

SynBioHub v1.1.0

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11 October 2017

Introduction



SynBioHub

SynBioHub is a *design repository* for people designing biological constructs. It enables DNA and protein designs to be uploaded, then provides a shareable link to allow others to view them. SynBioHub also facilitates searching for information about existing useful parts and designs by combining data from a variety of sources.

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- ▶ Links to other data repositories
 - Inventory of Composable Elements (ICE)
 - Benchling
 - SynBioHub (through Web of Registries)

Google Summer of Code



Google Summer of Code

Google Summer of Code



Google Summer of Code

- *Develop a Synthetic Biology Publication Workflow that Leverages the Synthetic Biology Open Language*

Google Summer of Code



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Google Summer of Code



Google Summer of Code

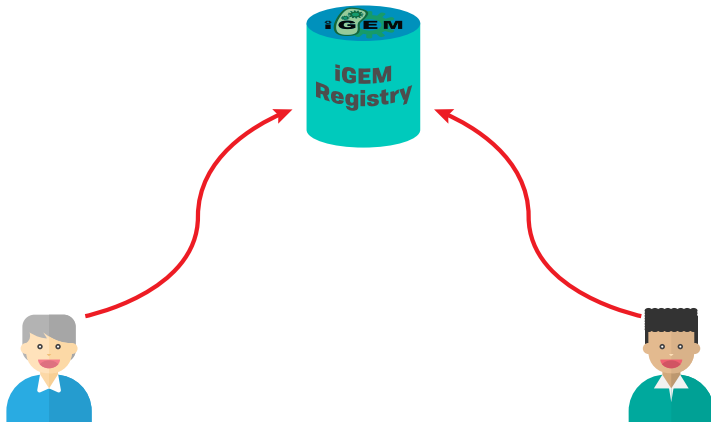
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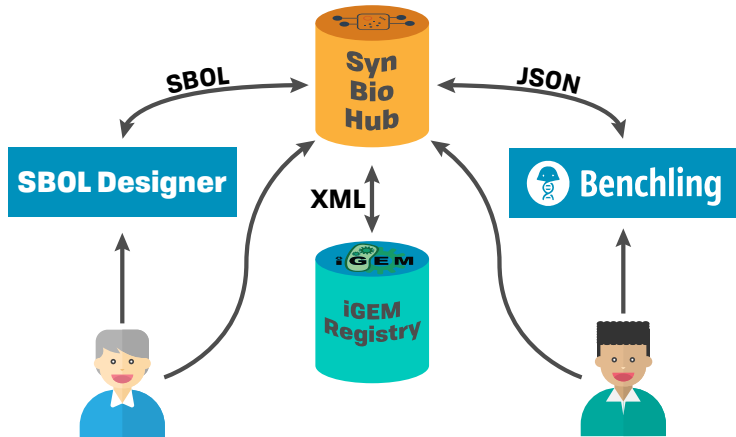
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- ▶ Released versions 1.0.0, 1.0.1, and 1.1.0 of SynBioHub

iGEM Workflow



iGEM Workflow

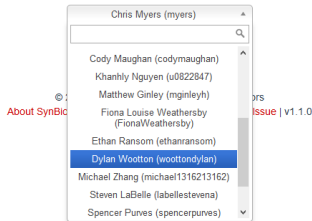


Ownership and Sharing



Add owner

Warning: this will give another user complete control over this object.



