

# Package ‘yulab.utils’

July 21, 2025

**Title** Supporting Functions for Packages Maintained by 'YuLab-SMU'

**Version** 0.2.0

**Description** Miscellaneous functions commonly used by 'YuLab-SMU'.

**Depends** R (>= 4.2.0)

**Imports** cli, digest, fs, rlang, tools, utils

**Suggests** httr2, jsonlite, openssl, rappdirs

**ByteCompile** true

**License** Artistic-2.0

**URL** <https://yulab-smu.top/>

**BugReports** <https://github.com/YuLab-SMU/yulab.utils/issues>

**Encoding** UTF-8

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**NeedsCompilation** no

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**Repository** CRAN

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|    |    |
|----|----|
| c2 | c2 |
|----|----|

---

**Description**

chunked array

**Usage**

c2(x, y)

**Arguments**

- x                    a vector or chunked\_array object
- y                    a vector or chunked\_array object

**Details**

concatenate two vector/chunked\_array into a chunked\_array object

**Value**

chunked\_array object

**Author(s)**

Guangchuang Yu

---

check\_pkg*check\_pkg*

---

**Description**

Check whether the input packages are installed

**Usage**

```
check_pkg(pkg, reason = NULL, ...)
```

**Arguments**

|        |                                                                                  |
|--------|----------------------------------------------------------------------------------|
| pkg    | package names                                                                    |
| reason | the reason to check the pkg. If NULL, it will set the reason to the parent call. |
| ...    | additional parameters that passed to <code>rlang::check_installed()</code>       |

**Details**

This function check whether the input packages are installed. If not, it asks the user whether to install the missing packages.

**Value**

see also [check\\_installed](#)

**Author(s)**

Guangchuang Yu

---

combinations*combinations*

---

**Description**

all possible combinations of n sets

**Usage**

```
combinations(n)
```

**Arguments**

n                      number of sets

**Value**

a list of all combinations

---

|         |                                                                              |
|---------|------------------------------------------------------------------------------|
| CRANpkg | <i>print md text of package with link to homepage (CRAN or Bioconductor)</i> |
|---------|------------------------------------------------------------------------------|

---

**Description**

print md text of package with link to homepage (CRAN or Bioconductor)

**Usage**

CRANpkg(pkg)

Biocpkg(pkg)

**Arguments**

pkg                      package name

**Value**

md text string

**Author(s)**

Guangchuang Yu

---

|      |             |
|------|-------------|
| exec | <i>exec</i> |
|------|-------------|

---

**Description**

run system command

**Usage**

exec(command)

**Arguments**

command                system command to run

**Value**

An exec instance that stores system command outputs

**Author(s)**

Guangchuang Yu

---

|                  |                         |
|------------------|-------------------------|
| get_dependencies | <i>get_dependencies</i> |
|------------------|-------------------------|

---

**Description**

get reverse dependencies

**Usage**

```
get_dependencies(pkg, repo = c("CRAN", "BioC"))
```

**Arguments**

|      |                      |
|------|----------------------|
| pkg  | package name         |
| repo | 'CRAN' and/or 'BioC' |

**Value**

reverse dependencies

**Author(s)**

Guangchuang Yu

---

|                  |                         |
|------------------|-------------------------|
| get_fun_from_pkg | <i>get_fun_from_pkg</i> |
|------------------|-------------------------|

---

**Description**

load function from package

**Usage**

```
get_fun_from_pkg(pkg, fun)
```

**Arguments**

|     |          |
|-----|----------|
| pkg | package  |
| fun | function |

**Value**

function

**Author(s)**

Guangchuang Yu

**Examples**

```
get_fun_from_pkg('utils', 'zip')
```

---

Githubpkg

*print md text of package with link to github repo*

---

**Description**

print md text of package with link to github repo

**Usage**

```
Githubpkg(user, pkg)
```

**Arguments**

|      |              |
|------|--------------|
| user | github user  |
| pkg  | package name |

**Value**

md text string

**Author(s)**

Guangchuang Yu

---

|              |                     |
|--------------|---------------------|
| has_internet | <i>has_internet</i> |
|--------------|---------------------|

---

**Description**

test for internet connection via reading lines from a URL

**Usage**

```
has_internet(site = "https://www.baidu.com/")
```

**Arguments**

|      |                        |
|------|------------------------|
| site | URL to test connection |
|------|------------------------|

**Value**

logical value

**Author(s)**

Guangchuang Yu

---

|               |                                |
|---------------|--------------------------------|
| initial_cache | <i>cache intermediate data</i> |
|---------------|--------------------------------|

---

**Description**

Yulab provides a set of utilities to cache intermediate data, including initialize the cached item, update cached item and remove the cached item, etc.

