Package 'debrowser'

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Type Package

Title Interactive Differential Expresion Analysis Browser

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Description Bioinformatics platform containing interactive plots and tables for differential gene and region expression studies. Allows visualizing expression data much more deeply in an interactive and faster way. By changing the parameters, users can easily discover different parts of the data that like never have been done before. Manually creating and looking these plots takes time. With DEBrowser users can prepare plots without writing any code. Differential expression, PCA and clustering analysis are made on site and the results are shown in various plots such as scatter, bar, box, volcano, ma plots and Heatmaps.

Depends R (>= 3.5.0),

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LazyData true

Imports shiny, jsonlite, shinyjs, shinydashboard, shinyBS, gplots, DT, ggplot2, RColorBrewer, annotate, AnnotationDbi, DESeq2, DOSE, igraph, grDevices, graphics, stats, utils, GenomicRanges, IRanges, S4Vectors, SummarizedExperiment, stringi, reshape2, org.Hs.eg.db, org.Mm.eg.db, limma, edgeR, clusterProfiler, methods, sva, RCurl, enrichplot, colourpicker, plotly, heatmaply, Harman, pathview, apeglm, ashr

RoxygenNote 7.2.3

Encoding UTF-8

Suggests testthat, rmarkdown, knitr

VignetteBuilder knitr, rmarkdown

URL https://github.com/UMMS-Biocore/debrowser

BugReports https://github.com/UMMS-Biocore/debrowser/issues/new

biocViews Sequencing, ChIPSeq, RNASeq, DifferentialExpression, GeneExpression, Clustering, ImmunoOncology

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Contents

`actionButtonDE` *Buttons including Action Buttons and Event Buttons*

Description

Creates an action button whose value is initially zero, and increments by one each time it is pressed.

Usage

```
actionButtonDE(
  inputId,
  label,
  styleclass = "",
  size = "",
  block = FALSE,
  icon = NULL,
  css.class = "",
  ...
)
```

Arguments

`inputId`	Specifies the input slot that will be used to access the value.
`label`	The contents of the button–usually a text label, but you could also use any other HTML, like an image.
`styleclass`	The Bootstrap styling class of the button–options are primary, info, success, warning, danger, inverse, link or blank
`size`	The size of the button–options are large, small, mini
`block`	Whehter the button should fill the block

icon	Display an icon for the button
css.class	Any additional CSS class one wishes to add to the action button
...	Other argument to feed into shiny::actionButton

Examples

```
actionButtonDE("goDE", "Go to DE Analysis")
```

---

addDataCols *addDataCols*

Description

add aditional data columns to de results

Usage

```
addDataCols(data = NULL, de_res = NULL, cols = NULL, conds = NULL)
```

Arguments

data	loaded dataset
de_res	de results
cols	columns
conds	inputconds

Value

data

Examples

```
x <- addDataCols()
```

addID *addID*

Description

Adds an id to the data frame being used.

Usage

```
addID(data = NULL)
```

Arguments

data	loaded dataset

Value

data

Examples

```
x <- addID()
```

all2all *all2all*

Description

Prepares all2all scatter plots for given datasets.

Usage

```
all2all(data, cex = 2)
```

Arguments

data	data that have the sample names in the header.
cex	text size

Value

all2all scatter plots

Examples

```
plot<-all2all(mtcars)
```

all2allControlsUI *all2allControlsUI*

Description

Generates the controls in the left menu for an all2all plot

Usage

```
all2allControlsUI(id)
```

Arguments

id	namespace id

Value

returns the controls for left menu

Note

all2allControlsUI

Examples

```
x <- all2allControlsUI("bar")
```

applyFilters *applyFilters*

Description

Applies filters based on user selected parameters to be displayed within the DEBrowser.

Usage

```
applyFilters(filt_data = NULL, cols = NULL, conds = NULL, input = NULL)
```

Arguments

filt_data	loaded dataset
cols	selected samples
conds	seleced conditions
input	input parameters

Value

data

Examples

```
x <- applyFilters()
```

`applyFiltersNew` *applyFiltersNew*

Description

Apply filters based on foldChange cutoff and padj value. This function adds a "Legend" column with "Up", "Down" or "NS" values for visualization.

Usage

```
applyFiltersNew(data = NULL, input = NULL)
```

Arguments

`data`	loaded dataset
`input`	input parameters

Value

data

Examples

```
x <- applyFiltersNew()
```

`applyFiltersToMergedComparison`
applyFiltersToMergedComparison

Description

Gathers the merged comparison data to be used within the DEBrowser.

Usage

```
applyFiltersToMergedComparison(dc = NULL, nc = NULL, input = NULL)
```

Arguments

dc	all data
nc	the number of comparisons
input	input params

Value

data

Examples

```
x <- applyFiltersToMergedComparison()
```

---

barMainPlotControlsUI *barMainPlotControlsUI*

Description

Generates the controls in the left menu for a bar main plot

Usage

```
barMainPlotControlsUI(id)
```

Arguments

id	namespace id

Value

returns the controls for left menu

Note

barMainPlotControlsUI

Examples

```
x <- barMainPlotControlsUI("bar")
```

batchEffectUI *batchEffectUI Creates a panel to coorect batch effect*

Description

batchEffectUI Creates a panel to coorect batch effect

Usage

```
batchEffectUI(id)
```

Arguments

id	namespace id

Value

panel

Examples

```
x <- batchEffectUI("batcheffect")
```

batchMethod *batchMethod*

Description

select batch effect method

Usage

```
batchMethod(id)
```

Arguments

id	namespace id

Value

radio control

Note

batchMethod

Examples

```
x <- batchMethod("batch")
```

BoxMainPlotControlsUI *BoxMainPlotControlsUI*

Description

Generates the controls in the left menu for a Box main plot

Usage

```
BoxMainPlotControlsUI(id)
```

Arguments

id	namespace id

Value

returns the controls for left menu

Note

BoxMainPlotControlsUI

Examples

```
x <- BoxMainPlotControlsUI("box")
```

---

changeClusterOrder *changeClusterOrder*

Description

change order of K-means clusters

Usage

```
changeClusterOrder(order = NULL, cld = NULL)
```

Arguments

order	order
cld	data

Value

heatmap plot area

Note

changeClusterOrder

Examples

```
x <- changeClusterOrder()
```

---

checkCountData *checkCountData*

Description

Returns if there is a problem in the count data.

Usage

```
checkCountData(input = NULL)
```

Arguments

input	inputs

Value

error if there is a problem about the loaded data

Note

checkCountData

Examples

```
x <- checkCountData()
```

checkMetaData *checkMetaData*

Description

Returns if there is a problem in the count data.

Usage

```
checkMetaData(input = NULL, counttable = NULL)
```

Arguments

input	input
counttable	counttable

Value

error if there is a problem about the loaded data

Note

checkMetaData

Examples

```
x <- checkMetaData()
```

clusterData *clusterData*

Description

Gathers the Cluster analysis data to be used within the GO Term plots.

Usage

```
clusterData(dat = NULL)
```

Arguments

dat	the data to cluster

Value

clustered data

Note

clusterData

Examples

```
mycluster <- clusterData()
```

---

clustFunParamsUI *clustFunParamsUI*

Description

get cluster function parameter control

Usage

```
clustFunParamsUI()
```

Value

cluster params

Note

clustFunParamsUI

Examples

```
x <- clustFunParamsUI()
```

---

compareClust *compareClust*

Description

Compares the clustered data to be displayed within the GO Term plots.

