Package ‘ontoCAT’

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Description The ontoCAT R package provides a simple interface to ontologies described in widely used standard formats, stored locally in the filesystem or accessible online.
License Apache License 2.0
LazyLoad yes
biocViews Classification, DataRepresentation
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NeedsCompilation no

R topics documented:

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The ontoCAT package provides a simple interface to the Experimental Factor Ontology (EFO) and to any other ontology described in OWL or OBO format.

**Description**

The ontoCAT package provides a simple interface to the Experimental Factor Ontology ([http://www.ebi.ac.uk/efo](http://www.ebi.ac.uk/efo)) and to any other ontology described in OWL or OBO format.

Package can load the ontology from a local file or on the fly from a URL and internally create the inferred ontology view. Experimental Factor Ontology (EFO) is the default ontology, loaded from: [http://efo.svn.sourceforge.net/viewvc/efo/trunk/src/efoinowl/InferredEFOOWLview/EFO_inferred.owl](http://efo.svn.sourceforge.net/viewvc/efo/trunk/src/efoinowl/InferredEFOOWLview/EFO_inferred.owl). The package’s methods allow to parse an ontology, search terms in it, find out term parents and children. The package is based on the Ontology Common API Tasks Java library ([http://www.ontocat.org](http://www.ontocat.org)) as well as various other utilities methods and depends on rJava R package.
getAccession

Details

Package: ontoCAT
Type: Package
Version: 1.0.0
Date: 2010-09-20
License: Apache License
LazyLoad: yes

Author(s)

Natalja Kurbatova <natalja@ebi.ac.uk>

References


Experimental Factor Ontology http://www.ebi.ac.uk/efo
Ontology Common API Tasks java library http://www.ontocat.org
Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology, OntologyTerm, getOntology and getEFO

Examples

```r
efo<-getEFO()
file <- system.file("extdata", "cell.obo", package="ontoCAT")
ontology <- getOntology(file)
```

getAccession

*Returns accession of the ontology term*

Description

Returns accession string of the OntologyTerm object.

Usage

```r
getAccession(object)
```
getAllTermChildren

Arguments

object1 instance of the Ontology class

Value

Returns accession string of the ontology term.

Author(s)

Natalja Kurbatova

References


Experimental Factor Ontology http://www.ebi.ac.uk/efo

Ontology Common API Tasks java library http://www.ontocat.org

Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology and OntologyTerm

Examples

```r
efo <- getEFO()
term <- getTermById(efo,"EFO_0000827")
getAccession(term)
```

getAllTermChildren

Returns all children of term of interest

Description

Returns set of all children of the term of interest. Term in the set is represented as the instance of the OntologyTerm class

Usage

getAllTermChildren(object1,object2)

Arguments

object1 instance of the Ontology class

object2 instance of the OntologyTerm class
getAllTermChildrenById

Value

Returns set of ontology terms: each term in the set is the instance of the OntologyTerm class

Author(s)

Natalja Kurbatova

References


Experimental Factor Ontology http://www.ebi.ac.uk/efo

Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology and OntologyTerm

Examples

```r
efo <- getEFO()
term <- getTermById(efo,"EFO_0004902")
ggetAllTermChildren(efo,term)
```

getAllTermChildrenById

*Returns all children of term of interest*

Description

Returns set of all children of the term of interest. Term in the set is represented as the instance of the OntologyTerm class

Usage

```
ggetAllTermChildrenById(object,id)
```

Arguments

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td>instance of the Ontology class</td>
</tr>
<tr>
<td>id</td>
<td>accession string of the term of interest</td>
</tr>
</tbody>
</table>

Value

Returns set of ontology terms: each term in the set is the instance of the OntologyTerm class
### getAllTermIds

**Returns accessions of all ontology terms**

**Description**

Returns accessions of all loaded ontology terms

**Usage**

```r
g getAllTermIds(object)
```

**Arguments**

- `object`: instance of the `Ontology` class

**Value**

Returns accession strings of all terms from loaded ontology.

