

Package ‘coMET’

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Type Package

Title coMET: visualisation of regional epigenome-wide association scan (EWAS) results and DNA co-methylation patterns

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Description Visualisation of EWAS results in a genomic region. In addition to phenotype-association P-values, coMET also generates plots of co-methylation patterns and provides a series of annotation tracks. It can be used to other omic-wide association scans as long as the data can be translated to genomic level and for any species.

Depends R, grid, utils, biomaRt, Gviz, psych, ggbio, trackViewer

Suggests knitr, RUnit, BiocGenerics, BiocStyle

Imports colortools, hash, grDevices, gridExtra, rtracklayer, IRanges, S4Vectors, GenomicRanges, ggplot2, stats, corplot

License GPL (>= 2)

URL <http://epigen.kcl.ac.uk/comet>

biocViews Software, DifferentialMethylation, Visualization, Sequencing, Genetics, FunctionalGenomics, Microarray, MethylationArray, MethylSeq, ChIPSeq, DNASEq, RiboSeq, RNASEq, ExomeSeq, DNAMethylation, GenomeWideAssociation

VignetteBuilder knitr

NeedsCompilation no

Repository Bioconductor

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coMET-package	<i>visualisation of regional epigenome-wide association scan (EWAS) results and DNA co-methylation patterns (and also for other omic-WAS)</i>
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Description

coMET is an R package for visualising EWAS results in a genomic region. Along with phenotype-association plots, coMET also generates plots of co-methylation patterns and provides a series of annotation tracks. The software is designed for epigenetic data, but can also be applied to genomic and functional genomic datasets (other omic-WAS results) in any species.

Details

Package: coMET
Type: Package
Version: 1.5.7
Date: 2016-07-04
License: GPL (>=2)

coMET is an R package that can generate regional plots of EWAS results, DNA co-methylation patterns, and genomic information. A coMET figure includes 3 panels with a plot of P-values from EWAS, customized annotation tracks, and a triangle heatmap plot which demonstrates the correlation structure of DNA methylation at the CpG sites in the genomic region. Plots are created as PDF or EPS files.

Author(s)

Tiphaine C. Martin, Thomas Hardiman, Idil Yet, Pei-Chien Tsai, Jordana T. Bell

Maintainer: Tiphaine Martin <tiphaine.martin@kcl.ac.uk>

Website: <http://www.epigen.kcl.ac.uk/comet>

References

Martin, T.C, Yet, I, Tsai, P-C, Bell, J.T., coMET: visualisation of regional epigenome-wide association scan results and DNA co-methylation patterns, BMC bioinformatics, 2015.

Examples

```
extdata <- system.file("extdata", package="coMET", mustWork=TRUE)
configfile <- file.path(extdata, "config_cyp1b1_zoom_4comet.txt")
myinfofile <- file.path(extdata, "cyp1b1_infofile.txt")
myexpressfile <- file.path(extdata, "cyp1b1_infofile_exprGene_region.txt")
mycorrelation <- file.path(extdata, "cyp1b1_res37_rawMatrix.txt")

chrom <- "chr2"
start <- 38290160
end <- 38303219
gen <- "hg38"
```

```

if(interactive()){
  genetrack <-genesENSEMBL(gen,chrom,start,end,showId=TRUE)
  snptrack <- snpBiomart(chrom, start, end,
    dataset="hsapiens_snp_som",showId=FALSE)
  strutrack <- structureBiomart(chrom, start, end,
    strand, dataset="hsapiens_structvar_som")
  clinVariant<-ClinVarMainTrack(gen,chrom,start,end)
  clinCNV<-ClinVarCnvTrack(gen,chrom,start,end)
  gwastrack <-GWASTrack(gen,chrom,start,end)
  geneRtrack <-GeneReviewsTrack(gen,chrom,start,end)

  listgviz <- list(genetrack,snptrack,strutrack,clinVariant,
    clinCNV,gwastrack,geneRtrack)

  comet(config.file=configfile, mydata.file=myinfofile, mydata.type="listfile",
    cormatrix.file=mycorrelation, cormatrix.type="listfile",
    mydata.file=myexpressfile, mydata.large.type="listfile",
    tracks.gviz=listgviz,
    verbose=FALSE, print.image=FALSE,disp.pvalueplot=TRUE)
} else {
  data(geneENSEMBLtrack)
  data(snpBiomarttrack)
  data(ISCATrack)
  data(strucBiomarttrack)
  data(ClinVarCnvTrack)
  data(clinVarMaintrack)
  data(GWASTrack)
  data(GeneReviewTrack)

  listgviz <- list(genetrack,snptrack,strutrack,clinVariant,
    clinCNV,gwastrack,geneRtrack)
  comet(config.file=configfile, mydata.file=myinfofile, mydata.type="listfile",
    cormatrix.file=mycorrelation, cormatrix.type="listfile",
    mydata.large.file=myexpressfile, mydata.large.type="listfile",
    tracks.gviz=listgviz,
    verbose=FALSE, print.image=FALSE,disp.pvalueplot=TRUE)
}

```

bindingMotifsBiomart_ENSEMBL

Creates a binding motif track from ENSEMBL

Description

Creates a binding motif track from ENSEMBL using the Gviz bioconductor package. A complete list of features and their associated colours can be found in the user guide.

Usage

```
bindingMotifsBiomart_ENSEMBL(gen, chr, start, end, featureDisplay="all", datasetEnsembl = NULL)
```

Arguments

gen	The name of the genome. Currently only handles human data from either the previous version, GRCh37 (also known as hg19) or the current version, GRCh38 (also known as hg38).
chr	The chromosome of interest
start	The starting position in the region of interest (the smallest value)
end	The end position in the region of interest (the largest value)
featureDisplay	A vector of regulatory features to be displayed, such as Egr1. Spelling and capitalisation of features must be identical to those in the user guide. There are three possibilities. First, the visualisation of only one feature (e.g. featureDisplay <- "CTCF"), only the name of the specific feature is required. Second, visualisation of a set of features, for this a vector of features is required (e.g. featureDisplay <- c("Egr1","CTCF")). Finally, visualisation all features in the genomic region, achieved by using the word "all" (e.g. featureDisplay <- "all"), "all" is set by default. You can find the complete list of features and their associated colours in the user guide.
datasetEnsembl	Allows the user to manually set which data set is used if required.

Value

An AnnotationTrack object of Gviz

Author(s)

Tiphaine Martin

Tom Hardiman

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

Got to ENSEMBLregulation binding motif biomart

Examples

```
library("Gviz")
gen <- "hg38"
chr <- "chr1"
start <- 10000
end <- 50000
featureDisplay <- "CTCF"

if(interactive()){
  bindMotifsBiomartTrackSingle<-bindingMotifsBiomart_ENSEMBL(gen,chr,start,end,featureDisplay)
  plotTracks(bindMotifsBiomartTrackSingle, from = start, to = end)
} else {
  data(bindMotifsBiomartTrackSingle)
  plotTracks(bindMotifsBiomartTrackSingle, from = start, to = end)
}

#####

library("Gviz")
```

```

gen <- "hg38"
chr <- "chr1"
start <- 10000
end <- 50000
featureDisplay <- c("CTCF","Egr1")

if(interactive()){
  bindMotifsBiomartTrackMultiple<-bindingMotifsBiomart_ENSEMBL(gen,chr,start,end,featureDisplay)
  plotTracks(bindMotifsBiomartTrackMultiple, from = start, to = end)
} else {
  data(bindMotifsBiomartTrackMultiple)
  plotTracks(bindMotifsBiomartTrackMultiple, from = start, to = end)
}

#####

library("Gviz")
gen <- "hg38"
chr <- "chr1"
start <- 10000
end <- 50000
featureDisplay <- "all"

if(interactive()){
  bindMotifsBiomartTrackAll<-bindingMotifsBiomart_ENSEMBL(gen,chr,start,end,featureDisplay)
  plotTracks(bindMotifsBiomartTrackAll, from = start, to = end)
} else {
  data(bindMotifsBiomartTrackAll)
  plotTracks(bindMotifsBiomartTrackAll, from = start, to = end)
}

```

ChIPTF_ENCODE

Creates a TF motif track from ENCODE

Description

Creates a track of TF motifs from ENCODE using the Gviz bioconductor package. A complete list of features and their associated colours can be found in the user guide.

Usage

```
ChIPTF_ENCODE(gen="hg19", chr, start, end, bedFilePath, featureDisplay='all', motifColorFile, typ
```

Arguments

gen	the name of the genome. Default value=hg19
chr	The chromosome of interest
start	The starting position in the region of interest (the smallest value)
end	The end position in the region of interest (the largest value)
bedFilePath	The path of the BED file from Kheradpour and Kellis, 2014.

featureDisplay	A vector of regulatory features to be displayed, such as Predicted heterochomatin. Spelling and capitalisation of features must be identical to those in the user guide. There are three possibilities. First, the visualisation of only one feature (e.g. featureDisplay <- "Predicted heterochomatin"), only the name of the specific feature is required. Second, visualisation of a set of features, for this a vector of features is required (e.g. featureDisplay <- c("Predicted low activity", "Predicted heterochomatin")). Finally, visualison all features in the genomic region, achived by using the word "all" (e.g. featureDisplay <- "all"), "all" is set by default. You can find the complete list of features and their associated colours in the user guide.
motifColorFile	The path of the BED file with 2 columns (the first for motif name and the second for the color in hex format without \# in the beginning) with a header.
type_stacking	Object of class"character", the stacking type of overlapping items on the final plot. One in c(hide, dense, squish, pack, full). More information of the option "stacking" in Gviz
showId	logical. say if we write the name of group
just_group	position. say where we write the name of group (choice in c("above", "righ", "left"))

Value

An AnnotationTrack object of Gviz

Author(s)

Tiphaine Martin

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

Got to BindingMotifsBiomart binding motif biomart

Examples

```
library("Gviz")
gen <- "hg19"
chr <- "chr1"
start <- 1000
end <- 329000

if(interactive()){
  extdata <- system.file("extdata", package="coMET", mustWork=TRUE)
  bedFilePath <- file.path(extdata, "ENCODE/motifs1000_matches_ENCODE.txt")
  motif_color <- file.path(extdata, "ENCODE/TFmotifs_colors.csv")
  chipTFtrack <- ChIPTF_ENCODE(gen, chr, start, end, bedFilePath, featureDisplay=c("AHR::ARNT::HIF1A_1", "AIR"))
  plotTracks(chipTFtrack, from = start, to = end)
} else {
  data(chipTFtrack)
  plotTracks(chipTFtrack, from = start, to = end)
}
```

chromatinHMMAll_UCSC *Creating multiple chromHMM tracks from the UCSC genome browser*

Description

Create multiple chromHMM Broad tracks by connecting to the UCSC genome browser using the GViz bioconductor package

Usage

```
chromatinHMMAll_UCSC(gen, chr, start, end, mySession, color='coMET', pattern = NULL, table.name = N
```

Arguments

gen	the name of the genome
chr	the chromosome of interest
start	the first position in region of interest (the smallest value)
end	the last position in region of interest (the biggest value)
mySession	the object session from the function browserSession of rtracklayer
color	the colour scheme used for plots. By default this is set to 'coMET' to allow easy identification of different elements. The colour scheme set by UCSC can also be used. Consult userguide for table of colours.
pattern	the pattern of the track to visualise
table.name	the name of the table from the track

Value

list of AnnotationTrack objects of GViz

Author(s)

Tiphaine Martin

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

http://genome-euro.ucsc.edu/cgi-bin/hgTrackUi?hgsid=202839739_2hYQ1BAOuBMAR620GjrtdrFAy6dn&c=chr6&g=

See Also

[chromatinHMMOne_UCSC](#)

