arrayQualityMetrics

November 11, 2009

R topics documented:

`aqm.boxplot` *Performs boxplots on aqmobj.prepdata objects.*

Description

`aqm.boxplot` performs boxplots, outlier detection from it and formats the output for `aqm.plot` usage.

Usage

```
aqm.boxplot(expressionset, dataprep, intgroup = "Covariate", grouprep = FALSE,
```

Arguments

`expressionset`	Same input as for the function `arrayQualityMetrics`
`dataprep`	An object of class `aqmobj.prepdata`
`intgroup`	Same input as for the function `arrayQualityMetrics`
`grouprep`	Same input as for the function `arrayQualityMetrics`
`...`	Any arguments to `bwplot`

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Value

An object of class `aqmobj.box`.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

`aqm.prepdata`, `aqmobj.prepdata`, `aqmobj.box`

aqm.density *Performs density plots on aqmobj.prepdata objects.*

Description

aqm.density performs density curves, outlier detection from it and formats the output for aqm.plot usage.

Usage

```
aqm.density(expressionset, dataprep, intgroup = "Covariate", grouprep = FALSE,
```

Arguments

expressionset	Same input as for the function arrayQualityMetrics
dataprep	An object of class aqmobj.prepdata
intgroup	Same input as for the function arrayQualityMetrics
grouprep	Same input as for the function arrayQualityMetrics
...	Any arguments to xyplot

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Value

An object of class aqmobj.dens.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

aqm.prepdata, aqmobj.prepdata, aqmobj.dens

aqm.heatmap *Performs dendrogram on aqmobj.prepdata objects.*

Description

aqm.heatmap performs a dendrogram of the distances between arrays, outlier detection from it and formats the output for aqm.plot usage.

Usage

```
aqm.heatmap(expressionset, dataprep, intgroup = "Covariate", ...)
```

Arguments

expressionset	Same input as for the function arrayQualityMetrics
dataprep	An object of class aqmobj.prepdata
intgroup	Same input as for the function arrayQualityMetrics
...	Any arguments to levelplot

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Value

An object of class aqmobj.heat.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

aqm.prepdata, aqmobj.prepdata, aqmobj.heat

---

aqm.maplot *Performs MA-plots on aqmobj.prepdata objects.*

Description

aqm.maplot performs MA-plots, outlier detection from it and formats the output for aqm.plot usage.

Usage

```
aqm.maplot(dataprep, ...)
```

Arguments

dataprep	An object of class aqmobj.prepdata
...	Any arguments to panel.smoothScatter

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Value

An object of class aqmobj.ma.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

aqm.prepdata, aqmobj.prepdata, aqmobj.ma

`aqm.meansd` *Performs Mean/SD plot on aqmobj.prepdata objects.*

Description

`aqm.meansd` performs Mean/SD plot, and formats the output for `aqm.plot` usage.

Usage

```
aqm.meansd(dataprep, ...)
```

Arguments

`dataprep`	An object of class `aqmobj.prepdata`
`...`	Any arguments to `meanSdPlot`

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Value

An object of class `aqmobj.msd`.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

aqm.prepdata, aqmobj.prepdata, aqmobj.msd

`aqm.nuse` *Performs NUSE plot on aqmobj.prepaffy objects.*

Description

`aqm.nuse` performs NUSE boxplots and outlier detection from it and formats the output for `aqm.plot` usage.

Usage

```
aqm.nuse(affyproc, ...)
```

Arguments

affyproc	An object of class aqmobj.prepaffy
...	Any arguments to boxplot

Details

See the aqm.prepaffy help or the aqm Vignette for example of this object.

Value

An object of class aqmobj.nuse

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

aqm.prepaffy, aqmobj.prepaffy, aqmobj.nuse

---

aqmobj.box-class *Class to contain data generated from aqm.boxplot.*

Description

Class to contain data generated from aqm.boxplot.