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**Author(s)**

Natalja Kurbatova

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### References


Experimental Factor Ontology [http://www.ebi.ac.uk/efo](http://www.ebi.ac.uk/efo)

Ontology Common API Tasks java library [http://www.ontocat.org](http://www.ontocat.org)


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### See Also

- `Ontology`, `OntologyTerm` and `getAllTermChildren`
getAllTermParents

References


Experimental Factor Ontology http://www.ebi.ac.uk/efo

Ontology Common API Tasks java library http://www.ontocat.org

Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology and OntologyTerm

Examples

```r
file <- system.file("extdata", "cell.obo", package="ontoCAT")
ontologyFromFile <- getOntology(file)
getAllTermIds(ontologyFromFile)
```

getAllTermParents | Returns set of all parents of the term of interest

Description

Returns set of all parents of the term of interest. Term in the set is represented as the instance of the OntologyTerm class

Usage

```r
getAllTermParents(object1,object2)
```

Arguments

- **object1** instance of the Ontology class
- **object2** instance of the OntologyTerm class

Value

Returns set of ontology terms: each term in the set is the instance of the OntologyTerm class

Author(s)

Natalja Kurbatova
getAllTermParentsById

References


Experimental Factor Ontology http://www.ebi.ac.uk/efo

Ontology Common API Tasks java library http://www.ontocat.org

Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology and OntologyTerm

Examples

efo <- getEFO()
term <- getTermById(efo,"EFO_0004902")
ggetAllTermParents(efo,term)

ggetAllTermParentsById  Returns set of all parents of the term of interest

Description

Returns set of all parents of the term of interest. Term in the set is represented as the instance of the OntologyTerm class

Usage

ggetAllTermParentsById(object,id)

Arguments

object instance of the Ontology class
id accession string of the term of interest

Value

Returns set of ontology terms: each term in the set is the instance of the OntologyTerm class

Author(s)

Natalja Kurbatova
getAllTerms

References


Experimental Factor Ontology http://www.ebi.ac.uk/efo

Ontology Common API Tasks java library http://www.ontocat.org

Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology, OntologyTerm and getAllTermParents

getAllTerms

Description

Returns set of ontology terms, where each term is an instance of the OntologyTerm class.

Usage

getAllTerms(object)

Arguments

object instance of the Ontology class

Value

Returns all terms from loaded ontology as objects of OntologyTerm class.

Author(s)

Natalja Kurbatova

References


Experimental Factor Ontology http://www.ebi.ac.uk/efo

Ontology Common API Tasks java library http://www.ontocat.org

Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/
getEFO

Returns an instance of the EFO ontology parser

Description
 Loads the latest EFO version on the fly, creating the inferred ontology classes.

Usage
 getEFO()

Value
 Returns an instance of the Ontology class.

Author(s)
 Natalja Kurbatova

References
 Experimental Factor Ontology http://www.ebi.ac.uk/efo
 Ontology Common API Tasks java library http://www.ontocat.org
 Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also
 Ontology and OntologyTerm

Examples
 efo<-getEFO()
 getEFOBranchRootIds(efo)
 getTermParentsById(efo,"EFO_0001221")
 term_efo <- getTermById(efo,"EFO_0004902")
 isEFOBranchRoot(efo,term_efo)
 searchTermPrefix(efo,"leuk")
 getTermAndAllChildren(efo,term_efo)
getEFOBranchRootIds

getEFOBranchRootIds

Returns all term’s parents

Description

Returns accessions of EFO branch roots. Function specific for EFO.

Usage

getEFOBranchRootIds(object)

Arguments

object instance of the Ontology class

Value

Returns list of accessions.

Author(s)

Natalja Kurbatova

References


Experimental Factor Ontology http://www.ebi.ac.uk/efo

Ontology Common API Tasks java library http://www.ontocat.org

Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology and OntologyTerm

Examples

efo <- getEFO()
getEFOBranchRootIds(efo)
getLabel  

*Returns label of the ontology term*

**Description**

Returns label of the OntologyTerm object.

**Usage**

```
getLabel(object)
```

**Arguments**

- `object` instance of the `OntologyTerm` class

**Value**

Returns label of the ontology term.

**Author(s)**

Natalja Kurbatova

**References**


Experimental Factor Ontology [http://www.ebi.ac.uk/efo](http://www.ebi.ac.uk/efo)

Ontology Common API Tasks java library [http://www.ontocat.org](http://www.ontocat.org)


**See Also**

`Ontology` and `OntologyTerm`

**Examples**

```r
efo <- getEFO()
term <- getTermById(efo,"EFO_0004902")
getLabel(term)
```
getOntology

Returns an instance of the ontology parser created from OWL or OBO file. Reasoning over ontologies and extracting relationships is supported by using HermiT reasoner.

Description

Loads the ontology described in OWL or OBO format from the local file or on the fly by using URL.

Usage

getOntology(pathToURI)

Arguments

pathToURI  a character string giving the URL or local name of the file to load ontology from

Value

Returns an instance of the Ontology class.