**Usage**

```
initial_cache()

get_cache()

rm_cache()

initial_cache_item(item)

get_cache_item(item)

rm_cache_item(item)

update_cache_item(item, elements)

get_cache_element(item, elements)
```

**Arguments**

|          |                                   |
|----------|-----------------------------------|
| item     | the name of the cached item       |
| elements | elements to be cached in the item |

**Value**

return the cache environment, item or selected elements, depends on the functions.

**Examples**

```
## Not run:
slow_fib <- function(x) {
  if (x < 2) return(1)
  slow_fib(x-2) + slow_fib(x-1)
}

fast_fib <- function(x) {
  if (x < 2) return(1)
  res <- get_cache_element('fibonacci', as.character(x))
  if (!is.null(res)) {
    return(res)
  }
  res <- fast_fib(x-2) + fast_fib(x-1)
  e <- list()
  e[[as.character(x)]] <- res
  update_cache_item('fibonacci', e)
  return(res)
}

system.time(slow_fib(30))
system.time(fast_fib(30))

## End(Not run)
```

---

install\_zip

*install\_zip*


---

**Description**

install R package from zip file of source codes

**Usage**

```
install_zip(file, args = "--no-build-vignettes")
```

**Arguments**

|      |                           |
|------|---------------------------|
| file | zip file                  |
| args | argument to build package |

**Value**

No return value, called for install R package from zip file of source codes

**Author(s)**

Guangchuang Yu

---

|                |                       |
|----------------|-----------------------|
| install_zip_gh | <i>install_zip_gh</i> |
|----------------|-----------------------|

---

**Description**

install github package

**Usage**

```
install_zip_gh(repo, ref = "HEAD", args = "--no-build-vignettes")
```

**Arguments**

|      |                                                                                   |
|------|-----------------------------------------------------------------------------------|
| repo | github repo                                                                       |
| ref  | github branch, default is HEAD, which means the default branch of the GitHub repo |
| args | argument to build package                                                         |

**Details**

it download the zip file first and use install\_zip to install it

**Value**

No return value, called for installing github package

**Author(s)**

Guangchuang Yu

---

`is.installed`*is.installed*

---

**Description**

Check whether the input packages are installed

**Usage**

```
is.installed(packages)
```

**Arguments**

`packages`            package names

**Details**

This function check whether the input packages are installed

**Value**

logical vector

**Author(s)**

Guangchuang Yu

**Examples**

```
is.installed(c("dplyr", "ggplot2"))
```

---

`ls2df`*Convert a list of vector (e.g, gene IDs) to a data.frame object*

---

**Description**

Convert a list of vector to a data.frame object.

**Usage**

```
ls2df(inputList)
```

**Arguments**

`inputList`            A list of vector

**Value**

a data.frame object.

---

|        |               |
|--------|---------------|
| mat2df | <i>mat2df</i> |
|--------|---------------|

---

**Description**

convert a matrix to a tidy data frame (from wide to long format as described in the tidyverse concept)

**Usage**

```
mat2df(x)
```

**Arguments**

x                      the input matrix

**Value**

a data.frame in long format with the 'value' column stores the original values and 'row' and 'col' columns stored in row and column index as in x

**Author(s)**

Guangchuang Yu

**Examples**

```
x <- matrix(1:15, nrow = 3)
mat2df(x)
```

---

|          |                 |
|----------|-----------------|
| mat2list | <i>mat2list</i> |
|----------|-----------------|

