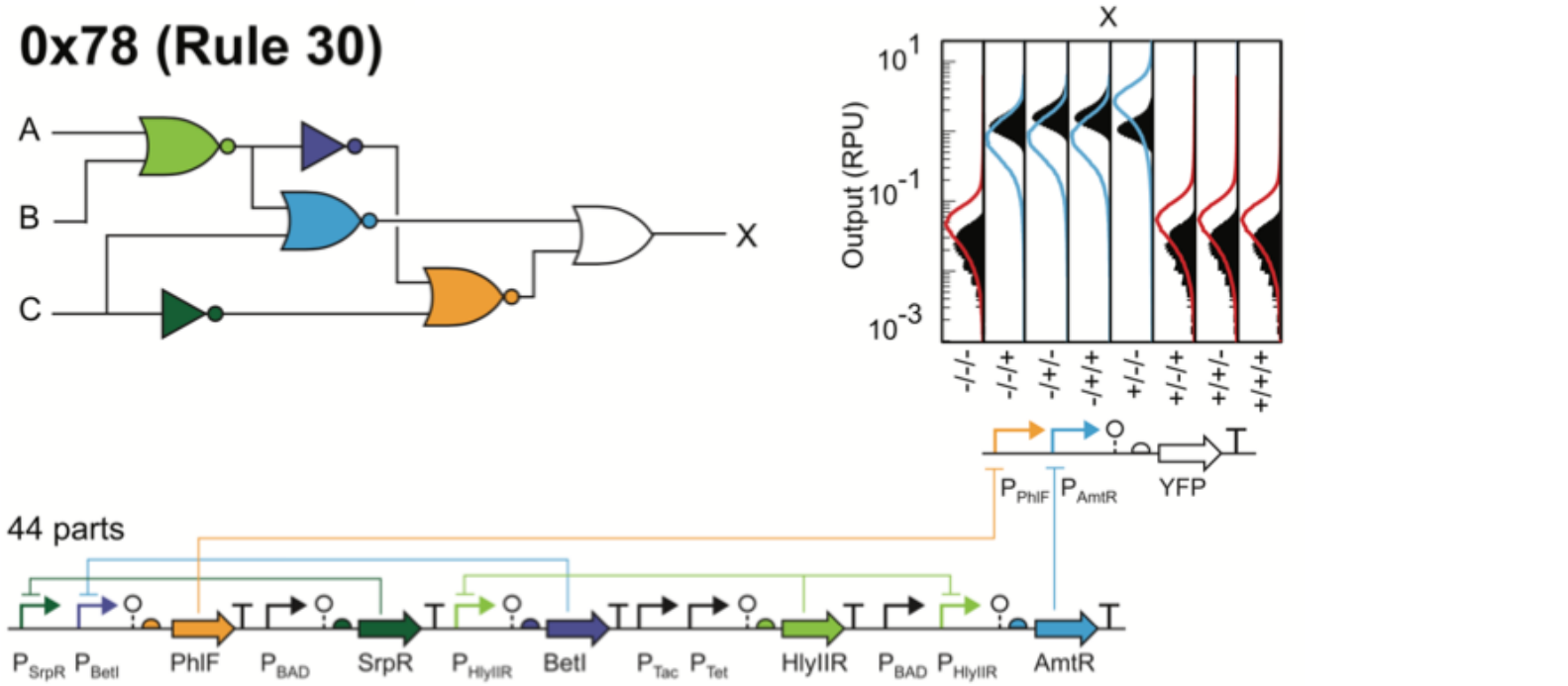




Watanabe et al. *ACS Synth. Biol*, 2018

- A CAD tool
- Design and model genetic circuits
- Supports a variety of the COMBINE data standards