Examples

```

library("Gviz")
library(rtracklayer)
gen <- "hg19"
chr <- "chr2"
start <- 38290160
end <- 38313219
if(interactive()){
  BROWSER.SESSION="UCSC"
  mySession <- browserSession(BROWSER.SESSION)
  genome(mySession) <- gen
  track.name="Broad ChromHMM"
  tabletrack<-tableNames(ucscTableQuery(mySession, track=track.name))
  table.name<-tabletrack[1]
  PATTERN.REGULATION<-"GM12878"

  chromhmmPattern<-chromatinHMMAll_UCSC(gen,chr,start,end,mySession,color='coMET',PATTERN.REGULATION)
  plotTracks(chromhmmPattern, from = start, to =end)

  chromhmmNoPattern<-chromatinHMMAll_UCSC(gen,chr,start,end,mySession,color='coMET')
  plotTracks(chromhmmNoPattern, from = start, to =end)
} else {

  data(chromhmmPattern)
  plotTracks(chromhmmPattern, from = start, to =end)

  data(chromhmmNoPattern)
  plotTracks(chromhmmNoPattern, from = start, to =end)
}

```

chromatinHMMOne_UCSC *Creating one chromHMM track from the UCSC genome browser*

Description

Create one track of only one type of chromHMM Broad element from the UCSC genome browser using the Gviz bioconductor package

Usage

```
chromatinHMMOne_UCSC(gen, chr, start, end, mySession, color="coMET", table.name = NULL)
```

Arguments

gen	the name of the genome. Data is not currently available for GRCh38 (hg38).
chr	the chromosome of interest
start	the first position in region of interest (the smallest value)
end	the last position in region of interest (the biggest value)
mySession	the object session from the function browserSession of rtracklayer
color	the color scheme used for plots. By default this is set to 'coMET' to allow easy indentification of different elements. The color scheme set by UCSC can also be used. Consult userguide for table of colors.
table.name	the name of the table from the track

Value

An AnnotationTrack object of Gviz

Author(s)

Tiphaine Martin

Tom Hardiman

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

http://genome-euro.ucsc.edu/cgi-bin/hgTrackUi?hgsid=202839739_2hYQ1BAOuBMAR620GjrtdrFAy6dn&c=chr6&g=

See Also

[chromatinHMMAll_UCSC](#)

Examples

```
library("Gviz")
library("rtracklayer")
gen <- "hg19"
chr <- "chr2"
start <- 38290160
end <- 38303219
color <- "coMET"

if(interactive()) {
  BROWSER.SESSION="UCSC"
  mySession <- browserSession(BROWSER.SESSION)
  genome(mySession) <- gen
  track.name="Broad ChromHMM"
  tablestrack<-tableNames(ucscTableQuery(mySession, track=track.name))
  table.name<-tablestrack[1]
  chromhmmtrackone<-chromatinHMMOne_UCSC(gen,chr,start,end,mySession,color="coMET",table.name)
  plotTracks(chromhmmtrackone, from = start, to =end)
}else {
  data(chromhmmtrackone)
  plotTracks(chromhmmtrackone, from = start, to =end)
}
```

chromHMM_RoadMap

Creates a ChromHMM track from a file of RoadMap

Description

Creates a ChromHMM track from a file of RoadMap using the Gviz bioconductor package. A complete list of features and their associated colours can be found in the user guide.

Usage

```
chromHMM_RoadMap(gen="hg19",chr, start, end, bedFilePath, featureDisplay = 'all', colorcase='road
```

Arguments

gen	the name of the genome. Default value=hg19
chr	The chromosome of interest
start	The starting position in the region of interest (the smallest value)
end	The end position in the region of interest (the largest value)
bedFilePath	The file path to the .BED file containing the data to be visualised
featureDisplay	A vector of features to be displayed, such as 1_TssA. Spelling and capitalisation of features must be identical to those in the user guide (in the 'State & Acronym' column). There are three possibilities. First, the visualisation of only one feature (e.g. featureDisplay <- "1_TssA"), only the name of the specific feature is required. Second, visualisation of a set of features, for this a vector of features is required (e.g. featureDisplay <- c("1_TssA","2_TssAFlnk")). Finally, visualise all features in the genomic region, achieved by using the word "all" (e.g. featureDisplay <- "all"), "all" is set by default. You can find the complete list of features and their associated colours in the user guide.
colorcase	the type of colors used to visualise different elements contained in ROADmap data with 15-,18-,25- states. choice between roadmap15, roadmap18, comet18, roadmap25 and comet25.

Value

An AnnotationTrack object of Gviz

Author(s)

Tiphaine Martin
Tom Hardiman

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>
Got to RoadMap Epigenome

Examples

```
library("Gviz")
chr <- "chr1"
start <- 4500000
end <- 4600000
featureDisplay <- "7_Enh"

extdata <- system.file("extdata", package="coMET", mustWork=TRUE)
bedFilePath <- file.path(extdata, "RoadMap/E063_15_coreMarks_mnemonics.bed")

if(interactive()){
  chromHMM_RoadMapSingle <- chromHMM_RoadMap(gen="hg19",chr,start, end, bedFilePath, featureDisplay = featureDisplay)
  plotTracks(chromHMM_RoadMapSingle, from = start, to = end)
} else {
  data(chromHMM_RoadMapSingle)
  plotTracks(chromHMM_RoadMapSingle, from = start, to = end)
}
```

```
#####

library("Gviz")
chr <- "chr1"
start <- 4500000
end <- 4600000
featureDisplay <- c("7_Enh","13_ReprPC")

extdata <- system.file("extdata", package="coMET",mustWork=TRUE)
bedFilePath <- file.path(extdata, "RoadMap/E063_15_coreMarks_mnemonics.bed")

if(interactive()){
  chromHMM_RoadMapMultiple <- chromHMM_RoadMap(gen="hg19",chr,start, end, bedFilePath, featureDisplay = feat
  plotTracks(chromHMM_RoadMapMultiple, from = start, to = end)
} else {
  data(chromHMM_RoadMapMultiple)
  plotTracks(chromHMM_RoadMapMultiple, from = start, to = end)
}

#####

library("Gviz")
chr <- "chr1"
start <- 4500000
end <- 4600000
featureDisplay <- "all"

extdata <- system.file("extdata", package="coMET",mustWork=TRUE)
bedFilePath <- file.path(extdata, "RoadMap/E063_15_coreMarks_mnemonics.bed")

if(interactive()){
  chromHMM_RoadMapAll <- chromHMM_RoadMap(gen="hg19",chr,start, end, bedFilePath, featureDisplay = featureDi
  plotTracks(chromHMM_RoadMapAll, from = start, to = end)
} else {
  data(chromHMM_RoadMapAll)
  plotTracks(chromHMM_RoadMapAll, from = start, to = end)
}

```

chrUCSC2ENSEMBL

Removing "chr" to the chromosome number from UCSC to transform it to ENSEMBL chromosome format

Description

Removing "chr" at the beginning of the chromosome number

Usage

```
chrUCSC2ENSEMBL(chr)
```

Arguments

chr the chromosome number in UCSC format

Value

the number of chromosome at ENSEMBL format

Author(s)

Tiphaine Martin

Examples

```
chr<-"chr7"
chrUCSC2ENSEMBL(chr)
```

ClinVarCnv_UCSC

Create one track of the genomic positions of variants from the ClinVar database (CNV only)

Description

Create one track of the genomic positions of variants from the ClinVar database (CNV only, Variants excluded) using the Gviz bioconductor package

Usage

```
ClinVarCnv_UCSC(gen, chr, start, end, showId = FALSE)
```

Arguments

gen	the name of the genome
chr	the chromosome of interest
start	the first position in region of interest (the smallest value)
end	the last position in region of interest (the biggest value)
showId	Show the ID of the genetic elements

Value

An UcsTrack object of Gviz

Author(s)

Tiphaine Martin

References

http://genome-euro.ucsc.edu/cgi-bin/hgTrackUi?hgsid=202839739_2hYQ1BAOuBMAR620GjrdrFAy6dn&c=chr6&g=

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

See Also

[snpLocations_UCSC](#), [structureBiomart_ENSEMBL](#), [snpBiomart_ENSEMBL](#), [CoreilCNV_UCSC](#), [COSMIC_UCSC](#), [ClinVarMain_UCSC](#)

Examples

```

library("Gviz")
chrom <- "chr2"
start <- 38290160
end <- 38303219
gen <- "hg38"
if(interactive()){
  clinCNV<-ClinVarCnv_UCSC(gen,chrom,start,end)
  plotTracks(clinCNV, from = start, to =end)
}else {
  data(ClinVarCnvTrack)
  plotTracks(clinCNV, from = start, to =end)
}

```

ClinVarMain_UCSC	<i>Create one track of the genomic positions of variants from the ClinVar database (variants only)</i>
------------------	--

Description

Create one track of the genomic positions of variants from the ClinVar database (Variants only, CNV excluded) using the Gviz bioconductor package

Usage

```
ClinVarMain_UCSC(gen, chr, start, end, showId=FALSE)
```

Arguments

gen	the name of the genome
chr	the chromosome of interest
start	the first position in region of interest (the smallest value)
end	the last position in region of interest (the biggest value)
showId	Show the ID of the genetic elements

Value

An UcsTrack object of Gviz

Author(s)

Tiphaine Martin

References

http://genome-euro.ucsc.edu/cgi-bin/hgTrackUi?hgsid=202839739_2hYQ1BAOuBMAR620GjrtdrFAy6dn&c=chr6&g=
<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

See Also

[snpLocations_UCSC](#), [structureBiomart_ENSEMBL](#), [snpBiomart_ENSEMBL](#), [Coreil1CNV_UCSC](#), [COSMIC_UCSC](#), [ClinVarCnv_UCSC](#)

Examples

```
library("Gviz")
gen <- "hg38"
chrom <- "chr2"
start <- 100000
end <- 1000000

if(interactive()) {
  clinVariant<-ClinVarMain_UCSC(gen,chrom,start,end)
  plotTracks(clinVariant, from = start, to =end)
}else{
  data(clinVarMaintrack)
  plotTracks(clinVariant, from = start, to =end)
}
```

comet

*Visualize EWAS results in a genomic region of interest***Description**

coMET is an R-based package to visualize EWAS (epigenome-wide association scans) results in a genomic region of interest. The main feature of coMET is to plot the the significance level of EWAS results in the selected region, along with correlation in DNA methylation values between CpG sites in the region. The coMET package generates plots of phenotype-association, co-methylation patterns, and a series of annotation tracks.