Usage

```
compareClust(
  dat = NULL,
  ont = "CC",
  org = "org.Hs.eg.db",
  fun = "enrichGO",
  title = "Ontology Distribution Comparison",
  pvalueCutoff = 0.01
)
```

Arguments

dat	data to compare clusters
ont	the ontology to use
org	the organism used
fun	fun
title	title of the comparison
pvalueCutoff	pvalueCutoff

Value

compared cluster

Note

compareClust

Examples

```
x <- compareClust()
```

---

condSelectUI *condSelectUI Creates a panel to select samples for each condition*

Description

condSelectUI Creates a panel to select samples for each condition

Usage

```
condSelectUI()
```

Value

panel

Examples

```
x <- condSelectUI()
```

correctCombat *Correct Batch Effect using Combat in sva package*

Description

Batch effect correction

Usage

```
correctCombat(input = NULL, idata = NULL, metadata = NULL, method = NULL)
```

Arguments

input	input values
idata	data
metadata	metadata
method	method: either Combat or CombatSeq

Value

data

Examples

```
x<-correctCombat ()
```

correctHarman *Correct Batch Effect using Harman*

Description

Batch effect correction

Usage

```
correctHarman(input = NULL, idata = NULL, metadata = NULL)
```

Arguments

input	input values
idata	data
metadata	metadata

Value

data

Examples

```
x<-correctHarman ()
```

---

customColorsUI *customColorsUI*

Description

get Custom Color controls

Usage

```
customColorsUI(id)
```

Arguments

id	namespace ID

Value

color range

Note

getColRng

Examples

```
x <- customColorsUI("heatmap")
```

cutOffSelectionUI *cutOffSelectionUI*

Description

Gathers the cut off selection for DE analysis

Usage

```
cutOffSelectionUI(id)
```

Arguments

id	namespace id

Value

returns the left menu according to the selected tab;

Note

cutOffSelectionUI

Examples

```
x <- cutOffSelectionUI("cutoff")
```

dataLCFUI *dataLCFUI Creates a panel to filter low count genes and regions*

Description

dataLCFUI Creates a panel to filter low count genes and regions

Usage

```
dataLCFUI(id)
```

Arguments

id	namespace id

Value

panel

Examples

```
x <- dataLCFUI("lcf")
```

`dataLoadUI` *dataLoadUI*

Description

Creates a panel to upload the data

Usage

```
dataLoadUI(id)
```

Arguments

`id`	namespace id

Value

panel

Examples

```
x <- dataLoadUI("load")
```

`debrowserall2all` *debrowserall2all*

Description

Module for a bar plot that can be used in data prep, main plots low count removal modules or any desired module

Usage

```
debrowserall2all(input, output, session, data = NULL, cex = 2)
```

Arguments

`input`	input variables
`output`	output objects
`session`	session
`data`	a matrix that includes expression values
`cex`	the size of the dots

Value

all2all plot

Examples

```
x <- debrowserall2all()
```

`debrowserbarmainplot` *debrowserbarmainplot*

Description

Module for a bar plot that can be used in data prep, main plots low count removal modules or any desired module

Usage

```
debrowserbarmainplot(
  input,
  output,
  session,
  data = NULL,
  cols = NULL,
  conds = NULL,
  cond_names = NULL,
  key = NULL
)
```

Arguments

`input`	input variables
`output`	output objects
`session`	session
`data`	a matrix that includes expression values
`cols`	columns
`conds`	conditions
`cond_names`	condition names
`key`	the gene or region name

Value

density plot

Examples

```
x <- debrowserbarmainplot()
```

debrowserbatcheffect *debrowserbatcheffect*

Description

Module to correct batch effect

Usage

```
debrowserbatcheffect(input, output, session, ldata = NULL)
```

Arguments

input	input variables
output	output objects
session	session
ldata	loaded data

Value

main plot

panel

Examples

```
x <- debrowserbatcheffect()
```

debrowserboxmainplot *debrowserboxmainplot*

Description

Module for a box plot that can be used in DEanalysis main part and used heatmaps

Usage

```
debrowserboxmainplot(
  input = NULL,
  output = NULL,
  session = NULL,
  data = NULL,
  cols = NULL,
  conds = NULL,
  cond_names = NULL,
  key = NULL
)
```

Arguments

input	input variables
output	output objects
session	session
data	a matrix that includes expression values
cols	columns
conds	conditions
cond_names	condition names
key	the gene or region name

Value

density plot

Examples

```
x <- debrowserboxmainplot()
```

---

debrowsercondselect *debrowsercondselect*

Description

Condition selection This is not a module. Module construction didn't used here, just use it as functions not in a module.

Usage

```
debrowsercondselect(
  input = NULL,
  output = NULL,
  session = NULL,
  data = NULL,
  metadata = NULL
)
```

Arguments

input	input variables
output	output objects
session	session
data	count data
metadata	metadata

Value

main plot

panel

Examples

```
x <- debrowsercondselect()
```

---

debrowserdataload *debrowserdataload*

Description

Module to load count data and metadata

Usage

```
debrowserdataload(
  input = NULL,
  output = NULL,
  session = NULL,
  nextpagebutton = NULL
)
```

Arguments

input	input variables
output	output objects
session	session
nextpagebutton	the name of the next page button after loading the data

Value

main plot

panel

Examples

```
x <- debrowserdataload()
```

`debrowserdeanalysis` *debrowserdeanalysis*

Description

Module to perform and visualize DE results.

Usage

```
debrowserdeanalysis(
  input = NULL,
  output = NULL,
  session = NULL,
  data = NULL,
  metadata = NULL,
  columns = NULL,
  conds = NULL,
  params = NULL
)
```

Arguments

`input`	input variables
`output`	output objects
`session`	session
`data`	a matrix that includes expression values
`metadata`	metadata
`columns`	columns
`conds`	conditions
`params`	de parameters

Value

DE panel

Examples

```
x <- debrowserdeanalysis()
```

debrowserdensityplot *debrowserdensityplot*

Description

Module for a density plot that can be used in data prep and low count removal modules

Usage

```
debrowserdensityplot(input = NULL, output = NULL, session = NULL, data = NULL)
```

Arguments

input	input variables
output	output objects
session	session
data	a matrix that includes expression values

Value

density plot

Examples

```
x <- debrowserdensityplot()
```

debrowserheatmap *debrowserheatmap*

Description

Heatmap module to create interactive heatmaps and get selected list from a heatmap

Usage

```
debrowserheatmap(input, output, session, expdata = NULL)
```

Arguments

input	input variables
output	output objects
session	session
expdata	a matrix that includes expression values

Value

heatmapply plot

Examples

```
x <- debrowserheatmap()
```

`debrowserhistogram` *debrowserhistogram*

Description

Module for a histogram that can be used in data prep and low count removal modules

Usage

```
debrowserhistogram(input = NULL, output = NULL, session = NULL, data = NULL)
```

Arguments

`input`	input variables
`output`	output objects
`session`	session
`data`	a matrix that includes expression values

Value

histogram

Examples

```
x <- debrowserhistogram()
```

debrowserIQRplot *debrowserIQRplot*

Description

Module for an IQR plot that can be used in data prep and low count removal modules

Usage

```
debrowserIQRplot(input = NULL, output = NULL, session = NULL, data = NULL)
```

Arguments

input	input variables
output	output objects
session	session
data	a matrix that includes expression values

Value

IQR

Examples

```
x <- debrowserIQRplot()
```

debrowserlowcountfilter
debrowserlowcountfilter

Description

Module to filter low count genes/regions

Usage

```
debrowserlowcountfilter(
  input = NULL,
  output = NULL,
  session = NULL,
  ldata = NULL
)
```

Arguments

input	input variables
output	output objects
session	session
ldata	loaded data

Value

main plot

panel

Examples

```
x <- debrowserlowcountfilter()
```

---

debrowsermainplot *debrowsermainplot*

Description

Module for a scatter, volcano and ma plots that are going to be used as a mainplot in debrowser

Usage

```
debrowsermainplot(
  input = NULL,
  output = NULL,
  session = NULL,
  data = NULL,
  cond_names = NULL
)
```

Arguments

input	input variables
output	output objects
session	session
data	a matrix that includes expression values
cond_names	condition names

Value

main plot

panel

Examples

```
x <- debrowsermainplot()
```

`debrowserpcaplot` *debrowserpcaplot*

Description

Module for a pca plot with its loadings as a mainplot in debrowser

Usage

```
debrowserpcaplot(
  input = NULL,
  output = NULL,
  session = NULL,
  pcadata = NULL,
  metadata = NULL
)
```

Arguments

`input`	input variables
`output`	output objects
`session`	session
`pcadata`	a matrix that includes expression values
`metadata`	metadata to color the plots

Value

main plot

panel

Examples

```
x <- debrowserpcaplot()
```

dendControlsUI *dendControlsUI*

Description

get distance metric parameters

Usage

```
dendControlsUI(id, dendtype = "Row")
```

Arguments

id	module ID
dendtype	Row or Col

Value

controls

Note

dendControlsUI

Examples

```
x <- dendControlsUI("heatmap")
```

densityPlotControlsUI *densityPlotControlsUI*

Description

Generates the controls in the left menu for a densityPlot

Usage

```
densityPlotControlsUI(id)
```

Arguments

id	namespace id

Value

returns the left menu

Note

densityPlotControlsUI

Examples

```
x <- densityPlotControlsUI("density")
```

---

deServer *deServer*

Description

Sets up shinyServer to be able to run DEBrowser interactively.

Usage

```
deServer(input, output, session)
```

Arguments

input	input params from UI
output	output params to UI
session	session variable

Value

the panel for main plots;

Note

deServer

Examples

```
deServer
```

deUI *deUI*

Description

Creates a shinyUI to be able to run DEBrowser interactively.

