BioModels Database

Model Curation

CellML workshop,
ABI, Auckland

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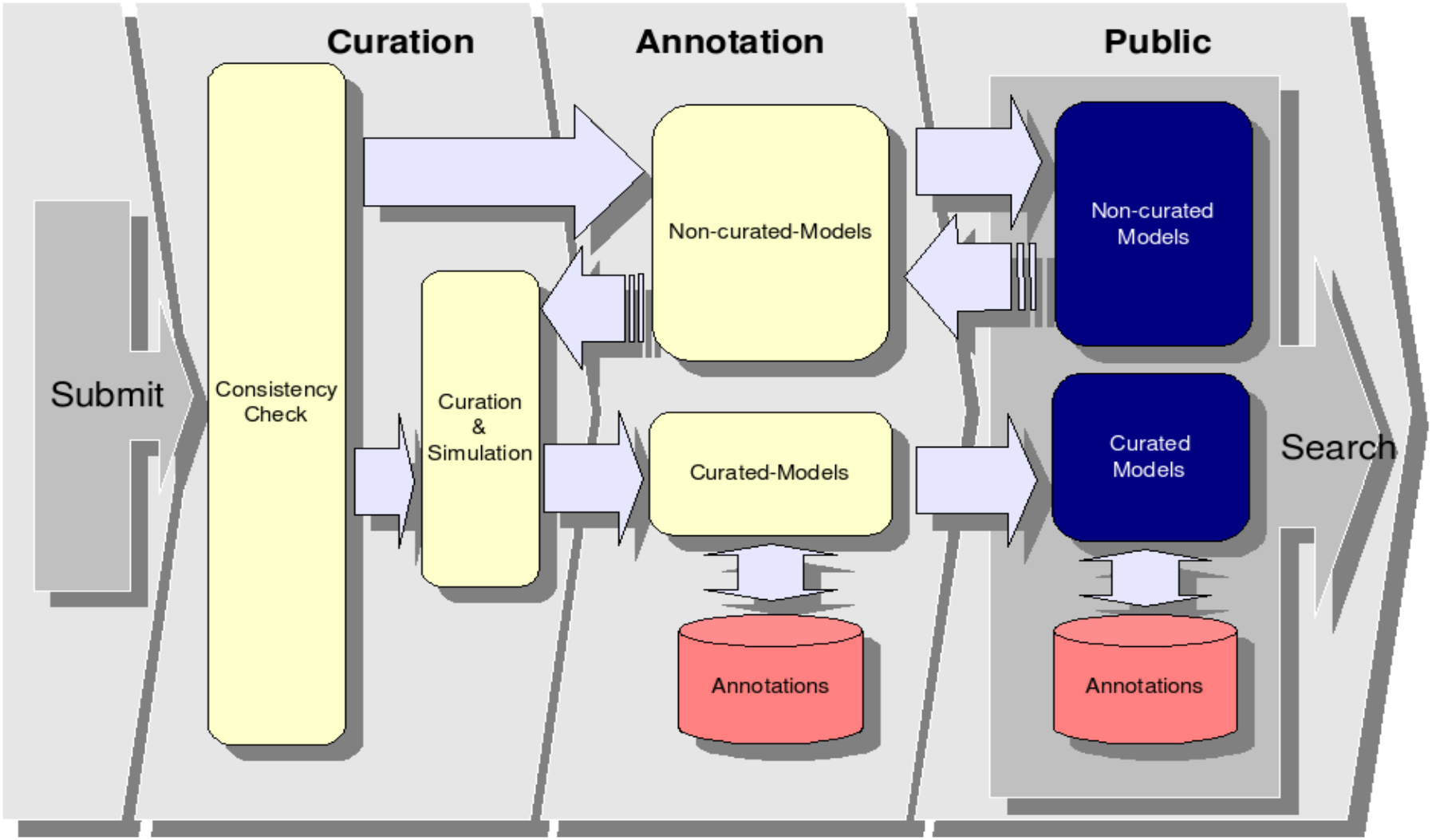
Curation
Annotation
Public
Submit
Consistency Check
Curation & Simulation
Non-curated-Models
Curated-Models
Annotations
Non-curated Models
Curated Models
Annotations
Search

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Branches of BioModels Database

- Curated
  - checked for MIRIAM compliance
  - curation figure added
  - model elements manually annotated
  - BioModels ID (BIOMDxxxx)
- Noncurated branch
  - only slightly altered by the curators
  - only publication and creation details added automatically and by curators