---

**Description**

convert a matrix to a list

**Usage**

```
mat2list(x)
```

**Arguments**

x                      the input matrix

**Value**

a list that contains matrix columns as its elements

Examples

```
x <- matrix(1:15, nrow = 3)
mat2list(x)
```

---

|       |              |
|-------|--------------|
| mypkg | <i>mypkg</i> |
|-------|--------------|

---

Description

print md text of link to a package

Usage

```
mypkg(pkg, url)
```

Arguments

|     |              |
|-----|--------------|
| pkg | package name |
| url | package url  |

Value

md text string

Author(s)

Guangchuang Yu

---

|   |          |
|---|----------|
| o | <i>o</i> |
|---|----------|

---

Description

open selected directory or file

Usage

```
o(file = ".")
```

Arguments

|      |                                               |
|------|-----------------------------------------------|
| file | to be open; open working directory by default |
|------|-----------------------------------------------|

Value

No return value, called for opening specific directory or file

**Author(s)**

Guangchuang Yu

**Examples**

```
## Not run:  
## to open current working directory  
o()  
  
## End(Not run)
```

---

|                           |                     |
|---------------------------|---------------------|
| <code>packageTitle</code> | <i>packageTitle</i> |
|---------------------------|---------------------|

---

**Description**

Extract package title

**Usage**

```
packageTitle(pkg, repo = "CRAN")
```

**Arguments**

|                   |                      |
|-------------------|----------------------|
| <code>pkg</code>  | package name         |
| <code>repo</code> | 'CRAN' and/or 'BioC' |

**Value**

reverse dependencies

**Author(s)**

Guangchuang Yu

---

|       |              |
|-------|--------------|
| pload | <i>pload</i> |
|-------|--------------|

---

**Description**

loading a package

**Usage**

```
pload(package, action = "auto")
```

**Arguments**

|         |                                                                                                                          |
|---------|--------------------------------------------------------------------------------------------------------------------------|
| package | package name                                                                                                             |
| action  | function used to install package. If 'action = "auto"', it will try to use 'Bioc-Manager::install()' if it is available. |

**Details**

The function use 'library()' to load the package. If the package is not installed, the function will try to install it before loading it.

**Value**

the selected package loaded to the R session

**Author(s)**

Guangchuang Yu

---

|           |                  |
|-----------|------------------|
| rbindlist | <i>rbindlist</i> |
|-----------|------------------|

---

**Description**

rbind a list

**Usage**

```
rbindlist(x)
```

**Arguments**

|   |                                                                     |
|---|---------------------------------------------------------------------|
| x | a list that have similar elements that can be rbind to a data.frame |
|---|---------------------------------------------------------------------|

**Value**

data.frame

**Author(s)**

Guangchuang Yu

---

read.cb

*read.cb*

---

**Description**

read clipboard

**Usage**

```
read.cb(reader = read.table, ...)
```

**Arguments**

|        |                                |
|--------|--------------------------------|
| reader | function to read the clipboard |
| ...    | parameters for the reader      |

**Value**

clipboard content, output type depends on the output of the reader

**Author(s)**

Guangchuang Yu

---

scale\_range

*scale-range*

---

**Description**

normalized data by range

**Usage**

```
scale_range(data)
```

**Arguments**

|      |                 |
|------|-----------------|
| data | the input data. |
|------|-----------------|

**Value**

normalized data

**Author(s)**

Guangchuang Yu

---

|           |                                        |
|-----------|----------------------------------------|
| scihub_dl | <i>download publication via scihub</i> |
|-----------|----------------------------------------|

---

**Description**

using scihub to download publication using doi

**Usage**

```
scihub_dl(doi, scihub = "sci-hub.tw", download = TRUE)
```

**Arguments**

|          |                               |
|----------|-------------------------------|
| doi      | doi                           |
| scihub   | scihub website                |
| download | whether download the pdf file |

**Value**

pdf url

**Author(s)**

Guangchuang Yu

---

|          |                                                      |
|----------|------------------------------------------------------|
| set_PCRE | <i>switch regular expression style (PCRE vs TRE)</i> |
|----------|------------------------------------------------------|

---

**Description**

The set\_regexpr\_style() allows user to specify which style to be used, while the auto\_set\_regexpr\_style() automatically set the style depending on the operating system (TRE for Windows and PCRE for other OSs (Linux and Mac)).