Usage

```
comet(mydata.file = NULL, mydata.format = "site", mydata.type = "file",
      mydata.large.file = NULL, mydata.large.format = "site",
      mydata.large.type = "listfile", cormatrix.file = NULL,
      cormatrix.method = "spearman", cormatrix.format = "raw",
      cormatrix.color.scheme = "bluewhitered", cormatrix.conf.level=0.05,
      cormatrix.sig.level= 1, cormatrix.adjust="none",
      cormatrix.type = "listfile", mydata.ref = NULL,
      start = NULL, end = NULL, zoom = FALSE, lab.Y = "log",
      pval.threshold = 1e-05, pval.threshold.2 = 0, disp.pval.threshold = 1,
      disp.association = FALSE, disp.association.large = FALSE,
      disp.region = FALSE, disp.region.large = FALSE,
      disp.beta.association = FALSE, disp.beta.association.large = FALSE, factor.beta = 0.3,
      symbols = "circle-fill", symbols.large = NA, sample.labels = NULL, sample.labels.large = NULL,
      use.colors = TRUE , disp.color.ref = TRUE, color.list = NULL, color.list.large = NULL,
      disp.mydata = TRUE, biofeat.user.file = NULL, biofeat.user.type = NULL,
      biofeat.user.type.plot = NULL, genome = "hg19", dataset.gene = "hsapiens_gene_ensembl",
      tracks.gviz = NULL, tracks.ggbio = NULL, tracks.trackviewer = NULL,
      disp.mydata.names = TRUE, disp.color.bar = TRUE, disp.phys.dist = TRUE,
```

```

disp.legend = TRUE, disp.marker.lines = TRUE, disp.cormatrixmap = TRUE,
disp.pvalueplot = TRUE, disp.type = "symbol", disp.mult.lab.X = FALSE,
disp.connecting.lines = TRUE, palette.file = NULL, image.title = NULL,
image.name = "coMET", image.type = NULL, image.size = 3.5, fontsize.gviz=5, font.factor = 1,
symbol.factor = NULL, print.image = TRUE, connecting.lines.factor = 1.5,
connecting.lines.adj = 0.01, connecting.lines.vert.adj = -1,
connecting.lines.flex = 0, config.file = NULL, verbose = FALSE)

```

Arguments

- `mydata.file` Name of the info file describing the coMET parameters
- `mydata.format` Format of the input data in `mydata.file`. There are 4 different options: `site`, `region`, `site_asso`, `region_asso`.
- `mydata.type` Format of `mydata.file`. There are 2 different options: `FILE` or `MATRIX`.
- `mydata.large.file`
Name of additional info files describing the coMET parameters. File names should be comma-separated. It is optional, but if you add some, they need to be file(s) in tabular format with a header. Additional info file can be a list of CpG sites with/without Beta value (DNA methylation level) or direction sign. If it is a site file then it is mandatory to have the 4 columns as shown below with headers in the same order. Beta can be the 5th column(optional) and it can be either a numeric value (positive or negative values) or only direction sign ("+", "-"). The number of columns and their types are defined but the option `mydata.large.format`.
- `mydata.large.format`
Format of additional data to be visualised in the p-value plot. Format should be comma-separated. There are 4 different options for each file: `site`, `region`, `site_asso`, `region_asso`.
- `mydata.large.type`
Format of `mydata.large.file`. There are 2 different options: `listfile` or `listdataframe`.
- `cormatrix.file` Name of the raw data file or the pre-computed correlation matrix file. It is mandatory and has to be a file in tabular format with an header.
- `cormatrix.method`
Options for calculating the correlation matrix: `spearman`, `pearson` and `kendall`
- `cormatrix.format`
Format of the input `cormatrix.file`. There are two options: `raw file` (raw if CpG sites are by column and samples by row or `raw_rev` if CpG site are by row and samples by column) and `pre-computed correlation matrix` (`cormatrix`)
- `cormatrix.color.scheme`
Color scheme options: `heat`, `bluwhitered`, `cm`, `topo`, `gray`, `bluetored`
- `cormatrix.conf.level`
Alpha level for the confidence interval. Default value= 0.05. CI will be the $\alpha/2$ lower and upper values.
- `cormatrix.sig.level`
Significant level to visualise the correlation. If the correlation has a pvalue under the significant level, the correlation will be colored in "goshwhite", else the color is related to the correlation level and the color scheme chosen. Default value =1.
- `cormatrix.adjust`
indicates which adjustment for multiple tests should be used. "holm", "hochberg", "hommel", "bonferroni", "BH", "BY", "fdr", "none". Default value="none"

<code>cormatrix.type</code>	Format of <code>cormatrix.file</code> . There are 2 different options: <code>listfile</code> or <code>listdataframe</code> .
<code>mydata.ref</code>	The name of the referenceomic feature (e.g. CpG-site) listed in <code>mydata.file</code>
<code>start</code>	The first nucleotide position to be visualised. It could be bigger or smaller than the first position of our list of omic features.
<code>end</code>	the last nucleotide position to be visualised. It has to be bigger than the value in the option <code>start</code> , but it could be smaller or bigger than the last position of our list of omic features.
<code>zoom</code>	Default=False
<code>lab.Y</code>	Scale of the y-axis. Options: <code>log</code> or <code>ln</code>
<code>pval.threshold</code>	Significance threshold to be displayed as a red dashed line
<code>pval.threshold.2</code>	the second significance threshold to be displayed as a orange dashed line
<code>disp.pval.threshold</code>	Display only the findings that pass the value put in <code>disp.pval.threshold</code>
<code>disp.association</code>	This logical option works only if <code>mydata.file</code> contains the effect direction (<code>mydata.format=site_asso</code> or <code>region_asso</code>). The value can be <code>TRUE</code> or <code>FALSE</code> : if <code>FALSE</code> (default), for each point of data in the p-value plot, the color of symbol is the color of co-methylation pattern between the point and the reference site; if <code>TRUE</code> , the effect direction is shown. If the association is positive, the color is the one defined with the option <code>color.list</code> . On the other hand, if the association is negative, the color is the opposed color.
<code>disp.association.large</code>	This logical option works only if <code>mydata.large.file</code> contains the effect direction (<code>mydata.large.format=site_asso</code> or <code>region_asso</code>). The value can be <code>TRUE</code> or <code>FALSE</code> : if <code>FALSE</code> (default), for each point of data in the p-value plot, the color of symbol is the color of co-methylation pattern between the point and the reference site; if <code>TRUE</code> , the effect direction is shown. If the association is positive, the color is the one defined with the option <code>color.list.large</code> . On the other hand, if the association is negative, the color is the opposed color.
<code>disp.region</code>	This logical option works only if <code>mydata.file</code> contains regions (<code>mydata.format=region</code> or <code>region_asso</code>). The value can be <code>TRUE</code> or <code>FALSE</code> (default). If <code>TRUE</code> , the genomic element will be shown by a continuous line with the color of the element, in addition to the symbol at the center of the region. If <code>FALSE</code> , only the symbol is shown.
<code>disp.region.large</code>	This logical option works only if <code>mydata.large.file</code> contains regions (<code>mydata.large.format=region</code> or <code>region_asso</code>). The value can be <code>TRUE</code> or <code>FALSE</code> (default). If <code>TRUE</code> , the genomic element will be shown by a continuous line with the color of the element, in addition to the symbol at the center of the region. If <code>FALSE</code> , only the symbol is shown.
<code>disp.beta.association</code>	This logical option works only if <code>mydata.file</code> contains the effect direction (<code>mydata.format=site_asso</code> or <code>region_asso</code>). The value can be <code>TRUE</code> or <code>FALSE</code> : if <code>FALSE</code> (default), for each point of data in the p-value plot, the size of symbol is the default size of symbole; if <code>TRUE</code> , the effect direction is shown.
<code>disp.beta.association.large</code>	This logical option works only if <code>mydata.large.file</code> contains the effect direction (<code>mydata.large.format=site_asso</code> or <code>region_asso</code>). The value can be <code>TRUE</code>

	or FALSE: if FALSE (default), for each point of data in the p-value plot, the size of symbol is the default size of symbol; if TRUE, the effect direction is shown.
factor.beta	Factor to visualise the size of beta. Default value = 0.3.
symbols	The symbol shown in the p-value plot. Options: circle, square, diamond, triangle. symbols can be filled by appending -fill, e.g. square-fill. Example: circle,diamond-fill,triangle
symbols.large	The symbol to visualise the data defined in mydata.large.file. Options: circle, square, diamond, triangle; symbols can either be filled or not filled by appending -fill e.s., square-fill. Example: circle,diamond-fill,triangle
sample.labels	Labels for the sample described in mydata.file to include in the legend
sample.labels.large	Labels for the sample described in mydata.large.file to include in the legend
use.colors	Use the colors defined or use the grey color scheme
disp.color.ref	Logical option TRUE or FALSE (TRUE default). if TRUE, the connection line related to the reference probe is in purple, if FALSE if the connection line related to the reference probe stay black.
color.list	List of colors for displaying the P-value symbols related to the data in mydata.file
color.list.large	List of colors for displaying the P-value symbols related to the data in mydata.large.file
disp.mydata	logical option TRUE or FALSE. TRUE (default). If TRUE, the P-value plot is shown; if FALSE the plot will be defined by Gviz
biofeat.user.file	Name of data file to visualise in the tracks. File names should be comma-separated.
biofeat.user.type	Track type, where multiple tracks can be shown (comma-separated): DataTrack, AnnotationTrack, GeneregionTrack.
biofeat.user.type.plot	Format of the plot if the data are shown with the Gviz's function called DataTrack (comma-separated)
genome	The human genome reference file. e.g. "hg19" for Human genome 19 (NCBI 37), "grch37" (GRCh37),"grch38" (GRCh38)
dataset.gene	The gene names from ENSEMBL. e.g. hsapiens_gene
tracks.gviz	list of tracks created by Gviz.
tracks.ggbio	list of tracks created by ggbio.
tracks.trackviewer	list of tracks created by track viewer.
disp.mydata.names	logical option TRUE or FALSE. If True (default), the names of the CpG sites are displayed.
disp.color.bar	Color legend for the correlation matrix (range -1 to 1). Default: blue-white-red
disp.phys.dist	logical option (TRUE or FALSE). TRUE (default).Display the bp distance on the plots

<code>disp.legend</code>	logical option TRUE or FALSE. TRUE (default) Display the sample labels and corresponding symbols on the lower right side
<code>disp.marker.lines</code>	logical option TRUE or FALSE. TRUE (default), if FALSE the red line for <code>pval.threshold</code> is not shown
<code>disp.cormatrixmap</code>	logical option TRUE or FALSE. TRUE (default), if FALSE correlation matrix is not shown
<code>disp.pvalueplot</code>	logical option (TRUE or FALSE). TRUE (default), if FALSE the pvalue plot is not shown
<code>disp.type</code>	Default: symbol
<code>disp.mult.lab.X</code>	logical option TRUE or FALSE. FALSE (default). Display evenly spaced X-axis labels; up to 5 labels are shown.
<code>disp.connecting.lines</code>	logical option TRUE or FALSE. TRUE (default) displays connecting lines between p-value plot and correlation matrix
<code>palette.file</code>	File that contains color scheme for the heatmap. Colors are hexadecimal HTML color codes; one color per line; if you do not want to use this option, use the color defined by the option <code>cormatrix.color.scheme</code>
<code>image.title</code>	Title of the plot
<code>image.name</code>	The path and the name of the plot file without extension. The extension will be added by comet depending on the option <code>image.type</code> .
<code>image.type</code>	Options: pdf or eps
<code>image.size</code>	Default: 3.5 inches. Possible sizes : 3.5 or 7
<code>fontsize.gviz</code>	Font size of writing in annotation track. Default value =5
<code>font.factor</code>	Font size of the sample labels. Range: 0-1
<code>symbol.factor</code>	Size of the symbols. Range: 0-1
<code>print.image</code>	Print image in file or not.
<code>connecting.lines.factor</code>	Length of the connecting lines. Range: 0-2
<code>connecting.lines.adj</code>	Position of the connecting lines horizontally. Negative values shift the connecting lines to the left and positive values shift the lines to the right. Range: (-1;1) option -1 means no connecting lines.
<code>connecting.lines.vert.adj</code>	Position of the connecting lines vertically. Can be used to vertically adjust the position of the connecting lines in relation to the CpG-site names. Negative value shift the connecting lines down. Range: (-0.5 - 0), option -1 mean the default value related to the plot size (-0.5 for 3.5 plot size; -0.7 for 7.5 plot size)
<code>connecting.lines.flex</code>	Adjusts the spread of the connecting lines. Range: 0-2
<code>config.file</code>	Configuration file contains the values of these options instead of defining these by command line. It is a file where each line is one option. The name of option and its value are separated by "=". If there are multiple values such as for the option <code>list.tracks</code> or the options for additional data, you need to separated them by a "comma" and not extra space. (i.e. <code>list.tracks=geneENSEMBL,CGI,ChromHMM,DNAse,RegENSEMBL</code>)
<code>verbose</code>	logical option TRUE or FALSE. TRUE (default). If TRUE, shows comments.

Details

The function is limited to visualize 120 omic features.