Usage

```
deUI()
```

Value

the panel for main plots;

Note

deUI

Examples

```
x<-deUI()
```

distFunParamsUI *distFunParamsUI*

Description

get distance metric parameters

Usage

```
distFunParamsUI()
```

Value

funParams

Note

distFunParamsUI

Examples

```
x <- distFunParamsUI()
```

drawKEGG *drawKEGG*

Description

draw KEGG patwhay with expression values

Usage

```
drawKEGG(input = NULL, dat = NULL, pid = NULL)
```

Arguments

input	input
dat	expression matrix
pid	pathway id

Value

enriched DO

Note

drawKEGG

Examples

```
x <- drawKEGG()
```

drawPCAExplained *Creates a more detailed plot using the PCA results from the selected dataset.*

Description

Creates a more detailed plot using the PCA results from the selected dataset.

Usage

```
drawPCAExplained(explainedData = NULL)
```

Arguments

explainedData	selected data

Value

explained plot

Examples

```
x <- drawPCAExplained()
```

`fileTypes` *fileTypes*

Description

Returns fileTypes that are going to be used in creating fileUpload UI

Usage

```
fileTypes()
```

Value

file types

Note

`fileTypes`

Examples

```
x <- fileTypes()
```

`fileUploadBox` *fileUploadBox*

Description

File upload module

Usage

```
fileUploadBox(id = NULL, inputId = NULL, label = NULL)
```

Arguments

id	namespace id
inputId	input file ID
label	label

Value

radio control

Note

fileUploadBox

Examples

```
x <- fileUploadBox("meta", "metadata", "Metadata")
```

---

generateTestData *generateTestData*

Description

This generates a test data that is suitable to main plots in debrowser

Usage

```
generateTestData(dat = NULL)
```

Arguments

dat	DESeq results will be generated for loaded data

Value

testData

Examples

```
x <- generateTestData()
```

getAfterLoadMsg *getAfterLoadMsg*

Description

Generates and displays the message to be shown after loading data within the DEBrowser.

Usage

```
getAfterLoadMsg()
```

Value

return After Load Msg

Note

getAfterLoadMsg

Examples

```
x <- getAfterLoadMsg()
```

getAll2AllPlotUI *getAll2AllPlotUI*

Description

all2all plots UI.

Usage

```
getAll2AllPlotUI(id)
```

Arguments

id	namespace id

Value

the panel for all2all plots;

Note

getAll2AllPlotUI

Examples

```
x <- getAll2AllPlotUI("bar")
```

`getBarMainPlot` *getBarMainPlot*

Description

Makes Density plots

Usage

```
getBarMainPlot(
  data = NULL,
  cols = NULL,
  conds = NULL,
  cond_names = NULL,
  key = NULL,
  title = "",
  input = NULL
)
```

Arguments

`data`	count or normalized data
`cols`	cols
`conds`	conds
`cond_names`	condition names
`key`	key
`title`	title
`input`	input

Examples

```
getBarMainPlot()
```

getBarMainPlotUI *getBarMainPlotUI*

Description

main bar plots UI.

Usage

```
getBarMainPlotUI(id)
```

Arguments

id	namespace id

Value

the panel for Density plots;

Note

getBarMainPlotUI

Examples

```
x <- getBarMainPlotUI("bar")
```

getBoxMainPlot *getBoxMainPlot*

Description

Makes Density plots

Usage

```
getBoxMainPlot(
  data = NULL,
  cols = NULL,
  conds = NULL,
  cond_names = NULL,
  key = NULL,
  title = "",
  input = NULL
)
```

Arguments

data	count or normalized data
cols	cols
conds	conds
cond_names	condition names
key	key
title	title
input	input

Examples

```
getBoxMainPlot()
```

---

getBoxMainPlotUI *getBoxMainPlotUI*

Description

main Box plots UI.

Usage

```
getBoxMainPlotUI(id)
```

Arguments

id	namespace id

Value

the panel for Density plots;

Note

getBoxMainPlotUI

Examples

```
x <- getBoxMainPlotUI("box")
```

getBSTableUI *getBSTableUI prepares a Modal to put a table*

Description

getBSTableUI prepares a Modal to put a table

Usage

```
getBSTableUI(
  name = NULL,
  label = NULL,
  trigger = NULL,
  size = "large",
  modal = NULL
)
```

Arguments

name	name
label	label
trigger	trigger button for the modal
size	size of the modal
modal	modal yes/no

Value

the modal

Examples

```
x<- getBSTableUI()
```

getColors *getColors*

Description

get colors for the domains

Usage

```
getColors(domains = NULL)
```

Arguments

domains	domains to be colored

Value

colors

Examples

```
x<-getColors()
```

---

getColorShapeSelection *getColorShapeSelection*

Description

Generates the fill and shape selection boxes for PCA plots. metadata file has to be loaded in this case

Usage

```
getColorShapeSelection(metadata = NULL, input = NULL, session = NULL)
```

Arguments

metadata	metadata table
input	input
session	session

Value

Color and shape selection boxes

Examples

```
x <- getColorShapeSelection()
```

getCompSelection *getCompSelection*

Description

Gathers the user selected comparison set to be used within the DEBrowser.

Usage

```
getCompSelection(name = NULL, count = NULL)
```

Arguments

name	the name of the selectInput
count	comparison count

Note

getCompSelection

Examples

```
x <- getCompSelection(name="comp", count = 2)
```

getConditionSelector *getConditionSelector*

Description

Selects user input conditions to run in DESeq.

Usage

```
getConditionSelector(num = NULL, choices = NULL, selected = NULL)
```

Arguments

num	panel that is going to be shown
choices	sample list
selected	selected smaple list

Examples

```
x <- getConditionSelector()
```

getConditionSelectorFromMeta *getConditionSelectorFromMeta*

Description

Selects user input conditions to run in DESeq from metadata

Usage

```
getConditionSelectorFromMeta(
  metadata = NULL,
  input = NULL,
  index = 1,
  num = 0,
  choices = NULL,
  selected = NULL
)
```

Arguments

metadata	meta data table
input	input
index	index
num	num
choices	choices
selected	selected

Examples

```
x <- getConditionSelectorFromMeta()
```

getCondMsg *getCondMsg*

Description

Generates and displays the current conditions and their samples within the DEBrowser.

Usage

```
getCondMsg(dc = NULL, input = NULL, cols = NULL, conds = NULL)
```

Arguments

dc	columns
input	selected comparison
cols	columns
conds	selected conditions

Value

return conditions

Note

getCondMsg

Examples

```
x <- getCondMsg()
```

---

getCovariateDetails *getCovariateDetails*

Description

get the covariate detail box after DE method selected

Usage

```
getCovariateDetails(num = NULL, input = NULL, metadata = NULL)
```

Arguments

num	panel that is going to be shown
input	user input
metadata	metadata

Examples

```
x <- getCovariateDetails()
```

getCutOffSelection *getCutOffSelection*

Description

Gathers the cut off selection for DE analysis

Usage

```
getCutOffSelection(nc = 1)
```

Arguments

nc	total number of comparisons

Value

returns the left menu according to the selected tab;

Note

getCutOffSelection

Examples

```
x <- getCutOffSelection()
```

getDataAssesmentText *getDataAssesmentText DataAssesment text*

Description

getDataAssesmentText DataAssesment text

Usage

```
getDataAssesmentText()
```

Value

help text for data assesment

Examples

```
x<- getDataAssesmentText()
```

`getDataForTables` *getDataForTables get data to fill up tables tab*

Description

getDataForTables get data to fill up tables tab

Usage

```
getDataForTables(
  input = NULL,
  init_data = NULL,
  filt_data = NULL,
  selected = NULL,
  getMostVaried = NULL,
  mergedComp = NULL,
  explainedData = NULL
)
```

Arguments

`input`	input parameters
`init_data`	initial dataset
`filt_data`	filt_data
`selected`	selected genes
`getMostVaried`	most varied genes
`mergedComp`	merged comparison set
`explainedData`	pca gene set

Value

data

Examples

```
x <- getDataForTables()
```

getDataPreparationText *getDataPreparationText DataPreparation text*

Description

getDataPreparationText DataPreparation text

Usage

```
getDataPreparationText()
```

Value

help text for data preparation

Examples

```
x<- getDataPreparationText()
```

getDEAnalysisText *getDEAnalysisText DEAnalysis text*

Description

getDEAnalysisText DEAnalysis text

Usage

```
getDEAnalysisText()
```

Value

help text for DE Analysis

Examples

```
x<- getDEAnalysisText()
```

getDensityPlot *getDensityPlot*

Description

Makes Density plots

Usage

```
getDensityPlot(data = NULL, input = NULL, title = "")
```

Arguments

data	count or normalized data
input	input
title	title

Examples

```
getDensityPlot()
```

getDensityPlotUI *getDensityPlotUI*

Description

Density plot UI.

