

The BiomedGT Wiki

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Background

The Biomedical Grid Terminology (BiomedGT)

- Started in 2007
- Result of analysis of the NCI Thesaurus prompted, in part by:

A Terminological and Ontological Analysis of the NCI Thesaurus -

Ceusters / Smith / Goldberg, Methods of Information in Medicine, 44 (2005), 498-507



NCI Thesaurus Analysis

Performed in 2006/2007 timeframe

Recommended changes wrt:

- 1) Adherence to ISO TC37 and related standards (definitions, terms, term/term relationships)
- 2) Adherence to ontological principles (ULO, Integration w/ other resources)
- 3) Use of OWL DL



NCI Thesaurus Analysis

Recommendations included:

- 1) Separate ontological classes from fiat categories (ontology vs. thesaurus)
- First goal capture subject matter expert (SME) knowledge. Only then worry about formalizing in a DL
- 3) Semi-formal definitions textual definitions and DL statements *must* correspond. Definitions also validate terms



NCI Thesaurus Analysis (continued)

Recommendations included:

- 4) Capture *all* dialog, discussion, etc. in the editing and curation process...
 - What was the intent?
 - Did they think about X?
 - Why didn't they do Y?
 - Who participated and what did they say?



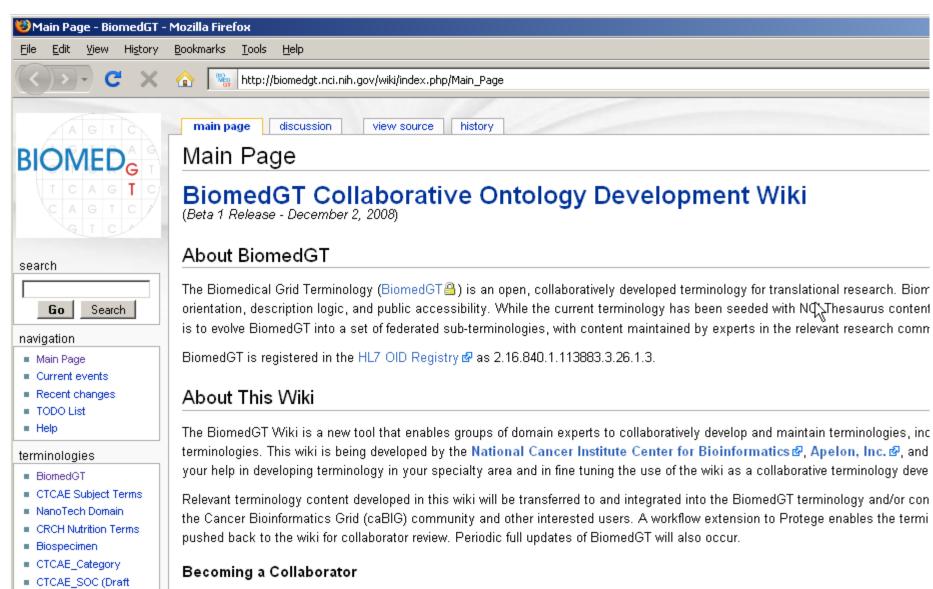
NCI Thesaurus Analysis

Semantic MediWiki / LexWiki was developed as part of the analysis process, to capture recommendations, discussion, etc.

NCI decided to continue to use SMW/LexWiki in the subsequent refactoring and curation process.



1.0)



You are welcome to browse this site and search for terminology. If you want to contribute content, you can register as a collabora:



BiomedGT

- Collaborative Ontology Development Wiki
- Based on NCI Thesaurus Foundation
- SME's propose additions and changes
- Proposals exported to Protege editor
- Ontology experts incorporate and integrate changes
- Changes exported back to Wiki



BiomedGT

Loading:

- BiomedGT "native" form is OWL
- OWL is loaded into LexGrid via LexEVS loader
- LexGrid is transformed into LexWiki
- LexWiki is loaded into SMW