Author(s)

Natalja Kurbatova

References


Experimental Factor Ontology http://www.ebi.ac.uk/efo

Ontology Common API Tasks java library http://www.ontocat.org

Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology and OntologyTerm

Examples

ontologyFromURL <- getOntology("http://www.ebi.ac.uk/efo/efo.owl")
gtermParentsById(ontologyFromURL,"EFO_0001221")
file <- system.file("extdata", "cell.obo", package="ontoCAT")
ontologyFromFile <- getOntology(file)
getAllTermIds(ontologyFromFile)
getOntologyAccession  

Returns ontology accession

Description

Returns ontology accession

Usage

getOntologyAccession(object)

Arguments

object instance of the Ontology class

Value

Returns ontology accession string.

Author(s)

Natalja Kurbatova

References


Experimental Factor Ontology http://www.ebi.ac.uk/efo

Ontology Common API Tasks java library http://www.ontocat.org

Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology and OntologyTerm

Examples

efo <- getEF0()
getOntologyAccession(efo)
getOntologyDescription

Returns ontology description

Description

Returns ontology description

Usage

getOntologyDescription(object)

Arguments

object instance of the Ontology class

Value

Returns ontology description.

Author(s)

Natalja Kurbatova

References


Experimental Factor Ontology http://www.ebi.ac.uk/efo
Ontology Common API Tasks java library http://www.ontocat.org
Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology and OntologyTerm

Examples

```r
efo <- getEFO()
geOntologyDescription(efo)
```
getOntologyNoReasoning

*Returns an instance of the ontology parser created from OWL or OBO file without reasoning*

**Description**

Loads the ontology described in OWL or OBO format from the local file or on the fly by using URL.

**Usage**

```r
getOntologyNoReasoning(pathToURI)
```

**Arguments**

- `pathToURI`: a character string giving the URL or local name of the file to load ontology from.

**Value**

Returns an instance of the `Ontology` class.

**Author(s)**

Natalja Kurbatova

**References**


Experimental Factor Ontology [http://www.ebi.ac.uk/efo](http://www.ebi.ac.uk/efo)

Ontology Common API Tasks java library [http://www.ontocat.org](http://www.ontocat.org)


**See Also**

- `Ontology` and `OntologyTerm`
**getOntologyRelationNames**

*Returns list of relations used in ontology*

**Description**

Returns set of strings - relation names used in ontology

**Usage**

```java
getOntologyRelationNames(object)
```

**Arguments**

- **object** instance of the `Ontology` class

**Value**

Returns set of strings: each string in the set is the name of the relation

**Author(s)**

Natalja Kurbatova

**References**

- Experimental Factor Ontology [http://www.ebi.ac.uk/efo](http://www.ebi.ac.uk/efo)
- Ontology Common API Tasks java library [http://www.ontocat.org](http://www.ontocat.org)

**See Also**

- `Ontology` and `OntologyTerm`
getRootIds

Returns root terms of ontology

Description

Returns accessions of root terms of the ontology. For some ontologies these functions might fail when the ontology used was not design to have root classes

Usage

gRootIds(object)

Arguments

object instance of the Ontology class

Value

Returns list of accessions.

Author(s)

Natalja Kurbatova

References


Experimental Factor Ontology http://www.ebi.ac.uk/efo

Ontology Common API Tasks java library http://www.ontocat.org

Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology and OntologyTerm

Examples

efo <- getEFO()
gRootIds(efo)
**getRoots**

*Returns root terms of ontology*

**Description**

Returns root terms of the ontology. For some ontologies these functions might fail when the ontology used was not design to have root classes.

**Usage**

```
getRoots(object)
```

**Arguments**

- `object` instance of the `Ontology` class

**Value**

Returns set of terms. Term in the set is the instance of `OntologyTerm` class

**Author(s)**

Natalja Kurbatova

**References**


Experimental Factor Ontology [http://www.ebi.ac.uk/efo](http://www.ebi.ac.uk/efo)

Ontology Common API Tasks java library [http://www.ontocat.org](http://www.ontocat.org)


**See Also**

`Ontology` and `OntologyTerm`

**Examples**

```
efo <- getEF0()
getRoots(efo)
```
**getTermAndAllChildren**  
*Returns accessions of all term’s parents and term itself*

**Description**

Returns accessions of term itself and all its children recursively.

**Usage**

```
getTermAndAllChildren(object1, object2)
```

**Arguments**

- `object1`: instance of the `Ontology` class
- `object2`: instance of the `OntologyTerm` class

**Value**

Returns list of accessions.

**Author(s)**

Natalja Kurbatova

**References**


Experimental Factor Ontology [http://www.ebi.ac.uk/efo](http://www.ebi.ac.uk/efo)

Ontology Common API Tasks java library [http://www.ontocat.org](http://www.ontocat.org)


**See Also**

`Ontology` and `OntologyTerm`

**Examples**

```r
efo <- getEFO()
term <- getTermById(efo, "EFO_0004902")
getTermAndAllChildren(efo, term)
```
**getTermAndAllChildrenById**

*Returns accessions of all term's parents and term itself*

---

**Description**

Returns accessions of term itself and all its children recursively.

