

TableEdit

A Mediawiki Extension

some background

- wiki's are innately free-form
- biological data is innately tabular
- how do you incorporate the two?
 - you sneak structure into the mix...

overall goals



- make it easy for (all) users to edit tables / tabular data
- lower the unit of submission
- make it easy to mine data / text from the wiki
- contribute to the Mediawiki community

example

pcnB:Gene Product(s)

[Quickview](#) | [Gene](#) | **[Gene Product\(s\)](#)** | [Expression](#) | [Evolution](#) | [On One Page](#)
[Nomenclature](#) | [Function](#) | [Interactions](#) | [Localization](#) | [Sequence](#) | [Domains](#) | [Structure](#) | [Resources](#) | [Accessions](#)

Nomenclature

Standard name	PcnB
Synonyms	poly(A) polymerase I ^[1] , B0143 ^{[2][1]} , PcnB ^{[2][1]} , PAP I ^{[2][1]}
Product description	poly(A) polymerase I ^{[2][3]}
EC number (for enzymes)	■ 2.7.7.19 ↗ ^[1]
edit table ↗	

See [Help:Product_nomenclature](#) for help entering or editing information in this section of EcoliWiki.

example

pcnB:Gene Product(s)

[TableEdit Help](#)

Standard name	PcnB
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	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/> public

Table style

(e.g. align='right')

Heading style

(e.g. 'bgcolor = #ccccff' to make the heading background light blue)

[Cancel](#)

Extra for admins:



example

Standard name	<u>PcnB</u>
Synonyms	<code>poly(A) polymerase I<ref name='LIB:Riley_2006' />, B0143<ref name='LIB:EcoCyc10.6' /><ref name='LIB:Riley_2006' />, <u>PcnB</u><ref name='LIB:EcoCyc10.6' /><ref</code>
Product description	<code>poly(A) polymerase I<ref name='LIB:EcoCyc10.6' /><ref name='LIB:EcoCyc11.1' /></code>
EC number (for enzymes)	<code>* [http://www.brenda-enzymes.info/php/result_flat.php4?ecno=2.7.7.19]<ref name='LIB:Riley_2006' /></code>
<input type="text" value="Public"/> <input type="button" value="Update"/> <input type="button" value="Save"/> <input type="button" value="Cancel"/>	

example

Standard name	<u>PcnB</u>
Synonyms	<code>poly(A) polymerase I<ref name='LIB:Riley_2006' />, B0143<ref name='LIB:EcoCyc10.6' /><ref name='LIB:Riley_2006' />, <u>PcnB</u><ref name='LIB:EcoCyc10.6' /><ref</code>
Product description	<code>poly(A) polymerase I<ref name='LIB:EcoCyc10.6' /><ref name='LIB:EcoCyc11.1' /></code>
EC number (for enzymes)	<code>* [http://www.chem.qmul.ac.uk/iubmb/enzyme/EC2/7/7/19.html EC 2.7.7.19]</code>
<input type="text" value="Public"/> <input type="button" value="Update"/> <input type="button" value="Save"/> <input type="button" value="Cancel"/>	

example

Standard name	PcnB
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EC number (for enzymes)	■ EC 2.7.7.19 
edit table 	

creating tables

Editing CLUSTALW



```
{ {Pagetop} }
== Short Description ==
{ {UserContentHelp} }
CLUSTALW is a widely used tool for multiple sequence alignments. It is a
alignment programs, which includes CLUSTALX, a graphical version that runs
a command line program, it is often accessed via a web interface, such as
/index.html EBI] and [http://www.ch.embnet.org/software/ClustalW.html Swis

== Links ==
*[http://www.clustal.org/ clustal.org]
*[http://www.ebi.ac.uk/Tools/clustalw2/index.html CLUSTALW2 web interface
*[http://www.ch.embnet.org/software/ClustalW.html CLUSTAL at the Swiss Ins

== Requirements ==
```