MIRIAM compliance for BioModels DB

Le Novère N. et al. *Nature Biotechnology* (2005), 23: 1509-1515

model must :

- be correctly encoded in a standard format (valid SBML)
- contain link to a single reference description (peer reviewed for BioModelsDB)
- contain creator's contact details
- reflect the structure of the processes and formulas described in the reference publication
- be able to reproduce the results given in the reference publication

Non Curated Branch

- valid SBML
- not MIRIAM compliant
  - not kinetic models (eg. FBA, stoichiometric maps)
  - can not reproduce results
- MIRIAM compliant
  - models contain kinetics that we do not curate up to now (eg. boolean models) or parts are not encoded in SBML (eg. spatial information)
  - significant tailback due to insufficient time and workforce → will be moved into curated branch as soon as possible

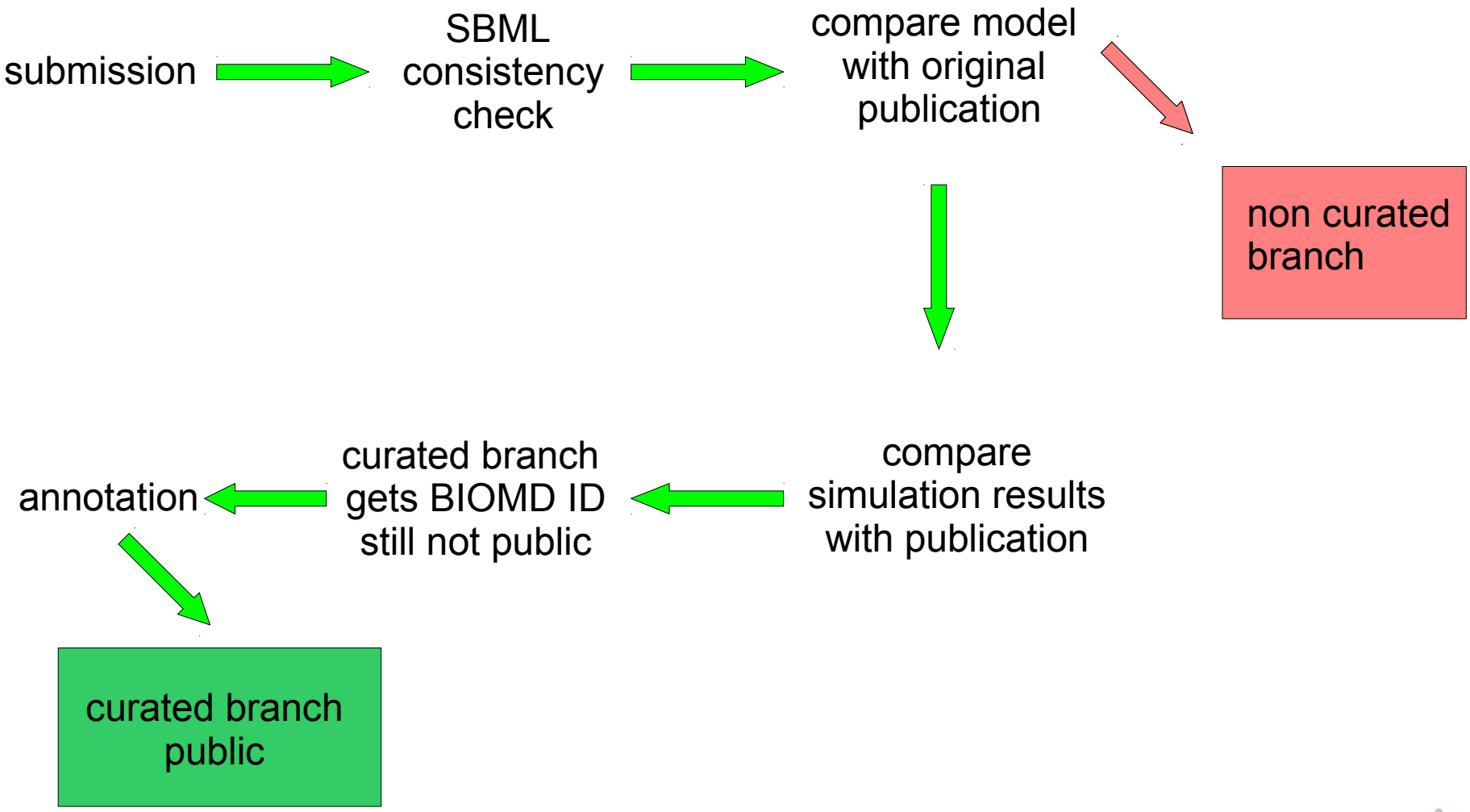
Curation Guidelines

- read publication
- go through SBML model and compare all elements
  - where possible create reactions out of differential equations
  - add names to unnamed reactions, rules and events
  - add compartments and move species and parameters accordingly
- change names and IDs to correspond to article
- try to reproduce one or two key results of the reference publication and create curation result (figure or table)
- add notes
- move model to the curated branch for annotation and publication

if any problems occure contact submitter first and, if necessary, authors

all deviations from the publication have to be documented in the notes

whenever the model's SBML file is changed significantly, the curation results have to be redone


submission
SBML consistency check
compare model with original publication
non curated branch
compare simulation results with publication
curated branch gets BIOMD ID still not public
annotation
curated branch public

