Package ‘limmaGUI’

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Title GUI for limma Package With Two Color Microarrays

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Imports methods, grDevices, graphics, limma, R2HTML, tcltk, tkrplot, xtable, utils

Description A Graphical User Interface for differential expression analysis of two-color microarray data using the limma package.

License GPL (>=2)

URL `http://bioinf.wehi.edu.au/limmaGUI/`

biocViews GUI, GeneExpression, DifferentialExpression, DataImport, Bayesian, Regression, TimeCourse, Microarray, mRNAMicroarray, TwoChannel, BatchEffect, MultipleComparison, Normalization, Preprocessing, QualityControl

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Contents

`LGchangeLog` *LimmaGUI Change Log*

Description

Write as text the most recent changes from the limmaGUI package changelog.

Usage

```
LGchangeLog(n=20)
```

Arguments

`n`	integer, number of lines to write of changelog.

Value

No value is produced, but a number of lines of text are written to standard output.

Author(s)

Gordon Smyth

`limmaGUI` *Graphical User Interface for the limma microarray package*

Description

Graphical User Interface for the limma microarray package

Usage

```
AboutLimmaGUI()
AboutNormalization()
BChelp()
ChooseContrastsParameterization(parameterizationTreeIndex)
ChooseEbayesStatistic()
ChooseParameterization()
ChoosePlotSymbolByClicking(spotType, cex)
ChooseSpotType(parameterizationTreeIndex)
ComputeContrasts()
CopyGraph(img)
CreateNewParameterization()
DeleteContrastsParameterization()
deleteItemFromList(list1, itemName = NULL, index = NULL)
DeleteParameterization()
DupCorBoxPlot()
ebayesBoxPlots()
evalRcode()
ExportHTMLreport()
```

```
ExportTopTable()
fixSeps(string)
GetBackgroundCorrectionMethod()
GetBetweenArrayNormalizationMethod()
GetCoef(parameterizationTreeIndex, whichCoef = "onlyOne")
GetComponentsToExportInHTMLreport(parameterizationIndex = NULL)
GetContrastsParameterizationName()
GetContrastsParameterizationNames(parameterizationTreeIndex)
GetDEcutoff()
GetDesignOrContrasts(Design = FALSE, Contrasts = FALSE, NumContrasts = 0,
                     parameterizationIndex = 0)
GetGeneLabelsOptions()
GetImageAnalysisColumnHeadings()
GetImageProcessingFileType()
GetJpegOrPngParams(graphFileType)
GetJpegOrPngX11Params(graphFileType)
GetlimmaDataSetName()
GetlmFitMethod()
GetLowessType()
GetNEWxlim(xlim)
GetNormexpOffsetValue(CurrentNormexpOffsetValue)
GetNumParametersNoTargets()
getPackageVersion(pkgName)
GetParameterizationName()
GetParameterNames(parameterizationTreeIndex)
GetParametersAndOrContrasts(parameterizationTreeIndex, whatFor = "heat")
GetPlotLabels(plottitle = "", xlabel = "", ylabel = "")
GetPlotSize()
GetPlotTitle(plottitle = "")
GetPValueCutoff(p.value = 0.01)
GetReducedDuplicateSpacing(parameterizationTreeIndex)
GetRNATypesFrom.ContrastsFromDropDowns.String(string)
GetSlideNum()
GetSpotTypesForLinearModel()
GetSpotTypesIncludedNames(parameterizationTreeIndex)
GetWithinArrayNormalizationMethod()
GetWtAreaParams()
HeatDiagramDialog(parameterName)
HeatDiagramPlot()
HowManyDups()
HTMLplotUsingFunction(Caption = "", File = .HTML.file,
                 GraphRelativeDirectory = ".", GraphAbsoluteDirectory =
                 NULL, GraphFileName = "", GraphSaveAs = "png",
                 GraphBorder = 1, Align = "center", plotFunction =
                 NULL, Width = 600, Height = 600, PointSize = 12,
                 BG ="white", res = 72, ...)
ImageArrayPlot()
ImageArrayPlotDialog(slidenum)
ImportMA()
ImportMADialog()
initGlobals()
InitNewParameterization()
```

```
limmaGUI(BigfontsForlimmaGUIpresentation = FALSE)
limmaHelp()
lmFitMethodHelp()
LogOddsPlot()
MAPlot()
MAPlotAvg()
MBoxPlot()
MMPlot()
NewLimmaFile()
NormalizeNow()
nstrstr(haystack, needle)
onDestroy()
onExit()
OpenALimmaFile(FileName)
OpenGALandTargetsandSpotTypesfiles()
OpenGALFile()
OpenLimmaFile()
OpenSpotTypesFile()
OpenTargetsFile()
plotMAColorCoded()
PlotOptions()
PrintTipGroupMAPlot()
QQTplot()
read.marrayTools(MFile,AFile, path, verbose, sep, quote, header, ...)
ReadImageProcessingFiles()
Require(pkg)
Resize(img, plotFunction)
SaveAsLimmaFile()
SaveGraphAsJpeg(initialfile, plotFunction)
SaveGraphAsPDF(initialfile, plotFunction)
SaveGraphAsPNG(initialfile, plotFunction)
SaveGraphAsPostscript(initialfile, plotFunction)
SaveLimmaFile()
SelectPlotSymbols(SpotTypes)
SetLayoutParameters()
SetupPlotKeyBindings(tt, img)
SetupPlotMenus(tt, initialfile, plotFunction, img)
SetWD()
showChangeLog()
showCitations()
showGAL()
showTopTable(..., export = FALSE)
SimplifyContrastsExpression(string)
strstr(haystack, needle)
tclArrayVar()
TclRequire(tclPkg)
TryReadImgProcFile(expr)
UpdateSpotTypesStatus()
UpDownOrBoth()
VennDiagramPlot()
ViewDesignOrContrastsMatrixAsPairs(DesignOrContrasts, designOrContrastsList,
                 parameterizationIndex, contrastsParameterizationIndex
```

```
                 = NULL)
ViewDesignOrContrastsMatrixInTable(DesignOrContrasts, designOrContrastsList,
                 parameterizationIndex, contrastsParameterizationIndex
                 = NULL)
ViewExistingContrastsParameterization()
ViewExistingParameterization()
ViewRNATargets()
ViewSpotTypes()
```

