Package ‘ontoCAT’

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Type Package
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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.

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.
getAccession

Details

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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

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)
getAllTermChildren

Arguments

object1  instance of the Ontology class
object2  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 <- getEF0()
term <- getTermById(efo,"EFO_0000827")
getAccession(term)
```

ggetAllTermChildren  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

ggetAllTermChildren(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](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")
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**

```r
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
getAllTermIds

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

ggetAllTermIds

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
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

```r
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

```r
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

ggetAllTerms

Returns all ontology terms

Description

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

Usage

ggetAllTerms(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

See Also
Ontology and OntologyTerm

Examples

```r
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
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

```r
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

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 <- getEF0()
geFEFOBranchRootIds(efo)
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

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

Examples

ontologyFromURL <- getOntology("http://www.ebi.ac.uk/efo/efo.owl")
getTermParentsById(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 <- getEFO()
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

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

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

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
getOntologyRelationNames

---

**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

**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
getcRootIds(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()
getcRootIds(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 designed 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

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")
getTermAndAllChildren(efo,term)
getTermAndAllChildrenById

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
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 getTermAndAllChildren
getTermById

Description

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

Usage

```r
define 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 <- getEF0()
getTermById(efo,"EFO_0000827")
```
**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**

```r
efo <- getEFO()
term <- getTermById(efo,"EFO_0004902")
getTermChildren(efo,term)
```
**getDescription**

*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](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 `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 <- getEF0()
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

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  

**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](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()
geTermNameById(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](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**

**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**

```
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**

```java
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*
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**

`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](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 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 <- getEF0()
term <- getTermById(efo,"EFO_0000827")
getTermSynonyms(efo,term)
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

**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

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

```r
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
**Description**

Returns true if term is the root in the ontology hierarchy

**Usage**

```r
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](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_0000322")
isRoot(efo,term)
```
isRootById  

Returns true if term is the root in the ontology hierarchy

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

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

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


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.
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

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)
searchTermPrefix

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
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()
searchTerm(efo,"thymus")
```

searchTermPrefix (Arguments)

Object term 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

```r
efo <- getEFO()
s showErrorPrefix(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

```r
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
showHierarchyDownToTermById

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")
```

```r
showHierarchyDownToTermById(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
```r
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

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
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")
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

```r
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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