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. The full version of ontoCAT R package also supports searching for ontology terms across multiple ontologies and in major ontology repositories, as well as a number of advanced ontology navigation functions: www.ontocat.org/wiki/r

License Apache License 2.0

LazyLoad yes

biocViews Classification, DataRepresentation

Depends rJava, methods

R topics documented:

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

The ontoCAT package provides a simple interface to the Experimental Factor Ontology (http://www.ebi.ac.uk/efo) 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.

Details

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- 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 jadavocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology, OntologyTerm, getOntology and getEFO

Examples

```r
efo<-getEFO()
ontology <- getOntology("./ontoCAR/extdata/cell.obo")
```
getAccession  

**Description**

Returns accession string of the OntologyTerm object.

**Usage**

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


**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
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")
ggetAllTermChildren(efo,term)
getAllTermChildrenById

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.

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

```
g 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`
- `OntologyTerm`

### Examples

```r
efo <- getEFO()
g getAllTermIds(efo)
```
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

**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()
term <- getTermById(efo,"EFO_0000827")
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

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
efo <- getEFO()
getAllTerms(efo)
```
getEFO

Returns an instance of the EFO ontology parser

Description

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

Usage

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

efo<-getEFO()
gETCHOBrootIds(efo)
gETCHTermByld(efo,"EFO_00001221")
term_efo <- getTermById(efo,"EFO_00000322")
isECHOBroot(efo,term_efo)
ssearchTermPrefix(efo,"leuk")
gETCHTermAndAllChildren(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 <- getEFO()
getEFOBranchRootIds(efo)
**getLabel**

Returns label of the ontology term

**Description**

Returns label of the OntologyTerm object.

**Usage**

`getLabel(object)`

**Arguments**

`object` instance of the `OntologyTerm` class

**Value**

Returns label of the ontology term.

**Author(s)**

Natalja Kurbatova

**References**


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

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


**See Also**

`Ontology` and `OntologyTerm`

**Examples**

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

```r
ontologyFromURL <- getOntology("http://www.ebi.ac.uk/efo/efo.owl")
getOntologyRelationNames(ontologyFromURL)
getTermParentsById(ontologyFromURL,"EFO_/zero.noslash/zero.noslash/zero.noslash1221")
ontologyFromFile <- getOntology("./ontoCAT/extdata/cell.obo")
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

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`
getOntologyDescription

Examples

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

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

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

Examples

ontologyFromURL <- getOntologyNoReasoning("http://www.ebi.ac.uk/efo/efo.owl")
getOntologyRelationNames(ontologyFromURL)
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

Examples

efo <- getEFO()
geOntologyRelationNames(efo)
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

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)
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  

Description

Returns accessions of all term’s parents and term itself

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_0000322")
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

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**

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()
geTermById(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_0000322")
getTermChildren(efo, term)
getTermChildrenById

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

```
efo <- getEFO()
term <- getTermById(efo,"EFO_000322")
extTermDefinitions(efo, term)
```
**getTermDefinitionsById**

*Returns set of ontology term’s definitions*

**Description**

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

**Usage**

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

**Arguments**

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

**Value**

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

**Author(s)**

Natalja Kurbatova

**References**


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

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


**See Also**

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

Returns ontology term’s label

Description

Returns ontology term’s label

Usage

getTermNameById(object, id)

Arguments

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

Value

Returns ontology term’s label

Author(s)

Natalja Kurbatova

References

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. Available from Nature
Precedings http://dx.doi.org/10.1038/npre.2010.4666.1 (2010)
A, Parkinson H: Modeling Sample Variables with an Experimental Factor Ontology. Bioinformatics
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Experimental Factor Ontology http://www.ebi.ac.uk/efo
Ontology Common API Tasks java library http://www.ontocat.org
Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology and OntologyTerm

Examples

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

Returns set of direct parents of the term of interest

Description

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

Usage

```
getTermParents(object1, object2)
```

Arguments

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

Value

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

Author(s)

Natalja Kurbatova

References


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

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
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 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

```r
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`

### Examples

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

**Examples**

```r
efo <- getEFO()
term <- getTermById(efo,"EFO_0000827")
getTermRelations(efo,term,"has_part")
```
**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](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")
g TermSynonyms(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 synonymss if there are some

Author(s)

Natalja Kurbatova

References


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

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

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

See Also

Ontology, 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

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

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

See Also

- `Ontology` and `OntologyTerm`

Examples

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

Returns true if term is the branch root in EFO

Description

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

Usage

isEFOBranchRoot(object1, object2)

Arguments

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

Value

Returns true or false

Author(s)

Natalja Kurbatova

References

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

See Also

Ontology and OntologyTerm

Examples

efo <- 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

isRoot(object1, object2)

Arguments

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

Value

Returns true or false

Author(s)

Natalja Kurbatova

References

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

See Also

Ontology and OntologyTerm

Examples

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

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

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

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

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

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

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

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

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

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

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

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

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

ggetTermAndAllChildrenById 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

ontology <- getEFO()
getEFOBranchRootIds(ontology)
term <- getTermById(ontology,"EFO_0001221")
getTermParents(ontology,term)
searchTermPrefix(ontology,"leuk")
getTermAndAllChildrenById(ontology,"EFO_0000318")
searchTerm(ontology,"thymus")
ontology <- getOntology("http://www.ebi.ac.uk/efo/efo.owl")
ontology <- getOntology("./ontoCAT/extdata/cell.obo")
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](http://www.ebi.ac.uk/efo)
Ontology Common API Tasks java library [http://www.ontocat.org](http://www.ontocat.org)

**See Also**  
Ontology

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

\textit{Searches term by its name in ontology}

\textbf{Description}

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

\textbf{Usage}

\begin{verbatim}
searchTerm(object, id)
\end{verbatim}

\textbf{Arguments}

- \texttt{object} instance of the \texttt{Ontology} class
- \texttt{id} term’s name or part of the name

\textbf{Value}

Returns list of accessions

\textbf{Author(s)}

Natalja Kurbatova

\textbf{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/}

\textbf{See Also}

\texttt{Ontology} and \texttt{OntologyTerm}

\textbf{Examples}

\begin{verbatim}
efo <- getEFO()
searchTerm(efo, "thymus")
\end{verbatim}
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
Ontology Common API Tasks java library http://www.ontocat.org
Java sources and javadocs: http://sourceforge.net/projects/ontocat/files/

See Also

Ontology and OntologyTerm

Examples

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

Returns tree representation of term’s parents

Description

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

Usage

showHierarchyDownToTerm(object1, object2)

Arguments

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

Value

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

Author(s)

Natalja Kurbatova

References


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

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
showHierarchyDownToTermById

Examples

```r
efo <- getEFO()
term <- getTermById(efo,"EFO_/zero.noslash/zero.noslash/zero.noslash/zero.noslash827")
showHierarchyDownToTerm(efo,term)
```

showHierarchyDownToTermById

*Returns tree representation of term's parents*

Description

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

Usage

```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

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 `showHierarchyDownToTerm`
**showPathsToTerm**

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**

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

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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