Value

Create a plot in pdf or eps format depending to some options

Author(s)

Tiphaine Martin

References

<http://epigen.kcl.ac.uk/comet/>

See Also

[comet.web](#), [comet.list](#)

Examples

```

extdata <- system.file("extdata", package="coMET", mustWork=TRUE)
configfile <- file.path(extdata, "config_cyp1b1_zoom_4comet.txt")
myinfofile <- file.path(extdata, "cyp1b1_infofile.txt")
myexpressfile <- file.path(extdata, "cyp1b1_infofile_exprGene_region.txt")
mycorrelation <- file.path(extdata, "cyp1b1_res37_rawMatrix.txt")

chrom <- "chr2"
start <- 38290160
end <- 38303219
gen <- "hg38"

if(interactive()){
  cat("interactive")
  genetrack <- genesENSEMBL(gen, chrom, start, end, showId=TRUE)
  snptrack <- snpBiomart(chrom, start, end,
    dataset="hsapiens_snp_som", showId=FALSE)
  strutrack <- structureBiomart(chrom, start, end,
    strand, dataset="hsapiens_structvar_som")
  clinVariant <- ClinVarMainTrack(gen, chrom, start, end)
  clinCNV <- ClinVarCnvTrack(gen, chrom, start, end)
  gwastrack <- GWASTrack(gen, chrom, start, end)
  geneRtrack <- GeneReviewsTrack(gen, chrom, start, end)
  listgviz <- list(genetrack, snptrack, strutrack, clinVariant,
    clinCNV, gwastrack, geneRtrack)
  comet(config.file=configfile, mydata.file=myinfofile, mydata.type="file",
    cormatrix.file=mycorrelation, cormatrix.type="listfile",
    mydata.large.file=myexpressfile, mydata.large.type="listfile",
    tracks.gviz=listgviz, verbose=FALSE, print.image=FALSE, disp.pvalueplot=FALSE)
} else {
  cat("Non interactive")
  data(geneENSEMBLtrack)
  data(snpBiomarttrack)
  data(ISCATrack)
  data(strucBiomarttrack)
  data(ClinVarCnvTrack)

```

```

data(clinVarMaintrack)
data(GWASTrack)
data(GeneReviewTrack)
listgviz <- list(genetrack,snptrack,strutrack,clinVariant,
               clinCNV,gwastrack,geneRtrack)
comet(config.file=configfile, mydata.file=myinfofile, mydata.type="file",
      cormatrix.file=mycorrelation, cormatrix.type="listfile",
      mydata.large.file=myexpressfile, mydata.large.type="listfile",
      tracks.gviz=listgviz, verbose=FALSE, print.image=FALSE,disp.pvalueplot=FALSE)
}

```

comet.list

List the correlations between omic features

Description

coMET is an R-based package to visualize EWAS (epigenome-wide association scans) results in a genomic region of interest. The main feature of coMET is to plot the the significance level of EWAS results in the selected region, along with correlation in DNA methylation values between CpG sites in the region. The coMET package generates plots of phenotype-association, co-methylation patterns, and a series of annotation tracks. In addition, the function comet.list gives the list of correlations between omic features

Usage

```

comet.list(cormatrix.file = NULL, cormatrix.method = "spearman", cormatrix.format = "raw",
          cormatrix.conf.level=0.05, cormatrix.sig.level= 1, cormatrix.adjust="none",
          cormatrix.type = "listdataframe", cormatrix.output="cormatrix_list",
          config.file = NULL, verbose = FALSE)

```

Arguments

`cormatrix.file` Name of the raw data file or the pre-computed correlation matrix file. It is mandatory and has to be a file in tabular format with an header.

`cormatrix.method`
Options for calculating the correlation matrix: spearman, pearson and kendall.
Default value= spearman

`cormatrix.format`
Format of the input cormatrix.file. TThere are two options: raw file (raw if CpG sites are by column and samples by row or raw_rev if CpG site are by row and samples by column) and pre-computed correlation matrix (cormatrix)

`cormatrix.conf.level`
Alpha level for the confidence interval. Default value= 0.05. CI will be the alpha/2 lower and upper values.

`cormatrix.sig.level`
Significant level to visualise the correlation. If the correlation has a pvalue below the significant level, the correlation will be colored in "goshwhite", else the color is related to the correlation level and the color scheme choosen.Default value =1.

`cormatrix.adjust`
indicates which adjustment for multiple tests should be used. "holm", "hochberg", "hommel", "bonferroni", "BH", "BY", "fdr", "none".Default value="none"

cormatrix.type	Format of cormatrix.file. There are 2 different options: listfile or listdataframe.
cormatrix.output	The path and the name of the output file without the extension
config.file	Configuration file contains the values of these options instead of defining these by command line. It is a file where each line is one option. The name of option and its value are separated by "=".
verbose	logical option TRUE or FALSE. TRUE (default). If TRUE, shows comments.

Value

Create a list of correlation between omic features

Author(s)

Tiphaine Martin

References

<http://epigen.kcl.ac.uk/comet/>

See Also

[comet.web](#), [comet](#)

Examples

```
extdata <- system.file("extdata", package="coMET", mustWork=TRUE)
mycorrelation <- file.path(extdata, "cyp1b1_res37_rawMatrix.txt")
myoutput <- file.path(extdata, "cyp1b1_res37_cormatrix_list_BH05.txt")

comet.list(cormatrix.file=mycorrelation, cormatrix.method = "spearman",
           cormatrix.format= "raw", cormatrix.conf.level=0.05,
           cormatrix.sig.level= 0.05, cormatrix.adjust="BH",
           cormatrix.type = "listfile", cormatrix.output=myoutput,
           verbose=FALSE)
```

comet.web

Visualize EWAS results in a genomic region of interest with predefined annotation tracks

Description

coMET is an R-based package to visualize EWAS (epigenome-wide association scans) results in a genomic region of interest. The main feature of coMET is to plot the the significance level of EWAS results in the selected region, along with correlation in DNA methylation values between CpG sites in the region. The coMET package generates plots of phenotype-association, co-methylation patterns, and a series of annotation tracks.

Usage

```
comet.web(mydata.file = NULL, mydata.format = c("site", "region", "site_asso", "region_asso"),
  mydata.large.file = NULL,
  mydata.large.format = c("site", "region", "site_asso", "region_asso"),
  cormatrix.file = NULL, cormatrix.method = c("spearman", "pearson", "kendall"),
  cormatrix.format = c("cormatrix", "raw", "raw_rev"),
  cormatrix.color.scheme = "heat", cormatrix.conf.level=0.05,
  cormatrix.sig.level= 1, cormatrix.adjust="none", mydata.ref = NULL,
  genome="hg19", start = NULL, end = NULL, zoom = FALSE, lab.Y = "log",
  pval.threshold = 1e-07, pval.threshold.2 = 0, disp.pval.threshold = 1,
  disp.association= FALSE, disp.association.large = FALSE,
  disp.beta.association = "FALSE", disp.beta.association.large = "FALSE", factor.beta = 0.3,
  disp.region = FALSE, disp.region.large = FALSE, symbols = "circle-fill",
  symbols.large = NA, sample.labels = NULL, sample.labels.large = NULL,
  use.colors = TRUE, disp.color.ref = TRUE, color.list = NULL,
  color.list.large = NULL, biofeat.user.file = NULL,
  biofeat.user.type = c("GeneRegion", "Annotation", "Data"),
  biofeat.user.type.plot = NULL,
  list.tracks = "geneENSEMBL,CGI,ChromHMM,DNase,RegENSEMBL,SNP",
  pattern.regulation = "GM12878",
  image.title = NULL, image.name = "coMET", image.type = c("pdf", "eps"),
  image.size = 3.5, fontsize.gviz=5, font.factor = 1,
  print.image = FALSE, config.file = NULL, verbose = FALSE)
```

Arguments

Name of the info file describing the coMET parameters. It is mandatory and has to be a file in tabular format with a header. Info file can be a list of CpG sites with/without Beta value (DNA methylation level) or direction sign. If it is a site file then it is mandatory to have the 4 columns as shown below with headers in the same order. Beta can be the 5th column(optional) and it can be either a numeric value (positive or negative values) or only direction sign ("+", "-"). The number of columns and their types are defined but the option mydata.format.

mydata.format Format of the input data in mydata.file. There are 4 different options: site, region, site_asso, region_asso.

mydata.large.file

Name of additional info files describing the coMET parameters. File names should be comma-separated. It is optional, but if you add some, they need to be file(s) in tabular format with a header. Additional info file can be a list of CpG sites with/without Beta value (DNA methylation level) or direction sign. If it is a site file then it is mandatory to have the 4 columns as shown below with headers in the same order. Beta can be the 5th column(optional) and it can be either a numeric value (positive or negative values) or only direction sign ("+", "-"). The number of columns and their types are defined but the option mydata.large.format.

mydata.large.format

Format of additional data to be visualised in the p-value plot. Format should be comma-separated. There are 4 different options for each file: site, region, site_asso, region_asso.

<code>cormatrix.file</code>	Name of the raw data file or the pre-computed correlation matrix file. It is mandatory and has to be a file in tabular format with an header.
<code>cormatrix.method</code>	A character string indicating which correlation coefficient is to be used for the test. One of "pearson", "kendall", or "spearman", can be abbreviated.
<code>cormatrix.format</code>	A character string indicating which format of the input <code>cormatrix.file</code> is to be used. There are three options: raw file (raw if CpG sites are by column and samples by row or <code>row_rev</code> if CpG site are by row and samples by column) and pre-computed correlation matrix (<code>cormatrix</code>)
<code>cormatrix.color.scheme</code>	A character string indicating which Color scheme options is to be used: heat, bluewhitered, cm, topo, gray, bluetored
<code>cormatrix.conf.level</code>	Alpha level for the confidence interval. Default value= 0.05. CI will be the $\alpha/2$ lower and upper values.
<code>cormatrix.sig.level</code>	Significant level to visualise the correlation. If the correlation has a pvalue under the significant level, the correlation will be colored in "goshwhite", else the color is related to the correlation level and the color scheme choosen.Default value =1.
<code>cormatrix.adjust</code>	indicates which adjustment for multiple tests should be used. "holm", "hochberg", "hommel", "bonferroni", "BH", "BY", "fdr", "none".Default value="none"
<code>mydata.ref</code>	The name of the reference omic feature (e.g. CpG-site) listed in <code>mydata.file</code>
<code>genome</code>	The human genome reference file. e.g. "hg19" for Human genome 19 (NCBI 37), "grch37" (GRCh37),"grch38" (GRCh38)
<code>start</code>	The first nucleotide position to be visualised. It could be bigger or smaller than the first position of our list of omic features.
<code>end</code>	the last nucleotide position to be visualised. It has to be bigger than the value in the option start, but it could be smaller or bigger than the last position of our list of omic features.
<code>zoom</code>	logical option TRUE or FALSE. FALSE (default)
<code>lab.Y</code>	Scale of the y-axis. Options: log or ln
<code>pval.threshold</code>	Significance threshold to be displayed as a red dashed line. Default value = $1e-7$
<code>pval.threshold.2</code>	the second significance threshold to be displayed as a orange dashed line. Default value= 0 (no printed)
<code>disp.pval.threshold</code>	Display only the findings that pass the value put in <code>disp.pval.threshold</code>
<code>disp.association</code>	This logical option works only if <code>mydata.file</code> contains the effect direction (<code>mydata.format=site_asso</code> or <code>region_asso</code>). The value can be TRUE or FALSE: if FALSE (default), for each point of data in the p-value plot, the color of symbol is the color of co-methylation pattern between the point and the reference site; if TRUE, the effect direction is shown. If the association is positive, the color is the one defined with the option <code>color.list</code> . On the other hand, if the association is negative, the color is the opposed color.