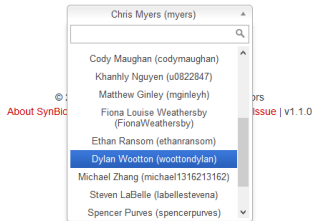
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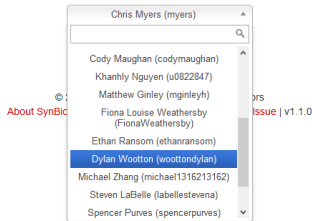
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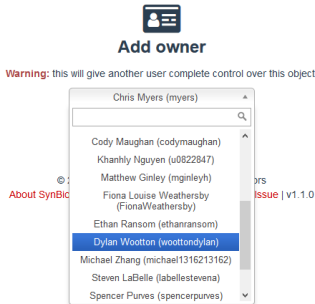
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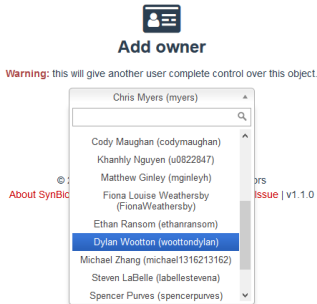
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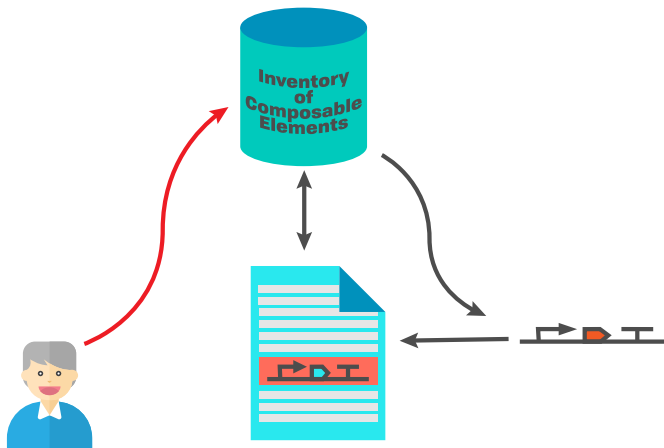
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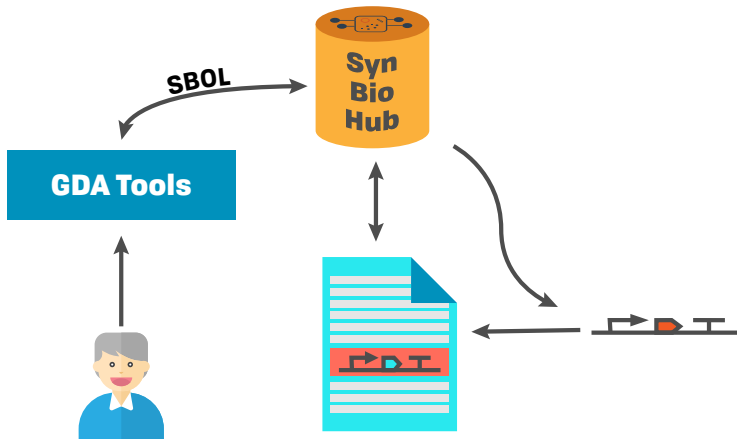


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- ▶ Ownership is built using annotations and share links

ACS Synthetic Biology Publication Workflow



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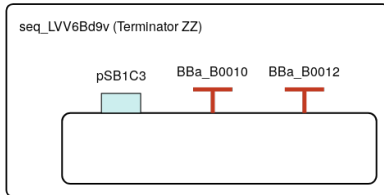


Visualization

- ▶ SBOL Visual is a visual standard for genetic constructs

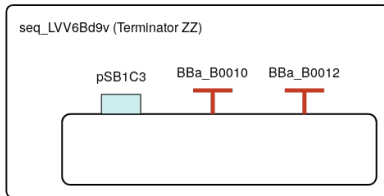
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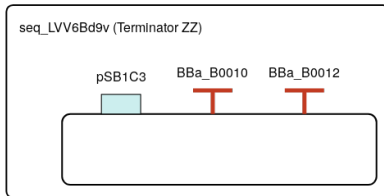
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- VisBOL is a library for rendering SBOL documents using the SBOLv standard

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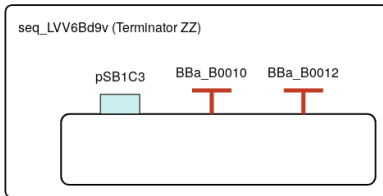
- ▶ SBOL Visual is a visual standard for genetic constructs



- ▶ VisBOL is a library for rendering SBOL documents using the SBOLv standard
- ▶ Creates graphics from SBOL, GenBank, and Pigeon

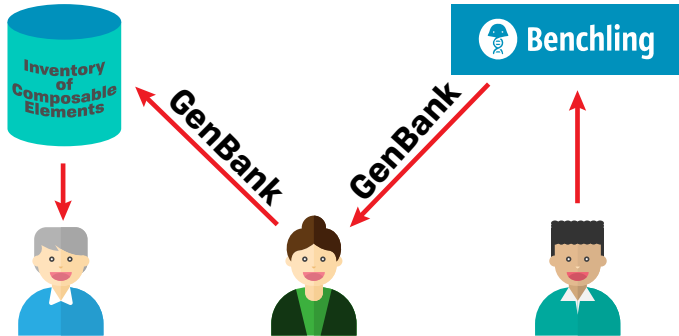
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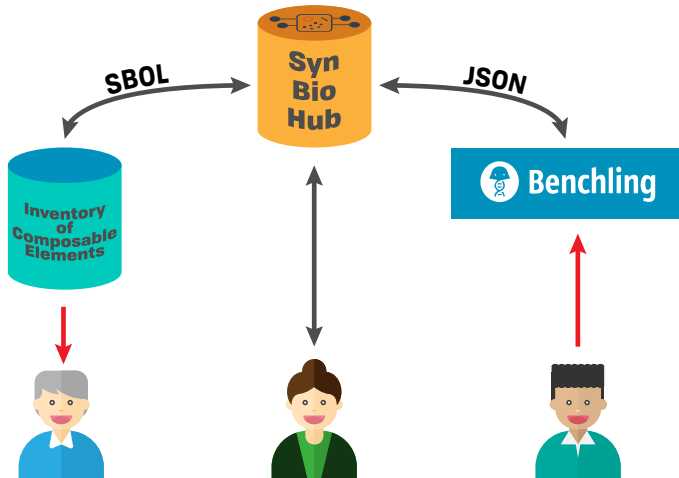