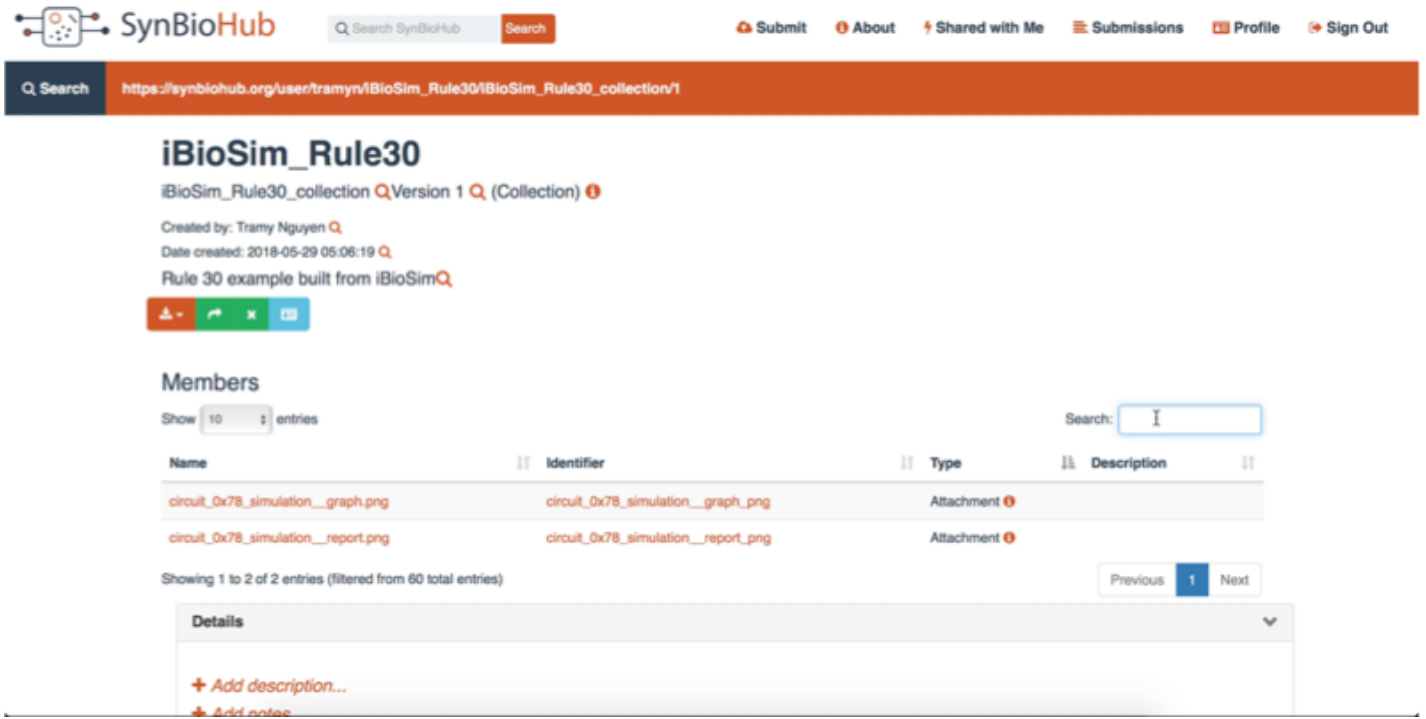
Rule 30 Example



Nielsen et al. *Science*, 2016

Modeling and Simulation

Viewing Provenance in SynBioHub



Conclusion

- SBOL enables workflow
- SBOL is intended for wide community of synthetic biologists and not just for designers.

Acknowledgements

iBioSim Developers

Nathan Barker
Scott Glass
Kevin Jones
Hiroyuki Kuwahara
Curtis Madsen
Nam Nguyen
Tramy Nguyen
Tyler Patterson
Nicholas Roehner
Jason Stevens
Leandro Watanabe
Michael Zhang
Zhen Zhang
Zach Zundel

SynBioHub Developers

James A. McLaughlin
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Irina D. Ofiteru
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James A. McLaughlin
Anil Wipat
Chris Myers

The National Science Foundation under Grant No. CCF-1218095 and DBI-1356041.

The Engineering and Physical Sciences Research Council under grant EP/J02175X/1, EP/N031962/1, and EP/R019002/1.