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
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ontoCAT-package

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) 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 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)

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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)
```

```r
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)
```

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")
ggetAllTermChildren(efo,term)
ggetAllTermChildrenById

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**

`getAllTermChildrenById(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

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
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")
tonologyFromFile <- 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](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")
getAllTermParents(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
getAllTerms

## 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 *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)

getEFO

See Also

Ontology and OntologyTerm

Examples

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

```r
gETCHO()
```

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

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

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

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**

```r
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](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
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**

```r
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](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()
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](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

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
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
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()
getRootIds(efo)
getRoots

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 <- 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

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**

*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](#)
- [OntologyTerm](#)
- [getTermAndAllChildren](#)
**getTermById**

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

Usage

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

Arguments

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

\text{Ontology} and \text{OntologyTerm}

Examples

\[
\text{efo <- getEFO()}
\text{term <- getTermById(efo, "EFO_0000322")}
\text{getTermDefinitions(efo, term)}
\]
**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](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

```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

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

```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

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
**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](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 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 <- 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](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 `getTermSynonyms`
hasTerm

Returns true if term is in ontology

Description

Returns true if term is in the 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

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](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()
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**

```java
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](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 `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 jadavocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology and OntologyTerm

Examples

efo <- getEF0()
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**

\[ \text{isRootById(object, id)} \]

**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

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

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

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

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

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

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

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

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

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

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

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

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

g 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", relation = "character"): Returns list of relations that term has

*getTermRelationNamesById* signature(object1 = "Ontology", id = "character", relation = "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.
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](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](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()
searchTermPrefix(efo,"thy")
```

```r
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")
showHierarchyDownToTerm(efo,term)
```

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

<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

Author(s)
Natalja Kurbatova
showPathsToTerm

**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
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)

**showPathsToTermById**

### 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](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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