<code>disp.association.large</code>	This logical option works only if <code>mydata.large.file</code> contains the effect direction (<code>MYDATA.large.FORMA=site_asso</code> or <code>region_asso</code>). The value can be TRUE or FALSE: if FALSE (default), for each point of data in the p-value plot, the color of symbol is the color of co-methylation pattern between the point and the reference site; if TRUE, the effect direction is shown. If the association is positive, the color is the one defined with the option <code>color.list.large</code> . On the other hand, if the association is negative, the color is the opposed color.
<code>disp.beta.association</code>	This logical option works only if <code>mydata.file</code> contains the effect direction (<code>mydata.format=site_asso</code> or <code>region_asso</code>). The value can be TRUE or FALSE: if FALSE (default), for each point of data in the p-value plot, the size of symbol is the default size of symbol; if TRUE, the effect direction is shown.
<code>disp.beta.association.large</code>	This logical option works only if <code>mydata.large.file</code> contains the effect direction (<code>mydata.large.format=site_asso</code> or <code>region_asso</code>). The value can be TRUE or FALSE: if FALSE (default), for each point of data in the p-value plot, the size of symbol is the default size of symbol; if TRUE, the effect direction is shown.
<code>factor.beta</code>	Factor to visualise the size of beta. Default value = 0.3.
<code>disp.region</code>	This logical option works only if <code>mydata.file</code> contains regions (<code>mydata.format=region</code> or <code>region_asso</code>). The value can be TRUE or FALSE (default). If TRUE, the genomic element will be shown by a continuous line with the color of the element, in addition to the symbol at the center of the region. If FALSE, only the symbol is shown.
<code>disp.region.large</code>	This logical option works only if <code>mydata.large.file</code> contains regions (<code>mydata.large.format=region</code> or <code>region_asso</code>). The value can be TRUE or FALSE (default). If TRUE, the genomic element will be shown by a continuous line with the color of the element, in addition to the symbol at the center of the region. If FALSE, only the symbol is shown.
<code>symbols</code>	The symbol shown in the p-value plot. Options: circle, square, diamond, triangle. symbols can be filled by appending <code>-fill</code> , e.g. <code>square-fill</code> . Example: <code>circle,diamond-fill,triangle</code>
<code>symbols.large</code>	The symbol to visualise the data defined in <code>mydata.large.file</code> . Options: circle, square, diamond, triangle; symbols can either be filled or not filled by appending <code>-fill</code> e.s., <code>square-fill</code> . Example: <code>circle,diamond-fill,triangle</code>
<code>sample.labels</code>	Labels for the sample described in <code>mydata.file</code> to include in the legend
<code>sample.labels.large</code>	Labels for the sample described in <code>mydata.large.file</code> to include in the legend
<code>use.colors</code>	Use the colors defined or use the grey color scheme
<code>disp.color.ref</code>	Logical option TRUE or FALSE (TRUE default). if TRUE, the connection line related to the reference probe is in purple, if FALSE if the connection line related to the reference probe stay black.
<code>color.list</code>	List of colors for displaying the P-value symbols related to the data in <code>mydata.file</code>
<code>color.list.large</code>	List of colors for displaying the P-value symbols related to the data in <code>mydata.large.file</code>

<code>biofeat.user.file</code>	Name of data file to visualise in the tracks. File names should be comma-separated.
<code>biofeat.user.type</code>	Track type, where multiple tracks can be shown (comma-separated): DataTrack, AnnotationTrack, GeneRegionTrack.
<code>biofeat.user.type.plot</code>	Format of the plot if the data are shown with the Gviz's function called DataTrack (comma-separated)
<code>list.tracks</code>	List of annotation tracks to visualise. Options include geneENSEMBL, CGI, ChromHMM, DNase, RegENSEMBL, SNP, transcriptENSEMBL, SNPstoma, SNPstru, SNPstrustoma, BindingMotifENSEMBL, otherRegulatoryENSEMBL, regulatoryEvidenceENSEMBL, regulatoryFeaturesENSEMBL, regulatorySegmentENSEMBL, miRNAENSEMBL, ImprintedtissuesGenes, COSMIC, GAD, ClinVar, GeneReviews, GWAS, ClinVarCNV, GCcontent, genesUCSC, xeno-genesUCSC, SegDuplication, RepeatElt.
<code>pattern.regulation</code>	The cell/tissue or the list of cells/tissues to visualise in the regulation region defined by Broad ChromHMM
<code>image.title</code>	Title of the plot
<code>image.name</code>	The path and the name of the plot file without extension. The extension will be added by coMET depending on the option image.type.
<code>image.type</code>	Options: pdf or eps
<code>image.size</code>	Default: 3.5 inches. Possible sizes : 3.5 or 7
<code>fontsize.gviz</code>	Font size of writing in annotation track. Default value =5
<code>font.factor</code>	Font size of the sample labels. Range: 0-1
<code>print.image</code>	Print image in file or not.
<code>config.file</code>	Configuration file contains the values of these options instead of defining these by command line. It is a file where each line is one option. The name of option and its value are separated by "=". If there are multiple values such as for the option list.tracks or the options for additional data, you need to separated them by a "comma" and not extra space. (i.e. list.tracks=geneENSEMBL,CGI,ChromHMM,DNase,RegENSEMBL)
<code>verbose</code>	logical option TRUE or FALSE. TRUE (default). If TRUE, shows comments.

Details

The function is limited to visualize 120 omic features.

Value

Create a plot in pdf or eps format depending to some options

Author(s)

Tiphaine Martin

References

<http://epigen.kcl.ac.uk/comet/>

See Also

[comet,comet.list](#)

Examples

```
extdata <- system.file("extdata", package="coMET",mustWork=TRUE)
configfile <- file.path(extdata, "config_cyp1b1_zoom_4webserver.txt")
myinfofile <- file.path(extdata, "cyp1b1_infofile.txt")
myexpressfile <- file.path(extdata, "cyp1b1_infofile_exprGene_region.txt")
mycorrelation <- file.path(extdata, "cyp1b1_res37_rawMatrix.txt")

comet.web(config.file=configfile, mydata.file=myinfofile, cormatrix.file=mycorrelation,
  mydata.large.file=myexpressfile, print.image=FALSE,verbose=FALSE)
```

CoreillCNV_UCSC	<i>Create one track of the genomic positions of CNV in chromosomal aberration and inherited disorders from the NIGMS Human Genetic Cell Repository data</i>
-----------------	---

Description

Create one track of the genomic positions of copy-number variants (CNVs) in chromosomal aberration and inherited disorder cell lines from the NIGMS Human Genetic Cell Repository using the Gviz bioconductor package.

Usage

```
CoreillCNV_UCSC(gen, chr, start, end, showId=FALSE)
```

Arguments

gen	the name of the genome. Data is not currently available for GRCh38 (hg38).
chr	the chromosome of interest
start	the first position in the region of interest (the smallest value)
end	the last position in the region of interest (the largest value)
showId	Show the ID of the genetic elements

Value

An UcsTrack object of Gviz

Author(s)

Tiphaine Martin

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

http://genome-euro.ucsc.edu/cgi-bin/hgTrackUi?hgsid=202839739_2hYQ1BAOuBMAR620GjrtdrFAy6dn&c=chr6&g=

See Also

[snpLocations_UCSC](#), [structureBiomart_ENSEMBL](#), [snpBiomart_ENSEMBL](#), [COSMIC_UCSC](#), [ClinVarMain_UCSC](#), [ClinVarCnv_UCSC](#)

Examples

```
library("Gviz")
gen <- "hg19"
chrom <- "chr2"
start <- 38290160
end <- 38303219

if(interactive()){
  coreilVariant<-CoreilICNV_UCSC(gen,chrom,start,end)
  plotTracks(coreilVariant, from = start, to =end)
} else {
  data(coreilVarianttrack)
  plotTracks(coreilVariant, from = start, to =end)
}
```

COSMIC_UCSC

Create one track of the genomic positions of variants from COSMIC

Description

Create one track of the genomic positions of variants from COSMIC, the "Catalogue Of Somatic Mutations In Cancer" using the Gviz bioconductor package

Usage

```
COSMIC_UCSC(gen, chr, start, end, showId=FALSE)
```

Arguments

gen	the name of the genome. Data is not currently available for GRCh38 (hg38)
chr	the chromosome of interest
start	the first position in the region of interest (the smallest value)
end	the last position in the region of interest (the largest value)
showId	Show the ID of the genetic elements

Value

An UcsTrack object of Gviz

Author(s)

Tiphaine Martin

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

http://genome-euro.ucsc.edu/cgi-bin/hgTrackUi?hgsid=202839739_2hYQ1BAOuBMAR620GjrtdrFAy6dn&c=chr6&g=

See Also

[snpLocations_UCSC](#), [structureBiomart_ENSEMBL](#), [snpBiomart_ENSEMBL](#), [Coreil1CNV_UCSC](#), [ClinVarMain_UCSC](#), [ClinVarCnv_UCSC](#),

Examples

```
library("Gviz")
chrom <- "chr2"
start <- 38290160
end <- 38303219
gen <- "hg19"
if(interactive()){
  cosmicVariant<-COSMIC_UCSC(gen,chrom,start,end)
  plotTracks(cosmicVariant, from = start, to =end)
}else {
  data(cosmicVarianttrack)
  plotTracks(cosmicVariant, from = start, to =end)
}
```

cpgIslands_UCSC *create track CpG Island from UCSC*

Description

create track CpG Island from UCSC using the Gviz bioconductor package

Usage

```
cpgIslands_UCSC(gen, chr, start, end)
```

Arguments

gen	the name of the genome
chr	the chromosome of interest
start	the first position in the region of interest (the smallest value)
end	the last position in the region of interest (the largest value)

Value

An UcsTrack object of Gviz

Author(s)

Tiphaine Martin

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

http://genome-euro.ucsc.edu/cgi-bin/hgTrackUi?hgsid=202839739_2hYQ1BAOuBMAR620GjrtdrFAy6dn&c=chr6&g=

Examples

```

library("Gviz")
chrom <- "chr2"
start <- 100000
end <- 1000000
gen <- "hg38"

if(interactive()) {
  cpGIstrack<-cpgIslands_UCSC(gen, chrom, start, end)
  plotTracks(cpGIstrack, from = start, to =end)
}else {
  data(cpgIslandtrack)
  plotTracks(cpGIstrack, from = start, to =end)
}

```

dgfootprints_RoadMap *Creates a track of DNA motif positional bias in digital genomic Footprinting Sites (DGFP) from a file of RoadMap*

Description

Creates a DGFP track from a file of RoadMap using the Gviz bioconductor package. A complete list of features and their associated colours can be found in the user guide.

Usage

```
dgfootprints_RoadMap(gen="hg19", chr, start, end, bedFilePath, tissueGroupDisplay='Blood & T-cell
```

Arguments

gen	the name of the genome. Default value=hg19
chr	The chromosome of interest
start	The starting position in the region of interest (the smallest value)
end	The end position in the region of interest (the largest value)
bedFilePath	The file path to the .BED file containing the data to be visualised
tissueGroupDisplay	the group of tissue visualised among list("Neurosp", "Epithelial", "IMR90", "Thymus", "Heart", "Brain & B-cell", "Blood & T-cell"="ES-deriv")
showId	logical. say if we write the name of group
type_stacking	Object of class"character", the stacking type of overlapping items on the final plot. One in c(hide, dense, squish, pack, full). More information of the option "stacking" in Gviz

Value

An AnnotationTrack object of Gviz

Author(s)

Tiphaine Martin
Tom Hardiman

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>
Got to RoadMap Epigenome

Examples

```
library("Gviz")
chr <- "chr1"
start <- 236728
end <- 238778
gen="hg19"

extdata <- system.file("extdata", package="coMET",mustWork=TRUE)
bedFilePath <- file.path(extdata, "RoadMap/CD3-DS17198.hg19.bed")

if(interactive()){
  dgfootprints_RoadMapSingle <- dgfootprints_RoadMap(gen,chr,start, end, bedFilePath, tissueGroupDisplay='BL
  plotTracks(dgfootprints_RoadMapSingle, from = start, to = end)
} else {
  data(dgfootprints_RoadMapSingle)
  plotTracks(dgfootprints_RoadMapSingle, from = start, to = end)
}
```

DNaseI_FANTOM

Creates a enhancer/promoter track from FANTOM

Description

Creates a track of promoters/enhancers from FANTOM using the Gviz bioconductor package. A complete list of features and their associated colours can be found in the user guide.

