Package ‘MicrobiomeBenchmarkData’

March 7, 2024

Title  Datasets for benchmarking in microbiome research

Version  1.4.0

Description  The MicrobiomeBenchmarkData package provides functionality to access microbiome datasets suitable for benchmarking. These datasets have some biological truth, which allows to have expected results for comparison. The datasets come from various published sources and are provided as TreeSummarizedExperiment objects. Currently, only datasets suitable for benchmarking differential abundance methods are available.

License  Artistic-2.0

LazyData false

Depends  R (>= 4.2), SummarizedExperiment, TreeSummarizedExperiment

Imports  BiocFileCache, tools, S4Vectors, ape, utils

Suggests  rmarkdown, knitr, BiocStyle, testthat (>= 3.0.0), mia, ggplot2, tidyr, dplyr, magrittr, tibble, purrr

biocViews  ExperimentData, MicrobiomeData, ReproducibleResearch, SequencingData

BugReports  https://github.com/waldronlab/MicrobiomeBenchmarkData/issues


BiocType  ExperimentData

Encoding  UTF-8

Roxygen  list(markdown = TRUE)

RoxygenNote  7.2.1

VignetteBuilder  knitr

Config/testthat/edition  3

git_url  https://git.bioconductor.org/packages/MicrobiomeBenchmarkData

git_branch  RELEASE_3_18

git_last_commit  a9465e2
Description

.assembleTreeSummarizedExperiment assembles a TreeSummarizedDataset taking as input the name of the dataset and the URL. This is a helper function for the getBenchmarkData function.

Usage

.assembleTreeSummarizedExperiment(x)

Arguments

dat_name A character string with the name of the dataset.
dat_url A character string with the URL from Zenodo.

Value

A TreeSummarizedExperiment
Description

`.getCache` creates or loads a cache to store files downloaded through the `MicrobiomeBenchmarkData` package.

Usage

`.getCache()`

Value

A `BiocFileCache` object.

Description

`.getResource` downloads the count matrix and stores it in the cache.

Usage

`.getResourcePath(resource, suffix)`

Arguments

- `resource_name` A character string with the name of the dataset.
- `resource_url` A character string with the URL from Zenodo.

Value

A character string containing the path to the count matrix in the cache.
Description

.getSampleMetadata returns sampleMetadata.

Usage

.getSampleMetadata()

Value

A data frame with sample metadata.

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getBenchmarkData Get dataset

Description

getBenchmarkData imports datasets as TreeSummarizedExperiment objects.

Usage

getBenchmarkData(x, dryrun = TRUE)

Arguments

x A character vector with the name(s) of the dataset(s). If empty and dryrun = TRUE, it returns a message with the names of the available datasets. If empty and dryrun = FALSE, it returns a list of TreeSummarizedExperiments with all of the datasets.

dryrun If TRUE, only returns a message and invisibly returns the names of the datasets as a character vector. If FALSE, it returns the TreeSummarizedExperiment datasets indicated in the argument ’x’.

Value

A list of TreeSummarizedExperiments when dryrun = FALSE. A data frame with the datasets characteristics when dryrun = TRUE.
Examples

```r
# Example 1
datasets_names <- getBenchmarkData()
datasets_names

# Example 2
dataset <- getBenchmarkData(
    "HMP_2012_16S_gingival_V35_subset", dryrun = FALSE
)
dataset[[1]]
```

Description

The MicrobiomeBenchmarkData provide functions for accessing various microbiome datasets with biological ground truth.

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**removeCache**

*Remove cache*

Description

removeCache removes all files saved in the cache.

Usage

```r
removeCache(ask = interactive())
```

Arguments

- `ask` If TRUE, a prompt will appear asking the user to confirm removal of cache. Default value is given by the interactive function.

Value

NULL. The cache and all of its contents are removed.

Examples

```r
## Remove cache
removeCache()
```
Description

A data frame with the combined metadata of all of the samples in the datasets provided through the MicrobiomeBenchmarkData package.

Usage

```r
data("sampleMetadata", package = "MicrobiomeBenchmarkData")
```

Format

A data.frame.
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