

# Comprehensive Modelling Platform

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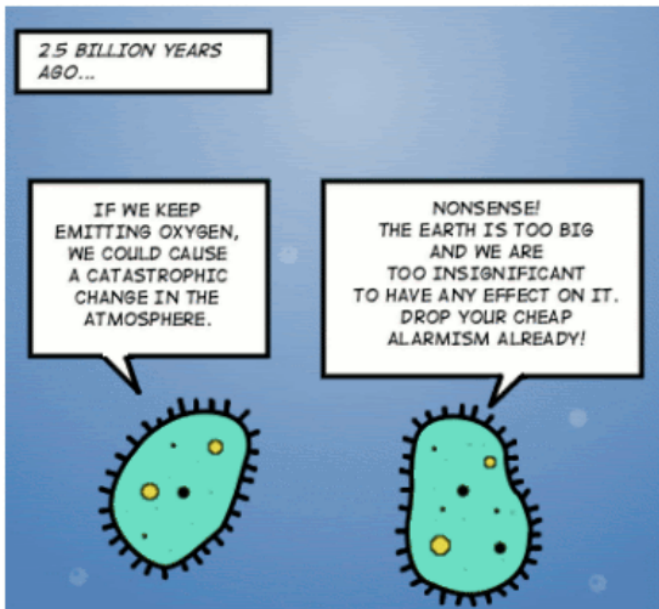
David Šafránek, Jan Červený, Matej Troják, Matej Hajnal,  
Marek Havlík, Radoslav Doktor, Ondrej Lošťák

**Lukrécia Mertová**

April 9, 2019

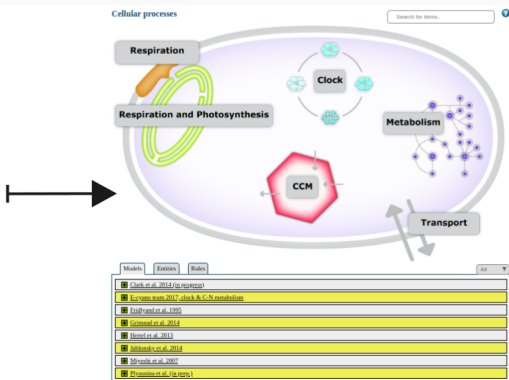
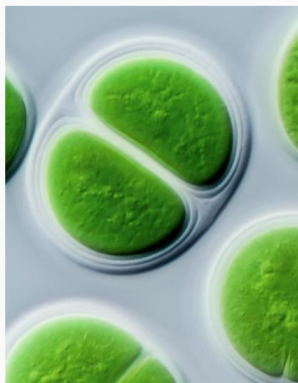
Systems Biology Laboratory, Masaryk University, Brno, Czech Republic

# Cyanobacteria



# E-cyanobacterium.org

## Web-based Platform for Systems Biology of Cyanobacteria

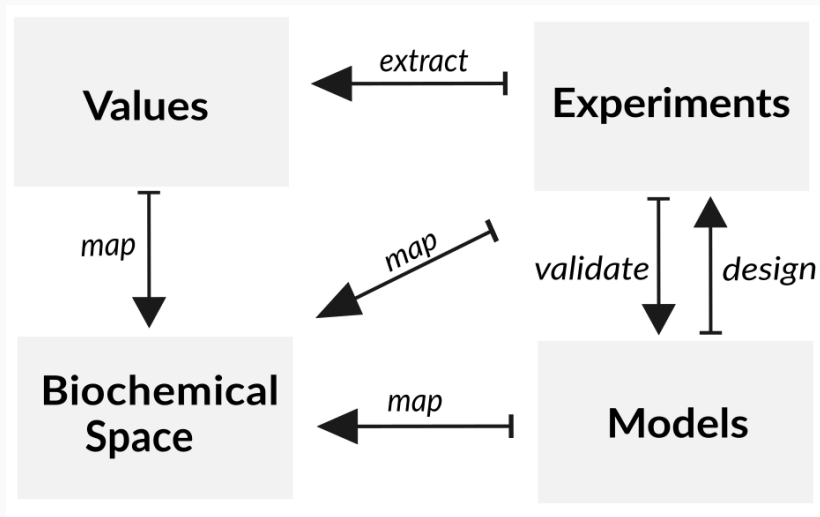


- Online platform for cyanobacteria processes
- Store, maintain, and present **experimental data**
- Share, analyse, re-use, and compare **models**
- Unified standards

Universal web-based framework whose idea is to stimulate collaboration between experimental and computational systems biologists.

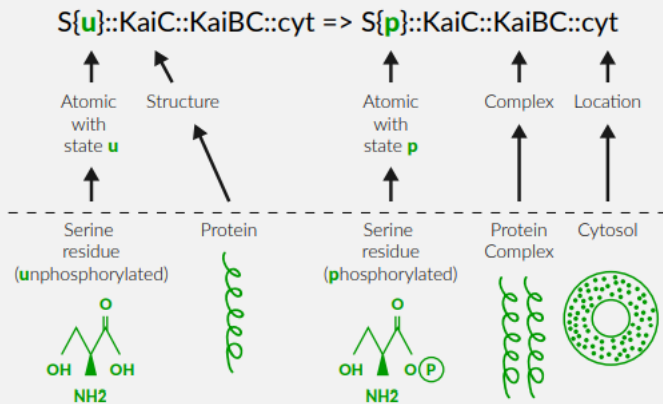
- Integrate biological knowledge with computational models and wet-lab experiments
- Public sharing
- Annotation
- Visualization
- Simulation of processes
- Model analysis

# Comprehensive Modelling Platform – Architecture



## Biochemical Space

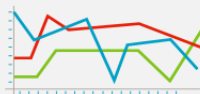
### Biochemical Space Language



Annotation – Biological meaning assignment

## Visualisation

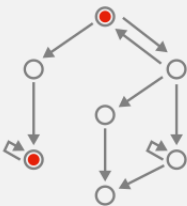
### Time series



### Schemes



### Graphs



## Analysis

### Internal tools (BioDivine):

- Pithya
- Parasim
- BCSgen
- Esther

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### External tools:

- Parameter synthesis
- Conservation analysis
- Flux Modes Analysis
- Matrix analysis
- MATLAB
- Copasi



# Comprehensive Modelling Platform – Summary

- all features under one web
- modular architecture
- data integration
- formal methods
- standard formats (SBML, SED-ML, ...)