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Slots

plot: An object of class trellis.object if one channel arrays and a list of trellis.object if several channels arrays.

type: A character string with a name for the section the plot belongs to in the report.

title: A character string with the title of the plot to be written in the report.

legend: A character string with the legend of the plot to be written in the report.

scores: A numeric for each array corresponding to the scores assessed from the plot.

outliers: List or integer of the arrays that are outliers using boxplot.stats on the scores.

shape: A character "square" or "rect" depending on the aspect ratio desired in the report.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

aqm.boxplot, aqm.plot

aqmobj.dens-class *Class to contain data generated from aqm.density.*

Description

Class to contain data generated from aqm.density.

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Slots

plot: An object of class trellis.object if one channel arrays and a list of trellis.object if several channels arrays.

type: A character string with a name for the section the plot belongs to in the report.

title: A character string with the title of the plot to be written in the report.

legend: A character string with the legend of the plot to be written in the report.

shape: A character "square" or "rect" depending on the aspect ratio desired in the report.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

aqm.density, aqm.plot

aqmobj.heat-class *Class to contain data generated from aqm.heatmap.*

Description

Class to contain data generated from aqm.heatmap.

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Slots

plot: An object of class trellis.object.

type: A character string with a name for the section the plot belongs to in the report.

title: A character string with the title of the plot to be written in the report.

legend: A character string with the legend of the plot to be written in the report.

scores: A numeric for each array corresponding to the scores assessed from the plot.

outliers: List or integer of the arrays that are outliers using boxplot.stats on the scores.

shape: A character "square" or "rect" depending on the aspect ratio desired in the report.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

`aqm.heatmap`, `aqm.plot`.

`aqmobj.ma-class` *Class to contain data generated from aqm.maplot.*

Description

Class to contain data generated from aqm.maplot.

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Slots

`plot`: An object of class `trellis.object`.

`type`: A character string with a name for the section the plot belongs to in the report.

`title`: A character string with the title of the plot to be written in the report.

`legend`: A character string with the legend of the plot to be written in the report.

`scores`: A numeric for each array corresponding to the scores assessed from the plot.

`outliers`: List or integer of the arrays that are outliers using boxplot.stats on the scores.

`shape`: A character "square" or "rect" depending on the aspect ratio desired in the report.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

`aqm.maplot`, `aqm.plot`

aqmobj.msd-class *Class to contain data generated from aqm.meansd.*

Description

Class to contain data generated from aqm.meansd.

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Slots

plot: A matrix to be represented calling the MeanSdPlot function.

type: A character string with a name for the section the plot belongs to in the report.

title: A character string with the title of the plot to be written in the report.

legend: A character string with the legend of the plot to be written in the report.

shape: A character "square" or "rect" depending on the aspect ratio desired in the report.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

aqm.meansd, aqm.plot

aqmobj.nuse-class *Class to contain data generated from aqm.nuse.*

Description

Class to contain data generated from aqm.nuse.

Details

See the aqm.prepaffy help or the aqm Vignette for example of this object.

Slots

plot: A matrix to be represented calling the aqm.plot function.

type: A character string with a name for the section the plot belongs to in the report.

title: A character string with the title of the plot to be written in the report.

legend: A character string with the legend of the plot to be written in the report.

scores: A numeric for each array corresponding to the scores assessed from the plot.

outliers: List or integer of the arrays that are outliers using boxplot.stats on the scores.

shape: A character "square" or "rect" depending on the aspect ratio desired in the report.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

`aqm.nuse`, `aqm.plot`

---

aqmobj.pca-class *Class to contain data generated from aqm.pca.*

Description

Class to contain data generated from aqm.pca.

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Slots

`plot`: An object of class `trellis.object`.

`type`: A character string with a name for the section the plot belongs to in the report.

`title`: A character string with the title of the plot to be written in the report.

`legend`: A character string with the legend of the plot to be written in the report.

`shape`: A character "square" or "rect" depending on the aspect ratio desired in the report.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

`aqm.pca`, `aqm.plot`.

---

aqmobj.pmmm-class *Class to contain data generated from aqm.pmmm.*

Description

Class to contain data generated from aqm.pmmm.

Details

See the aqm.pmmm help or the aqm Vignette for example of this object.