Usage

```
DNaseI_FANTOM(gen="hg19", chr, start, end, bedFilePath, featureDisplay='enhancer', stacking_type=
```

Arguments

gen	the name of the genome. Default value=hg19
chr	The chromosome of interest
start	The starting position in the region of interest (the smallest value)
end	The end position in the region of interest (the largest value)
bedFilePath	The path of the BED file from Kheradpour and Kellis, 2014.

- featureDisplay** A vector of regulatory features to be displayed, such as enhancer. Spelling and capitalisation of features must be identical to those in the user guide. There are three possibilities. First, the visualisation of only one feature (e.g. `featureDisplay <- "Predicted heterochomatin"`), only the name of the specific feature is required. Second, visualisation of a set of features, for this a vector of features is required (e.g. `featureDisplay <- c("enhancer","promoter")`). Finally, visualisation all features in the genomic region, achieved by using the word "all" (e.g. `featureDisplay <- "all"`), "all" is set by default. You can find the complete list of features and their associated colours in the user guide.
- stacking_type** Object of class "character", the stacking type of overlapping items on the final plot. One in `c(hide, dense, squish, pack, full)`. More information of the option "stacking" in Gviz

Value

An AnnotationTrack object of Gviz

Author(s)

Tiphaine Martin

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

Got to BindingMotifsBiomart binding motif biomart

Examples

```
library("Gviz")
gen <- "hg19"
chr <- "chr1"
start <- 60000000
end <- 65000000

extdata <- system.file("extdata", package="coMET", mustWork=TRUE)
enhFantomFile <- file.path(extdata, "/FANTOM/human_permissive_enhancers_phase_1_and_2.bed")

if(interactive()){
  enhFANTOMtrack <- DNaseI_FANTOM(gen,chr,start, end, enhFantomFile, featureDisplay='enhancer')
  plotTracks(enhFANTOMtrack, from = start, to = end)
} else {
  data(enhFANTOMtrack)
  plotTracks(enhFANTOMtrack, from = start, to = end)
}
```

DNaseI_RoadMap

Creates a promoter/enhancer regions track from a file of RoadMap

Description

Creates a track of promoter/enhancer regions from a file of RoadMap using the Gviz bioconductor package. A complete list of features and their associated colours can be found in the user guide.

Usage

```
DNaseI_RoadMap(gen="hg19", chr, start, end, bedFilePath, featureDisplay='promotor', showId=TRUE, t
```

Arguments

gen	the name of the genome. Default value=hg19
chr	The chromosome of interest
start	The starting position in the region of interest (the smallest value)
end	The end position in the region of interest (the largest value)
bedFilePath	The file path to the .BED file containing the data to be visualised
featureDisplay	A vector of features to be displayed, such as 1_TssA. Spelling and capitalisation of features must be identical to those in the user guide (in the 'State & Acronym' column). There are three possibilities. First, the visualisation of only one feature (e.g. featureDisplay <- "1_TssA"), only the name of the specific feature is required. Second, visualisation of a set of features, for this a vector of features is required (e.g. featureDisplay <- c("1_TssA","2_TssAFlnk")). Finally, visualise all features in the genomic region, achieved by using the word "all" (e.g. featureDisplay <- "all"), "all" is set by default. You can find the complete list of features and their associated colours in the user guide.
showId	Allows to visualise the Id of DNase group.
type_stacking	Object of class"character", the stacking type of overlapping items on the final plot. One in c(hide, dense, squish, pack,full). More information of the option "stacking" in Gviz

Value

An AnnotationTrack object of Gviz

Author(s)

Tiphaine Martin
Tom Hardiman

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>
Got to RoadMap Epigenome

Examples

```
library("Gviz")
chr <- "chr1"
start <- 707612
end <- 722151
gen="hg19"

extdata <- system.file("extdata", package="coMET", mustWork=TRUE)
bedFilePath <- file.path(extdata, "RoadMap/regions_prom_E063.bed")

if(interactive()){
  DNaseI_RoadMapSingle <- DNaseI_RoadMap(gen,chr,start, end, bedFilePath, featureDisplay='promotor' )
```

```

    plotTracks(DNaseI_RoadMapSingle, from = start, to = end)
  } else {
    data(DNaseI_RoadMapSingle)
    plotTracks(DNaseI_RoadMapSingle, from = start, to = end)
  }

```

 DNase_UCSC

Creation of an UCSC's DNase clusters track

Description

Creation of DNase cluster track from a connection to UCSC genome browser in using the GViz bioconductor package

Usage

```
DNase_UCSC(gen, chr, start, end, mySession, track.name = "DNase Clusters", table.name = NULL)
```

Arguments

gen	the name of the genome. Data is not currently available for GRCh38 (hg38).
chr	the chromosome of interest
start	the first position in the region of interest (the smallest value)
end	the last position in the region of interest (the largest value)
mySession	the object session from the function browserSession of rtracklayer
track.name	the name of the track DNase_UCSC. "DNase Clusters"(default)
table.name	the name of the table from the track

Value

An AnnotationTrack object of Gviz

Author(s)

Tiphaine Martin

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

http://genome-euro.ucsc.edu/cgi-bin/hgTrackUi?hgsid=202839739_2hYQ1BAOuBMAR620GjrtdrFAy6dn&c=chr6&g=

Examples

```

library("Gviz")
library("rtracklayer")

gen <- "hg19"
chr <- "chr7"
start <- 38290160
end <- 38303219
if(interactive()){

```

```

BROWSER.SESSION="UCSC"
mySession <- browserSession(BROWSER.SESSION)
genome(mySession) <- gen
track.name="Broad ChromHMM"
tabletrack<-tableNames(ucscTableQuery(mySession, track=track.name))
table.name<-tabletrack[1]
dnasetrack<-DNase_UCSC(gen,chr,start,end,mySession)
plotTracks(dnasetrack, from = start, to =end)
}else {
  data(dnasetrack)
  plotTracks(dnasetrack, from = start, to =end)
}

```

eQTL

*Creates a track from a file for eQTL data***Description**

Creates a track from a BED file for eQTL data using the Gviz bioconductor package. A complete list of features and their associated colours can be found in the user guide.

Usage

```
eQTL(gen,chr, start, end, bedFilePath, featureDisplay, showId=FALSE,type_stacking="squish",just_g
```

Arguments

gen	the name of the genome.
chr	The chromosome of interest
start	The starting position in the region of interest (the smallest value)
end	The end position in the region of interest (the largest value)
bedFilePath	The file path to the .BED file containing the data to be visualised
featureDisplay	A vector of eQTL features to be displayed, such as SNP. Spelling and capitalisation of features must be identical to those in the user guide. There are three possibilities. First, the visualisation of only one feature (e.g. featureDisplay <- "CpG"), only the name of the specific feature is required. Second, visualisation of a set of features, for this a vector of features is required (e.g. featureDisplay <- c("SNP","CpG")). Finally, visualison all features in the genomic region, achived by using the word "all" (e.g. featureDisplay <- "all"), "all" is set by default. You can find the complete list of features and their associated colours in the user guide.
showId	Allows to visualise the Id of eQTL group.
type_stacking	Object of class"character", the stacking type of overlapping items on the final plot.One in c(hide, dense, squish, pack,full). More information cf the option "stacking" in Gviz
just_group	position. say where we write the name of group (choice in c("above","righ","left"))

Value

An AnnotationTrack object of Gviz

Author(s)

Tiphaine Martin
Tom Hardiman

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>
Got to ENSEMBLregulation binding motif biomart

Examples

```
library("Gviz")
chr <- "chr15"
start <- 74889136
end <- 75018200
featureDisplay <- "SNP"
gen="hg19"

extdata <- system.file("extdata", package="coMET",mustWork=TRUE)
bedFilePath <- file.path(extdata, "eQTL.bed")

if(interactive()){
  eQTLTrackSingle <- eQTL(gen,chr,start, end, bedFilePath, featureDisplay = featureDisplay )
  plotTracks(eQTLTrackSingle, from = start, to = end)
} else {
  data(eQTLTrackSingle)
  plotTracks(eQTLTrackSingle, from = start, to = end)
}

#####

library("Gviz")
chr <- "chr15"
start <- 74889136
end <- 75018200
featureDisplay <- c("SNP", "mRNA_pheno")
gen="hg19"

extdata <- system.file("extdata", package="coMET",mustWork=TRUE)
bedFilePath <- file.path(extdata, "eQTL.bed")

if(interactive()){
  eQTLTrackMultiple <- eQTL(gen,chr,start, end, bedFilePath, featureDisplay = featureDisplay )
  plotTracks(eQTLTrackMultiple, from = start, to = end)
} else {
  data(eQTLTrackMultiple)
  plotTracks(eQTLTrackMultiple, from = start, to = end)
}

#####

library("Gviz")
chr <- "chr15"
start <- 74889136
end <- 75018200
```

```

featureDisplay <- "all"
gen="hg19"

extdata <- system.file("extdata", package="coMET",mustWork=TRUE)
bedFilePath <- file.path(extdata, "eQTL.bed")

if(interactive()){
  eQTLTrackAll <- eQTL(gen,chr,start, end, bedFilePath, featureDisplay = featureDisplay )
  plotTracks(eQTLTrackAll, from = start, to = end)
} else {
  data(eQTLTrackAll)
  plotTracks(eQTLTrackAll, from = start, to = end)
}

```

eQTL_GTE_x
Creates a eQTL track from GTE_x

Description

Creates a track of eQTL from GTE_x using the Gviz bioconductor package. A complete list of features and their associated colours can be found in the user guide.