**Usage**

```java
getTermAndAllChildrenById(object, id)
```

**Arguments**

- `object` instance of the `Ontology` class
- `id` accession string of the term of interest

**Value**

Returns list of accessions.

**Author(s)**

Natalja Kurbatova

**References**


Experimental Factor Ontology [http://www.ebi.ac.uk/efo](http://www.ebi.ac.uk/efo)

Ontology Common API Tasks java library [http://www.onotecat.org](http://www.onotecat.org)


**See Also**

`Ontology` and `OntologyTerm` and `getTermAndAllChildren`
**getTermById**

*Returns ontology term*

### Description

Returns ontology term as the instance of the `OntologyTerm` class.

### Usage

```r
getTermById(object, id)
```

### Arguments

- **object**: instance of the `Ontology` class
- **id**: accession string of the term of interest

### Value

Returns ontology term: instance of the `OntologyTerm` class.

### Author(s)

Natalja Kurbatova

### References

- Experimental Factor Ontology [http://www.ebi.ac.uk/efo](http://www.ebi.ac.uk/efo)
- Ontology Common API Tasks java library [http://www.ontocat.org](http://www.ontocat.org)

### See Also

- `Ontology` and `OntologyTerm`

### Examples

```r
efo <- getEFO()
gTermById(efo,"EFO_0000827")
```
getTermChildren

**Description**

Returns set of direct children of the term of interest. Term in the set is represented as the instance of the OntologyTerm class.

**Usage**

```
getTermChildren(object1, object2)
```

**Arguments**

- `object1` instance of the Ontology class
- `object2` instance of the OntologyTerm class

**Value**

Returns set of ontology terms: each term in the set is the instance of the OntologyTerm class.

**Author(s)**

Natalja Kurbatova

**References**

- Experimental Factor Ontology [http://www.ebi.ac.uk/efo](http://www.ebi.ac.uk/efo)
- Ontology Common API Tasks java library [http://www.ontocat.org](http://www.ontocat.org)

**See Also**

Ontology and OntologyTerm

**Examples**

```
efo <- getEFO()
term <- getTermById(efo, "EFO_0004902")
getTermChildren(efo, term)
```
getTermChildrenById

Returns direct children of term of interest

Description

Returns set of direct children of the term of interest. Term in the set is represented as the instance of the OntologyTerm class.

Usage

getTermChildrenById(object, id)

Arguments

object instance of the Ontology class
id accession string of the term of interest

Value

Returns set of ontology terms: each term in the set is the instance of the OntologyTerm class.

Author(s)

Natalja Kurbatova

References


Experimental Factor Ontology http://www.ebi.ac.uk/efo

Ontology Common API Tasks java library http://www.ontocat.org

Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology, OntologyTerm and getTermChildren
**getTermDefinitions**  

*Returns set of ontology term’s definitions*

**Description**

Returns set of ontology term’s definitions if there are some

**Usage**

```
getTermDefinitions(object1,object2)
```

**Arguments**

- `object1`: instance of the `Ontology` class
- `object2`: instance of the `OntologyTerm` class

**Value**

Returns set of ontology term’s definitions if there are some

**Author(s)**

Natalja Kurbatova

**References**


Experimental Factor Ontology [http://www.ebi.ac.uk/efo](http://www.ebi.ac.uk/efo)

Ontology Common API Tasks java library [http://www.ontocat.org](http://www.ontocat.org)


**See Also**

`Ontology` and `OntologyTerm`

**Examples**

```
efo <- getEFO()
term <- getTermById(efo,"EFO_0000322")
getTermDefinitions(efo,term)
```
**getTermDefinitionsById**

*Returns set of ontology term’s definitions*

**Description**

Returns set of ontology term’s definitions if there are some

**Usage**

```java
getTermDefinitionsById(object, id)
```

**Arguments**

- `object` instance of the `Ontology` class
- `id` accession string of the term of interest

**Value**

Returns set of ontology term’s definitions if there are some

**Author(s)**

Natalja Kurbatova

**References**


Experimental Factor Ontology [http://www.ebi.ac.uk/efo](http://www.ebi.ac.uk/efo)

Ontology Common API Tasks java library [http://www.ontocat.org](http://www.ontocat.org)


**See Also**

`Ontology`, `OntologyTerm` and `getTermDefinitions`
getTermNameById  

Returns ontology term’s label

Description

Returns ontology term’s label

Usage

getTermNameById(object, id)

Arguments

- object: instance of the Ontology class
- id: accession string of the term of interest

Value

Returns ontology term’s label

Author(s)

