



Phenotype database: what is it?

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Contents

1. Background
2. What does Phenotype DB do?
3. Who is it for?
4. How does it work?
5. Conclusion



A little history: Collaborators (early days and now)



Nutritional Phenotype database



Background

Developed to:

empower scientists, within various communities of practice, with standardized software and knowledge stores to store, manage, and retrieve information and data on genotypes and phenotypes.



How to reach this goal

- ❖ Standardization of study data capture (templates and ontologies)
- ❖ Make it possible to share study design and actual data (e.g. for reproducing)

Share your study



What does Phenotype DB do

- ❖ Store data
 - Meta data (study setup/design) using templates and ontologies
 - Measurements data

- ❖ Share data



- ❖ Quick visualization of data



Who is it for?

- ❖ Current users:

 - TNO

 - TraIT

 - Researchers at Maastricht University

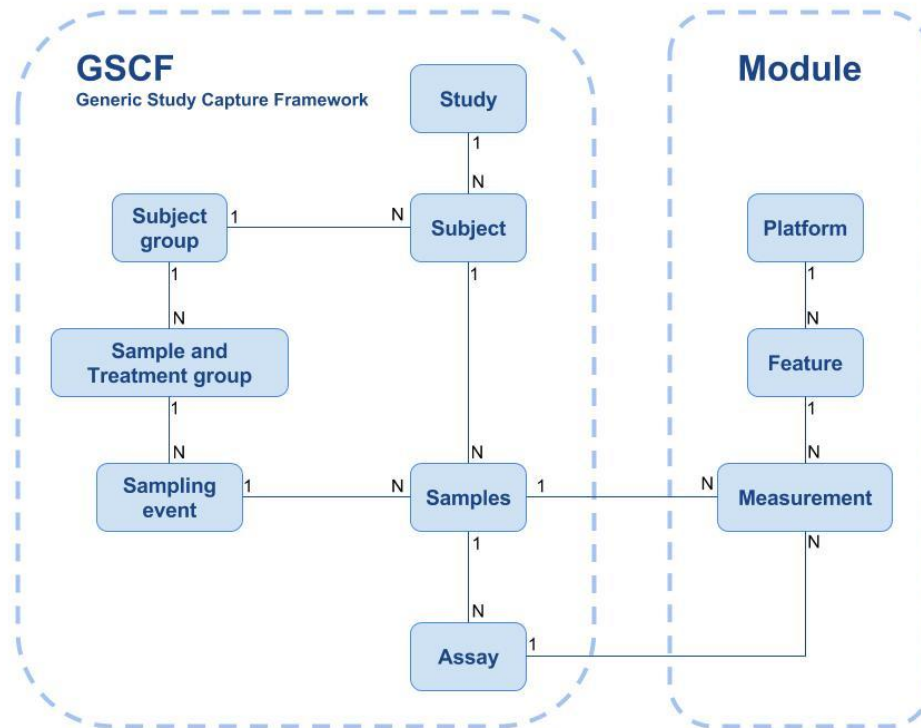
- ❖ In general:

 - organisations who want to share study set up and data internally or externally

- ❖ ...

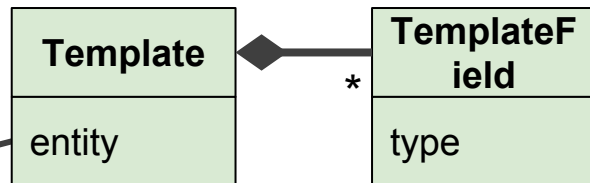


How does it work?