Usage

```
eQTL_GTEx(gen="hg19",chr,start, end, bedFilePath, featureDisplay = 'all', showId=FALSE, type_stack)
```

Arguments

gen	the name of the genome. Default value=hg19
chr	The chromosome of interest
start	The starting position in the region of interest (the smallest value)
end	The end position in the region of interest (the largest value)
bedFilePath	The path of the BED file from Kheradpour and Kellis, 2014.
featureDisplay	A vector of regulatory features to be displayed, such as Predicted heterochromatin. Spelling and capitalisation of features must be identical to those in the user guide. There are three possibilities. First, the visualisation of only one feature (e.g. featureDisplay <- "Predicted heterochromatin"), only the name of the specific feature is required. Second, visualisation of a set of features, for this a vector of features is required (e.g. featureDisplay <- c("Predicted low activity","Predicted heterochromatin")). Finally, visualise all features in the genomic region, achieved by using the word "all" (e.g. featureDisplay <- "all"), "all" is set by default. You can find the complete list of features and their associated colours in the user guide.
showId	logical. say if we write the name of group
type_stacking	Object of class"character", the stacking type of overlapping items on the final plot.One in c(hide, dense, squish, pack,full). More information of the option "stacking" in Gviz
just_group	position. say where we write the name of group (choice in c("above","right","left"))

Value

An AnnotationTrack object of Gviz

Author(s)

Tiphaine Martin

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

Got to BindingMotifsBiomart binding motif biomart

Examples

```
library("Gviz")
gen <- "hg19"
chr <- "chr3"
start <- 132423172
end <- 132442807
extdata <- system.file("extdata", package="coMET", mustWork=TRUE)
bedFilePath <- file.path(extdata, "/GTEX/eQTL_Uterus_Analysis_extract100.snpgenes")
```

```
if(interactive()){
  eGTexTrackall <- eQTL_GTex(gen,chr,start, end, bedFilePath, featureDisplay="all", showId=TRUE,just_group="1")
  plotTracks(eGTexTrackall, from = start, to = end)
} else {
  data(eGTexTrackall)
  plotTracks(eGTexTrackall, from = start, to = end)
}
```

```
if(interactive()){
  eGTexTrackSNP <- eQTL_GTex(gen,chr,start, end, bedFilePath, featureDisplay="SNP", showId=TRUE,just_group="1")
  plotTracks(eGTexTrackSNP, from = start, to = end)
} else {
  data(eGTexTrackSNP)
  plotTracks(eGTexTrackSNP, from = start, to = end)
}
```

GAD_UCSC

Create one track of the genomic positions of variants from the Genetic Association Database (GAD)

Description

Create one track of the genomic positions of variants from the Genetic Association Database (GAD) (archive of human genetic association studies of complex diseases and disorders) using the Gviz bioconductor package

Usage

```
GAD_UCSC(gen, chr, start, end, showId=FALSE)
```

Arguments

gen	the name of the genome. Data is not currently available for GRCh38 (hg38).
chr	the chromosome of interest
start	the first position in the region of interest (the smallest value)
end	the last position in the region of interest (the largest value)
showId	Show the ID of the genetic elements

Value

An Ucsctrack object of Gviz

Author(s)

Tiphaine Martin

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

http://genome-euro.ucsc.edu/cgi-bin/hgTrackUi?hgid=202839739_2hYQ1BAOuBMAR620GjrtdrFAy6dn&c=chr6&g=

See Also

[ISCA_UCSC](#), [GWAScatalog_UCSC](#), [knownGenes_UCSC](#), [genesName_ENSEMBL](#), [GeneReviews_UCSC](#), [genes_ENSEMBL](#), [xenorefGenes_UCSC](#), [transcript_ENSEMBL](#),

Examples

```
library("Gviz")
gen2 <- "hg19"
chrom2 <- "chr2"
start2 <- 38290160
end2 <- 38303219

if(interactive()) {
  gadtrack<-GAD_UCSC(gen=gen2 ,chr=chrom2 ,start=start2 ,end=end2)
  plotTracks(gadtrack, from = start2, to =end2)
} else {
  data(gadtrack)
  plotTracks(gadtrack, from = start2, to =end2)
}
```

gcContent_UCSC

Create one track of GC content from UCSC

Description

Create a track of GC content from UCSC using the Gviz bioconductor package

Usage

```
gcContent_UCSC(gen, chr, start, end)
```

Arguments

gen	the name of the genome
chr	the chromosome of interest
start	the first position in the region of interest (the smallest value)
end	the last position in the region of interest (the largest value)

Value

A UcsTrack object of Gviz

Author(s)

Tiphaine Martin

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

http://genome-euro.ucsc.edu/cgi-bin/hgTrackUi?hgsid=202839739_2hYQ1BAOuBMAR620GjrtdrFAy6dn&c=chr6&g=

Examples

```
library("Gviz")
gen <- "hg38"
chr <- "chr7"
start <- 38290160
end <- 38303219

if(interactive()){
  gctrack<-gcContent_UCSC(gen,chr,start,end)
  plotTracks(gctrack,from= start, to=end)
} else {
  data(gctrack)
  plotTracks(gctrack,from= start, to=end)
}
```

GeneReviews_UCSC

Create one track of the genomic positions of variants from GeneReviews

Description

Create one track of the genomic positions of variants from GeneReviews using the Gviz bioconductor package

Usage

```
GeneReviews_UCSC(gen, chr, start, end, showId=FALSE)
```


Arguments

gen	the name of the genome
chr	the chromosome of interest
start	the first position in the region of interest (the smallest value)
end	the last position in the region of interest (the largest value)
showId	Show the ID of the genetic elements

Value

An UcscTrack object of Gviz

Author(s)

Tiphaine Martin

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

http://genome-euro.ucsc.edu/cgi-bin/hgTrackUi?hgsid=202839739_2hYQ1BAOuBMAR620GjrtdrFAy6dn&c=chr6&g=

See Also

[ISCA_UCSC](#), [GWAScatalog_UCSC](#), [knownGenes_UCSC](#), [genesName_ENSEMBL](#), [GAD_UCSC](#), [genes_ENSEMBL](#), [xenorefGenes_UCSC](#), [transcript_ENSEMBL](#),

Examples

```
library("Gviz")
gen <- "hg38"
chrom <- "chr2"
start <- 100000000
end <- 1000000000
if(interactive()){
  geneRtrack <- GeneReviews_UCSC(gen,chrom,start,end,showId=TRUE)
  plotTracks(geneRtrack, from = start, to = end)
} else {
  data(GeneReviewTrack)
  plotTracks(geneRtrack, from = start, to = end)
}
```

genesName_ENSEMBL *Obtain the genes names in the genomic regions of interest from ENSEMBL*

Description

Obtain the genes names in the genomic regions of interest from ENSEMBL

Usage

```
genesName_ENSEMBL(gen, chr, start, end, dataset)
```

Arguments

gen	the name of the genome
chr	the chromosome of interest
start	the first position in the region of interest (the smallest value)
end	the last position in the region of interest (the largest value)
dataset	Name of the database to select genes

Details

Can be null

Value

List of name of genes found in this region of interest.

Author(s)

Tiphaine Martin

References

go to ENSEMBL

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

See Also

[ISCA_UCSC](#), [GWAScatalog_UCSC](#), [knownGenes_UCSC](#), [GeneReviews_UCSC](#), [GAD_UCSC](#), [genes_ENSEMBL](#), [xenorefGenes_UCSC](#), [transcript_ENSEMBL](#),

Examples

```
library("Gviz")
gen <- "hg38"
chr <- "chr7"
start <- 38290160
end <- 38303219

if(interactive()){
  dataset<- "hsapiens_gene_ensembl"
  geneNameEnsembl<- genesName_ENSEMBL(gen,chr,start,end,dataset)
  geneNameEnsembl
} else {
  data(geneNameEnsembl)
  geneNameEnsembl
}
```

genes_ENSEMBL	<i>Create one track of the genes in the genomic regions of interest from EMSEMBL</i>
---------------	--

Description

Create one track of the genes in the genomic regions of interest from EMSEMBL using the Gviz bioconductor package

Usage

```
genes_ENSEMBL(gen, chr, start, end, showId=FALSE)
```

Arguments

gen	the name of the genome
chr	the chromosome of interest
start	the first position in the region of interest (the smallest value)
end	the last position in the region of interest (the largest value)
showId	Show the ID of the genetic elements

Value

A BiomartGeneRegionTrack object of Gviz

Author(s)

Tiphaine Martin

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

http://genome-euro.ucsc.edu/cgi-bin/hgTrackUi?hgsid=202839739_2hYQ1BAOuBMAR620GjrtdrFAy6dn&c=chr6&g=

See Also

[ISCA_UCSC](#), [GWAScatalog_UCSC](#), [knownGenes_UCSC](#), [genesName_ENSEMBL](#), [GeneReviews_UCSC](#), [GAD_UCSC](#), [xenorefGenes_UCSC](#), [transcript_ENSEMBL](#),

Examples

```
library("Gviz")
gen <- "hg19"
chrom <- "chr2"
start <- 38290160
end <- 38303219
if(interactive()) {
  genetrack <- genes_ENSEMBL(gen, chrom, start, end, showId=TRUE)
  plotTracks(genetrack, from = start, to = end)
} else {
  data(geneENSEMBLtrack)
```

```

    plotTracks(genetrack, from = start, to =end)
  }

```

GWAScatalog_UCSC	<i>Create one track of the genomic positions of variants from the GWAS catalog</i>
------------------	--

Description

Create one track of the genomic positions of variants from the NHGRI Catalog of Published Genome-Wide Association Studies using the Gviz bioconductor package

Usage

```
GWAScatalog_UCSC(gen, chr, start, end, showId=FALSE)
```

Arguments

gen	the name of the genome
chr	the chromosome of interest
start	the first position in the region of interest (the smallest value)
end	the last position in the region of interest (the largest value)
showId	Show the ID of the genetic elements

Value

An UcsTrack object of Gviz

Author(s)

Tiphaine Martin

References

http://genome-euro.ucsc.edu/cgi-bin/hgTrackUi?hgsid=202839739_2hYQ1BAOuBMAR620GjrtdrFAy6dn&c=chr6&g=
<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

See Also

[ISCA_UCSC](#), [knownGenes_UCSC](#), [genesName_ENSEMBL](#), [GeneReviews_UCSC](#), [GAD_UCSC](#), [genes_ENSEMBL](#), [xenorefGenes_UCSC](#), [transcript_ENSEMBL](#),

Examples

```
library("Gviz")
gen <- "hg38"
chrom <- "chr2"
start <- 10000
end <- 100000

if(interactive()) {
  gwastrack <- GWAScatalog_UCSC(gen, chrom, start, end)
  plotTracks(gwastrack, from = start, to = end)
} else {
  data(GWASTrack)
  plotTracks(gwastrack, from = start, to = end)
}
```

HiCdata2matrix	<i>Creates a HiC matrix from a file (Rao et al., 2014)</i>
----------------	--

Description

Creates a HiC matrix from Rao et al., 2014.

Usage

```
HiCdata2matrix( chr, start, end, bedFilePath)
```

Arguments

chr	The chromosome of interest
start	The starting position in the region of interest (the smallest value)
end	The end position in the region of interest (the largest value)
bedFilePath	The path of the BED file from Kheradpour and Kellis, 2014.

Value

An AnnotationTrack object of Gviz

Author(s)

Tiphaine Martin

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

Got to BindingMotifsBiomart binding motif biomart

Examples

```

library("corrplot")
gen <- "hg19"
chr<-"chr1"
start <- 5000000
end <- 9000000

extdata <- system.file("extdata", package="coMET",mustWork=TRUE)
bedFilePath <- file.path(extdata, "HiC/chr1_1mb.RAWobserved")

if(interactive()){
  matrix_HiC_Rao <- HiCdata2matrix(chr,start, end, bedFilePath)
  cor_matrix_HiC <- cor(matrix_HiC_Rao)
  diag(cor_matrix_HiC)<-1
  corrplot(cor_matrix_HiC, method = "circle")
} else {
  data(matrix_HiC_Rao)
  cor_matrix_HiC <- cor(matrix_HiC_Rao)
  diag(cor_matrix_HiC)<-1
  corrplot(cor_matrix_HiC, method = "circle")
}

```

HistoneAll_UCSC

Create multiple tracks of histone modifications from the UCSC genome browser

Description

Create multiple tracks of histone modifications from the UCSC genome browser (ENCODE/Broad) using the Gviz bioconductor package

Usage

```

HistoneAll_UCSC(gen, chr, start, end, mySession, pattern = NULL,
  track.name = "Broad Histone", table.name = NULL)

```

Arguments

gen	the name of the genome. Data is not currently available for GRCh38 (hg38).
chr	the chromosome of interest
start	the first position in the region of interest (the smallest value)
end	the last position in the region of interest (the largest value)
mySession	the object session from the function browserSession of rtracklayer
pattern	The cell type
track.name	the name of the track, for example: "Broad Histone"
table.name	the name of the table from the track

Value

A list of AnnotationTrack object of Gviz

Author(s)

Tiphaine Martin

References

http://genome-euro.ucsc.edu/cgi-bin/hgTrackUi?hgsid=202839739_2hYQ1BAOuBMAR620GjrtdrFAy6dn&c=chr6&g=