creating tables

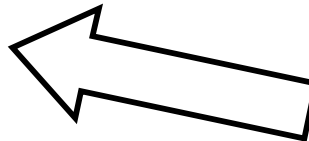
Editing CLUSTALW



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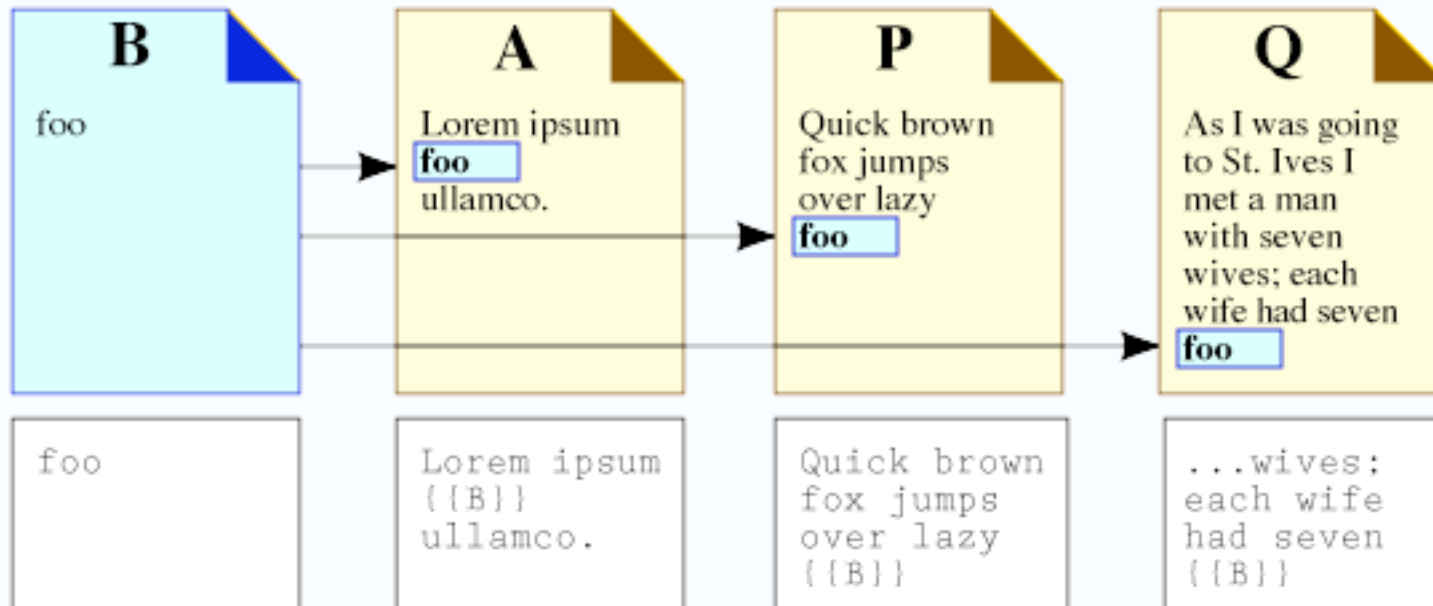
<newTableEdit>
Replace these lines
with Headings and Save
to see a table
</newTableEdit>

== Links ==
*[http://www.clustal.org/ clustal.org]
```



creating tables

- template based system
 - transclusion allows for abstraction



creating (templated) tables

Editing Template:Gene nomenclature table



```
<headings>
Standard name
Mnemonic
Synonyms
</headings>
<heading_style>{{table_heading_style}}</heading_style>
<type>1</type>