Arguments

`BigfontsForlimmaGUIpresentation`	If set to TRUE, larger fonts are used. However, some font sizes are not controlled by limmaGUI and so must be adjusted in the operating system, e.g. in the Control Panel in Windows under Display, Appearance.
`...`	HTMLplotUsingFunction:arg15, showTopTable:arg1
`AFile`	Flat-file of log-intensities output by marrayTools
`Align`	HTMLplotUsingFunction:arg8
`BG`	HTMLplotUsingFunction:arg13
`Caption`	HTMLplotUsingFunction:arg1
`cex`	ChoosePlotSymbolByClicking:arg2
`contrastsParameterizationIndex`	ViewDesignOrContrastsMatrixInTable:arg4, ViewDesignOrContrastsMatrixAsPairs:arg4
`Contrasts`	GetDesignOrContrasts:arg2
`CurrentNormexpOffsetValue`	GetNormexpOffsetValue:arg1
`designOrContrastsList`	ViewDesignOrContrastsMatrixInTable:arg2, ViewDesignOrContrastsMatrixAsPairs:arg2
`DesignOrContrasts`	ViewDesignOrContrastsMatrixInTable:arg1, ViewDesignOrContrastsMatrixAsPairs:arg1
`Design`	GetDesignOrContrasts:arg1
`export`	showTopTable:arg2
`expr`	TryReadImgProcFile:arg1
`FileName`	A file name.
`File`	HTMLplotUsingFunction:arg2
`GraphAbsoluteDirectory`	HTMLplotUsingFunction:arg4
`GraphBorder`	HTMLplotUsingFunction:arg7
`GraphFileName`	HTMLplotUsingFunction:arg5
`graphFileType`	GetJpegOrPngParams:arg1, GetJpegOrPngX11Params:arg1
`GraphRelativeDirectory`	HTMLplotUsingFunction:arg3
`GraphSaveAs`	HTMLplotUsingFunction:arg6