BiomedGT ST7_Gene in OWL





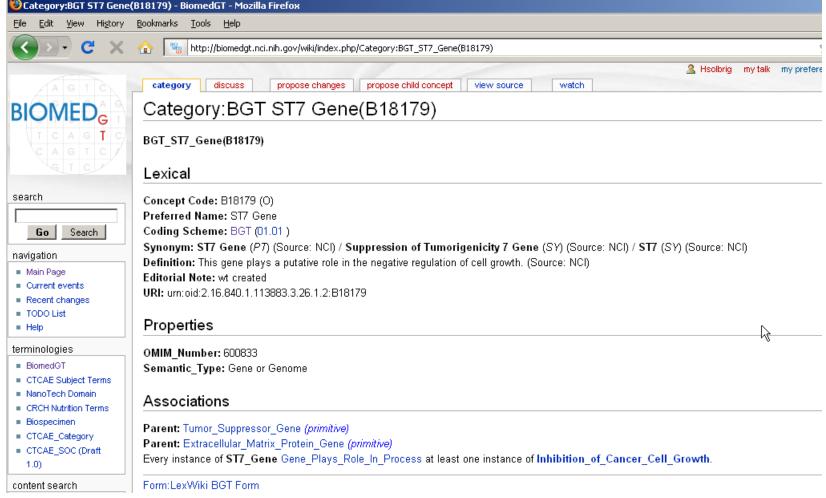
ST7_Gene as LexWiki SMW Template

Editing Category:BGT ST7 Gene(B18179)

```
{{MetaLexWiki Title|1=BGT ST7 Gene(B18179)}}
{{LexWiki Basic Data Header}}
{{LexWiki Concept Code|1=B18179}}
{{LexWiki BGT Concept Type|1=0}}
{{LexWiki Preferred Name|1=ST7 Gene}}
{{LexWiki inScheme|1=BGT|2=01.01}}
{{LexWiki Presentation|1=BGT Synonym(P104)|2=ST7 Gene|source=NCI|type=PT}}
{{LexWiki Presentation|1=BGT Synonym(P104)|2=Suppression of Tumorigenicity 7
Gene|label=false|source=NCI|type=SY}}
{{LexWiki Presentation|1=BGT Synonym(P104)|2=ST7|label=false|source=NCI|type=SY}}
{{LexWiki Definition|1=This gene plays a putative role in the negative regulation of cell
growth.|source=NCI}}
{{LexWiki editorialNote|1=wt created}}
{{LexWiki URI|1=urn:oid:2.16.840.1.113883.3.26.1.2:B18179}}
{{LexWiki Basic Data Trailer}}
{{LexWiki Concept Property Header}}
{{LexWiki Concept Property|1=BGT OMIM Number(P100)|2=600833}}
{{LexWiki Concept Property|1=BGT Semantic Type(P106)|2=Gene or Genome}}
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{{LexWiki Association Header}}
{{LexWiki Parent|1=BGT Tumor Suppressor Gene(B17535)|view=Defined|def=partial}}
{{LexWiki_Parent|1=BGT_Extracellular_Matrix_Protein_Gene(B26173)|view=Defined|def=partial}}
{{LexWiki Child|1=BGT ST7 wt Allele(B54621)|view=Inferred}}
{{LexWiki Association|1=BGT Gene Plays Role In Process(R37)|2=BGT_Inhibition_of_Cancer_Cell_Growth(B3C
{{LexWiki Association Trailer}}
```



ST7_Gene Rendered in SMW





ST7_Gene Rendered in SMW

г игели таптог_фарргозоог_фено (риннике)

Parent: Extracellular_Matrix_Protein_Gene (primitive)

Every instance of STT_Gene Gene_Plays_Role_In_Process at least one instance of Inhibition_of_Cancer_Cell_Growth.

Form:LexWiki BGT Form

```
BGT Concept Type(P365) O + Q
BGT Gene Plays Role In Process(R37) BGT Inhibition of Cancer Cell Growth(B30068) + Q
BGT Gene Plays Role In Process(R37) BGT Inhibition of Cancer Cell Growth(B30068) + Q
BGT Semantic Type(P100) Gene or Genome + Q Q
BGT Synonym(P104) ST7 Gene + Q, Suppression of Tumorigenicity 7 Gene + Q, and ST7 + Q

DCTerms has/version(has/version) BGT/versions/01.01 + Q
Has default form Lex/Wiki BGT Form + Q

Lex/Wiki Concept Code B18179 + Q

This gene plays a putative role in the negative regulation of cell growth. (Source: NCI)

ST7 Gene + Q

Lex/Wiki URI um:oid:2.16.840.1.113883.3.26.1.2:B18179 + Q

SKOS editorialNote(editorialNote) wt created

BGT + Q

BGT Versions/01.01 + Q

Lex/Wiki URI um:oid:2.16.840.1.113883.3.26.1.2:B18179 + Q

Wt created

BGT ST7 Gene + Q

Wt created

BGT + Q

BGT ST7 Gene + Q

Wt created

BGT + Q

BGT ST7 Gene + Q

Wt created
```