[[Category:Table templates|Gene nomenclature table]]
```

<newTableEdit>

Template:Gene_Nomenclature_table

</newTableEdit>



Standard name
Mnemonic
Synonyms
edit table 



creating (templated) tables

table properties

- `<headings>`
- `<heading_style>`
- `<type>`
- `<box_style>`
- `<style>`
- `<help[1-4]>`
- `<above>`
- `<below>`

column rules

- `select`
- `checkbox`
- `text`
- `lookup`
- `calc`
- `lookupcalc`
- `timestamp`
- `foreign`

column rules

<headings>

Qualifier||qualifier|**select**| |NOT|Contributes to|Colocalizes with|Obsolete ...

GO ID||go_id|text

GO term name||go_term|**lookupcalc**|SELECT page_title FROM GO_archive.term WHERE go_id =
'{{{go_id}}}' ORDER BY term_update DESC LIMIT 1|page_title|split|_!_|1

Reference(s)||refs

Evidence Code||evidence|**select**| |IC: Inferred by Curator|IDA: Inferred from Direct
Assay|IEA: Inferred from Electronic Annotation|IEP: Inferred from Expression|IGC:
Inferred from Genomic Context|IGI: Inferred from Genetic Interaction|IMP:
Inferred from Mutant Phenotype|IPI: Inferred from Physical Interaction|ISS:
Inferred from Sequence or Structural Similarity ...

with/from||with|**text**

Aspect||aspect|**lookup**|SELECT namespace from GO_archive.term WHERE go_id =
'{{{go_id}}}' ORDER BY term_update DESC LIMIT 1|namespace

Notes||Notes

Status||status|**calc**|reqcomplete|go_id|refs|go_term|evidence

</headings>

<heading_style>{{table_heading_style}}</heading_style>

[[Category:Table templates|GO table product]]



the cool stuff

- really big tables
- conflict detector - keeps things correct
- help links - 100% user editable
- the loader - for mass imports / edits
- documentation / specs - always good
- modules - extensions of extensions
- " foreign tables " & mirroring

applications

12 x >67

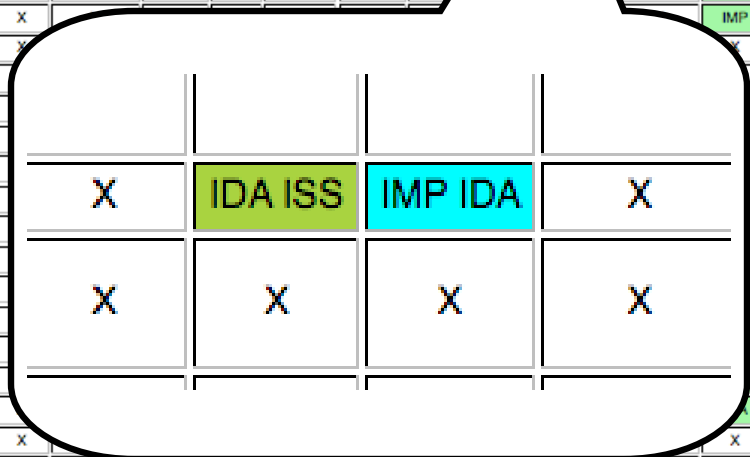
Group	Organism	gene	Qualifier	GO ID	GO term name	Reference(s)	Evidence Code	Annotation	Status		
WormBase	C.elegans	PFKL = C50F4.2 = WBGene0006230		GO:0040018	positive regulation of multicellular organism growth	PMID:11231151 ^[1]	IMP: Inferred from Mutant Phenotype		complete		
FlyBase	Drosophila	FBgn0003071		GO:0003872	6-phosphofructokinase activity	PMID:7929140 ^[2]	IMP: Inferred from Mutant Phenotype		complete		
FlyBase	Drosophila	FBgn0003071		GO:0005945	6-phosphofructokinase complex	PMID:7929140 ^[2]	IC: Inferred by Curator	GO:0003872	C	complete	
FlyBase	Drosophila	FBgn0003071		GO:0006096	glycolysis	PMID:7929140 ^[2]	IC: Inferred by Curator	GO:0003872	P	complete	