Slots

plot: A list to be represented calling the aqm.plot function.

type: A character string with a name for the section the plot belongs to in the report.

title: A character string with the title of the plot to be written in the report.

legend: A character string with the legend of the plot to be written in the report.

shape: A character "square" or "rect" depending on the aspect ratio desired in the report.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

aqm.pmmm, aqm.plot

---

aqmobj.prepaffy-class

Class to contain data generated from aqm.prepaffy.

Description

Container for the output of aqm.prepaffy and for the input of the aqm.rle and aqm.nuse functions.

Details

See the aqm.prepaffy help or the aqm Vignette for example of this object.

Slots

dataPLM: A PLMset.

sN: Integers numbering the arrays to be used to label the plots.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

aqmobj.prepdata-class
Class to contain data generated from aqm.prepdata.

Description

Container for the output of aqm.prepdata and for the input of the aqm functions.

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Slots

M: A matrix of the M values (log-ratio). The log-ratio is computed with the second channel being the median of the intensities across arrays in the case of one channel arrays.

A: A matrix of the A values. The A value is the mean of the two intensities. The second channel is computed as for the M values in the case of one channel arrays.

dat: A matrix with the log-ratio if two channels or the intensities if one channel.

rc: A matrix with the red channel intensities in the case of two channels arrays.

gc: A matrix with the green channel intensities in the case of two channels arrays.

rcb: A matrix with the red channel background intensities if two channels arrays and if available.

gcb: A matrix with the green channel background intensities if two channels arrays and if available.

outM: The distance between each pairs of arrays, computed using dist2 from the genefilter package.

sN: Integers numbering the arrays to be used to label the plots.

numArrays: An integer giving the number of arrays.

nchannels: A numeric giving the number of channels.

logtransformed: A logical telling if the data have been log transformed by the function aqm.prepdata.

classori: A character string of the class of the object that was given as an input of the aqm.prepdata function.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

aqm.prepdata, aqm.boxplot, aqm.density, aqm.heatmap, aqm.maplot, aqm.meansd, aqm.probesmap, aqm.spatial, aqm.spatialbg

aqmobj.probesmap-class *Class to contain data generated from aqm.probesmap.*

Description

Class to contain data generated from aqm.probesmap.

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Slots

plot: An object of class trellis.object.

type: A character string with a name for the section the plot belongs to in the report.

title: A character string with the title of the plot to be written in the report.

legend: A character string with the legend of the plot to be written in the report.

shape: A character "square" or "rect" depending on the aspect ratio desired in the report.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

aqm.probesmap, aqm.plot

aqmobj.qcs-class *Class to contain data generated from aqm.qcs.*

Description

Class to contain data generated from aqm.qcs.

Details

See the aqm.qcstats help or the aqm Vignette for example of this object.

Slots

plot: An object of class trellis.object.

type: A character string with a name for the section the plot belongs to in the report.

title: A character string with the title of the plot to be written in the report.

legend: A character string with the legend of the plot to be written in the report.

shape: A character "square" or "rect" depending on the aspect ratio desired in the report.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

`aqm.qcstats`, `aqm.plot`

---

aqmobj.rle-class *Class to contain data generated from aqm.rle.*

Description

Class to contain data generated from aqm.rle.

Details

See the aqm.prepaffy help or the aqm Vignette for example of this object.

Slots

`plot`: An object of class `trellis.object`.

`type`: A character string with a name for the section the plot belongs to in the report.

`title`: A character string with the title of the plot to be written in the report.

`legend`: A character string with the legend of the plot to be written in the report.

`scores`: A numeric for each array corresponding to the scores assessed from the plot.

`outliers`: List or integer of the arrays that are outliers using boxplot.stats on the scores.

`shape`: A character "square" or "rect" depending on the aspect ratio desired in the report.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

`aqm.rle`, `aqm.plot`

aqmobj.rnadeg-class

Class to contain data generated from aqm.rnadegplot.

Description

Class to contain data generated from aqm.rnadegplot.

