Package ‘ontoCAT’

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Type Package
Title Ontology traversal and search
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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
Depends rJava, methods
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.

The ontoCAT package provides a simple interface to the Experimental Factor Ontology (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. 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) as well as various other utilites methods and depends on rJava R package.

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
getAccession(object)

Arguments
object instance of the OntologyTerm 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

**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")
g getAllTermChildren(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

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 getAllTermChildren
getAllTermIds

Returns accessions of all ontology terms

Description
Returns accessions of all loaded ontology terms

Usage
getAllTermIds(object)

Arguments
object instance of the Ontology class

Value
Returns accession strings of all terms from loaded ontology.

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
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

ggetAllTermParents(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")
ggetAllTermParents(efo, term)
getAllTermParentsById

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
getAllTermParentsById(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 getAllTermParents
**getAllTerms**

*Returns all ontology terms*

---

**Description**

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

**Usage**

```r
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](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
t File <- system.file("extdata", "cell.obo", package="ontocAT")
ontologyFromFile <- getOntology(file)
getAllTerms(ontologyFromFile)
```
getEFO

Returns an instance of the EFO ontology parser

Description

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

Usage

g ETF0()

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()
g ETF0BranchRootIds(efo)
g ETF0ParentsById(efo,"EFO_0001221")
term_efo <- getTermById(efo,"EFO_0004902")
isEFOBranchRoot(efo,term_efo)
searchTermPrefix(efo,"leuk")
g ETF0TermAndAllChildren(efo,term_efo)
getEFOBranchRootIds

Description

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

Usage

gxFEFOBranchRootIds(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()
gxFEFOBranchRootIds(efo)
getLabel

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>getLabel</td>
<td>Returns label of the ontology term</td>
</tr>
</tbody>
</table>

**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

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_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
getOntologyAccession

Examples

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

---

getOntologyAccession  Returns ontology accession

Description

Returns ontology accession

Usage

```r
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](http://www.ebi.ac.uk/efo)

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


See Also

- `Ontology`
- `OntologyTerm`
Examples

```r
efo <- getEFO()
getOntologyAccession(efo)
```

```r
getOntologyDescription

Returns ontology description
```

Description

Returns ontology description

Usage

```r
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](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()
getOntologyDescription(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**

```java
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

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
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
**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**

```r
getRootIds(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](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()
geRootIds(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

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()
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**
```
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**

```
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.ontocat.org](http://www.ontocat.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()
getTermById(efo,"EFO_0000827")
```
**getTermChildren**

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

```
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
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_0000322")
gTermDefinitions(efo,term)
```
getTermDefinitionsById

Returns set of ontology term’s definitions

Description

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

Usage

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
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 getTermDefinitions
**getTermNameById**  
*Returns ontology term’s label*

**Description**
Returns ontology term’s label

**Usage**

```r
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](http://www.ebi.ac.uk/efo)

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


**See Also**

- `ontology`
- `ontologyterm`

**Examples**

```r
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**

```r
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](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")
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](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](#)
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
getTermRelations

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

getTermRelations(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

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
**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**

```java
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 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` 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**

```r
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

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

| hasTerm | Returns true if term is in ontology |

Description

Returns true if term is in the ontology

Usage

```r
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](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()
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 <- getEFO()
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

\[\text{isRoot}(\text{object1}, \text{object2})\]

Arguments

- \text{object1} instance of the \text{Ontology} class
- \text{object2} instance of the \text{OntologyTerm} class

Value

Returns true or false

Author(s)

Natalja Kurbatova

References

Adamusiak T, Burdett T, van der Velde K J, Abeygunawardena N, Antonakaki D, Parkinson H and Swertz M: OntoCAT – a simpler way to access ontology resources. \textit{Available from Nature Precedings} \url{http://dx.doi.org/10.1038/npre.2010.4666.1} (2010)


Experimental Factor Ontology \url{http://www.ebi.ac.uk/efo}

Ontology Common API Tasks java library \url{http://www.ontocat.org}

Java sources and javadocs: \url{http://sourceforge.net/projects/ontocat/files/}

See Also

\text{Ontology} and \text{OntologyTerm}

Examples

\begin{verbatim}
efo <- getEFO()
term <- getTermById(efo,"EFO_0000322")
isRoot(efo,term)
\end{verbatim}
isRootById

**Description**

Returns true if term is the root in the ontology hierarchy

**Usage**

`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`
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 "objRef" 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
 Ontology-class

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

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

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

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

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

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

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

gTermSynonyms 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 under given accession 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")
ontology <- 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.

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)
getAddress(term)
```
**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

searchTermPrefix  Searches for term by prefix in ontology

Description

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

Usage

`searchTermPrefix(object,prefix)`

Arguments

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

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

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

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_0000827")
showHierarchyDownToTerm(efo,term)

Description

Returns tree representation of term's parents

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

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 showHierarchyDownToTerm
**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](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_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](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 `showPathsToTerm`
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