DictyBase	Dicty	DDB_G0274111		GO:0003872	6-phosphofructokinase activity	PMID:4300706 ^[3] PMID:7813455 ^[4]	IDA: Inferred from Direct Assay		F	purified enzyme	complete
DictyBase	Dicty	DDB_G0274111		GO:0003872	6-phosphofructokinase activity	PMID:7589492 ^[5]	IGI: Inferred from Genetic Interaction	S000003472!S000004818	F	the Dicty recombinant protein expressed in the yeast mutant; yeast has 2 subunits, while Dicty has only one	complete
DictyBase	Dicty	DDB_G0274111		GO:0015631	tubulin binding	PMID:10026266 ^[6]	IPI: Inferred from Physical Interaction	P81948	F		complete

applications

Category	ID	Term	Human	Mouse	Rat	Chicken	Zfish	Fly	Worm	Dicty	Dicot	Dicot	Yeast	Pombe	Ecoli
Biological Process	GO:0040018	positive regulation of multicellular organism growth	X	X	X	X	X	X	IMP	X	X	X	X	X	X
Biological Process	GO:0006096	glycolysis	IDA	IDA	X	X	X	IC	X	X	X	IDA ISS	IMP IDA	X	IDA
Biological Process	GO:0006002	fructose 6-phosphate metabolic process	IDA IMP	X	X	X	X	IMP	X	IDA	X	X	X	X	X
Biological Process	GO:0031115	negative regulation of microtubule polymerization	X	X	X	X	X	X	X	IDA	X	X	X	X	X
Biological Process	GO:0006007	glucose catabolic process	X	X	X	X	X	X	X	IGI	X	X	X	X	IMP
Biological Process	GO:0009792	embryonic development ending in birth or egg hatching	X	X	X	X	X	X	IMP	X	X	X	X	X	X
Biological Process	GO:0000003	reproduction	X	X	X	X	X	X	IMP	X	X	X	X	X	X
Biological Process	GO:0044275	cellular carbohydrate catabolic process	X	X	X	X	X	X	X	X	X	X	X	X	IMP
Biological Process	GO:0016052	carbohydrate catabolic process	X	X	X	X	X	X	X	X	X	X	X	X	IMP
Biological Process	GO:0046676	negative regulation of insulin secretion	X	IDA	X	X	X	X	X	X	X	X	X	X	X
Biological Process	GO:0009749	response to glucose stimulus	X	IDA	X	X	X	X	X	X	X	X	X	X	X
Molecular Function	GO:0003872	6-phosphofructokinase activity	IDA IMP	IDA	X	X	X	IMP	X	IDA IGI	X	IDA ISS	IMP	X	IMP
Molecular Function	GO:0015631	tubulin binding	X	X	X	X	X	X	X	IPI	X	X	X	X	X
Molecular Function	GO:0005524	ATP binding	IDA	X	X	X	X	X	X	X	X	X	X	X	IMP
Molecular Function	GO:0042802	identical protein binding	IPI	X	X	X	X	X	X	X	X	X	X	X	IDA
Molecular Function	GO:0005515	protein binding	IPI	X	X	X	X	X	X	X	X	X	X	X	X
Molecular Function	GO:0070061	fructose binding	IDA IC	X	X	X	X	X	X	X	X	X	X	X	X
Molecular Function	GO:0005488	binding	X	X	X	X	X	X	X	X	X	X	X	X	IDA
Molecular Function	GO:0000267	magnesium ion binding	X	X	X	X	X	X	X	X	X	X	X	X	IDA
Molecular Function	GO:0032553	ribonucleotide binding	X	X	X	X	X	X	X	X	X	X	X	X	IDA
Molecular Function	GO:0043531	ADP binding	X	X	X	X	X	X	X	X	X	X	X	X	IDA