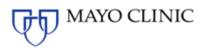
Subcategories

There is one subcategory to this category.

В

■ [•] BGT ST7 wt Allele(B54621)

Categories: BGT Tumor Suppressor Gene(B17535) | BGT Extracellular Matrix Protein Gene(B26173)

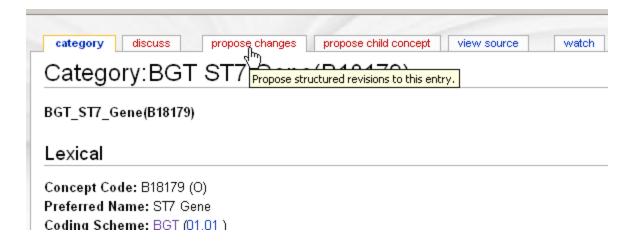


Work Flow

- SME's review content
- Additions and changes can be suggested via
 - Forms
 - Open Discussion
- Changes appear in "Proposal" namespace...

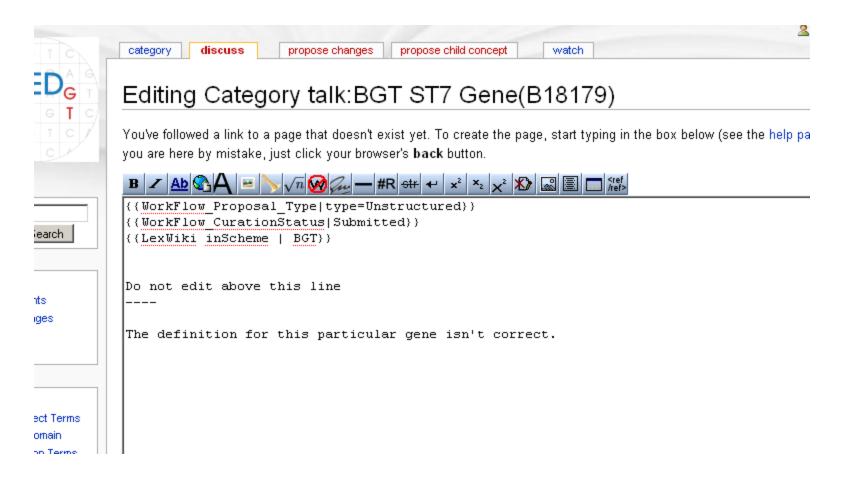


Change Recommendations



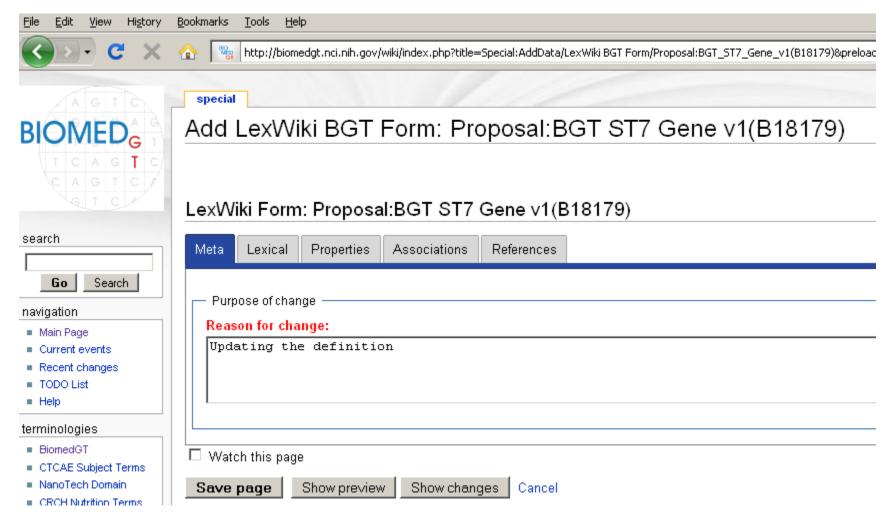


Unstructured Change Proposals



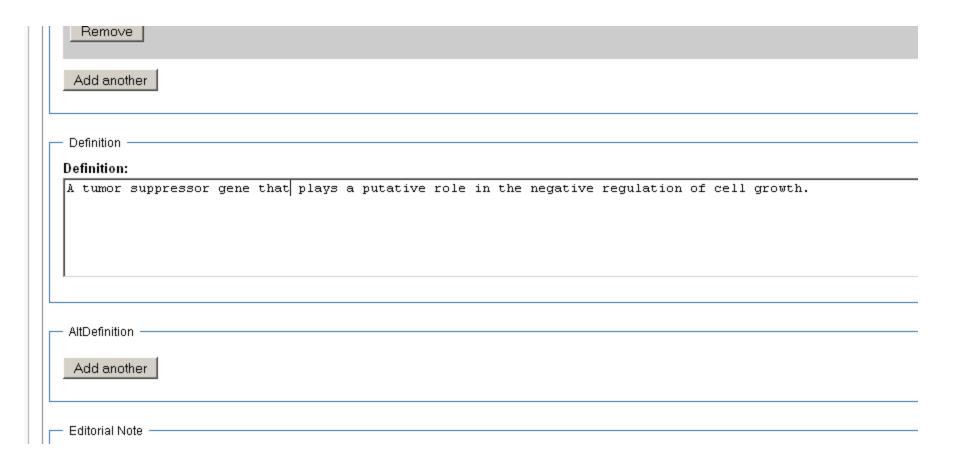


Structured Change Proposals





Unstructured Change Proposals (Continued)