Natalja Kurbatova

References


Experimental Factor Ontology http://www.ebi.ac.uk/efo

Ontology Common API Tasks java library http://www.ontocat.org

Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology and OntologyTerm

Examples

efo <- getEFO()
getTermNameById(efo, "EFO_0000827")
getTermParents

Returns set of direct parents of the term of interest

Description

Returns set of direct parents of the term of interest. Term in the set is represented as the instance of the OntologyTerm class

Usage

getTermParents(object1, object2)

Arguments

object1 instance of the Ontology class
object2 instance of the OntologyTerm class

Value

Returns set of ontology terms: each term in the set is the instance of the OntologyTerm class

Author(s)

Natalja Kurbatova

References


Experimental Factor Ontology http://www.ebi.ac.uk/efo

Ontology Common API Tasks java library http://www.ontocat.org

Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology and OntologyTerm

Examples

efo <- getEFO()
term <- getTermById(efo,"EFO_0004902")
getTermParents(efo,term)
**getTermParentsById**

Returns set of direct parents of the term of interest

**Description**

Returns set of direct parents of the term of interest. Term in the set is represented as the instance of the `OntologyTerm` class

**Usage**

```java
getTermParentsById(object, id)
```

**Arguments**

- `object`: instance of the `Ontology` class
- `id`: accession string of the term of interest

**Value**

Returns set of ontology terms: each term in the set is the instance of the `OntologyTerm` class

**Author(s)**

Natalja Kurbatova

**References**


Experimental Factor Ontology [http://www.ebi.ac.uk/efo](http://www.ebi.ac.uk/efo)

Ontology Common API Tasks java library [http://www.ontocat.org](http://www.ontocat.org)


**See Also**

`Ontology`, `OntologyTerm` and `getTermParents`
getTermRelationNames  

Returns list of relation names available for the term

Description

Returns set of strings - relation names between term of interest and other terms in ontology

Usage

getTermRelationNames(object1,object2)

Arguments

object1  
instance of the Ontology class

object2  
instance of the OntologyTerm class

Value

Returns set of ontology term’s synonyms if there are some

Author(s)

Natalja Kurbatova

References


Experimental Factor Ontology http://www.ebi.ac.uk/efo

Ontology Common API Tasks java library http://www.ontocat.org

Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology and OntologyTerm
getTermRelationNamesById

Returns list of relation names available for the term

Description

Returns set of strings - relation names between term of interest and other terms in ontology

Usage

getTermRelationNamesById(object, id)

Arguments

object instance of the Ontology class
id accession string of the term of interest

Value

Returns set of ontology term’s synonyms if there are some

Author(s)

Natalja Kurbatova

References


Experimental Factor Ontology http://www.ebi.ac.uk/efo

Ontology Common API Tasks java library http://www.ontocat.org

Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology, OntologyTerm and getTermRelationNames
**getDescription**

Returns set of terms that are in defined relation with term of interest

**Usage**

gTermRelations(object1,object2,relation)

**Arguments**

- **object1**: instance of the Ontology class
- **object2**: instance of the OntologyTerm class
- **relation**: relation name

**Value**

Returns set of ontology term’s synonyms if there are some

**Author(s)**

Natalja Kurbatova

**References**


Experimental Factor Ontology [http://www.ebi.ac.uk/efo](http://www.ebi.ac.uk/efo)

Ontology Common API Tasks java library [http://www.ontocat.org](http://www.ontocat.org)


**See Also**

Ontology and OntologyTerm
getTermRelationsById

Returns set of terms that are in defined relation with term of interest

Description

Returns set of terms that are in defined relation with the term of interest

Usage

getTermRelationsById(object, id, relation)

Arguments

object instance of the Ontology class
id accession string of the term of interest
relation relation name

Value

Returns set of ontology term’s synonymss if there are some

Author(s)

Natalja Kurbatova

References


Experimental Factor Ontology http://www.ebi.ac.uk/efo
Ontology Common API Tasks java library http://www.ontocat.org
Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology and OntologyTerm and getTermRelations
getTermSynonyms

Returns set of ontology term's synonyms

Description

Returns set of ontology term’s synonyms if there are some

Usage

getTermSynonyms(object1, object2)

Arguments

object1 instance of the Ontology class
object2 instance of the OntologyTerm class

Value

Returns set of ontology term’s synonyms if there are some

Author(s)

Natalja Kurbatova

References


Experimental Factor Ontology http://www.ebi.ac.uk/efo

Ontology Common API Tasks java library http://www.ontocat.org

Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology and OntologyTerm

Examples

efo <- getEFO()
term <- getTermById(efo, "EFO_0000827")
getTermSynonyms(efo, term)