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Slots

plot: A list to be represented calling the plotAffyRNAdeg function.

type: A character string with a name for the section the plot belongs to in the report.

title: A character string with the title of the plot to be written in the report.

legend: A character string with the legend of the plot to be written in the report.

shape: A character "square" or "rect" depending on the aspect ratio desired in the report.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

aqm.rnadeg, aqm.plot

aqmobj.spatialbg-class

Class to contain data generated from aqm.spatialbg.

Description

Class to contain data generated from aqm.spatialbg.

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Slots

plot: An object of class trellis.object if one channel arrays and a list of trellis.object if several channels arrays.

type: A character string with a name for the section the plot belongs to in the report.

title: A character string with the title of the plot to be written in the report.

legend: A character string with the legend of the plot to be written in the report.

shape: A character "square" or "rect" depending on the aspect ratio desired in the report.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

`aqm.spatialbg`, `aqm.plot`

`aqmobj.spatial-class`
Class to contain data generated from aqm.spatial.

Description

Class to contain data generated from aqm.spatial.

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Slots

`plot`: An object of class `trellis.object` if one channel arrays and a list of trellis.object if several channels arrays.

`type`: A character string with a name for the section the plot belongs to in the report.

`title`: A character string with the title of the plot to be written in the report.

`legend`: A character string with the legend of the plot to be written in the report.

`scores`: A numeric for each array corresponding to the scores assessed from the plot.

`outliers`: List or integer of the arrays that are outliers using boxplot.stats on the scores.

`shape`: A character "square" or "rect" depending on the aspect ratio desired in the report.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

`aqm.spatial`, `aqm.plot`

aqm.pca — *Performs Principal Component Analysis on aqmobj.prepdata objects.*

Description

aqm.pca performs a PCA of the arrays and formats the output for aqm.plot usage.

Usage

```
aqm.pca(expressionset, dataprep, intgroup = "Covariate", ...)
```

Arguments

expressionset	Same input as for the function arrayQualityMetrics
dataprep	An object of class aqmobj.prepdata
intgroup	Same input as for the function arrayQualityMetrics
...	Any arguments to levelplot

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Value

An object of class aqmobj.pca.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

aqm.prepdata, aqmobj.prepdata, aqmobj.pca

aqm.plot — *Performs plots from aqm objects.*

Description

aqm.plot performs plots.

Usage

```
## S4 method for signature 'aqmTrellis':
aqm.plot(obj)

aqm.plot(obj)

## S4 method for signature 'aqmobj.box':
aqm.plot(obj)
## S4 method for signature 'aqmobj.dens':
aqm.plot(obj)
## S4 method for signature 'aqmobj.msd':
aqm.plot(obj)
## S4 method for signature 'aqmobj.nuse':
aqm.plot(obj)
## S4 method for signature 'aqmobj.pmmm':
aqm.plot(obj)
## S4 method for signature 'aqmobj.qcs':
aqm.plot(obj)
## S4 method for signature 'aqmobj.rle':
aqm.plot(obj)
```

Arguments

obj	an object of class aqmobj

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Value

A plot in the x11 device.

Author(s)

Audrey Kauffmann. Maintainer: <audrey@ebi.ac.uk>

---

aqm.pmmm *Performs perfect match versus mismatch density plots.*

Description

aqm.pmmm performs PM MM density curves on objects of class AffyBatch and formats the output for aqm.plot usage.

Usage

```
aqm.pmmm(expressionset, ...)
```

Arguments

expressionset	is an object of class AffyBatch
...	Any arguments to density

Value

An object of class aqmobj.pmmm.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

aqmobj.pmmm

Examples

```
library(ALLMLL)
data(MLL.A)
pm = aqm.pmmm(MLL.A)
class(pm)
aqm.plot(pm)
```

---

aqm.prepaffy *Preparation of Affymetrix experiments for RLE and NUSE.*

Description

aqm.prepaffy performs data preprocessing on AffyBatch and formats the output for aqm.rle and aqm.nuse usage.