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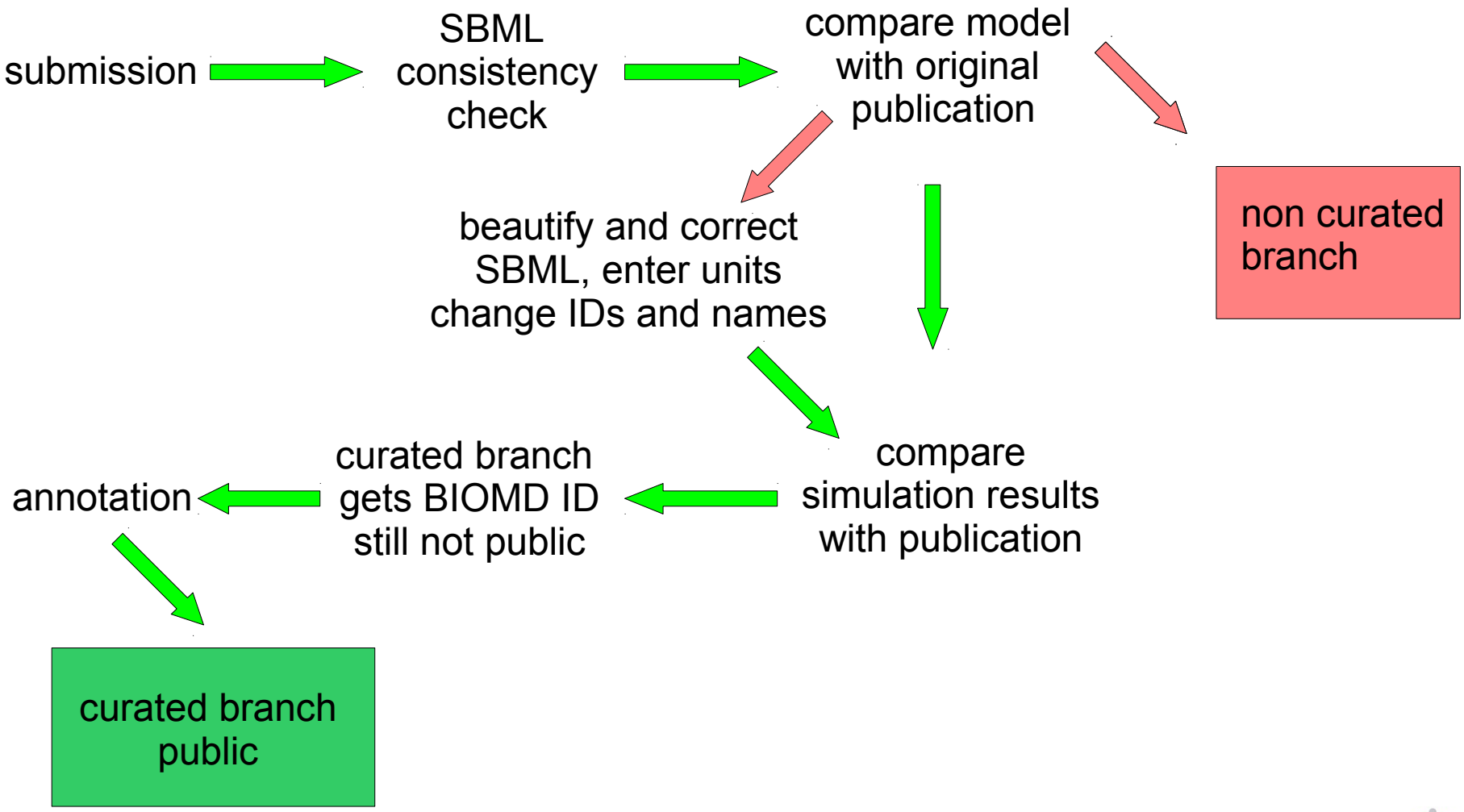
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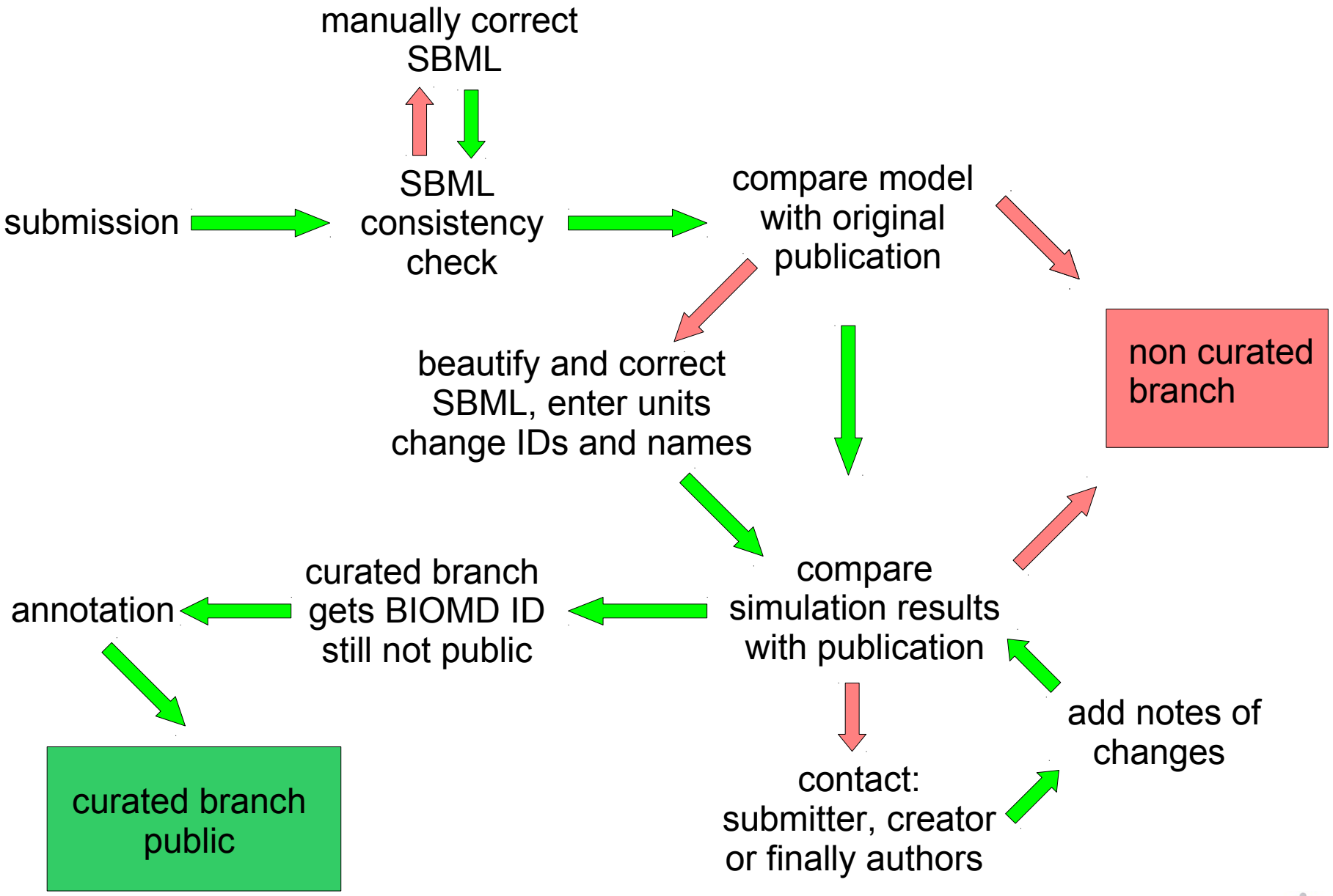
manually correct SBML
SBML consistency check
submission
compare model with original publication
non curated branch
beautify and correct SBML, enter units change IDs and names
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curated branch gets BIOMD ID still not public
annotation
curated branch public
add notes of changes
contact: submitter, creator or finally authors