**getTermSynonymsById**

*Returns set of ontology term’s synonyms*

---

**Description**

Returns set of ontology term’s synonyms if there are some

**Usage**

```java
getTermSynonymsById(object, id)
```

**Arguments**

- **object**: instance of the `Ontology` class
- **id**: accession string of the term of interest

**Value**

Returns set of ontology term’s synonyms if there are some

**Author(s)**

Natalja Kurbatova

**References**


Experimental Factor Ontology http://www.ebi.ac.uk/efo

Ontology Common API Tasks java library http://www.ontocat.org

Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

**See Also**

*Ontology, OntologyTerm* and *getTermSynonyms*
hasTerm

Description

Returns true if term is in ontology

Usage

hasTerm(object, id)

Arguments

object instance of the Ontology class
id accession string of the term of interest

Value

Returns true or false

Author(s)

Natalja Kurbatova

References


Experimental Factor Ontology http://www.ebi.ac.uk/efo

Ontology Common API Tasks java library http://www.ontocat.org

Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology and OntologyTerm

Examples

```r
efo <- getEFO()
hasTerm(efo,"EFO_0000322")
```
isEFOBranchRoot

Returns true if term is the branch root in EFO

Description

Returns true if term is the branch root in EFO. Function specific for EFO.

Usage

isEFOBranchRoot(object1, object2)

Arguments

object1                     instance of the Ontology class
object2                     instance of the OntologyTerm class

Value

Returns true or false

Author(s)

Natalja Kurbatova

References


Experimental Factor Ontology http://www.ebi.ac.uk/efo

Ontology Common API Tasks java library http://www.ontocat.org

Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology and OntologyTerm

Examples

efo <- getEF0()
term <- getTermById(efo,"EFO_0000322")
isEFOBranchRoot(efo, term)
isEFOBranchRootById

Returns true if term is the branch root in EFO

Description

Returns true if term is the branch root in EFO. Function specific for EFO.

Usage

isEFOBranchRootById(object, id)

Arguments

- object: instance of the Ontology class
- id: accession string of the term of interest

Value

Returns true or false

Author(s)

Natalja Kurbatova

References


Experimental Factor Ontology http://www.ebi.ac.uk/efo

Ontology Common API Tasks java library http://www.ontocat.org

Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology, OntologyTerm and isEFOBranchRoot
isRoot

Returns true if term is the root in the ontology hierarchy

Description

Returns true if term is the root in the ontology hierarchy

Usage

isRoot(object1, object2)

Arguments

object1 instance of the Ontology class
object2 instance of the OntologyTerm class

Value

Returns true or false

Author(s)

Natalja Kurbatova

References


Experimental Factor Ontology http://www.ebi.ac.uk/efo

Ontology Common API Tasks java library http://www.ontocat.org

Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology and OntologyTerm

Examples

efo <- getEFO()
term <- getTermById(efo,"EFO_0000322")
isRoot(efo,term)
isRootById

**Description**

Returns true if term is the root in the ontology hierarchy

**Usage**

```java
isRootById(object, id)
```

**Arguments**

- `object`: instance of the `Ontology` class
- `id`: accession string of the term of interest

**Value**

Returns true or false

**Author(s)**

Natalja Kurbatova

**References**


Experimental Factor Ontology [http://www.ebi.ac.uk/efo](http://www.ebi.ac.uk/efo)

Ontology Common API Tasks java library [http://www.ontocat.org](http://www.ontocat.org)


**See Also**

- `Ontology`, `OntologyTerm` and `isRoot`
Ontology-class

Class "Ontology"

Description

Supports basic operations with ontologies: traversal and search

Accessing the ontologies

The appropriate way to access ontology is via the helper getOntology function.

Accessing the EFO

The appropriate way to access EFO is via the helper getEFO function.

Slots

ontology: Object of class "jobjRef" No user-serviceable parts inside. Maps to an internal Java Ontology object.

Methods

getAllTermChildren signature(object1 = "Ontology", object2 = "OntologyTerm"): Returns list of term’s all children

getAllTermChildrenById signature(object = "Ontology", id = "character"): Returns list of term’s all children

getAllTermIds signature(object = "Ontology"): Returns list of all term accessions

getAllTermParents signature(object1 = "Ontology", object2 = "OntologyTerm"): Returns list of term’s all parents

getAllTermParentsById signature(object = "Ontology", id = "character"): Returns list of term’s all parents

getAllTerms signature(object = "Ontology"): Returns list of all terms

getEFOBranchRootIds signature(object = "Ontology"): Returns set of branch root accessions. Method specific for EFO ontology

getOntologyAccession signature(object = "Ontology"): Returns parsed ontology accession

getOntologyDescription signature(object = "Ontology"): Returns parsed ontology description

getRootIds signature(object = "Ontology"): Returns list of root terms accessions, if there are any

getRoots signature(object = "Ontology"): Returns list of root terms, if there are any

getTermAndAllChildren signature(object1 = "Ontology", object2 = "OntologyTerm"): Returns list of accessions of term itself and all its children recursively

getTermAndAllChildrenById signature(object = "Ontology", id = "character"): Returns list of accessions of term itself and all its children recursively

getTermById signature(object = "Ontology", id = "character"): Fetch term by accession. Returns external term representation if found in ontology, null otherwise
**Ontology-class**