Cellular Component	GO:0005945	6-phosphofructokinase complex	IDA	X	X	X	X	IC	X	IDA	X	X	IMP	X	IDA
Cellular Component	GO:0005829	cytosol	IDA	IDA	X	X	X	X	X	IDA	X	IDA	X	X	X
Cellular Component	GO:0005737	cytoplasm	X	X	X	X	X	X	X	X	X	X	X	X	IDA
Cellular Component	GO:0005886	plasma membrane	X	X	X	X	X	X	X	X	X	IDA	X	X	X
Cellular Component	GO:0009507	chloroplast	X	X	X	X	X	X	X	X	X	IDA	X	X	X

applications

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Biological Process	GO:0006096	glycolysis	IDA	IDA	X	X	X	IC	X	X	X	IDA ISS	IMP IDA	X	IDA
Biological Process	GO:0006002	fructose 6-phosphate metabolic process	IDA IMP	X	X	X	X	IMP	X	IDA	X	X	X	X	X
Biological Process	GO:0031115	negative regulation of microtubule polymerization	X	X	X	X	X	X	X	IDA	X	X	X	X	X
Biological Process	GO:0006007	glucose catabolic process	X	X	X	X	X	X	X	IGI	X	X	X	X	IMP
Biological Process	GO:0009792	embryonic development ending in birth or egg hatching	X	X	X	X	X	X	IMP	X	X	X	X	X	X
Biological Process	GO:0000003	reproduction	X	X	X	X	X	X	IMP	X	X	X	X	X	X
Biological Process	GO:0044275	cellular carbohydrate catabolic process	X	X	X	X	X	X	X	X	X	X	X	X	IMP
Biological Process	GO:0016052	carbohydrate catabolic process	X	X	X	X	X	X	X	X	X	X	X	X	IMP
Biological Process	GO:0046676	negative regulation of insulin secretion	X	IDA	X	X	X	X	X	X	X	X	X	X	X
Biological Process	GO:0009749	response to glucose stimulus	X	IDA	X	X	X	X	X	X	X	X	X	X	X
Molecular Function	GO:0003872	6-phosphofructokinase activity	IDA IMP	IDA	X	X	X	X	X	X	X	X	X	X	X
Molecular Function	GO:0015631	tubulin binding	X	X	X	X	X	X	X	X	X	X	X	X	X
Molecular Function	GO:0005524	ATP binding	IDA	X	X	X	X	X	X	X	X	X	X	X	X
Molecular Function	GO:0042802	identical protein binding	IPI	X	X	X	X	X	X	X	X	X	X	X	X
Molecular Function	GO:0005515	protein binding	IPI	X	X	X	X	X	X	X	X	X	X	X	X
Molecular Function	GO:0070061	fructose binding	IDA IC	X	X	X	X	X	X	X	X	X	X	X	X
Molecular Function	GO:0005488	binding	X	X	X	X	X	X	X	X	X	X	X	X	X
Molecular Function	GO:0000267	magnesium ion binding	X	X	X	X	X	X	X	X	X	X	X	X	X
Molecular Function	GO:0032553	ribonucleotide binding	X	X	X	X	X	X	X	X	X	X	X	X	X
Molecular Function	GO:0043531	ADP binding	X	X	X	X	X	X	X	X	X	X	X	X	X
Cellular Component	GO:0005945	6-phosphofructokinase complex	IDA	X	X	X	X	X	X	X	X	X	X	X	X
Cellular Component	GO:0005829	cytosol	IDA	IDA	X	X	X	X	X	X	X	X	X	X	X
Cellular Component	GO:0005737	cytoplasm	X	X	X	X	X	X	X	X	X	X	X	X	IDA
Cellular Component	GO:0005886	plasma membrane	X	X	X	X	X	X	X	X	X	IDA	X	X	X
Cellular Component	GO:0009507	chloroplast	X	X	X	X	X	X	X	X	X	IDA	X	X	X

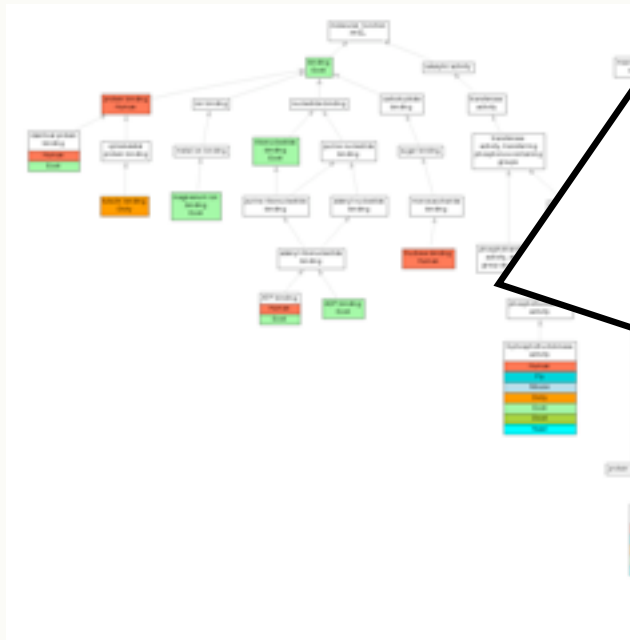


