Package 'rWikiPathways'

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Type Package

Title rWikiPathways - R client library for the WikiPathways API

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Depends R (>= 3.5)

Imports caTools, httr, RJSONIO, utils, XML

Suggests testthat, BiocStyle, knitr, rmarkdown

Description Use this package to interface with the WikiPathways API.

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URL <https://github.com/wikipathways/rwikipathways>

BugReports <https://github.com/wikipathways/rwikipathways/issues>

LazyLoad yes

biocViews Visualization, GraphAndNetwork, ThirdPartyClient, Network, Metabolomics

NeedsCompilation no

VignetteBuilder knitr

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R topics documented:

downloadPathwayArchive

Download Pathway Archive

Description

Access the monthly archives of pathway content from WikiPathways.

Usage

```
downloadPathwayArchive(date = "current", organism = NULL,
  format = c("gpml", "gmt", "svg"), destpath = "./")
```

Arguments

date	(optional) The timestamp for a monthly release (e.g., 20171010) or "current" (default) for latest release.
organism	(optional) A particular species. See listOrganisms.
format	(optional) Either gpml (default), gmt or svg.
destpath	(optional) Destination path for file to be downloaded to. Default is current workding directory.

Details

If you do not specify an organism, then an archive file will not be downloaded. Rather, the archive will be opened in a tab in your default browser.

Value

Filename of downloaded file or an opened tab in default browser

Examples

```
downloadPathwayArchive()  ## open in browser
downloadPathwayArchive(format="gmt")  ## open in browser
downloadPathwayArchive(date="20171010", format="svg")  ## open in browser
downloadPathwayArchive(date="20171010", organism="Mus musculus", format="svg") ## download file
downloadPathwayArchive(organism="Mus musculus")  ## download file
```

findPathwayIdsByLiterature

Find Pathway WPIDs By Literature

Description

Retrieve list of pathway WPIDs containing the query citation.

Usage

```
findPathwayIdsByLiterature(query)
```

Arguments

query   The character string to search for, e.g., a PMID, title keyword or author name.

Value

A `list` of WPIDs

Examples

```
{
findPathwayIdsByLiterature('19649250')
findPathwayIdsByLiterature('smith')
findPathwayIdsByLiterature('cancer')
}
```

findPathwayIdsByText   *Find Pathway WPIDs By Text*

Description

Retrieve list of pathway WPIDs containing the query text.

Usage

```
findPathwayIdsByText(query)
```

Arguments

query   A character string to search for, e.g., "cancer"

Value

A `list` of WPIDs

Examples

```
{
findPathwayIdsByText('cancer')
}
```

---

findPathwayIdsByXref   *Find Pathway WPIDs By Xref*

Description

Retrieve list of pathway WPIDs containing the query Xref by identifier and system code.

Usage

```
findPathwayIdsByXref(identifier, systemCode)
```

Arguments

identifier	(character) The official ID specified by a data source or system
systemCode	(character) The BridgeDb code associated with the data source or system, e.g., En (Ensembl), L (Entrez), Ch (HMDB), etc. See column two of https://github.com/bridgedb/BridgeD

Details

Note: there will be multiple listings of the same pathway if the Xref is present mutiple times.

Value

A list of WPIDs

Examples

```
{
findPathwayIdsByXref('ENSG00000232810','En')
}
```

---

findPathwayNamesByLiterature
Find Pathway Names By Literature

Description

Retrieve list of pathway names containing the query citation.

Usage

```
findPathwayNamesByLiterature(query)
```

Arguments

query	The character string to search for, e.g., a PMID, title keyword or author name.

Details

Note: there will be multiple listings of the same pathway name if copies exist for multiple species.

Value

A `list` of lists

Examples

```
{
findPathwayNamesByLiterature('19649250')
findPathwayNamesByLiterature('smith')
findPathwayNamesByLiterature('cancer')
}
```

`findPathwayNamesByText`

Find Pathway Names By Text

Description

Retrieve list of pathway names containing the query text.

Usage

```
findPathwayNamesByText(query)
```

Arguments

query   A `character` string to search for, e.g., "cancer"

Details

Note: there will be multiple listings of the same pathway name if copies exist for multiple species.