`haystack`	nstrstr:arg1, strstr:arg1
`header`	See help for read.table
`Height`	HTMLplotUsingFunction:arg11
`img`	SetupPlotMenus:arg1, Resize:arg1, CopyGraph:arg1, SetupPlotKeyBindings:arg2
`index`	deleteItemFromList:arg1
`initialfile`	SaveGraphAsJpeg:arg1, SaveGraphAsPDF:arg1, SaveGraphAsPNG:arg1, SaveGraphAsPostscript:arg1, SetupPlotMenus:arg2
`itemName`	deleteItemFromList:arg1
`list1`	deleteItemFromList:arg1
`MFile`	Flat-file of log-ratios output by marrayTools
`needle`	nstrstr:arg2, strstr:arg2
`NumContrasts`	GetDesignOrContrasts:arg3
`p.value`	A p-value cutoff.
`parameterizationIndex`	GetDesignOrContrasts:arg4, GetComponentsToExportInHTMLreport:arg1, GetDesignOrContrasts:arg4, ViewDesignOrContrastsMatrixInTable:arg3, ViewDesignOrContrastsMatrixAsPairs:arg3
`parameterizationTreeIndex`	GetParametersAndOrContrasts:arg1, ChooseContrastsParameterization:arg1, ChooseSpotType:arg1,GetCoef:arg1, GetParameterNames:arg1, GetReducedDuplicateSpacing:arg1, GetContrastsParameterizationNames:arg1, GetSpotTypesIncludedNames:arg1
`parameterName`	HeatDiagramDialog:arg1
`path`	Path to the directory containing the MFile and AFile
`pkgName`	getPackageVersion:arg1
`pkg`	Require:arg1
`plotFunction`	SetupPlotMenus:arg1, HTMLplotUsingFunction:arg9, Resize:arg1, SaveGraphAsJpeg:arg2, SaveGraphAsPDF:arg2, SaveGraphAsPNG:arg2, SaveGraphAsPostscript:arg2
`plottitle`	GetPlotLabels:arg1,GetPlotTitle:arg1
`PointSize`	HTMLplotUsingFunction:arg12
`quote`	See help for read.table
`res`	HTMLplotUsingFunction:arg14
`sep`	Column separator. ("\t" for tab-delimited text)
`slidenum`	ImageArrayPlotDialog:arg1
`spotType`	ChoosePlotSymbolByClicking:arg1
`SpotTypes`	SelectPlotSymbols:arg1
`string`	fixSeps:arg1,SimplifyContrastsExpression:arg1, GetRNATypesFrom.ContrastsFromDropDowns.Stri
`tclPkg`	TclRequire:arg1
`tt`	SetupPlotKeyBindings:arg1, SetupPlotMenus:arg1
`verbose`	Optional diagnostic messages
`whatFor`	GetParametersAndOrContrasts:arg2
`whichCoef`	GetCoef:arg2
`Width`	HTMLplotUsingFunction:arg10
`xlabel`	GetPlotLabels:arg2
`xlim`	GetNEWxlim:arg1
`ylabel`	GetPlotLabels:arg3

Details

This function launches a Graphical User Interface for the limma package by Gordon Smyth. The GUI uses Tk widgets (via the R TclTk interface by Peter Dalgaard) in order to provide a simple interface to the limma functions for linear modelling of microarrays and identification of differentially expressed genes.

Author(s)

James Wettenhall

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