applications



thanks to Mary Dolan @ MGI

applications



fructose binding
Human

phosphotransferase
activity, alcohol
group as acceptor

carbohydrate
kinase activity

phosphofructokinase
activity

6-phosphofructokinase activity
Human
Fly
Mouse
Dicty
Ecoli
Dicot
Yeast

conflict detector

Table Edit

lacZ Gene (Product(s))

See key below, clicking for two examples using GO terms and GO annotations in EcolWiki

A conflict has been detected (between the version of this table in the wiki and the copy you are editing)

Rows in conflict with the working copy:

Qualifier (E)	GO ID (E)	GO term name (E)	Reference(s) (E)	Evidence Code (E)	withFrom (E)	Aspect (E)	Notes (E)	Status (E)
protein-binding	GO:0005116	protein-binding	PMID:18838888	ISI, Inferred from Sequence or Structural Similarity	UniProt			
synthesis	GO:0007170	synthesis	PMID:14821768	IC, Inferred by Curator		C	Deleted from TruCap 11.1 - required for modeling	
protein-tyrosine kinase activity	GO:0004110	protein-tyrosine kinase activity	PMID:16791034	IC, Inferred by Curator		F	This is a sample annotation - complete	

The rows shown above are different from the working copy. This includes rows that have been edited and rows that are missing in the copy you are editing. Copy desired rows to the editing session and you have what you need, then continue editing.

Working copy:

The highlighted rows are different from the copy of the table from the wiki. This includes rows that have been edited and rows that you added. You can delete rows from the working copy in this view before committing.

Qualifier (E)	GO ID (E)	GO term name (E)	Reference(s) (E)	Evidence Code (E)	withFrom (E)	Aspect (E)	Notes (E)	Status (E)
protein-binding	GO:0005116	protein-binding	PMID:18838888	ISI, Inferred from Physical Interaction	UniProt:PF03223	F	Deleted from TruCap 12.0 - complete	
protein-binding	GO:0005116	protein-binding	PMID:18838888	ISI, Inferred from Physical Interaction	UniProt:PF03241	F	Deleted from TruCap 12.0 - complete	
enzymatic activity	GO:0003674	enzymatic activity	GO:0003674	EIA, Inferred from Electronic Annotation	UniProt:PF00110-2 UniProt:PF00110-1 UniProt:PF00110-1	F	Deleted from TruCap 12.0 - complete	
helicase activity, acting on G-protein-coupled receptors	GO:0004483	helicase activity, acting on G-protein-coupled receptors	GO:0004483	EIA, Inferred from Electronic Annotation	UniProt:PF00081-01 UniProt:PF00081-02 UniProt:PF00081-03	F	Deleted from TruCap 12.0 - complete	