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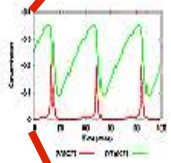
BIOMD0000000005 - Tyson1991_

SBML formats | Other fo generate

Model | Overvi

Curation result



2010-02-08T10:29:04

Comment: The moc

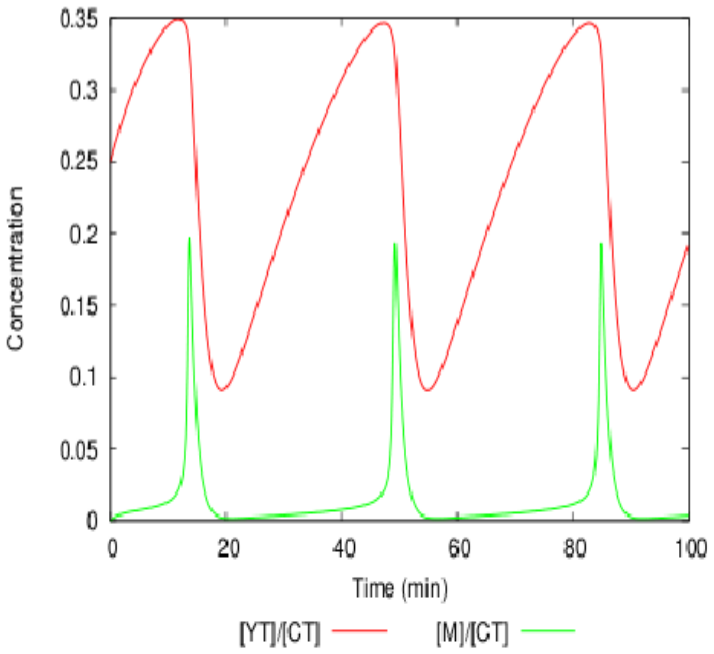
Model history

Rev	Log message
36	changed to SBML l2_v4 ar
3	the latest version when imp
2	original models.

Compare Revisions

Curation Result - Mozilla Firefox

http://www.ebi.ac.uk/biomodels-main/simulation-result.do?uri=anno-r



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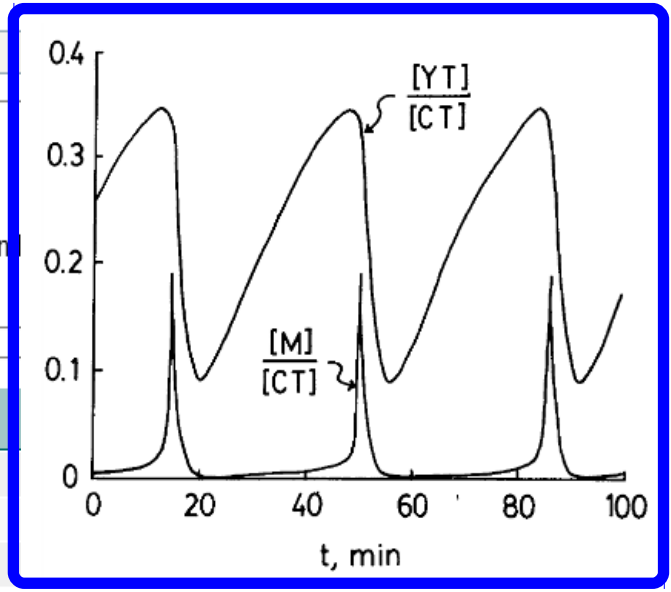
Comment: The model reproduces figure 3A of the reference publication. The model was integrated and simulated using Copasi v4.5 (Build 30).

Close

Done



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Curation

Problems:

- typos and errors in publications – both in model or results
- original models used in publication not available
- misleading diagrams or simplified kinetics in model/publication
- automatically generated SBML files can be hard to interpret

only few models stay in the curation pipeline:

- no publication info or never published
- large deviations from the model structure of the publication

Nicolas
Le Novère

Camille Laibe

BioModels DB Curation

Lukas Endler

Vijayalakshmi
Chelliah

EMBL

bbsrc
biotechnology and biological sciences research council

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