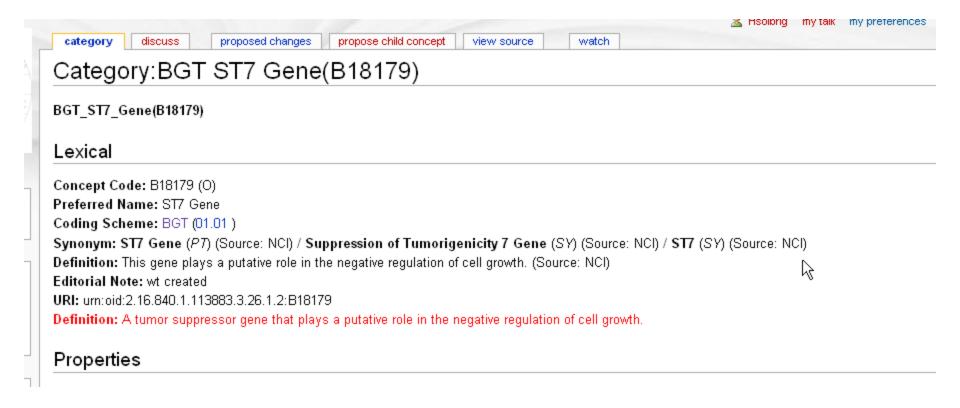


Change Proposal w/ WorkFlow Status



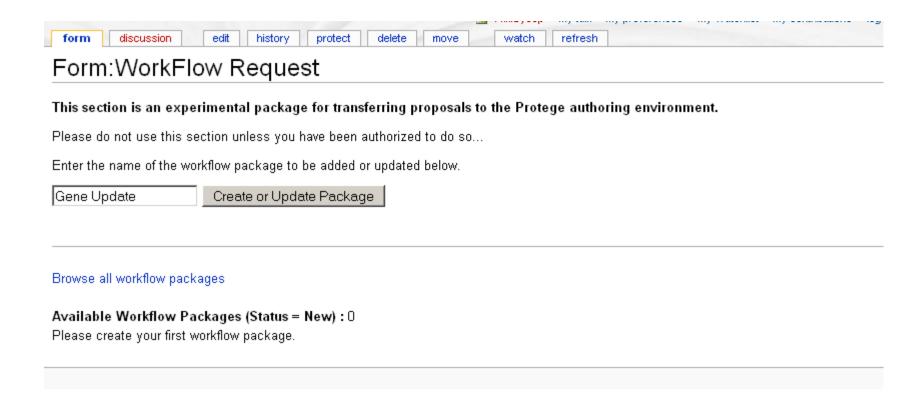


Category w/ Proposed Change





Workflow Creating an Update Package





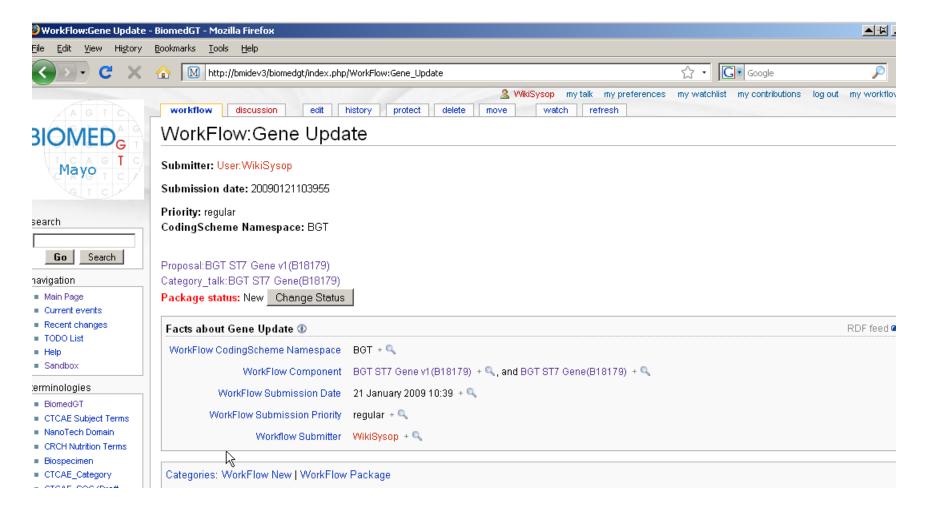
Creating an Update Package



Priority:	O asap O priority
	● BGT ○ CTCAE ○ NANO ○ CRCH ○ ST
_	BOI S CICAL S NANO S CROH S SI
Comment/instructions:	
Proposal: BGT	
Remove BGT Agent Combi	
Add anoth BGT Blood v1(B12	2607)
BGT Cryobath v1(B63565) BGT DNA Repair Pathway v1(B39878) New Concept Proposals	
BGT Pathway Kin	
Add anoth BGT ST7 Gene v1	(B18179)