beta-galactosidase activity	GO:0004486	beta-galactosidase activity	GO:0004486	EIA, Inferred from Electronic Annotation	UniProt:PF00048-09 EC:3.2.1.23	F	Deleted from TruCap 12.0 - complete	
carbohydrate metabolic process	GO:0003071	carbohydrate metabolic process	GO:0003071	EIA, Inferred from Electronic Annotation	UniProt:PF00081-03 UniProt:PF00081-01 UniProt:PF00081-02 UniProt:PF00081-04 UniProt:PF00081-05 UniProt:PF00081-06 UniProt:PF00081-07 UniProt:PF00081-08 UniProt:PF00081-09	F	Deleted from TruCap 12.0 - complete	
enzymatic process	GO:0003674	enzymatic process	GO:0003674	EIA, Inferred from Electronic Annotation	SP_K0R-K0R-0206	F	Deleted from TruCap 12.0 - complete	
beta-galactosidase complex	GO:0005504	beta-galactosidase complex	GO:0005504	EIA, Inferred from Electronic Annotation	UniProt:PF00048-09	C	Deleted from TruCap 12.0 - complete	
helicase activity	GO:0114787	helicase activity	GO:0114787	EIA, Inferred from Electronic Annotation	SP_K0R-K0R-0206	F	Deleted from TruCap 12.0 - complete	
helicase activity, acting on glycosyl termb	GO:0114798	helicase activity, acting on glycosyl termb	GO:0114798	EIA, Inferred from Electronic Annotation	SP_K0R-K0R-0206	F	Deleted from TruCap 12.0 - complete	
carbohydrate binding	GO:0022046	carbohydrate binding	GO:0022046	EIA, Inferred from Electronic Annotation	UniProt:PF00110-2 UniProt:PF00110-1	F	Deleted from TruCap 12.0 - complete	
cell-cell signaling	GO:0048189	cell-cell signaling	GO:0048189	EIA, Inferred from Electronic Annotation	UniProt:PF00110-1	F	Deleted from TruCap 12.0 - complete	
synthesis	GO:0007170	synthesis				C	Deleted from TruCap 11.1 - required for modeling	
carbohydrate catabolic process	GO:0114832	carbohydrate catabolic process				F	Deleted from TruCap 11.1 - required for modeling	
protein-tyrosine kinase activity	GO:0004110	protein-tyrosine kinase activity	PMID:16791034	IC, Inferred by Curator		F	This is a sample annotation - complete	

Edit working copy Cancel

Save for admin View diff Hide rows

ISS: Inferred from Sequence or Structural Similarity

IPI: Inferred from Physical Interaction



help links

pcnB:Gene Product(s)

[TableEdit Help](#)

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EC number (for enzymes)	■ 2.7.7.19 ↗ ^[1]
	<input type="button" value="Edit"/> <input type="button" value="Copy"/> <input type="button" value="Delete"/> public

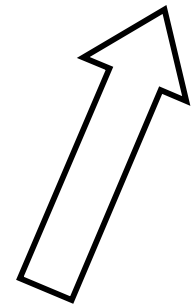


Table style

(e.g. align='right')

Heading style

(e.g. 'bgcolor = #ccccff' to make the heading background light blue)

[Cancel](#)

Extra for admins:

the loader

// Instantiate the object