**Usage**

```

set_PCRE()

set_TRE()

use_perl()

set_regexpr_style(style)

auto_set_regexpr_style()

```

**Arguments**

style                      one of 'PCRE' or 'TRE'

**Details**

set\_PCRE() force to use PCRE style while set\_TRE() force to use TRE.

Note that all these functions are not change the behavior of gsub() and regexpr(). The functions are just set a global option to store the user's choice of whether using perl = TRUE.

Users can access the option via use\_perl() and pass the return value to gsub() or regexpr() to specify the style in use.

**Value**

logical value of whether use perl

**Author(s)**

Guangchuang Yu

**References**

<https://stackoverflow.com/questions/47240375/regular-expressions-in-base-r-perl-true-vs-the-default>

---

|               |                      |
|---------------|----------------------|
| show_in_excel | <i>show_in_excel</i> |
|---------------|----------------------|

---

**Description**

Open data frame in Excel. It can be used in pipe.

**Usage**

```
show_in_excel(.data)
```

**Arguments**

`.data` a data frame to be open

**Value**

original `.data`

**Author(s)**

Guangchuang Yu

---

|                         |                   |
|-------------------------|-------------------|
| <code>str_detect</code> | <i>str_detect</i> |
|-------------------------|-------------------|

---

**Description**

Detect the presentce/absence of a match

**Usage**

```
str_detect(string, pattern, negate = FALSE)
```

**Arguments**

`string` input string

`pattern` pattern to look for

`negate` if TRUE, inverts the resulting boolean vector

**Value**

logical vector

**Author(s)**

Guangchuang Yu

---

|             |                    |
|-------------|--------------------|
| str_extract | <i>str_extract</i> |
|-------------|--------------------|

---

**Description**

Extract a substring using a pattern

**Usage**

str\_extract(string, pattern)

**Arguments**

- string           input string
- pattern           a regular expression to describe the pattern to extracted from the 'string'

**Value**

substring

**Author(s)**

Guangchuang Yu

---

|            |                   |
|------------|-------------------|
| str_starts | <i>str_starts</i> |
|------------|-------------------|

---

**Description**

Detect the presence or absence of a pattern at the beginning or end of a string or string vector.

**Usage**

str\_starts(string, pattern, negate = FALSE)

str\_ends(string, pattern, negate = FALSE)

**Arguments**

- string           input string
- pattern           pattern with which the string starts or ends
- negate           if TRUE, return non-matching elements

**Value**

a logical vector

**Author(s)**

Guangchuang Yu

---

`str_wrap`*str\_wrap*

---

**Description**

wrapping long string to multiple lines

**Usage**

```
str_wrap(string, width = getOption("width"))
```

**Arguments**`string`            input string`width`            the maximum number of characters before wrapping to a new line**Value**

update strings with new line character inserted

**Author(s)**

Guangchuang Yu

---

`yread_tsv`*yread*

---

**Description**

read file with caching

**Usage**

```
yread_tsv(  
  file,  
  reader = utils::read.delim,  
  params = list(),  
  cache_dir = tempdir()  
)
```

```
yread(file, reader = readLines, params = list(), cache_dir = NULL)
```

**Arguments**

|           |                                                                   |
|-----------|-------------------------------------------------------------------|
| file      | a file or url                                                     |
| reader    | a function to read the 'file_url'                                 |
| params    | a list of parameters that passed to the 'reader'                  |
| cache_dir | a folder to store cache files. If set to NULL will disable cache. |

**Details**

This function read a file (local or url) and cache the content.

**Value**

the output of using the 'reader' to read the 'file\_url' with parameters specified by the 'params'

**Author(s)**

Yonghe Xia and Guangchuang Yu

---

yulab\_msg

*yulab\_msg*

---

**Description**

Messages for R package developed by YuLab

**Usage**

```
yulab_msg(pkgname = NULL, n = 1)
```

**Arguments**

|         |                             |
|---------|-----------------------------|
| pkgname | package name                |
| n       | number of citation messages |

**Value**

package message

**Author(s)**

Guangchuang Yu

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