Value

A `list` of lists

Examples

```
{
findPathwayNamesByText('cancer')
}
```

`findPathwayNamesByXref`

Find Pathway Names By Xref

Description

Retrieve list of pathway names containing the query Xref by identifier and system code.

Usage

```
findPathwayNamesByXref(identifier, systemCode)
```

Arguments

identifier	(character) The official ID specified by a data source or system
systemCode	(character) The BridgeDb code associated with the data source or system, e.g., En (Ensembl), L (Entrez), Ch (HMDB), etc. See column two of https://github.com/bridgedb/BridgeD

Details

Note: there will be multiple listings of the same pathway if the Xref is present mutiple times.

Value

A `list` of lists

Examples

```
{
findPathwayNamesByXref('ENSG00000232810','En')
}
```

`findPathwaysByLiterature`

Find Pathways By Literature

Description

Retrieve a list of pathways containing the query citation.

Usage

```
findPathwaysByLiterature(query)
```

Arguments

query	The character string to search for, e.g., a PMID, title keyword or author name.

Value

A `list` of lists

Examples

```
{
findPathwaysByLiterature('19649250')
findPathwaysByLiterature('smith')
findPathwaysByLiterature('cancer')
}
```

---

findPathwaysByText   *Find Pathways By Text*

Description

Retrieve a list of pathways containing the query text.

Usage

```
findPathwaysByText(query)
```

Arguments

query   A character string to search for, e.g., "cancer"

Value

A list of lists

Examples

```
{
findPathwaysByText('cancer')
}
```

---

findPathwaysByXref   *Find Pathways By Xref*

Description

Retrieve a list of pathways containing the query Xref by identifier and system code.

Usage

```
findPathwaysByXref(identifier, systemCode)
```

Arguments

identifier   (character) The official ID specified by a data source or system

systemCode   (character) The BridgeDb code associated with the data source or system, e.g.,
                En (Ensembl), L (Entrez), Ch (HMDB), etc. See column two of https://github.com/bridgedb/BridgeD

Details

Note: there will be multiple listings of the same pathway if the Xref is present mutiple times.

Value

A `list` of lists

Examples

```
{
findPathwaysByXref('ENSG00000232810','En')
}
```

---

findPathwayUrlsByLiterature

Find Pathway URLs By Literature

Description

Retrieve list of pathway URLs containing the query citation.

Usage

```
findPathwayUrlsByLiterature(query)
```

Arguments

query   The `character` string to search for, e.g., a PMID, title keyword or author name.

Value

A `list` of lists

Examples

```
{
findPathwayUrlsByLiterature('19649250')
findPathwayUrlsByLiterature('smith')
findPathwayUrlsByLiterature('cancer')
}
```

---

findPathwayUrlsByText   *Find Pathway URLs By Text*

Description

Retrieve list of pathway URLs containing the query text.

Usage

```
findPathwayUrlsByText(query)
```

Arguments

query   A character string to search for, e.g., "cancer"

Value

A `list` of lists

Examples

```
{
findPathwayUrlsByText('cancer')
}
```

---

findPathwayUrlsByXref   *Find Pathway URLs By Xref*

Description

Retrieve list of pathway URLs containing the query Xref by identifier and system code.

Usage

```
findPathwayUrlsByXref(identifier, systemCode)
```

Arguments

identifier   (character) The official ID specified by a data source or system

systemCode   (character) The BridgeDb code associated with the data source or system, e.g.,
               En (Ensembl), L (Entrez), Ch (HMDB), etc. See column two of https://github.com/bridgedb/BridgeDl

Details

Note: there will be multiple listings of the same pathway if the Xref is present mutiple times.

Value

A `list` of lists

Examples

```
{
findPathwayUrlsByXref('ENSG00000232810','En')
}
```

---

getColoredPathway   *Get Colored Pathway*

Description

Retrieve a pathway image file with specified nodes colored by specified colors

Usage

```
getColoredPathway(pathway, revision = 0, graphId = NULL,
  color = NULL, fileType = c("svg", "png", "pdf"))
```

Arguments

pathway   WikiPathways identifier (WPID) for the pathway to download, e.g. WP4

revision   (integer, optional) Number to indicate a specific revision to download

graphId   A character string or vector indicating the nodes to color

color   (optional) String or vector indicating the highlighting color, e.g., #FF8855. Default is red. You can provide a single color for mutiple nodes; otherwise color list and graphId must be the same length.

fileType   (optional) Image file format, e.g., svg (default), png or pdf.