**getTermChildren** signature(object1 = "Ontology", object2 = "OntologyTerm"): Returns list of term’s direct children

**getTermChildrenById** signature(object = "Ontology", id = "character"): Returns list of term’s direct children

**getTermDefinitions** signature(object1 = "Ontology", object2 = "OntologyTerm"): Returns set of term’s definitions if there are some

**getTermNameById** signature(object = "Ontology", id = "character"): Returns term’s label by accession

**getTermParents** signature(object1 = "Ontology", object2 = "OntologyTerm"): Returns list of term’s direct parents

**getTermParentsById** signature(object = "Ontology", id = "character"): Returns list of term’s direct parents

**getTermSynonyms** signature(object1 = "Ontology", object2 = "OntologyTerm"): Returns set of term’s synonyms if there are some

**hasTerm** signature(object = "Ontology", id = "character"): Check if term with specified accession exists in ontology

**isEFOBranchRoot** signature(object1 = "Ontology", object2 = "OntologyTerm"): Returns true if term is branch root of EFO. Method specific for EFO ontology

**isEFOBranchRootById** signature(object = "Ontology", id = "character"): Returns true if term is branch root of EFO. Method specific for EFO ontology

**isRoot** signature(object1 = "Ontology", object2 = "OntologyTerm"): Returns true if term is root of ontology

**isRootById** signature(object = "Ontology", id = "character"): Returns true if term is root of ontology

**searchTerm** signature(object = "Ontology", id = "character"): Searches for term in ontology by name

**searchTermPrefix** signature(object = "Ontology", prefix = "character"): Searches for prefix in ontology

**showHierarchyDownToTerm** signature(object1 = "Ontology", object2 = "OntologyTerm"): Returns set of terms that represent ontology “opened” down to specified term, hence displaying all its parents first and then a tree level, containing specified term

**showHierarchyDownToTermById** signature(object = "Ontology", id = "character"): Returns set of terms that represent ontology “opened” down to specified term, hence displaying all its parents first and then a tree level, containing specified term

**showPathsToTerm** signature(object1 = "Ontology", object2 = "OntologyTerm"): Returns paths to the specified term from ontology’s root term

**showPathsToTermById** signature(object = "Ontology", id = "character"): Returns paths to the specified term from ontology’s root term

**getOntologyRelationNames** signature(object = "Ontology"): Returns list of relations used in ontology

**getTermRelationNames** signature(object1 = "Ontology", object2 = "OntologyTerm"): Returns list of relations that term has

**getTermRelationNamesById** signature(object1 = "Ontology", id = "character"): Returns list of relations that term has

**getTermRelations** signature(object1 = "Ontology", object2 = "OntologyTerm", relation = "character"): Returns list of terms that are in defined relation with term of interest

**getTermRelations** signature(object = "Ontology", id = "character", relation = "character"): Returns list of terms that are in defined relation with term of interest
Note

This package ships with the EFO OWL file, version released at the time of the package build. Provided EFO OWL file can be loaded as any other OWL or OBO file by using `getOntology` function.

Another option is to load the latest EFO version on the fly by using `getEFO` function.

Author(s)

Natalja Kurbatova

References


Experimental Factor Ontology [http://www.ebi.ac.uk/efo]

Ontology Common API Tasks java library [http://www.ontocat.org]

Java sources and javadocs: [http://sourceforge.net/projects/ontocat/files/]

See Also

`getOntology`, `getEFO` and `OntologyTerm`

Examples

```r
ontology <- getEFO()
getEFOBranchRootIds(ontology)
term <- getTermById(ontology,"EFO_0001221")
getTermParents(ontology,term)
searchTermPrefix(ontology,"leuk")
getTermAndAllChildrenById(ontology,"EFO_0000318")
searchTerm(ontology,"thymus")
file <- system.file("extdata", "cell.obo", package="ontoCAT")
oneontology <- getOntology(file)
getAllTermIds(ontology)
```

OntologyTerm-class

Class "OntologyTerm"

Description

External view for an ontological terms in ontoCAT package

Objects from the Class

Don’t create objects of this class. It is a wrapper around an internal Java representation.
searchTerm

Slots

term: Object of class "jobjRef" No user-serviceable parts inside.