Usage

```
aqm.prepaffy(expressionset, sN)
```

Arguments

expressionset	is an object of class AffyBatch
sN	are the sample names to be written on the plots

Value

A preprocessed affy object of class aqmobj.prepaffy.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

aqm.rle, aqm.nuse

Examples

```
library(ALLMLL)
data(MLL.A)
MLLaffyprep = aqm.prepaffy(MLL.A, sampleNames(MLL.A))
nuse = aqm.nuse(MLLaffyprep)
class(nuse)
aqm.plot(nuse)
```

---

aqm.prepdata *Generate an object aqmobj.prepdata to be called by the aqm functions.*

Description

aqm.prepdata formats an ExpressionSet, an AffyBatch, a NChannelSet, or a BeadLevelList into a aqmobj.prepdata object which can be used as an input of the aqm functions.

Usage

```
## S4 method for signature 'ExpressionSet':
aqm.prepdata(expressionset, do.logtransform)

aqm.prepdata(expressionset, do.logtransform = TRUE)

## S4 method for signature 'AffyBatch':
aqm.prepdata(expressionset, do.logtransform)
## S4 method for signature 'NChannelSet':
aqm.prepdata(expressionset, do.logtransform)
## S4 method for signature 'BeadLevelList':
aqm.prepdata(expressionset, do.logtransform)
## S4 method for signature 'aqmOneCol':
aqm.prepdata(expressionset, do.logtransform)
```

Arguments

expressionset
: An object of class ExpressionSet for one colour non Affymetrix data, AffyBatch for Affymetrix data, NChannelSet for two colour arrays, or BeadLevelList for Illumina bead arrays.

do.logtransform
: TRUE or FALSE whether or not you want to log transform the data.

Value

An object of class aqmobj.prepdata.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

aqmobj.prepdata, aqm.boxplot, aqm.density, aqm.heatmap, aqm.maplot, aqm.meansd, aqm.probesmap, aqm.spatial, aqm.spatialbg

Examples

```
## Load an example of a NChannelSet
library(CCl4)
data(CCl4)

## Normalization of CCl4 using vsn
library(vsn)
CCl4norm = justvsn(CCl4, subsample=2000)

## Add a column in the phenoData to annotate samples
cond = paste(pData(CCl4norm)$RIN.Cy3,pData(CCl4norm)$RIN.Cy5,sep="/")
poor = grep(cond,pattern="2.5")
medium = grep(cond,pattern="^5/|/5")
good = grep(cond,pattern="9.7")
cov = rep(0, length = nrow(pData(CCl4norm)))
cov[good] = "Good"
cov[medium] = "Medium"
cov[poor] = "Poor"
phenoData(CCl4norm)$RNAintegrity = cov

## Add X and Y columns in the featureData to allow spatial representations
featureData(CCl4norm)$X = featureData(CCl4norm)$Row
featureData(CCl4norm)$Y = featureData(CCl4norm)$Column

## Add a hasTarget column in the featureData to call aqm.probesmap
featureData(CCl4norm)$hasTarget = (regexpr("^NM",
                                   featureData(CCl4norm)$Name)> 0)

## Prepare the data for aqm.xxx calls
CCl4prep = aqm.prepdata(CCl4norm, do.logtransform = FALSE)

## Draw MA plots
ma = aqm.maplot(dataprep = CCl4prep)
class(ma)
aqm.plot(ma)

## Draw heatmap making use of the RNAintegrity
## column of the phenoData
hm = aqm.heatmap(expressionset = CCl4norm,
                 dataprep = CCl4prep,
                 intgroup = "RNAintegrity")
class(hm)
aqm.plot(hm)

## Draw probes mapping density curves making use of the hasTarget
## column of the featureData
sp = aqm.spatial(expressionset = CCl4norm,
                 dataprep = CCl4prep,
                 scale = "Rank")
class(sp)
aqm.plot(sp)
```

```
## Draw probes mapping density curves making use of the hasTarget
## column of the featureData
pm = aqm.probesmap(expressionset = CCl4norm, dataprep = CCl4prep)
class(pm)
aqm.plot(pm)
```

`aqm.probesmap` *Performs probes mapping on aqmobj.prepdata objects.*

Description

`aqm.probesmap` performs probes mapping, and formats the output for `aqm.plot` usage.