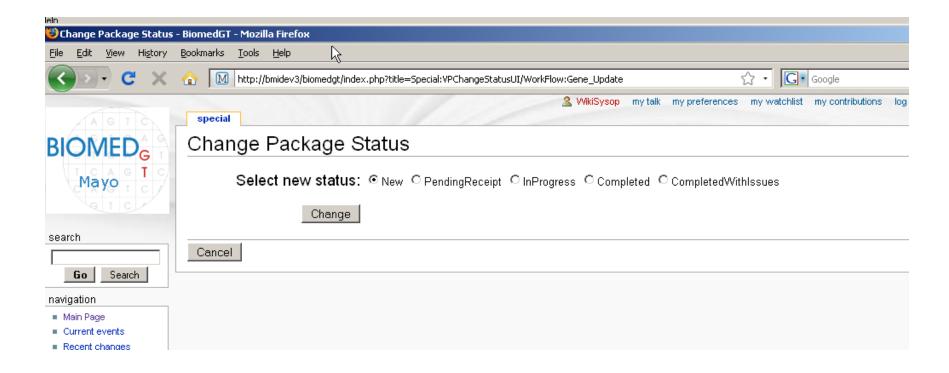


Update Package





Update Package





WorkFlow Proposal Pulled by Protege Package

```
- <rdf:RDF>
  </-- Ontology header -->
 - <owl: Ontology rdf: about="">
    <smw: exportDate rdf: datatype="http://www.w3.org/2001/XMLSchema#dateTime">2009-01-21T11:02:01-06:00</smw: exportDate>
  </owl: Ontology>
  < !-- exported page data -->
 - < smw: Thing rdf: about="http://bmidev3.mayo.edu/biomedgt/index.php/Special:URIResolver/WorkFlow:Gene Update">
    <rd>dfs:label>WorkFlow:Gene Update</rdfs:label>
    <smw:hasArticle rdf:resource="http://bmidev3/biomedgt/index.php/WorkFlow:Gene Update"/>
    <rd>s:isDefinedBy rdf:resource="http://bmidev3/biomedgt/index.php/Special:ExportRDF/WorkFlow:Gene Update"/>
   <ru>rdf:type rdf:resource="http://bmidev3.mayo.edu/biomedgt/index.php/Special:URIResolver/Category:WorkFlow Package"/>
    <rd>type rdf:resource="http://bmidev3.mayo.edu/biomedgt/index.php/Special:URIResolver/Category:WorkFlow PendingReceipt"/>
    Sproperty: Worl:Flow Submission Priority rdf: datatype="http://www.w3.org/2001/7/MLSchemaffstring">regulars/property: Worl:Flow Submission Priority>
    sproperty:WorkFlow Component rdf:resource="http://bmidev3.mayo.edu/biomedgt/index.php/Special:URIResolver/Proposal:BGT ST7 Gene v1-28B18179-29"/>
   </smw: Thing>
  < !-- auxilliary definitions -->
 - < smw: Thing rdf: about="http://bmidev3.mayo.edu/biomedgt/index.php/Special:URIResolver/User:WikiSysop">
    oudfailabal>HaceWildCrean obulfailabal>
```

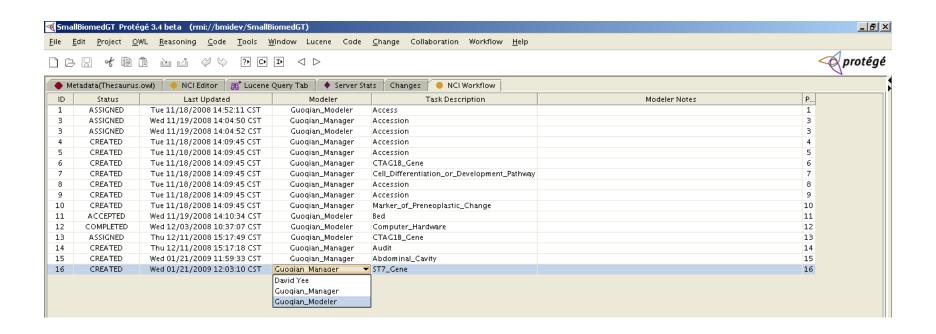