Methods

getAccession signature(object = "OntologyTerm"): Returns accession of the term
getLabel signature(object = "OntologyTerm"): Returns description of the term
show signature(object = "OntologyTerm"): Displays term accession and description string

Author(s)

Tomasz Adamusiak

References

Experimental Factor Ontology http://www.ebi.ac.uk/efo
Ontology Common API Tasks java library http://www.ontocat.org
Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology

Examples

```r
ontology <- getEFO()
term <- getTermById(ontology,"EFO_0001221")
show(term)
getAccession(term)
getLabel(term)
```

searchTerm

Searches term by its name in ontology

Description

Searches the term by its name in the ontology. Returns list of term’s accessions.

Usage

searchTerm(object, id)
Arguments

- **object**: instance of the `Ontology` class
- **id**: term’s name or part of the name

Value

Returns list of accessions

Author(s)

Natalja Kurbatova

References


Experimental Factor Ontology [http://www.ebi.ac.uk/efo](http://www.ebi.ac.uk/efo)

Ontology Common API Tasks java library [http://www.ontocat.org](http://www.ontocat.org)


See Also

- `Ontology` and `OntologyTerm`

Examples

```r
efo <- getEFO()
searchTerm(efo,"thymus")
```

**searchTermPrefix**  
Searches for term by prefix in ontology

Description

Searches the term by prefix in the ontology. Returns list of term’s accessions.

Usage

```r
searchTermPrefix(object, prefix)
```

Arguments

- **object**: instance of the `Ontology` class
- **prefix**: prefix to search for
showHierarchyDownToTerm

Value

Returns list of accessions

Author(s)

Natalja Kurbatova

References


Experimental Factor Ontology http://www.ebi.ac.uk/efo

Ontology Common API Tasks java library http://www.ontocat.org

Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology and OntologyTerm

Examples

efo <- getEFO()
searchTermPrefix(efo,"thy")

showHierarchyDownToTerm

Returns tree representation of term’s parents

Description

Returns set of terms that represent ontology "opened" down to specified term, hence displaying all its parents first and then a tree level, containing specified term. Term in the set is represented as the instance of the OntologyTerm class.

Usage

showHierarchyDownToTerm(object1,object2)

Arguments

object1 instance of the Ontology class
object2 instance of the OntologyTerm class

Value

Returns set of ontology terms: each term in the set is the instance of the OntologyTerm class
Author(s)
Natalja Kurbatova

References

Experimental Factor Ontology [http://www.ebi.ac.uk/efo](http://www.ebi.ac.uk/efo)
Ontology Common API Tasks java library [http://www.ontocat.org](http://www.ontocat.org)

See Also
Ontology and OntologyTerm

Examples
```r
efo <- getEFO()
term <- getTermById(efo,"EFO_0000827")
showHierarchyDownToTerm(efo,term)
```

showHierarchyDownToTermById

*Returns tree representation of term’s parents*

Description
Returns set of terms that represent ontology "opened" down to specified term, hence displaying all its parents first and then a tree level, containing specified term. Term in the set is represented as the instance of the OntologyTerm class.

Usage
```
showHierarchyDownToTermById(object,id)
```

Arguments
- **object**: instance of the Ontology class
- **id**: accession string of the term of interest

Value
Returns set of ontology terms: each term in the set is the instance of the OntologyTerm class

Author(s)
Natalja Kurbatova
showPathsToTerm

Returns paths to the term

Description

Returns paths to the specified term from ontology’s root term. Term in the set is represented as the instance of the OntologyTerm class.

Usage

showPathsToTerm(object1,object2)

Arguments

object1 instance of the Ontology class
object2 instance of the OntologyTerm class

Value

Returns paths in a string form

Author(s)

Natalja Kurbatova

References


Experimental Factor Ontology http://www.ebi.ac.uk/efo
Ontology Common API Tasks java library http://www.ontocat.org
Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/
showPathsToTermById

See Also

Ontology and OntologyTerm

Examples

efo <- getEFO()
term <- getTermById(efo,"EFO_0000827")
showPathsToTerm(efo,term)

showPathsToTermById  Returns paths to the term

Description

Returns paths to the specified term from ontology’s root term. Term in the set is represented as the instance of the OntologyTerm class.

Usage

showPathsToTermById(object,id)

Arguments

object instance of the Ontology class
id accession string of the term of interest

Value

Returns paths in a string form

Author(s)

Natalja Kurbatova

References


Experimental Factor Ontology http://www.ebi.ac.uk/efo

Ontology Common API Tasks java library http://www.ontocat.org

Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

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