

CNTools

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CNSeg-class

Class "CNSeg" contains the output of DNACopy segmentation data that can be operated on by the associated methods

Description

Segmentation results of copy number data can not be operated by other analysis tools such as classification. The class "CNSeg" provides methods to convert segmentation data into a (what is called Reduced segments (RS))matrix format so that other computations can be performed

Objects from the Class

Objects can be created by calls of the form `new("CNSeg", ...)`. A constructor `CNSeg(segList)` can also be used to instantiate CNSeg object

Slots

`segList`: Object of class "data.frame" is the "output" element of the object return by the segment function of DNACopy

Methods

`getRS` signature(object = "CNSeg"): get the Reduced Segment data matrix

`segList` signature(object = "CNSeg"): get the value for slot "segList" of a CNSeg object

`segList<-` signature(object = "CNSeg"): set the value for slot "segList" of a CNSeg object

`show` signature(object = "CNSeg"): print a CNSeg object

Author(s)

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References

NA

See Also

[RS](#)

Examples

```

data("sampleData")
# take a subset of the data for speed
seg <- CNSeg(sampleData[which(is.element(sampleData[, "ID"], sample(unique(sampleData[, "ID"])))], "ID"), sample(unique(sampleData[, "ID"])))
rsBypair <- getRS(seg, by = "pair", imput = FALSE, XY = FALSE)
rsBypair

```

getCor-methods	<i>Method that extends the cor function of stats to handle reduced segment data</i>
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Description

getCor gets data contained by an RS object ready and then calls the cor function for correlation calculations

Methods

x = "ANY" see function cor of stats
x = "RS" method that handles RS objects

diffBy-methods	<i>A filter that filters out features that do not differ by a set threshold between a pair of samples</i>
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Description

madFilter With a given threshold, the method checks each pair of samples to exclude features that do not differ by the threshold between two samples. This filter is only applicable to pairs of reduced segments

Methods

object = "ANY" not implemented yet
object = "RS" method that handles RS objects

dist-methods	<i>A method that extends the generic function dist to handle reduced segments</i>
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Description

getDist gets the data contained by an RS object ready to be passed to the generic function for distance calculations

Methods

x = "ANY" see dist of stats
x = "RS" takes an RS object and then call the dist function of stats for distance calculations

genefilter-methods *~~ Methods for Function genefilter ~~*

Description

~~ Methods for function genefilter ~~

Methods

expr = "RS" *~~describe this method here*

getRS-methods *method that convert segment data into reduced segment matrix*

Description

getRS takes a CNSeg object containing the output of the segment function of DNACopy and format the data into a matrix based on overlapping chromosome region (by = region", gene (by = gene) or pair overlapping chromosome region (by = pair)

Methods

object = "CNSeg" a reduced segment can be generated in three ways; by chromosomal regions that overlap across sample (by = region), by genes (by = gene), or by pair of samples with chromosome regions aligned (by = pair). User may choose to imput cells (by region or gene only) where a value can not be assigned by setting imput = TRUE. The X and Y chromosomes can dropped by stting XY = FALSE.

madFilter-methods *Method that filters reduced segment matrix by the mean absolute deviation*

Description

madFilter calculates the mean absolute deviation across samples for each rows and drops rows that are not above percentile defined by a user

Methods

object = "ANY" not implemented yet

object = "RS" method that handles RS objects

 RS-class

Class "RS" contains the Reduced Segment data matrix derived from the output of segmentation

Description

The class contains the Reduced Segment data matrix derived from the output of the segment method of DNACopy and provides functions to manipulate the data or perform other computational operations

Objects from the Class

Objects can be created by calls of the form `new("RS", ...)`. A constructor `RS(rs, by, imput, XY)` can also be used to instantiate an object of this class

Slots

rs: Object of class "ANY" either a matrix if the RS is by region or gene or a list of matrix if the RS is by sample pairs

by: Object of class "character" a character string indicating how the RS matrix is obtained. Valid values include region, gene, or pair

Methods

cor signature(x = "RS"): Calculates the sample wise correlation coefficients using the Reduced Segment matrix

dist signature(x = "RS"): Calculates the distance between samples contained in the Reduced Segment matrix

genefilter signature(expr = "RS"): filters features by calling the genefilter function

madFilter signature(object = "RS"): filters features by mean absolute deviation

rs signature(object = "RS"): get method for the by slot of an RS object

rs<- signature(object = "RS"): assignment method for the rs slot

segBy signature(object = "RS"): get method for the by slot of an RS object

show signature(object = "RS"): show method for an RS object

Author(s)

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See Also

[CNSeg](#)

Examples

```
data("sampleData")
# take a subset of the data for speed
seg <- CNSeg(sampleData[which(is.element(sampleData[, "ID"], sample(unique(sampleData[, "ID"])))], "ID"), "ID")
rsByregion <- getRS(seg, by = "region", imput = TRUE, XY = FALSE)
rsByregion
```

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