Usage

```
getDensityPlotUI(id)
```

Arguments

id	namespace id

Value

the panel for Density plots;

Note

getDensityPlotUI

Examples

```
x <- getDensityPlotUI("density")
```

`getDEResultsUI` *getDEResultsUI Creates a panel to visualize DE results*

Description

getDEResultsUI Creates a panel to visualize DE results

Usage

```
getDEResultsUI(id)
```

Arguments

`id`	namespace id

Value

panel

Examples

```
x <- getDEResultsUI("batcheffect")
```

`getDomains` *getDomains*

Description

Get domains for the main plots.

Usage

```
getDomains(filt_data = NULL)
```

Arguments

`filt_data`	data to get the domains

Value

domains

Examples

```
x<-getDomains()
```

`getDown` *getDown get down regulated data*

Description

getDown get down regulated data

Usage

```
getDown(filt_data = NULL)
```

Arguments

`filt_data`	filt_data

Value

data

Examples

```
x <- getDown()
```

`getDownloadSection` *getDownloadSection*

Description

download section button and dataset selection box in the menu for user to download selected data.

Usage

```
getDownloadSection(choices = NULL)
```

Arguments

`choices`	main vs. QC section

Value

the panel for download section in the menu;

Note

getDownloadSection

Examples

```
x<- getDownloadSection()
```

---

getEnrichDO *getEnrichDO*

Description

Gathers the Enriched DO Term analysis data to be used within the GO Term plots.

Usage

```
getEnrichDO(genelist = NULL, pvalueCutoff = 0.01)
```

Arguments

genelist	gene list
pvalueCutoff	the p value cutoff

Value

enriched DO

Note

getEnrichDO

Examples

```
x <- getEnrichDO()
```

getEnrichGO *getEnrichGO*

Description

Gathers the Enriched GO Term analysis data to be used within the GO Term plots.

Usage

```
getEnrichGO(
  genelist = NULL,
  pvalueCutoff = 0.01,
  org = "org.Hs.eg.db",
  ont = "CC"
)
```

Arguments

genelist	gene list
pvalueCutoff	p value cutoff
org	the organism used
ont	the ontology used

Value

Enriched GO

Note

getEnrichGO

Examples

```
x <- getEnrichGO()
```

getEnrichKEGG *getEnrichKEGG*

Description

Gathers the Enriched KEGG analysis data to be used within the GO Term plots.

Usage

```
getEnrichKEGG(genelist = NULL, pvalueCutoff = 0.01, org = "org.Hs.eg.db")
```

Arguments

genelist	gene list
pvalueCutoff	the p value cutoff
org	the organism used

Value

Enriched KEGG

Note

getEnrichKEGG

Examples

```
x <- getEnrichKEGG()
```

getEntrezIds *getEntrezIds*

Description

Gathers the gene list to use for GOTerm analysis.

Usage

```
getEntrezIds(genes = NULL, org = "org.Hs.eg.db")
```

Arguments

genes	gene list with fold changes
org	orgranism for gene symbol entrez ID conversion

Value

ENTREZ ID list

Note

GOTerm

getEntrezIds symobol to ENTREZ ID conversion

Examples

```
x <- getEntrezIds()
```

---

getEntrezTable *getEntrezTable*

Description

Gathers the entrezIds of the genes in given list and their data

Usage

```
getEntrezTable(genes = NULL, dat = NULL, org = "org.Hs.eg.db")
```

Arguments

genes	gene list
dat	data matrix
org	orgranism for gene symbol entrez ID conversion

Value

table with the entrez IDs in the rownames

Note

GOTerm

getEntrezTable symobol to ENTREZ ID conversion

Examples

```
x <- getEntrezTable()
```

getGeneList *getGeneList*

Description

Gathers the gene list to use for GOTerm analysis.

Usage

```
getGeneList(
  genes = NULL,
  org = "org.Hs.eg.db",
  fromType = "SYMBOL",
  toType = c("ENTREZID")
)
```

Arguments

genes	gene list
org	orgranism for gene symbol entrez ID conversion
fromType	from Type
toType	to Type

Value

ENTREZ ID list

Note

GOTerm

getGeneList symobol to ENTREZ ID conversion

Examples

```
x <- getGeneList(c('OCLN', 'ABCC2'))
```

getGeneSetData *getGeneSetData*

Description

Gathers the specified gene set list to be used within the DEBrowser.

Usage

```
getGeneSetData(data = NULL, geneset = NULL)
```

Arguments

data	loaded dataset
geneset	given gene set

Value

data

Examples

```
x <- getGeneSetData()
```

getGOLeftMenu *getGOLeftMenu*

Description

Generates the GO Left menu to be displayed within the DEBrowser.

Usage

```
getGOLeftMenu()
```

Value

returns the left menu according to the selected tab;

Note

getGOLeftMenu

Examples

```
x <- getGOLeftMenu()
```

getGoPanel *getGoPanel*

Description

Creates go term analysis panel within the shiny display.

Usage

```
getGoPanel()
```

Value

the panel for go term analysis;

Note

getGoPanel

Examples

```
x <- getGoPanel()
```

getGOPlots *getGOPlots*

Description

Go term analysis panel. Generates appropriate GO plot based on user selection.

Usage

```
getGOPlots(dataset = NULL, GSEARes = NULL, input = NULL)
```

Arguments

dataset	the dataset used
GSEARes	GSEA results
input	input params

Value

the panel for go plots;

Note

getGOPlots

Examples

```
x<- getGOPlots()
```

---

getGroupSelector *getGroupSelector Return the groups*

Description

getGroupSelector Return the groups

Usage

```
getGroupSelector(metadata = NULL, input = NULL, index = 1, num = 0)
```

Arguments

metadata	meta data table
input	input params
index	index
num	num

Value

meta select box

Examples

```
x<-getGroupSelector()
```

getGSEA *getGSEA*

Description

Gathers the Enriched KEGG analysis data to be used within the GO Term plots.

Usage

```
getGSEA(
  dataset = NULL,
  pvalueCutoff = 0.01,
  org = "org.Hs.eg.db",
  sortfield = "log2FoldChange"
)
```

Arguments

dataset	dataset
pvalueCutoff	the p value cutoff
org	the organism used
sortfield	sort field for GSEA

Value

GSEA

Note

getGSEA

Examples

```
x <- getGSEA()
```

getHeatmapUI *getHeatmapUI*

Description

Generates the left menu to be used for heatmap plots

Usage

```
getHeatmapUI(id)
```

Arguments

id	module ID

Value

heatmap plot area

Note

getHeatmapUI

Examples

```
x <- getHeatmapUI("heatmap")
```

---

getHelpButton *getHelpButton prepares a helpbutton for to go to a specific site in the documentation*

Description

getHelpButton prepares a helpbutton for to go to a specific site in the documentation

Usage

```
getHelpButton(name = NULL, link = NULL)
```

Arguments

name	name that are going to come after info
link	link of the help

Value

the info button

Examples

```
x<- getHelpButton()
```

getHideLegendOnOff *getHideLegendOnOff*

Description

hide legend

Usage

```
getHideLegendOnOff(id = "pca")
```

Arguments

id	namespace id

Examples

```
x <- getHideLegendOnOff("pca")
```

getHistogramUI *getHistogramUI*

Description

Histogram plots UI.

Usage

```
getHistogramUI(id)
```

Arguments

id	namespace id

Value

the panel for PCA plots;

Note

getHistogramUI

Examples

```
x <- getHistogramUI("histogram")
```

getIntroText *getIntroText Intro text*

Description

getIntroText Intro text

Usage

```
getIntroText()
```

Value

the JS for tab updates

Examples

```
x<- getIntroText()
```

getIQRPlot *getIQRPlot*

Description

Makes IQR boxplot plot

Usage

```
getIQRPlot(data = NULL, input = NULL, title = "")
```

Arguments

data	count or normalized data
input	input
title	title

Examples

```
getIQRPlot()
```

getIQRPlotUI *getIQRPlotUI*

Description

IQR plot UI.

Usage

```
getIQRPlotUI(id)
```

Arguments

id	namespace id

Value

the panel for IQR plots;

Note

getIQRPlotUI

Examples

```
x <- getIQRPlotUI("IQR")
```

getJSLine *getJSLine*

Description

heatmap JS code for selection functionality

Usage

```
getJSLine()
```

Value

JS Code

Examples

```
x <- getJSLine()
```

getKEGGModal *getKEGGModal prepares a modal for KEGG plots*

Description

getKEGGModal prepares a modal for KEGG plots

getKEGGModal prepares a helpbutton for to go to a specific site in the documentation

Usage

```
getKEGGModal()

getKEGGModal()
```

Value

the info button

the info button

Examples

```
x<- getKEGGModal()

x<- getKEGGModal()
```

getLeftMenu *getLeftMenu*

Description

Generates the left menu for for plots within the DEBrowser.