http://bmidev3/biomedgt/index.php/Special:ExportRDF/Proposal:BGT_ST7_Gene_v1%28B18179%29

```
- <rdf:RDF>
  < !-- Ontology header -->
 - <owl: Ontology rdf: about="">
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  </owl:Ontology>
  < !-- exported page data -->
 - <owl: Class rdf: about="http://bmidev3.mayo.edu/biomedgt/index.php/Special:URIResolver/Proposal:BGT_ST7_Gene_v1-28B18179-29">
   <rdfs:label>BGT ST7 Gene v1(B18179)</rdfs:label>
   <smw:hasArticle rdf:resource="http://bmidev3.mayo.edu/biomedgt/index.php/Proposal:BGT_ST7_Gene_v1(B18179)"/>
   <ru><rdfs:isDefinedBy rdf:resource="http://bmidev3.mayo.edu/biomedgt/index.php/Special:ExportRDF/Proposal:BGT_ST7_Gene_v1(B18179)"/>
   <rd>subClassOf rdf:resource="http://bmidev3.mayo.edu/biomedgt/index.php/Special:URIResolver/Category:BGT_ST7_Gene-28B18179-29"/>
   <rd>subClassOf rdf:resource="http://bmidev3.mayo.edu/biomedgt/index.php/Special:URIResolver/Category;WorkFlow BiomedGT Proposal"/>
   <rd>subClassOf rdf:resource="http://bmidev3.mayo.edu/biomedgt/index.php/Special:URIResolver/Category;WorkFlow CurationStatus NewChange"/>
   *property.LexWiki_URI+W.resource="aim.old.2.16.840.1.113883.3.26.1.2.D1817:
   <property:LexWiki Definition rdf:datatype="http://www.w3.org/2001/XMLSchema#string">
    A tumor suppressor gene that plays a putative role in the negative regulation of cell growth. (Source: NCI)
   <property: Workflow Proposal For rdf:resource="http://bmidev3.mayo.edu/biomedgt/index.php/Special:URIResolver/Category:BGT ST7 Gene-28B181".</p>
  </owl: Class>
```