```
$loader = new TableEdit_Loader;
```

// set some options

```
$loader->setVerbose();
```

```
$loader->setUser();
```

```
$loader->printInfo();
```

*// load pretty much anything into tables from either an *.ifalt file.*

```
$loader->loadFromFile(array_pop($argv));
```

ifalt

1. page title
2. page template
3. table template
4. row data
5. metadata
6. update type
7. misc

lacZ:Gene

Gene

Gene_nomenclature

field1 || field2 || field3

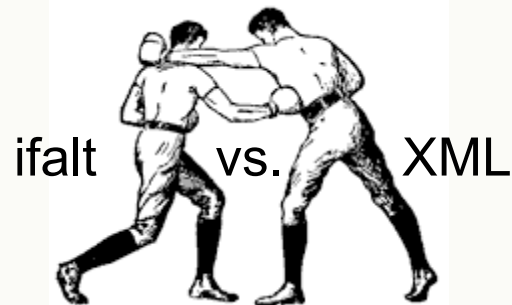
metadata-for-the-row

append

key=value&arr[]=foo+bar

ifalt

- | | | |
|----|----------------|----------------------------|
| 1. | page title | lacZ:Gene |
| 2. | page template | Gene |
| 3. | table template | Gene_nomenclature |
| 4. | row data | field1 field2 field3 |
| 5. | metadata | metadata-for-the-row |
| 6. | update type | append |
| 7. | misc | key=value&arr[]=foo+bar |



merging

- $A = B$

rows are exactly the same

old	=	a		b		c		d		e
new	=	a		b		c		d		e

- $A \subseteq B$

A is a subset of B

old	=	a		b		c		d		e
new	=	a		b		c		d		e

- $A \cap B \neq \emptyset$

mutually exclusive

new	=	a		b		c		d		e
old	=	z		y		w		v		u

- $A \cap B = \emptyset$

disjoint

new	=	a		b		h		k		e
old	=	a		g		h				e

docs

- PHPdoc (like Javadoc)

Epoch

[class tree: Epoch] [index: Epoch] [all elements]

Todo List

Packages:
Epoch

Files:
epoch.php

Classes:
EW_Common_Tools
EW_Complex_Page
EW_Element
EW_Gene_Set
EW_PMid_Page

Class: EW_Element

Source Location: /epoch.php

Class Overview

The class EW_Element - a base class for any page in the EcoliWiki.

Author(s):

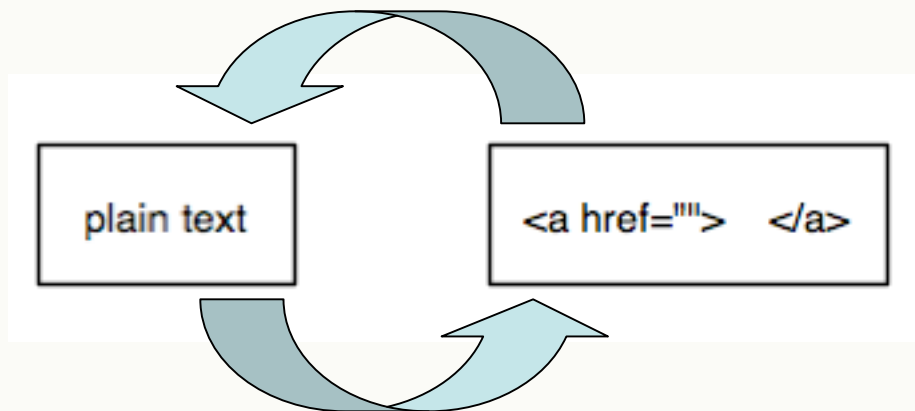
Variables	Methods
<ul style="list-style-type: none">• \$article• \$db• \$page_name• \$revision	<ul style="list-style-type: none">• __construct• __destruct• do_replacement• find_redirects• find_tables• find_the_right_box• getBoxUid• getPageId• getTableFromWikitext• get_redirects• get_synonyms• load_tables• save• setUser• touch

- wiki pages as HTML / PDFs



modules

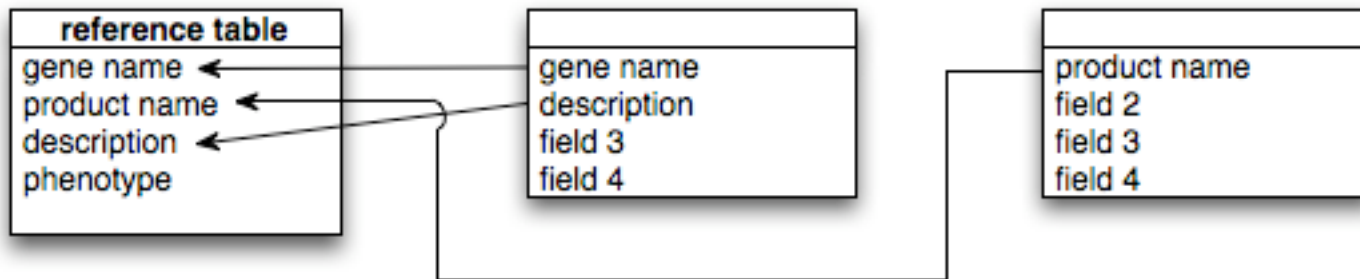
- TableEdit_links



- MirrorAnnotations

foreign tables

- how to mirror data from one table to another?



- keeping data fresh... relations table

ext_TableEdit_relations
rel_id
from_row
from_field
to_row
to_field
timestamp

database layout

ext_TableEdit_box	ext_TableEdit_box_metadata
box_id template page_name page_uid type headings heading_style box_style timestamp	box_metadata_id box_id box_metadata timestamp
ext_TableEdit_row	ext_TableEdit_row_metadata
row_id box_id owner_id row_data row_style row_sort_order timestamp	row_metadata_id row_id row_metadata timestamp
	ext_TableEdit_relations
	rel_id from_row from_field to_row to_field timestamp

v2.0

- AJAX
- constrain searching tables / subset of tables
- better object/relational mapping
- Chado roundtrip
- constructive user feedback...

get it

- <http://www.mediawiki.org/wiki/Extension:TableEdit>
- [http://ecoliwiki.\[net|org|com\]](http://ecoliwiki.[net|org|com])
- <http://gowiki.tamu.edu>
 - username: demo
 - Password: pag

thanks

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- EcoliHub(.org) & NIH

- GMOD guys

- Mediawiki Developers Mailing List
- O'Reilly

demo

[pcnB on dev](#)