Usage

```
getLeftMenu(input = NULL)
```

Arguments

input	input values

Value

returns the left menu according to the selected tab;

Note

getLeftMenu

Examples

```
x <- getLeftMenu()
```

---

getLegendColors *getLegendColors*

Description

Generates colors according to the data

Usage

```
getLegendColors(Legend = c("up", "down", "NS"))
```

Arguments

Legend	unique Legends

Value

mainPlotControls

Note

getLegendColors

Examples

```
x <- getLegendColors(c("up", "down", "GS", "NS"))
```

`getLegendRadio` *getLegendRadio*

Description

Radio buttons for the types in the legend

Usage

```
getLegendRadio(id)
```

Arguments

`id`	namespace id

Value

radio control

Note

`getLegendRadio`

Examples

```
x <- getLegendRadio("deprog")
```

`getLegendSelect` *getLegendSelect*

Description

select legend

Usage

```
getLegendSelect(id = "pca")
```

Arguments

`id`	namespace id

Note

`getLegendSelect`

Examples

```
x <- getLegendSelect("pca")
```

---

getLevelOrder *getLevelOrder*

Description

Generates the order of the overlapping points

Usage

```
getLevelOrder(Level = c("up", "down", "NS"))
```

Arguments

Level	factor levels shown in the legend

Value

order

Note

getLevelOrder

Examples

```
x <- getLevelOrder(c("up", "down", "GS", "NS"))
```

---

getLoadingMsg *getLoadingMsg*

Description

Creates and displays the loading message/gif to be displayed within the DEBrowser.

Usage

```
getLoadingMsg(output = NULL)
```

Arguments

output	output message

Value

loading msg

Note

`getLoadingMsg`

Examples

```
x <- getLoadingMsg()
```

`getLogo` *getLogo*

Description

Generates and displays the logo to be shown within DEBrowser.

Usage

```
getLogo()
```

Value

return logo

Note

`getLogo`

Examples

```
x <- getLogo()
```

getMainPanel *getMainPanel*

Description

main panel for volcano, scatter and maplot. Barplot and box plots are in this page as well.

Usage

```
getMainPanel()
```

Value

the panel for main plots;

Note

getMainPanel

Examples

```
x <- getMainPanel()
```

getMainPlotsLeftMenu *getMainPlotsLeftMenu*

Description

Generates the Main PLots Left menu to be displayed within the DEBrowser.

Usage

```
getMainPlotsLeftMenu()
```

Value

returns the left menu according to the selected tab;

Note

getMainPlotsLeftMenu

Examples

```
x <- getMainPlotsLeftMenu()
```

getMainPlotUI *getMainPlotUI*

Description

main plot for volcano, scatter and maplot.

Usage

```
getMainPlotUI(id)
```

Arguments

id	namespace id

Value

the panel for main plots;

Note

getMainPlotUI

Examples

```
x <- getMainPlotUI("main")
```

getMean *getMean*

Description

Gathers the mean for selected condition.

Usage

```
getMean(data = NULL, selcols = NULL)
```

Arguments

data	dataset
selcols	input cols

Value

data

Examples

```
x <- getMean()
```

`getMergedComparison` *getMergedComparison*

Description

Gathers the merged comparison data to be used within the DEBrowser.

Usage

```
getMergedComparison(dc = NULL, nc = NULL, input = NULL)
```

Arguments

`dc`	data container
`nc`	the number of comparisons
`input`	input params

Value

data

Examples

```
x <- getMergedComparison()
```

`getMetaSelector` *getMetaSelector*

Description

Return the sample selection box using meta data table

Usage

```
getMetaSelector(metadata = NULL, input = NULL, n = 0)
```

Arguments

`metadata`	meta data table
`input`	input params
`n`	the box number

Value

meta select box

Examples

```
x<-getMetaSelector()
```

---

getMethodDetails *get the detail boxes after DE method selected*

Description

get the detail boxes after DE method selected

Usage

```
getMethodDetails(num = NULL, input = NULL)
```

Arguments

num	panel that is going to be shown
input	user input

Examples

```
x <- getMethodDetails()
```

---

getMostVariedList *getMostVariedList*

Description

Calculates the most varied genes to be used for specific plots within the DEBrowser.

Usage

```
getMostVariedList(datavar = NULL, cols = NULL, input = NULL)
```

Arguments

datavar	loaded dataset
cols	selected columns
input	input

Value

data

Examples

```
x <- getMostVariedList()
```

`getNormalizedMatrix` *getNormalizedMatrix*

Description

Normalizes the matrix passed to be used within various methods within DEBrowser. Requires edgeR package

Usage

```
getNormalizedMatrix(M = NULL, method = "TMM")
```

Arguments

`M`	numeric matrix
`method`	normalization method for edgeR. default is TMM

Value

normalized matrix

Note

`getNormalizedMatrix`

Examples

```
x <- getNormalizedMatrix(mtcars)
```

getOrganism *getOrganism*

Description

getOrganism

Usage

```
getOrganism(org)
```

Arguments

org	organism

Value

organism name for keg

Note

getOrganism

Examples

```
x <- getOrganism()
```

getOrganismBox *getOrganismBox*

Description

Get the organism Box.

Usage

```
getOrganismBox()
```

Value

selectInput

Note

getOrganismBox

getOrganismBox makes the organism box

Examples

```
x <- getOrganismBox()
```

`getOrganismPathway` *getOrganismPathway*

Description

getOrganismPathway

Usage

```
getOrganismPathway(org)
```

Arguments

`org`	organism

Value

organism name for pathway

Note

`getOrganismPathway`

Examples

```
x <- getOrganismPathway()
```

`getPCAcontolUpdatesJS` *getPCAcontolUpdatesJS in the prep menu we have two PCA plots to show how batch effect correction worked. One set of PCA input controls updates two PCA plots with this JS.*

Description

getPCAcontolUpdatesJS in the prep menu we have two PCA plots to show how batch effect correction worked. One set of PCA input controls updates two PCA plots with this JS.

Usage

```
getPCAcontolUpdatesJS()
```

Value

the JS for tab updates

Examples

```
x<- getTabUpdateJS()
```

`getPCAexplained` *getPCAexplained*

Description

Creates a more detailed plot using the PCA results from the selected dataset.

Usage

```
getPCAexplained(datasetInput = NULL, pca_data = NULL, input = NULL)
```

Arguments

`datasetInput`	selected data
`pca_data`	from user
`input`	input params

Value

explained plot

Examples

```
load(system.file("extdata", "demo", "demodata.Rda", package="debrowser"))
input<-c()
input$qcplot<-"pca"
input$col_list<-colnames(demodata[,1:6])
dat <- getNormalizedMatrix(demodata[,1:6])
pca_data <- run_pca(dat)
x <- getPCAexplained(dat, pca_data, input)
```

getPCAPlotUI *getPCAPlotUI*

Description

PCA plots UI.

Usage

```
getPCAPlotUI(id)
```

Arguments

id	namespace id

Value

the panel for PCA plots;

Note

getPCAPlotUI

Examples

```
x <- getPCAPlotUI("pca")
```

getPCselection *getPCselection*

Description

Generates the PC selection number to be used within DEBrowser.

Usage

```
getPCselection(id, num = 1, xy = "x")
```

Arguments

id	namespace id
num	PC selection number
xy	x or y coordinate

Value

PC selection for PCA analysis

Note

`getPCselection`

Examples

```
x <- getPCselection("pca")
```

`getPlotArea` *getPlotArea*

Description

returns plot area either for heatmaply or heatmap.2

Usage

```
getPlotArea(input = NULL, session = NULL)
```

Arguments

`input`	input variables
`session`	session

Value

heatmapply/heatmap.2 plot area

Examples

```
x <- getPlotArea()
```

getProgramTitle *getProgramTitle*

Description

Generates the title of the program to be displayed within DEBrowser. If it is called in a program, the program title will be hidden

Usage

```
getProgramTitle(session = NULL)
```

Arguments

session	session var

Value

program title

Note

getProgramTitle

Examples

```
title<-getProgramTitle()
```

getQAText *getQAText Some questions and answers*

Description

getQAText Some questions and answers

Usage

```
getQAText()
```

Value

help text for QA

Examples

```
x<- getQAText()
```

getQCLeftMenu *getQCLeftMenu*

Description

Generates the left menu to be used for QC plots within the DEBrowser.