- ▶ VisBOL is a library for rendering SBOL documents using the SBOLv standard
- ▶ Creates graphics from SBOL, GenBank, and Pigeon
- ▶ Used on SynBioHub to display and provide visualization for submitted parts

Living Computing Project Workflow






Living Computing Project Workflow



Remote Config




ID:	acs
Type:	ice
URL:	https://acs-registry.jbei.org

 Remove  Edit  Snapshot




Type:

+ Add Remote

ID:	jbei
Type:	ice
URL:	https://public-registry.jbei.org

 Remove  Edit  Snapshot

ID:	benchling
Type:	benchling
URL:	https://api.benchling.com/v1




 Remove  Edit  Snapshot

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- SynBioHub can fetch and push parts to/from remote repositories

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Remove Edit Snapshot	

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- ▶ This is configurable in the administrator dashboard

Web of Registries

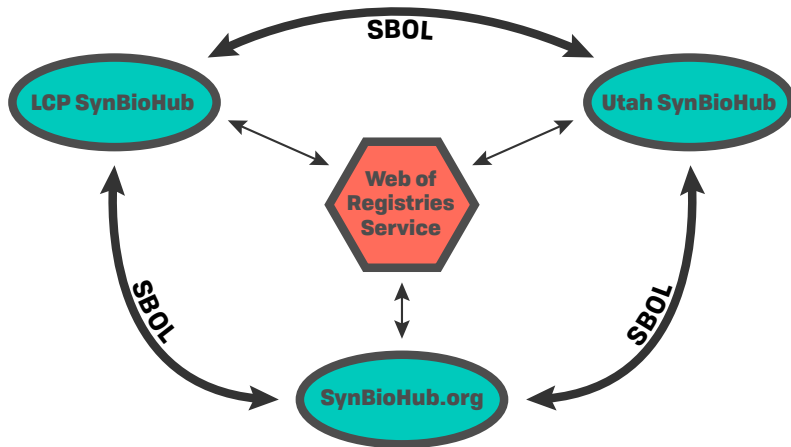


LCP SynBioHub

Utah SynBioHub

SynBioHub.org

Web of Registries



Web of Registries

Web of Registries

SynBioHub is part of the Web of Registries

The Web of Registries can update SynBioHub

[Edit Entry](#) [Delete Entry](#)

Local Web of Registries [+ Add Registry](#)

URI Prefix	SynBioHub URL		
<input type="text" value="https://synbiohub.progi"/>	<input type="text" value="https://synbiohub.progi"/>	Save	Delete
<input type="text" value="https://synbiohub.org"/>	<input type="text" value="https://synbiohub.org"/>	Save	Delete
<input type="text" value="https://synbiohub.utah"/>	<input type="text" value="https://synbiohub.utah"/>	Save	Delete

Showing 1 to 3 of 3 entries

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- An instance of SynBioHub can connect to other SynBioHubs and link to elements in their public store.

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SynBioHub URL
Database Prefix

Web of Registries

LCP SynBioHub

Instance URL: <https://synbiohub.programmingbiology.org>

URI Prefix: <https://synbiohub.programmingbiology.org>

Administrator Email: myers@ece.utah.edu

Update endpoint: <https://synbiohub.programmingbiology.orgupdateWebOfRegistries>

Description: [SynBioHub](#) is a *design repository* for people designing biological constructs. It enables DNA and protein designs to be uploaded, then provides a shareable link to allow others to view them. SynBioHub also facilitates searching for information about existing useful parts and designs by combining data from a variety of sources.

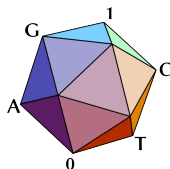
Accessible: HTTP requests successful

DELETE

<https://wor.synbiohub.org>

DEMONSTRATION

Acknowledgements



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