Templates for everything

- Study
- Subject
- Event (sample and treatment group)
- Sampling event
- Sample
- Assay
- Platform
- Feature



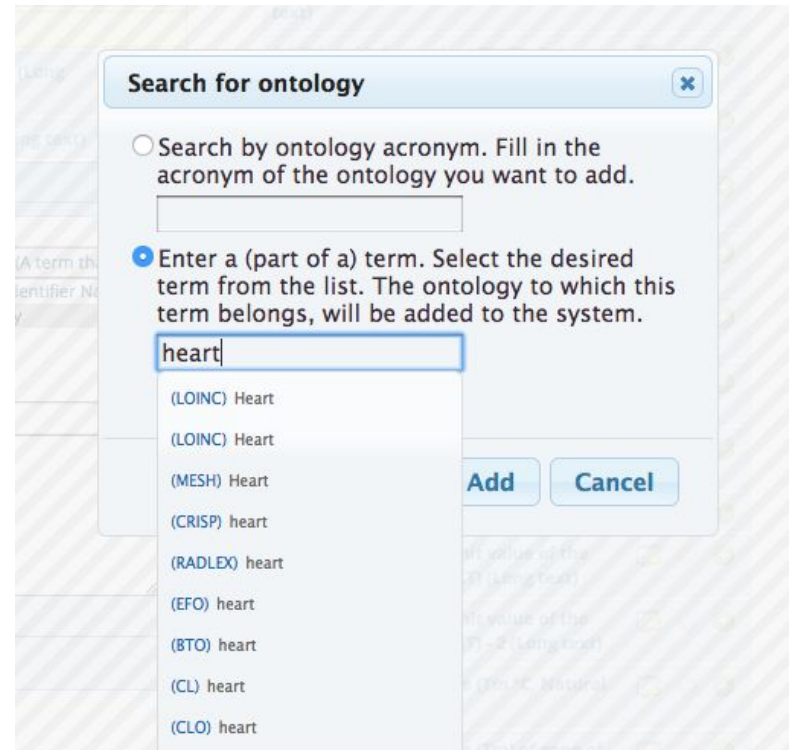
- short text (< 255 chars)
- long text
- selection from list of terms
- selection from extendible list of terms
- decimal number (double)
- natural number (long)
- term from ontology
- file
- boolean
- date
- relative time
- template
- module



Using ontologies in template fields

- Uses BioPortal (National Center for Biomedical Ontology), a repository of ontologies.

<https://bioportal.bioontology.org/>



test (switch)

Currently, this template contains the following fields. Drag fields to reorder. Drag fields to the list of available fields to remove the field from the template.

name (Short text)

unit (Short text)

↓ Additional information (TEXT) - 7 (Long text)

↓ Additional information (TEXT) (Long text)

↕ test onto (Term from ontology)

Name: test onto

Type: Term from ontology (A term that cc ↓)

Ontologies: Logical Observation Identifier Names
 Add new Environment Ontology
 Remove

Unit:

Comment:

Required:

Save Close

Available fields

These fields are available for adding to the template. Drag a field to the template to add it.

- Additional information (TEXT) - 2 (Long text)
- Additional information (TEXT) - 3 (Long text)
- Additional information (TEXT) - 4 (Long text)
- Additional information (TEXT) - 5 (Long text)
- Additional information (TEXT) - 6 (Long text)
- Additional information (TEXT) - 8 (Long text)
- Amplicon size (basepairs (bp)) (basepairs (bp), Natural number)
- Amplicon size (basepairs (bp)) - 2 (basepairs (bp), Natural number)
- Analysis software (Long text)
- Analysis/calculation unit value of the measured feature (TEXT) (Long text)
- Analysis/calculation unit value of the measured feature (TEXT) - 2 (Long text)
- Annealing temperature (Tm °C, Natural number)
- Annealing temperature (Tm) of gene of

Template PK_test

Title

Description

Code

Start Date

Ontology Example

- ✓ C57BL/6 Mouse
- Hungary
- Netherlands
- add more...



Technical details

- ❖ Grails 2.5.1 + PostgreSQL
- ❖ Server-side rendering of pages
- ❖ JavaScript with a lot of jQuery
- ❖ Database tables automatically generated from domain model



What's new in version 2?

- ❖ Redesign of front-end (style)
- ❖ Test plan
- ❖ Lots and lots of bug fixes (work-in-progress)
- ❖ Optimization (database queries, importer)
- ❖ Improved documentation



Summary

Phenotype database has a lot going for it:

- ❖ standardization of study setup and data
- ❖ easily customizable using templates
- ❖ open source
- ❖ ontologies integrated





We empower scientists by building on open source software