Usage

```
getQCLeftMenu(input = NULL)
```

Arguments

input	input values

Value

QC left menu

Note

getQCLeftMenu

Examples

```
x <- getQCLeftMenu()
```

getQCPanel *getQCPanel*

Description

Gathers the conditional panel for QC plots

Usage

```
getQCPanel(input = NULL)
```

Arguments

input	user input

Value

the panel for QC plots

Note

getQCSection

Examples

```
x <- getQCPanel()
```

---

getSampleDetails *getSampleDetails*

Description

get sample details

Usage

```
getSampleDetails(output = NULL, summary = NULL, details = NULL, data = NULL)
```

Arguments

output	output
summary	summary output name
details	details ouput name
data	data

Value

panel

Examples

```
x <- getSampleDetails()
```

getSampleNames *getSampleNames*

Description

Prepares initial samples to fill condition boxes. it reads the sample names from the data and splits into two.

Usage

```
getSampleNames(cnames = NULL, part = 1)
```

Arguments

cnames	sample names in the header of a dataset
part	c(1,2). 1=first half and 2= second half

Value

sample names.

Examples

```
x<-getSampleNames()
```

getSearchData *getSearchData*

Description

search the geneset in the tables and return it

Usage

```
getSearchData(dat = NULL, input = NULL)
```

Arguments

dat	table data
input	input params

Value

data

Examples

```
x <- getSearchData()
```

`getSelectedCols` *getSelectedCols*

Description

gets selected columns

Usage

```
getSelectedCols(data = NULL, datasetInput = NULL, input = NULL)
```

Arguments

`data`	all loaded data
`datasetInput`	selected dataset
`input`	user input params

Examples

```
getSelectedCols()
```

`getSelectedDatasetInput` *getSelectedDatasetInput*

Description

Gathers the user selected dataset output to be displayed.

Usage

```
getSelectedDatasetInput(
  rdata = NULL,
  getSelected = NULL,
  getMostVaried = NULL,
  mergedComparison = NULL,
  input = NULL
)
```

Arguments

rdata	filtered dataset
getSelected	selected data
getMostVaried	most varied data
mergedComparison	merged comparison data
input	input parameters

Value

data

Examples

```
x <- getSelectedDatasetInput()
```

---

getSelectInputBox *getSelectInputBox*

Description

Selects user input conditions to run in DESeq.

Usage

```
getSelectInputBox(
  id = NULL,
  name = NULL,
  num = 0,
  choices = NULL,
  selected = NULL,
  cw = 2,
  multiple = FALSE
)
```

Arguments

id	input id
name	label of the box
num	panel that is going to be shown
choices	sample list
selected	selected smaple list
cw	column width
multiple	if multiple choices are available

Examples

```
x <- getSelectInputBox()
```

`getSelHeat` *getSelHeat*

Description

heatmap selection functionality

Usage

```
getSelHeat(expdata = NULL, input = NULL)
```

Arguments

`expdata`	selected genes
`input`	input params

Value

plot

Examples

```
x <- getSelHeat()
```

`getShapeColor` *getShapeColor*

Description

Generates the fill and shape selection boxes for PCA plots. metadata file has to be loaded in this case

Usage

```
getShapeColor(input = NULL)
```

Arguments

`input`	input values

Value

Color and shape from selection boxes or defaults

Examples

```
x <- getShapeColor()
```

`getStartPlotsMsg` *getStartPlotsMsg*

Description

Generates and displays the starting messgae to be shown once the user has first seen the main plots page within DEBrowser.

Usage

```
getStartPlotsMsg()
```

Value

return start plot msg

Note

`getStartPlotsMsg`

Examples

```
x <- getStartPlotsMsg()
```

`getStartupMsg` *getStartupMsg*

Description

Generates and displays the starting message within DEBrowser.

Usage

```
getStartupMsg()
```

Value

return startup msg

Note

getStartupMsg

Examples

```
x <- getStartupMsg()
```

---

getTableDetails *getTableDetails*

Description

get table details To be able to put a table into two lines are necessary; into the server part; getTableDetails(output, session, "dataname", data, modal=TRUE) into the ui part; uiOutput(ns("dataname"))

Usage

```
getTableDetails(
  output = NULL,
  session = NULL,
  tablename = NULL,
  data = NULL,
  modal = NULL
)
```

Arguments

output	output
session	session
tablename	table name
data	matrix data
modal	if it is true, the matrix is going to be in a modal

Value

panel

Examples

```
x <- getTableDetails()
```

getTableModal *getTableModal prepares table modal for KEGG*

Description

getTableModal prepares table modal for KEGG

Usage

```
getTableModal()
```

Value

the info button

Examples

```
x<- getTableModal()
```

getTableStyle *getTableStyle*

Description

User defined selection that selects the style of table to display within the DEBrowser.

Usage

```
getTableStyle(
  dat = NULL,
  input = NULL,
  padj = c("padj"),
  foldChange = c("foldChange"),
  DEsection = TRUE
)
```

Arguments

dat	dataset
input	input params
padj	the name of the padj value column in the dataset
foldChange	the name of the foldChange column in the dataset
DEsection	if it is in DESection or not

Note

getTableStyle

Examples

```
x <- getTableStyle()
```

---

getTabUpdateJS *getTabUpdateJS prepmenu tab and discovery menu tab updates*

Description

getTabUpdateJS prepmenu tab and discovery menu tab updates

Usage

```
getTabUpdateJS()
```

Value

the JS for tab updates

Examples

```
x<- getTabUpdateJS()
```

---

getUp *getUp get up regulated data*

Description

getUp get up regulated data

Usage

```
getUp(filt_data = NULL)
```

Arguments

filt_data	filt_data

Value

data

Examples

```
x <- getUp()
```

`getUpDown` *getUpDown get up+down regulated data*

Description

getUpDown get up+down regulated data

Usage

```
getUpDown(filt_data = NULL)
```

Arguments

`filt_data`	filt_data

Value

data

Examples

```
x <- getUpDown()
```

`getVariationData` *getVariationData*

Description

Adds an id to the data frame being used.

Usage

```
getVariationData(inputdata = NULL, cols = NULL, conds = NULL, key = NULL)
```

Arguments

`inputdata`	dataset
`cols`	columns
`conds`	conditions
`key`	gene or region name

Value

plotdata

Examples

```
x <- getVariationData()
```

`get_conditions_given_selection` *get_conditions_given_selection*

Description

Return the two set of conditions given the selection of meta select box

Usage

```
get_conditions_given_selection(metadata = NULL, selection = NULL)
```

Arguments

`metadata`	meta data table
`selection`	selection

Value

meta select box

Examples

```
x<-get_conditions_given_selection()
```

`heatmapControlsUI` *heatmapControlsUI*

Description

Generates the left menu to be used for heatmap plots

Usage

```
heatmapControlsUI(id)
```

Arguments

id	module ID

Value

HeatmapControls

Note

heatmapControlsUI

Examples

```
x <- heatmapControlsUI("heatmap")
```

---

heatmapJScode *heatmapJScode*

Description

heatmap JS code for selection functionality

Usage

```
heatmapJScode()
```

Value

JS Code

Examples

```
x <- heatmapJScode()
```

heatmapServer *heatmapServer*

Description

Sets up shinyServer to be able to run heatmapServer interactively.

Usage

```
heatmapServer(input, output, session)
```

Arguments

input	input params from UI
output	output params to UI
session	session variable

Value

the panel for main plots;

Note

heatmapServer

Examples

```
heatmapServer
```

heatmapUI *heatmapUI*

Description

Creates a shinyUI to be able to run DEBrowser interactively.

Usage

```
heatmapUI(input, output, session)
```

Arguments

input	input variables
output	output objects
session	session

Value

the panel for heatmapUI;

Note

heatmapUI

Examples

```
x<-heatmapUI()
```

---

hideObj *hideObj*

Description

Hides a shiny object.

Usage

```
hideObj(btns = NULL)
```

Arguments

btns	hide group of objects with shinyjs

Examples

```
x <- hideObj()
```

---

histogramControlsUI *histogramControlsUI*

Description

Generates the controls in the left menu for a histogram

Usage

```
histogramControlsUI(id)
```

Arguments

id	namespace id

Value

returns the left menu

Note

histogramControlsUI

Examples

```
x <- histogramControlsUI("histogram")
```

---

installpack *installpack*

Description

install packages if they don't exist display.