Value

Image file

Examples

```
{
  svg = getColoredPathway(pathway="WP554", graphId="ef1f3")
  svg = getColoredPathway(pathway="WP554", graphId=c("ef1f3","e68e0"))
  svg = getColoredPathway(pathway="WP554", graphId=c("ef1f3","e68e0"),
                          color="00FF00")
  svg = getColoredPathway(pathway="WP554", graphId=c("ef1f3","e68e0"),
                          color=c("FF0000", "0000FF"))
  # writeLines(svg, "pathway.svg")
}
```

---

getCurationTagNames   *Get Curation Tag Names on a Pathway*

Description

Retrieve names of curation tags for a specific pathway.

Usage

```
getCurationTagNames(pathway)
```

Arguments

pathway   WikiPathways identifier (WPID) for the pathway to download, e.g. WP4

Value

A `list` of tag names

Examples

```
{
getCurationTagNames('WP554')
}
```

---

getCurationTags   *Get Curation Tags on a Pathway*

Description

Retrieve information about curation tags for a specific pathway.

Usage

```
getCurationTags(pathway)
```

Arguments

pathway   WikiPathways identifier (WPID) for the pathway to download, e.g. WP4

Value

A `list` of tag name, display name, revision, text, timestampe and user

Examples

```
{
getCurationTags('WP554')
}
```

---

getEveryCurationTag　　　　*Get Every Instance of a Curation Tag*

Description

Retrieve information about every instance of a given curation tag.

Usage

```
getEveryCurationTag(tag)
```

Arguments

tag　　　　　　　　(character) Official name of curation tag, e.g., "Curation:FeaturedPathway"

Value

A list of tag name, display name, revision, text, timestampe and user

Examples

```
{
getEveryCurationTag('Curation:FeaturedPathway')
}
```

---

getOntologyTermIds　　　　*Get Ontology Term IDs by Pathway*

Description

Retrieve identifiers of ontology terms for a specific pathway.

Usage

```
getOntologyTermIds(pathway)
```

Arguments

pathway　　　　WikiPathways identifier (WPID) for the pathway to download, e.g. WP4

Value

A list of term identifiers

Examples

```
{
getOntologyTermIds('WP554')
}
```

---

getOntologyTermNames　　　*Get Ontology Term Names by Pathway*

Description

Retrieve names of ontology terms for a specific pathway.

Usage

```
getOntologyTermNames(pathway)
```

Arguments

pathway　　　　　WikiPathways identifier (WPID) for the pathway to download, e.g. WP4

Value

A `list` of term names

Examples

```
{
getOntologyTermNames('WP554')
}
```

---

getOntologyTerms　　　*Get Ontology Terms by Pathway*

Description

Retrieve information about ontology terms for a specific pathway.

Usage

```
getOntologyTerms(pathway)
```

Arguments

pathway　　　　　WikiPathways identifier (WPID) for the pathway to download, e.g. WP4

Value

A `list` of tag name, display name, revision, text, timestampe and user

Examples

```
{
getOntologyTerms('WP554')
}
```

---

getPathway *Get Pathway*

Description

Retrieve a specific pathway in the GPML format

Usage

```
getPathway(pathway, revision = 0)
```

Arguments

pathway   WikiPathways identifier (WPID) for the pathway to download, e.g. WP4

revision   (integer, optional) Number to indicate a specific revision to download

Value

GPML

Examples

```
{
getPathway('WP554')
}
```

---

getPathwayHistory *Get Pathway History*

Description

Retrieve the revision history of a pathway.

Usage

```
getPathwayHistory(pathway, timestamp)
```

Arguments

pathway   WikiPathways identifier (WPID) for the pathway to download, e.g. WP4

timestamp   (integer) Limit by time, only history items after the given time, e.g., 20180201 for revisions since Feb 1st, 2018. Any length of timestamp is accepted, upto 14 digits, e.g., 2018, 201802, 20180201063011, etc.