Usage

```
aqm.probesmap(expressionset, dataprep, ...)
```

Arguments

`expressionset`	Same input as for the function `arrayQualityMetrics`
`dataprep`	An object of class `aqmobj.prepdata`
`...`	Any arguments to `densityplot`

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Value

An object of class `aqmobj.probesmap`

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

`aqm.qcstats` *Performs QCstats plot on AffyBatch.*

Description

`aqm.qcstats` performs QCstats on objects of class `AffyBatch` and formats the output for `aqm.plot` usage.

Usage

```
aqm.qcstats(expressionset, ...)
```

Arguments

expressionset	is an object of class AffyBatch
...	Any arguments to qc

Value

An object of class aqmobj.qcs.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

aqmobj.qcs

Examples

```
library(ALLMLL)
data(MLL.A)
qm = aqm.qcstats(MLL.A)
class(qm)
aqm.plot(qm)
```

---

aqm.rle *Performs RLE plot on aqmobj.prepaffy objects.*

Description

aqm.rle performs RLE boxplots and outlier detection from it and formats the output for aqm.plot usage.

Usage

```
aqm.rle(affyproc, ...)
```

Arguments

affyproc	An object of class aqmobj.prepaffy
...	Any arguments to Mbox

Details

See the aqm.prepaffy help or the aqm Vignette for example of this object.

Value

An object of class aqmobj.rle

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

aqm.prepaffy, aqmobj.prepaffy, aqmobj.rle

---

aqm.rnadeg *Performs RNA degradation plot on AffyBatch.*

Description

aqm.rnadeg performs RNA degradation on objects of class AffyBatch and formats the output for aqm.plot usage.

Usage

```
aqm.rnadeg(expressionset, ...)
```

Arguments

expressionset	is an object of class AffyBatch
...	Any arguments to AffyRNAdeg

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Value

An object of class aqmobj.rnadeg.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

aqmobj.rnadeg

`aqm.spatialbg` *Performs spatial distribution representation of background intensities of the arrays from aqmobj.prepdata objects.*

Description

`aqm.spatialbg` performs representation of the spatial distribution of the background intensities on the arrays, outlier detection and formats the output for `aqm.plot` usage.

Usage

```
aqm.spatialbg(expressionset, dataprep, scale)
```

Arguments

`expressionset`	Same input as for the function `arrayQualityMetrics`
`dataprep`	An object of class `aqmobj.prepdata`
`scale`	The spatial distribution can be represented on the rank of the intensities or on the logarithm scale. Possible options are thus 'Rank' and 'Log'.

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Value

An object of class `aqmobj.spatialbg`.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

`aqm.prepdata`, `aqmobj.prepdata`, `aqmobj.spatialbg`

`aqm.spatial` *Performs spatial distribution representation of the arrays from aqmobj.prepdata objects.*

Description

`aqm.spatial` performs representation of the spatial distribution of the intensities on the arrays, outlier detection and formats the output for `aqm.plot` usage.

Usage

```
aqm.spatial(expressionset, dataprep, scale)
```

Arguments

expressionset	Same input as for the function arrayQualityMetrics
dataprep	An object of class aqmobj.prepdata
scale	The spatial distribution can be represented on the rank of the intensities or on the logarithm scale. Possible options are thus 'Rank' and 'Log'.

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Value

An object of class aqmobj.spatial.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

aqm.prepdata, aqmobj.prepdata, aqmobj.spatial

---

aqm.writereport *Writes a report from objects produced with aqm.xxx functions.*

Description

aqm.writereport performs an html report from a list of aqmobj objects. It includes a summary with the outliers detected, titles, plots and legends.