Usage

```
installpack(package_name = NULL)
```

Arguments

package_name	package name to be installed

Note

installpack

Examples

```
x <- installpack()
```

IQRPlotControlsUI *IQRPlotControlsUI*

Description

Generates the controls in the left menu for an IQR plot#'

Usage

```
IQRPlotControlsUI(id)
```

Arguments

id	namespace id

Value

returns the left menu

Note

IQRPlotControlsUI

Examples

```
x <- IQRPlotControlsUI("IQR")
```

kmeansControlsUI *kmeansControlsUI*

Description

get kmeans controls

Usage

```
kmeansControlsUI(id)
```

Arguments

id	module ID

Value

controls

Note

kmeansControlsUI

Examples

```
x <- kmeansControlsUI("heatmap")
```

---

lcfMetRadio *lcfMetRadio*

Description

Radio buttons for low count removal methods

Usage

```
lcfMetRadio(id)
```

Arguments

id	namespace id

Value

radio control

Note

lcfMetRadio

Examples

```
x <- lcfMetRadio("lcf")
```

loadpack *loadpack*

Description

load packages

Usage

```
loadpack(package_name = NULL)
```

Arguments

package_name	package name to be loaded

Note

loadpack

Examples

```
x <- loadpack()
```

mainPlotControlsUI *mainPlotControlsUI*

Description

Generates the left menu to be used for main plots

Usage

```
mainPlotControlsUI(id)
```

Arguments

id	module ID

Value

mainPlotControls

Note

mainPlotControlsUI

Examples

```
x <- mainPlotControlsUI("main")
```

`mainScatterNew` *mainScatterNew*

Description

Creates the main scatter, volcano or MA plot to be displayed within the main panel.

Usage

```
mainScatterNew(input = NULL, data = NULL, cond_names = NULL, source = NULL)
```

Arguments

`input`	input params
`data`	dataframe that has log2FoldChange and log10padj values
`cond_names`	condition names
`source`	for event triggering to select genes

Value

scatter, volcano or MA plot

Examples

```
x <- mainScatterNew()
```

`niceKmeans` *niceKmeans*

Description

Generates hierarchially clustered K-means clusters

Usage

```
niceKmeans(df = NULL, input = NULL, iter.max = 1000, nstart = 100)
```

Arguments

df	data
input	user inputs
iter.max	max iteration for kmeans clustering
nstart	n for kmeans clustering

Value

heatmap plot area

Note

niceKmeans

Examples

```
x <- niceKmeans()
```

---

normalizationMethods *normalizationMethods*

Description

Select box to select normalization method prior to batch effect correction

Usage

```
normalizationMethods(id)
```

Arguments

id	namespace id

Value

radio control

Note

normalizationMethods

Examples

```
x <- normalizationMethods("batch")
```

palUI *palUI*

Description

get pallete

Usage

```
palUI(id)
```

Arguments

id	namespace ID

Value

pals

Note

palUI

Examples

```
x <- palUI("heatmap")
```

panel.cor *panel.cor*

Description

Prepares the correlations for the all2all plot.

Usage

```
panel.cor(x, y, prefix = "rho=", cex.cor = 2, ...)
```

Arguments

x	numeric vector x
y	numeric vector y
prefix	prefix for the text
cex.cor	correlation font size
...	additional parameters

Value

all2all correlation plots

Examples

```
panel.cor(c(1,2,3), c(4,5,6))
```

---

panel.hist *panel.hist*

Description

Prepares the historgram for the all2all plot.

Usage

```
panel.hist(x, ...)
```

Arguments

x	a vector of values for which the histogram is desired
...	any additional params

Value

all2all histogram plots

Examples

```
panel.hist(1)
```

---

pcaPlotControlsUI *pcaPlotControlsUI*

Description

Generates the PCA PLots Left menu to be displayed within the DEBrowser.

Usage

```
pcaPlotControlsUI(id = "pca")
```

Arguments

id	namespace id

Value

returns the left menu according to the selected tab;

Note

pcaPlotControlsUI

Examples

```
x <- pcaPlotControlsUI("pca")
```

---

plotData *plotData*

Description

prepare plot data for mainplots

Usage

```
plotData(pdata = NULL, input = NULL)
```

Arguments

pdata	data
input	input

Value

prepdata

Note

plotData

Examples

```
x <- plotData()
```

plotMarginsUI *plotMarginsUI*

Description

Margins module for plotly plots

Usage

```
plotMarginsUI(id, t = 20, b = 100, l = 100, r = 20)
```

Arguments

id	id
t	top margin
b	bottom margin
l	left margin
r	right margin

Value

size and margins controls

Note

plotMarginsUI

Examples

```
x <- plotMarginsUI("heatmap")
```

plotSizeMarginsUI *plotSizeMarginsUI*

Description

Size and margins module for plotly plots

Usage

```
plotSizeMarginsUI(id, w = 800, h = 640, t = 20, b = 100, l = 100, r = 20)
```

Arguments

id	id
w	width
h	height
t	top margin
b	bottom margin
l	left margin
r	right margin

Value

size and margins controls

Note

plotSizeMarginsUI

Examples

```
x <- plotSizeMarginsUI("heatmap")
```

---

plotSizeUI *plotSizeUI*

Description

Size module for plotly plots

Usage

```
plotSizeUI(id, w = 800, h = 600)
```

Arguments

id	id
w	width
h	height

Value

size and margins controls

Note

plotSizeUI

Examples

```
x <- plotSizeUI("heatmap")
```

`plotTypeUI` *plotTypeUI*

Description

Plot download type

Usage

```
plotTypeUI(id)
```

Arguments

`id`	id

Value

size and margins controls

Note

`plotTypeUI`

Examples

```
x <- plotTypeUI("heatmap")
```

`plot_pca` *plot_pca*

Description

Plots the PCA results for the selected dataset.

Usage

```
plot_pca(
  dat = NULL,
  pcx = 1,
  pcy = 2,
  metadata = NULL,
  color = NULL,
  shape = NULL,
  size = NULL,
  textonoff = "On",
  legendSelect = "samples",
  input = NULL
)
```

Arguments

dat	data
pcx	x axis label
pcy	y axis label
metadata	additional data
color	color for plot
shape	shape for plot
size	size of the plot
textonoff	text on off
legendSelect	select legend
input	input param

Value

pca list

Examples

```
load(system.file("extdata", "demo", "demodata.Rda",
        package="debrowser"))
metadata<-cbind(colnames(demodata[,1:6]),
        colnames(demodata[,1:6]),
        c(rep("Cond1",3), rep("Cond2",3)))
colnames(metadata)<-c("samples", "color", "shape")

a <- plot_pca(getNormalizedMatrix(
        demodata[rowSums(demodata[,1:6])>10,1:6]),
        metadata = metadata, color = "samples",
        size = 5, shape = "shape")
```

prepDataContainer *prepDataContainer*

Description

Prepares the data container that stores values used within DESeq.

Usage

```
prepDataContainer(data = NULL, counter = NULL, input = NULL, meta = NULL)
```

Arguments

data	loaded dataset
counter	the number of comparisons
input	input parameters
meta	loaded metadata

Value

data

Examples

```
x <- prepDataContainer()
```

prepGroup *prepGroup*

Description

prepare group table

Usage

```
prepGroup(conds = NULL, cols = NULL, metadata = NULL, covariates = NULL)
```

Arguments

conds	inputconds
cols	columns
metadata	metadata
covariates	covariates

Value

data

Examples

```
x <- prepGroup()
```

---

prepHeatData *prepHeatData*

Description

scales the data

Usage

```
prepHeatData(expdata = NULL, input = NULL)
```

Arguments

expdata	a matrixthat includes expression values
input	input variables

Value

heatdata

Examples

```
x <- prepHeatData()
```

---

prepPCADat *prepPCADat*

Description

prepares pca data with metadata. If metadata doesn't exists it puts all the sampels into a signlge group; "Conds".

Usage

```
prepPCADat(pca_data = NULL, metadata = NULL, input = NULL, pcx = 1, pcy = 2)
```

Arguments

pca_data	pca run results
metadata	additional meta data
input	input
pcx	x axis label
pcy	y axis label

Value

Color and shape from selection boxes or defaults

Examples

```
x <- prepPCADat()
```

---

push *push*

Description

Push an object to the list.

Usage

```
push(l, ...)
```

Arguments

l	that are going to push to the list
...	list object

Value

combined list

Examples

```
mylist <- list()
newlist <- push ( 1, mylist )
```

removeCols *removeCols*

Description

remove unnecessary columns

Usage

```
removeCols(cols = NULL, dat = NULL)
```

Arguments

cols	columns that are going to be removed from data frame
dat	data

Value

data

Examples

```
x <- removeCols()
```

removeExtraCols *removeExtraCols*

Description

remove extra columns for QC plots

Usage

```
removeExtraCols(dat = NULL)
```

Arguments

dat	selected data

Examples

```
removeExtraCols()
```

round_vals *round_vals*

Description

Plot PCA results.

Usage

```
round_vals(l)
```

Arguments

l	the value

Value

round value

Examples

```
x<-round_vals(5.1323223)
```

runDE *runDE*

Description

Run DE algorithms on the selected parameters. Output is to be used for the interactive display.

