

Package ‘ProliferativeIndex’

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Title Calculates and Analyzes the Proliferative Index

Version 1.0.1

Description Provides functions for calculating and analyzing the proliferative index (PI) from an RNA-seq dataset. As described in Ramaker & Lasseigne, et al. bioRxiv, 2016 <[doi:10.1101/063057](https://doi.org/10.1101/063057)>.

Depends R (>= 3.0.0)

Imports graphics, stats

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LazyData true

Suggests knitr, rmarkdown

VignetteBuilder knitr

RoxygenNote 6.0.1

NeedsCompilation no

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calculatePI	<i>A function for calculating proliferative index from variance stabilized RNA-seq data in the ProliferativeIndex package</i>
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Description

This function allows the user to read in data for subsequent proliferative index calculation and analysis

Usage

```
calculatePI(userObject)
```

Arguments

userObject Output from ProliferativeIndex readDataForPI function

Examples

```
calculatePI(exReadDataObj)
```

compareModeltoPI	<i>A function for comparing proliferative indices from variance stabilized RNA-seq data to model principal componenets in the ProliferativeIndex package</i>
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Description

This function allows the user to calculate a correlation between their model and PI

Usage

```
compareModeltoPI(userObject, vstPI)
```

Arguments

userObject Output from ProliferativeIndex readDataForPI function (user data)
vstPI Output from ProliferativeIndex calculatePI function

Examples

```
compareModeltoPI(exReadDataObj, exVSTPI)
```

comparePI	<i>A function for comparing proliferative indices from variance stabilized RNA-seq data in the ProliferativeIndex package</i>
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Description

This function allows the user to examine a summary and plot of their PIs

Usage

```
comparePI(vstPIinput)
```

Arguments

vstPIinput Output from ProliferativeIndex calculatePI function (PI of user vst data)//

Examples

```
comparePI(exVSTPI)
```

exReadDataObj	<i>TCGA ACC data set output from readDataForPI function</i>
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Description

This object is the output from readDataForPI taking vstTCGA_ACCData_sub and this model: c("AIFM3", "ATP9B", "CTRC", "MCL1", "MGAT4B", "ODF2L", "SNORA65", "TPPP2")) as inputs.

Usage

```
data(exReadDataObj)
```

Format

A list of the vstData (vstTCGA_ACCData_sub data frame with 20501 rows and 10 columns) and the modelIDs (character vector of "AIFM3", "ATP9B", "CTRC", "MCL1", "MGAT4B", "ODF2L", "SNORA65", "TPPP2")

exVSTPI	<i>TCGA ACC data set output from calculatePI function</i>
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Description

This object is the output from calculatePI from the exReadDataObj as input.

Usage

```
data(exVSTPI)
```

Format

A numeric vector of the calculated Proliferation Indices for the vstTCGA_ACCData_sub data

readDataForPI	<i>A function for reading data in for use with the ProliferativeIndex package</i>
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Description

This function allows the user to read in variance stabilized RNA-seq data and gene model names for subsequent proliferative index calculation and analysis

Usage

```
readDataForPI(vstData, modelIDs)
```

Arguments

vstData	Dataframe of user variance stabilized count data (from DESeq2) with samples in columns and genes in rows. Rownames must be genes.
modelIDs	Genes in user identified model for comparison to proliferative index

Examples

```
readDataForPI(vstTCGA_ACCData_sub, c("AIFM3", "ATP9B", "CTRC", "MCL1",
"MGAT4B", "ODF2L", "SNORA65", "TPPP2"))
```

vstTCGA_ACCData_sub *TCGA ACC data set*

Description

A dataset containing data from the The Cancer Genome Atlas (TCGA) Adrenocortical Carcinoma (ACC) dataset. This data was obtained from the TCGA data portal (tcga-data.nci.nih.gov) in June 2015. Level 3 RNASeqV2 raw count data was variance stabilized with the DESeq2 v1.8.2 varianceStabilizingTransformation:

Usage

```
data(vstTCGA_ACCData_sub)
```

Format

A data frame with 20501 rows and 10 variables

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