Value

A list of revisions, including user and comment

Examples

```
{
getPathwayHistory('WP554',20180201)
}
```

---

getPathwayIdsByCurationTag

Get Pathway WPIDs by Curation Tag

Description

Retrieve pathway WPIDs for every pathway with a given curation tag.

Usage

```
getPathwayIdsByCurationTag(tag)
```

Arguments

tag   (character) Official name of curation tag, e.g., "Curation:FeaturedPathway"

Value

A `list` of pathway WPIDs

Examples

```
{
getPathwayIdsByCurationTag('Curation:FeaturedPathway')
}
```

---

getPathwayIdsByOntologyTerm

Get Pathway WPIDs by Ontology Term

Description

Retrieve pathway WPIDs for every pathway with a given ontology term.

Usage

```
getPathwayIdsByOntologyTerm(term)
```

Arguments

term   (character) Official name of ontology term, e.g., "PW:0000045"

Value

A `list` of pathway WPIDs

Examples

```
{
getPathwayIdsByOntologyTerm('PW:0000045')
}
```

---

getPathwayIdsByParentOntologyTerm

Get Pathway WPIDs by Parent Ontology Term

Description

Retrieve pathway WPIDs for every pathway with a child term of given ontology term

Usage

```
getPathwayIdsByParentOntologyTerm(term)
```

Arguments

term   (character) Official name of ontology term, e.g., "PW:0000045"

Value

A `list` of pathway WPIDs

Examples

```
{
getPathwayIdsByParentOntologyTerm('PW:0000045')
}
```

---

getPathwayInfo   *Get Pathway Info*

Description

Retrieve information for a specific pathway

Usage

```
getPathwayInfo(pathway)
```

Arguments

pathway   WikiPathways identifier (WPID) for the pathway to download, e.g. WP4

Value

A `list` of pathway WPID, URL, name, species and latest revision

Examples

```
{
getPathwayInfo('WP554')
}
```

```
getPathwaysByCurationTag
```
Get Pathways by Curation Tag

Description

Retrieve pathway information for every pathway with a given curation tag.

Usage

```
getPathwaysByCurationTag(tag)
```

Arguments

tag   (character) Official name of curation tag, e.g., "Curation:FeaturedPathway"

Value

A `list` of pathway information, including WPID, url, name, species and revision

Examples

```
{
getPathwaysByCurationTag('Curation:FeaturedPathway')
}
```

```
getPathwaysByOntologyTerm
```
Get Pathways by Ontology Term

Description

Retrieve pathway information for every pathway with a given ontology term.

Usage

```
getPathwaysByOntologyTerm(term)
```

Arguments

term   (character) Official name of ontology term, e.g., "PW:0000045"

Value

A `list` of pathway information, including WPID, url, name, species and revision

Examples

```
{
getPathwaysByOntologyTerm('PW:0000045')
}
```

---

getPathwaysByParentOntologyTerm
Get Pathways by Parent Ontology Term

Description

Retrieve pathway information for every pathway with a child term of given ontology term.

Usage

```
getPathwaysByParentOntologyTerm(term)
```

Arguments

term   (character) Official name of ontology term, e.g., "PW:0000045"

Value

A list of pathway information, including WPID, url, name, species and revision

Examples

```
{
getPathwaysByParentOntologyTerm('PW:0000045')
}
```

---

getRecentChanges   *Get Recent Changes*

Description

Retrieve recent changes to pathways at WikiPathways.

Usage

```
getRecentChanges(timestamp)
```

Arguments

timestamp   (14 digits, YYYYMMDDhhmmss) Limit by time, only history items after the
              given time, e.g., 20180201000000 for changes since Feb 1st, 2018.

Value

A list of changes, including pathway WPID, name, url, species and revision

Examples

```
{
getRecentChanges('20180201000000')
}
```

---

getRecentChangesIds   *Get WPIDs of Recent Changes*

Description

Retrieve WPIDs of recently changed pathways at WikiPathways.