Usage

```
runDE(
  data = NULL,
  metadata = NULL,
  columns = NULL,
  conds = NULL,
  params = NULL
)
```

Arguments

data	A matrix that includes all the expression raw counts, rownames has to be the gene, isoform or region names/IDs
metadata	metadata of the matrix of expression raw counts
columns	is a vector that includes the columns that are going to be analyzed. These columns has to match with the given data.
conds	experimental conditions. The order has to match with the column order
params	all params for the DE methods

Value

de results

Examples

```
x <- runDE()
```

---

runDESeq2 *runDESeq2*

Description

Run DESeq2 algorithm on the selected conditions. Output is to be used for the interactive display.

Usage

```
runDESeq2(
  data = NULL,
  metadata = NULL,
  columns = NULL,
  conds = NULL,
  params = NULL
)
```

Arguments

data	A matrix that includes all the expression raw counts, rownames has to be the gene, isoform or region names/IDs
metadata	metadata of the matrix of expression raw counts
columns	is a vector that includes the columns that are going to be analyzed. These columns has to match with the given data.
conds	experimental conditions. The order has to match with the column order

params	fitType: either "parametric", "local", or "mean" for the type of fitting of dispersions to the mean intensity. See estimateDispersions for description. betaPrior: whether or not to put a zero-mean normal prior on the non-intercept coefficients See nbinomWaldTest for description of the calculation of the beta prior. By default, the beta prior is used only for the Wald test, but can also be specified for the likelihood ratio test. testType: either "Wald" or "LRT", which will then use either Wald significance tests (defined by nbinomWaldTest), or the likelihood ratio test on the difference in deviance between a full and reduced model formula (defined by nbinomLRT) shrinkage: Adds shrunken log2 fold changes (LFC) and SE to a results table from DESeq run without LFC shrinkage. For consistency with results, the column name lfcSE is used here although what is returned is a posterior SD. Three shrinkage estimators for LFC are available via type (see the vignette for more details on the estimators). The apeglm publication demonstrates that 'apeglm' and 'ashr' outperform the original 'normal' shrinkage estimator.

Value

deseq2 results

Examples

```
x <- runDESeq2()
```

`runEdgeR` *runEdgeR*

Description

Run EdgeR algorithm on the selected conditions. Output is to be used for the interactive display.

Usage

```
runEdgeR(
  data = NULL,
  metadata = NULL,
  columns = NULL,
  conds = NULL,
  params = NULL
)
```

Arguments

data	A matrix that includes all the expression raw counts, rownames has to be the gene, isoform or region names/IDs
metadata	metadata of the matrix of expression raw counts

columns	is a vector that includes the columns that are going to be analyzed. These columns has to match with the given data.
conds	experimental conditions. The order has to match with the column order
params	normfact: Calculate normalization factors to scale the raw library sizes. Values can be "TMM","RLE","upperquartile","none". dispersion: either a numeric vector of dispersions or a character string indicating that dispersions should be taken from the data object. If a numeric vector, then can be either of length one or of length equal to the number of genes. Allowable character values are "common", "trended", "tagwise" or "auto". Default behavior ("auto" is to use most complex dispersions found in data object. testType: exactTest or glmLRT. exactTest: Computes p-values for differential abundance for each gene between two digital libraries, conditioning on the total count for each gene. The counts in each group as a proportion of the whole are assumed to follow a binomial distribution. glmLRT: Fit a negative binomial generalized log-linear model to the read counts for each gene. Conduct genewise statistical tests for a given coefficient or coefficient contrast.

Value

edgeR results

Examples

```
x <- runEdgeR()
```

`runHeatmap` *runHeatmap*

Description

Creates a heatmap based on the user selected parameters within shiny

Usage

```
runHeatmap(input = NULL, session = NULL, expdata = NULL)
```

Arguments

input	input variables
session	session
expdata	a matrix that includes expression values

Value

heatmapply plot

Examples

```
x <- runHeatmap()
```

`runHeatmap2` *runHeatmap2*

Description

Creates a heatmap based on the user selected parameters within shiny

Usage

```
runHeatmap2(input = NULL, session = NULL, expdata = NULL)
```

Arguments

`input`	input variables
`session`	session
`expdata`	a matrix that includes expression values

Value

heatmap.2

Examples

```
x <- runHeatmap2()
```

`runLimma` *runLimma*

Description

Run Limma algorithm on the selected conditions. Output is to be used for the interactive display.

Usage

```
runLimma(
  data = NULL,
  metadata = NULL,
  columns = NULL,
  conds = NULL,
  params = NULL
)
```

Arguments

data	A matrix that includes all the expression raw counts, rownames has to be the gene, isoform or region names/IDs
metadata	metadata of the matrix of expression raw counts
columns	is a vector that includes the columns that are going to be analyzed. These columns has to match with the given data.
conds	experimental conditions. The order has to match with the column order
params	normfact: Calculate normalization factors to scale the raw library sizes. Values can be "TMM","RLE","upperquartile","none". fitType, fitting method; "ls" for least squares or "robust" for robust regression normBet: Normalizes expression intensities so that the intensities or log-ratios have similar distributions across a set of arrays.

Value

Limma results

Examples

```
x <- runLimma()
```

---

run_pca *run_pca*

Description

Runs PCA on the selected dataset.

Usage

```
run_pca(x = NULL, retx = TRUE, center = TRUE, scale = TRUE)
```

Arguments

x	dataframe with experiment data
retx	specifies if the data should be returned
center	center the PCA (Boolean)
scale	scale the PCA (Boolean)

Value

pca list

Examples

```
load(system.file("extdata", "demo", "demodata.Rda",
    package="debrowser"))
pca_data<-run_pca(getNormalizedMatrix(
    demodata[rowSums(demodata[,1:6])>10,1:6]))
```

`selectConditions` *selectConditions*

Description

Selects user input conditions, multiple if present, to be used in DESeq.

Usage

```
selectConditions(
  Dataset = NULL,
  metadata = NULL,
  choicecounter = NULL,
  session = NULL,
  input = NULL
)
```

Arguments

`Dataset`	used dataset
`metadata`	metadatatable to select from metadata
`choicecounter`	choicecounter to add multiple comparisons
`session`	session
`input`	input params

Value

the panel for go plots;

Note

`selectConditions`

Examples

```
x<- selectConditions()
```

selectedInput *selectedInput*

Description

Selects user input conditions to run in DESeq.

Usage

```
selectedInput(id = NULL, num = 0, default = NULL, input = NULL)
```

Arguments

id	input id
num	panel that is going to be shown
default	default text
input	input params

Examples

```
x <- selectedInput()
```

selectGroupInfo *selectGroupInfo*

Description

Group info column selection. This can be used in batch effect or coloring the groups in the plots.

Usage

```
selectGroupInfo(
  metadata = NULL,
  input = NULL,
  selectname = "groupselect",
  label = "Group info"
)
```

Arguments

metadata	metadata
input	input values
selectname	name of the select box
label	label of the select box

Note

selectGroupInfo

Examples

```
x <- selectGroupInfo()
```

---

sepRadio *sepRadio*

Description

Radio button for separators

Usage

```
sepRadio(id, name)
```

Arguments

id	module id
name	name

Value

radio control

Note

sepRadio

Examples

```
x <- sepRadio("meta", "metadata")
```

setBatch *setBatch to skip batch effect correction batch variable set with the filter results*

Description

setBatch to skip batch effect correction batch variable set with the filter results

Usage

```
setBatch(fd = NULL)
```

Arguments

fd	filtered data

Value

fd data

Examples

```
x <- setBatch()
```

showObj *showObj*

Description

Displays a shiny object.

Usage

```
showObj(btns = NULL)
```

Arguments

btns	show group of objects with shinyjs

Examples

```
x <- showObj()
```

startDEBrowser *startDEBrowser*

Description

Starts the DEBrowser to be able to run interactively.

Usage

```
startDEBrowser()
```

Value

the app

Note

startDEBrowser

Examples

```
startDEBrowser()
```

startHeatmap *startHeatmap*

Description

Starts the DEBrowser heatmap

Usage

```
startHeatmap()
```

Value

the app

Note

startHeatmap

Examples

```
startHeatmap()
```

textareaInput *textareaInput*

Description

Generates a text area input to be used for gene selection within the DEBrowser.

Usage

```
textareaInput(id, label, value, rows = 20, cols = 35, class = "form-control")
```

Arguments

id	id of the control
label	label of the control
value	initial value
rows	the # of rows
cols	the # of cols
class	css class

Examples

```
x <- textareaInput("genesetarea", "Gene Set",
    "Fgf21", rows = 5, cols = 35)
```

togglePanels *togglePanels*

Description

User defined toggle to display which panels are to be shown within DEBrowser.

Usage

```
togglePanels(num = NULL, nums = NULL, session = NULL)
```

Arguments

num	selected panel
nums	all panels
session	session info

Note

togglePanels

Examples

```
x <- togglePanels()
```

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