Usage

```
aqm.writereport(name, expressionset, obj)
```

Arguments

name	A name to customize the title of the report that will be "name quality metrics report"
expressionset	The expressionset on which the metrics have been run
obj	A list of aqmobj.xxx objects

Value

An html report named 'QMreport.html' in the working directory.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

Examples

```
library("ALLMLL")
data(MLL.A)
MLLprep = aqm.prepdata(MLL.A, TRUE)
bo = aqm.boxplot(MLL.A, MLLprep)
de = aqm.density(MLL.A, MLLprep)
obj = list("Boxplot" = bo, "Density" = de)
aqm.writereport("Test", MLL.A, obj)
```

---

arrayQualityMetrics

Quality metrics on microarray experiments

Description

arrayQualityMetrics performs quality metrics on ExpressionSet, AffyBatch, NChannelSet, BeadLevelList, RGList, MAList, aqmInputObj, marrayRaw or marrayNorm containing microarray data from any platforms, one or two channels. The results, presented in a HTML report, are designated to allow the user to rapidly assess the quality of a set of arrays.

Usage

```
## S4 method for signature 'ExpressionSet':
arrayQualityMetrics(expressionset, outdir,
force, do.logtransform, intgroup, grouprep)

arrayQualityMetrics(expressionset,
                    outdir = getwd(),
                    force = FALSE,
                    do.logtransform = FALSE,
                    intgroup = "Covariate",
                    grouprep = FALSE)

## S4 method for signature 'AffyBatch':
arrayQualityMetrics(expressionset, outdir, force,
do.logtransform, intgroup, grouprep)
## S4 method for signature 'NChannelSet':
arrayQualityMetrics(expressionset, outdir,
force, do.logtransform, intgroup, grouprep)
## S4 method for signature 'BeadLevelList':
arrayQualityMetrics(expressionset, outdir,
force, do.logtransform, intgroup, grouprep)
## S4 method for signature 'RGList':
arrayQualityMetrics(expressionset, outdir,
force, do.logtransform, intgroup, grouprep)
## S4 method for signature 'MAList':
arrayQualityMetrics(expressionset, outdir,
force, do.logtransform, intgroup, grouprep)
## S4 method for signature 'aqmInputObj':
arrayQualityMetrics(expressionset, outdir,
force, do.logtransform, intgroup, grouprep)
```

```
## S4 method for signature 'marrayRaw':
arrayQualityMetrics(expressionset, outdir,
force, do.logtransform, intgroup, grouprep)
## S4 method for signature 'marrayNorm':
arrayQualityMetrics(expressionset, outdir,
force, do.logtransform, intgroup, grouprep)
```

Arguments

expressionset	is an object of class ExpressionSet, AffyBatch , NChannelSet , BeadLevelList , RGList , MAList , aqmInputObj , marrayRaw or marrayNorm .
outdir	is the name of the directory in which the results are created.
force	if TRUE, outdir will be overwritten if it already exists.
do.logtransform	If TRUE, the data are log transformed before the analysis.
intgroup	Name of the column of the phenoData to be used to draw a colour side bar next to the heatmap.
grouprep	Decide if you want the boxplots and density plots to be coloured function of the groups set by 'intgroup'. The default is FALSE meaning that the boxplot and density plots will not be represented function of the groups of 'intgroup'.

Details

See the arrayQualityMetrics Vignette for examples of this function.

Value

A directory outdir containing a HTML report named QMreport.html and all the PNG and PDF plots is created.

Author(s)

Audrey Kauffmann, Wolfgang Huber. Maintainer: <audrey@ebi.ac.uk>

---

addXYfromGAL *Computing the coordinates of the spots on a slide*

Description

From the coordinates of the blocks of a microarray slide and the Row and Column locations of the spots within the blocks, addXYfromGAL computes the X and Y coordinates of the spots of a slide.

Usage

```
addXYfromGAL(x, gal.file, nBlocks, skip, ...)
```

Arguments

x	is an AnnotatedDataFrame representing the featureData of an object.
gal.file	name of the file .gal that contains the coordinates of the blocks.
nBlocks	number of blocks on the slide.
skip	number of header lines to skip when reading the gal.file.
...	Arguments that get passed on to read.table.

Value

The object x of class AnnotatedDataFrame will be returned with two added columns: X and Y corresponding to the absolute position of the probes on the array.

Author(s)

Audrey Kauffmann, Wolfgang Huber. Maintainer: <audrey@ebi.ac.uk>

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