Usage

```
getRecentChangesIds(timestamp)
```

Arguments

timestamp   (14 digits, YYYYMMDDhhmmss) Limit by time, only history items after the
                   given time, e.g., 20180201000000 for changes since Feb 1st, 2018.

Value

A `list` of WPIDs

Examples

```
{
getRecentChangesIds('20180201000000')
}
```

---

getRecentChangesNames   *Get Pathway Names of Recent Changes*

Description

Retrieve names of recently changed pathways at WikiPathways.

Usage

```
getRecentChangesNames(timestamp)
```

Arguments

timestamp   (14 digits, YYYYMMDDhhmmss) Limit by time, only history items after the
                   given time, e.g., 20180201000000 for changes since Feb 1st, 2018.

Value

A `list` of pathway names. Note: pathway deletions will be listed as blank names.

Examples

```
{
getRecentChangesNames('20180201000000')
}
```

---

getXrefList   *Get Xref List*

Description

Retrieve the Xref identifiers for a specific pathway in a particular system code

Usage

```
getXrefList(pathway, systemCode)
```

Arguments

pathway   WikiPathways identifier (WPID) for the pathway to download, e.g. WP4

systemCode   (character) The BridgeDb code associated with the data source or system, e.g.,
                 En (Ensembl), L (Entrez), Ch (HMDB), etc. See column two of https://github.com/bridgedb/BridgeDb

Value

A list of Xrefs identifiers

Examples

```
{
xrefs = getXrefList("WP2338", "L")
}
```

---

listOrganisms   *List Organisms*

Description

Retrieve the list of organisms supported by WikiPathways

Usage

```
listOrganisms()
```

Value

A list of organisms

Examples

```
{
listOrganisms()
}
```

`listPathwayIds` *List Pathway WPIDs*

Description

Retrieve list of pathway WPIDs per species.

Usage

```
listPathwayIds(organism = "")
```

Arguments

organism (character, optional) A particular species. See listOrganisms. Default is all species.

Details

Basically returns a subset of listPathways result

Value

A `list` of WPIDs

Examples

```
{
listPathwayIds('Mus musculus')
}
```

`listPathwayNames` *List Pathway Names*

Description

Retrieve list of pathway names per species.

Usage

```
listPathwayNames(organism = "")
```

Arguments

organism (character, optional) A particular species. See listOrganisms. Default is all species.

Details

Basically returns a subset of listPathways result

Value

A `list` of names

Examples

```
{
listPathwayNames('Mus musculus')
}
```

---

listPathways   *List Pathways*

Description

Retrieve list of pathways per species, including WPID, name, species, URL and latest revision number.

Usage

```
listPathways(organism = "")
```

Arguments

organism   (character, optional) A particular species. See listOrganisms. Default is all species.

Value

A `list` of lists

Examples

```
{
listPathways('Mus musculus')
}
```

---

listPathwayUrls   *List Pathway URLs*

Description

Retrieve list of pathway URLs per species.

Usage

```
listPathwayUrls(organism = "")
```

Arguments

organism   (character, optional) A particular species. See listOrganisms. Default is all species.

Details

Basically returns a subset of listPathways result

Value

A `list` of URLs

Examples

```
{
listPathwayUrls('Mus musculus')
}
```

---

wikipathwaysAPI   *Open Swagger docs for WikiPathways API*

Description

Opens swagger docs in default browser for available API calls.

Usage

```
wikipathwaysAPI(base.url = .baseUrl)
```

Arguments

base.url   (optional) Ignore unless you need to specify a custom domain.

Value

New tab in default browser

Examples

```
{
wikipathwaysAPI()
}
```

wikipathwaysGET *WikiPathways GET*

Description

Constructs the query, makes GET call and processes the result

Usage

```
wikipathwaysGET(operation, parameters = NULL, format = c("json", "xml",
  "html", "jpg", "pdf", "dump"), base.url = .baseUrl)
```

Arguments

operation	A character string to be converted to the query namespace
parameters	A named list of values to be converted to query parameters
format	(character) The format of the return, e.g., json (default), xml, html, jpg, pdf, dump
base.url	(optional) Ignore unless you need to specify a custom domain.

Value

query result content

Examples

```
{
wikipathwaysGET('listOrganisms')
}
```

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