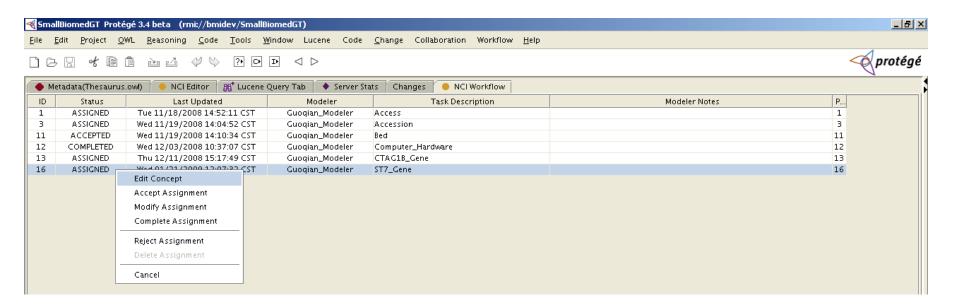


Protege Workflow



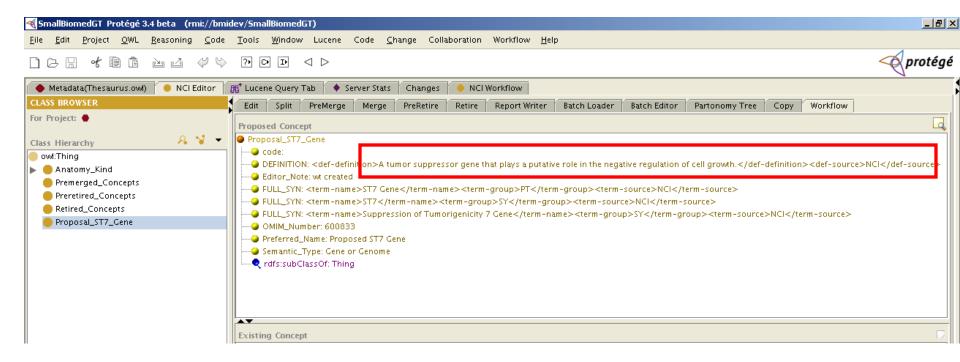


Fetching the Proposal



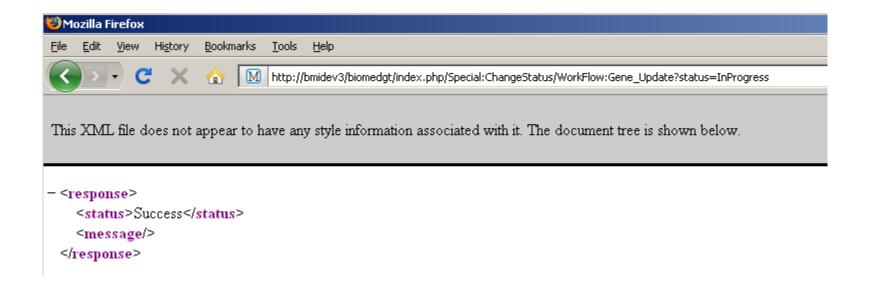


The Revised Proposal





Feedback From the Editor Using SMW URL's Directly





BiomedGT Interesting Issues

- Development process clash
 - SMW moves at web speed
 - NCI moves more slowly
 - How to stay synchronized???
- Proposal namespace vs. Instance
 - BiomedGT uses proposal space
 - ICD11 uses instance
 - Instance is a lie, but the tooling works better

1/22/2009 LexWiki and BiomedGT 31



BiomedGT Interesting Issues

- Round trip and synchronization are issues
 - In the NCI world, OWL is the master
 - In the Wiki world, page is the master
 - Examining an RDF core w/ dynamic rendering



BiomedGT Interesting Issues

- Social issues
 - How to engage SME's
 - Create custom pages
 - Respond in real-time....
 - ... While maintaining integrity of SW and ontology product.



References

http://biomedgt.nci.nih.gov/