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

See Also

[HistoneOne_UCSC](#),

Examples

```
library("Gviz")
library("rtracklayer")
gen <- "hg19"
chr <- "chr2"
start <- 38290160
end <- 38313219

if(interactive()){
  BROWSER.SESSION="UCSC"
  mySession <- browserSession(BROWSER.SESSION)
  genome(mySession) <- gen
  pattern1 <- "GM12878"

  histonalltrack<-HistoneAll_UCSC(gen,chr,start,end,mySession, pattern=pattern1,track.name="Broad Histone")
  plotTracks(histonalltrack, from = start, to =end)
} else {
  data(histonalltrack)
  plotTracks(histonalltrack, from = start, to =end)
}
```

HistoneOne_UCSC

Create one track of one histone modification profile from the UCSC genome browser

Description

Create one track of one histone modification profile from the UCSC genome browser (ENCODE/Broad) using the Gviz bioconductor package

Usage

```
HistoneOne_UCSC(gen, chr, start, end, mySession, track.name = "Broad Histone", table.name = NULL)
```

Arguments

gen	the name of the genome. Data is not currently available for GRCh38 (hg38).
chr	the chromosome of interest
start	the first position in the region of interest (the smallest value)
end	the last position in the region of interest (the largest value)
mySession	the object session from the function browserSession of rtracklayer
track.name	the name of the track, for example: "Broad Histone"
table.name	the name of the table from the track

Value

An AnnotationTrack object of Gviz

Author(s)

Tiphaine Martin

References

http://genome-euro.ucsc.edu/cgi-bin/hgTrackUi?hgsid=202839739_2hYQ1BAOuBMAR620GjrtdrFAy6dn&c=chr6&g=
<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

See Also

[HistoneAll_UCSC](#)

Examples

```
library("Gviz")
library("rtracklayer")
gen <- "hg19"
chr <- "chr2"
start <- 38290160
end <- 38303219

if(interactive()) {
  BROWSER.SESSION="UCSC"
  mySession <- browserSession(BROWSER.SESSION)
  genome(mySession) <- gen
  histoneonetrack<-HistoneOne_UCSC(gen,chr,start,end,mySession)
  plotTracks(histoneonetrack, from = start, to =end)
} else {
  data(histoneonetrack)
  plotTracks(histoneonetrack, from = start, to =end)
}
```

imprintedGenes_GTEEx *Creates a imprinted genes track from GTEEx*

Description

Creates a track of imprinted genes from GTEEx using the Gviz bioconductor package. A complete list of features and their associated colours can be found in the user guide.

Usage

```
imprintedGenes_GTEEx(gen="hg19", chr,start, end, tissues="all", classification="all",showId=FALSE)
```

Arguments

gen	the name of the genome. Default value=hg19
chr	The chromosome of interest
start	The starting position in the region of interest (the smallest value)
end	The end position in the region of interest (the largest value)
tissues	list of tissues among 33 tissues in GTEEx
classification	list of classification from 5 types (biallelic, consistent with biallelic, consistent with imprinting, imprinted, NC)
showId	logical. say if we write the name of group

Value

An AnnotationTrack object of Gviz

Author(s)

Tiphaine Martin

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

Got to BindingMotifsBiomart binding motif biomart

Examples

```
library("Gviz")
gen<-"hg19"
chr<- "chr6"
start <- 144251437
end <- 144330541

if(interactive()){
  allIGtrack <- imprintedGenes_GTEEx(gen,chr,start, end, tissues="all", classification="imprinted",showId=TRUE)
  allimprintedIGtrack <- imprintedGenes_GTEEx(chr,start, end, tissues="all", classification="imprinted",showId=TRUE)
  StomachIGtrack <-imprintedGenes_GTEEx(chr,start, end, tissues="Stomach", classification="all",showId=TRUE)
  PancreasIGtrack <- imprintedGenes_GTEEx(chr,start, end, tissues="Pancreas", classification="all",showId=TRUE)
  PancreasimprintedIGtrack <- imprintedGenes_GTEEx(chr,start, end, tissues="Pancreas", classification="biallelic",showId=TRUE)
```

```

    imprintinglist <- list(allIGtrack,allimprintedIGtrack,StomachIGtrack,PancreasIGtrack,PancreasimprintedIG
    plotTracks(,imprintinglist, from = start, to = end)
  } else {
    data(allIGtrack)
    data(allimprintedIGtrack)
    data(StomachIGtrack)
    data(PancreasIGtrack)
    data(PancreasimprintedIGtrack)
    imprintinglist <- list(allIGtrack,allimprintedIGtrack,StomachIGtrack,PancreasIGtrack,PancreasimprintedIG
    plotTracks(imprintinglist, from = start, to = end)
  }

```

interestGenes_ENSEMBL *Create one track of the genes in the genomic regions of interest from EMSEMBL*

Description

Create one track of the genes in the genomic regions of interest from EMSEMBL using the Gviz bioconductor package

Usage

```
interestGenes_ENSEMBL(gen, chr, start, end, interestfeatures,interestcolor, showId=FALSE)
```

Arguments

gen	the name of the genome
chr	the chromosome of interest
start	the first position in the region of interest (the smallest value)
end	the last position in the region of interest (the largest value)
interestfeatures	A data frame with 3 columns: start of features, end of features, and type of features
interestcolor	A list with the color for each new features defined
showId	Show the ID of the genetic elements

Value

A BiomartGeneRegionTrack object of Gviz

Author(s)

Tiphaine Martin

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

http://genome-euro.ucsc.edu/cgi-bin/hgTrackUi?hgsid=202839739_2hYQ1BAOuBMAR620GjrtdrFAy6dn&c=chr6&g=

See Also

[ISCA_UCSC](#), [GWAScatalog_UCSC](#), [knownGenes_UCSC](#), [genesName_ENSEMBL](#), [GeneReviews_UCSC](#), [GAD_UCSC](#), [xenorefGenes_UCSC](#), [transcript_ENSEMBL](#),

Examples

```
library("Gviz")
gen <- "hg19"
chr <- "chr15"
start <- 75011669
end <- 75019876
interestfeatures <- rbind(c("75011883", "75013394", "bad"), c("75013932", "75014410", "good"))
interestcolor <- list("bad"="red", "good"="green")

if(interactive()) {
  interestgenesENSMBLtrack<-interestGenes_ENSEMBL(gen,chr,start,end,interestfeatures,interestcolor,showId=T)
  plotTracks(interestgenesENSMBLtrack, from = start, to =end)
} else {
  data(interestgenesENSMBLtrack)
  plotTracks(interestgenesENSMBLtrack, from = start, to =end)
}
```

interestTranscript_ENSEMBL

Create a track of transcripts from ENSEMBL

Description

Create a track to visualize different transcripts from ENSEMBL using the Gviz bioconductor package

Usage

```
interestTranscript_ENSEMBL(gen, chr, start, end, interestfeatures, interestcolor, showId = FALSE)
```

Arguments

gen	the name of the genome
chr	the chromosome of interest
start	the first position in the region of interest (the smallest value)
end	the last position in the region of interest (the largest value)
interestfeatures	A data frame with 3 columns: start of features, end of features, and type of features
interestcolor	A list with the color for each new features defined
showId	Show the ID of the genetic elements

Value

A BiomartGeneRegionTrack object of Gviz

Author(s)

Tiphaine Martin

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

http://genome-euro.ucsc.edu/cgi-bin/hgTrackUi?hgsid=202839739_2hYQ1BAOuBMAR620GjrdrFAy6dn&c=chr6&g=

See Also

[ISCA_UCSC](#), [GWAScatalog_UCSC](#), [knownGenes_UCSC](#), [genesName_ENSEMBL](#), [GeneReviews_UCSC](#), [GAD_UCSC](#), [genes_ENSEMBL](#), [xenorefGenes_UCSC](#),

Examples

```
library("Gviz")
gen <- "hg19"
chr <- "chr15"
start <- 75011669
end <- 75019876
interestfeatures <- rbind(c("75017782", "75017835", "bad"), c("75013755", "75013844", "good"))
interestcolor <- list("bad"="red", "good"="green")

if(interactive()){
  interesttransENSMBltrack<-interestTranscript_ENSEMBL(gen,chr,start,end,interestfeatures,interestcolor,showId=TRUE)
  plotTracks(interesttransENSMBltrack, from=start, to=end)
} else {
  data(interesttransENSMBltrack)
  plotTracks(interesttransENSMBltrack, from=start, to=end)
}
```

ISCA_UCSC

Create one track of the genomic positions of variants from ISCA (obsolete database)

Description

Create one track of the genomic positions of variants from International Standards for Cytogenomic Arrays (ISCA) Consortium using the Gviz bioconductor package (obsolete database, Impossible to access to data from UCSC from September 2015)

Usage

```
ISCA_UCSC(gen, chr, start, end, mySession, table.name, showId=FALSE)
```

Arguments

gen	the name of the genome
chr	the chromosome of interest
start	the first position in the region of interest (the smallest value)
end	the last position in the region of interest (the largest value)
mySession	the object session from the function browserSession of rtracklayer
table.name	A table of ISCAT classifications: iscaBenign, iscaCuratedBenign, iscaCuratedPathogenic, iscaLikelyBenign, iscaLikelyPathogenic, iscaPathGainCum, iscaPathLossCum, iscaPathogenic, iscaUncertain
showId	Show the ID of the genetic elements

Value

An UcsTrack object of Gviz

Author(s)

Tiphaine Martin

References

http://genome-euro.ucsc.edu/cgi-bin/hgTrackUi?hgsid=202839739_2hYQ1BAOuBMAR620GjrtdrFAy6dn&c=chr6&g=
<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

See Also

[GWAScatalog_UCSC](#), [knownGenes_UCSC](#), [genesName_ENSEMBL](#), [GeneReviews_UCSC](#), [GAD_UCSC](#), [genes_ENSEMBL](#), [xenorefGenes_UCSC](#), [transcript_ENSEMBL](#),

Examples

```
# Oboselet function

#library("Gviz")
#library("rtracklayer")
#gen <- "hg19"
#chr <- "chr2"
#start <- 38292433
#end <- 38305492

#if(interactive()){
#  BROWSER.SESSION="UCSC"
#  mySession <- browserSession(BROWSER.SESSION)
#  genome(mySession) <- gen
#  iscatrack <- ISCA_UCSC(gen,chrom,start,end,mySession, table="iscaPathogenic")
#  plotTracks(iscatrack, from = start, to =end)
#} else {
#  data(ISCAtrack_Grch38)
#  plotTracks(iscatrack, from = start, to =end)
#}
```

knownGenes_UCSC *Create a track of known genes from the UCSC genome browser*

Description

Create a track of known genes from the UCSC genome browser using the Gviz bioconductor package

Usage

```
knownGenes_UCSC(gen, chr, start, end, showId=TRUE)
```

Arguments

gen	the name of the genome
chr	the chromosome of interest
start	the first position in the region of interest (the smallest value)
end	the last position in the region of interest (the largest value)
showId	Show the ID of the genetic elements

Value

An Ucsctrack object of Gviz

Author(s)

Tiphaine Martin

References

http://genome-euro.ucsc.edu/cgi-bin/hgTrackUi?hgsid=202839739_2hYQ1BAOuBMAR620GjrtdrFAy6dn&c=chr6&g=
<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

See Also

[ISCA_UCSC](#), [GWAScatalog_UCSC](#), [genesName_ENSEMBL](#), [GeneReviews_UCSC](#), [GAD_UCSC](#), [genes_ENSEMBL](#), [xenorefGenes_UCSC](#), [transcript_ENSEMBL](#),

Examples

```
library("Gviz")
gen <- "hg38"
chr <- "chr7"
start <- 38290160
end <- 38303219

if(interactive()) {
  genesUcsctrack<-knownGenes_UCSC(gen,chr,start,end,showId=TRUE)
  plotTracks(genesUcsctrack, from = start, to =end)
}else {
  data(genesUcsctrack)
```

```

    plotTracks(genesUcsctrack, from = start, to =end)
  }

```

metQTL

Creates a track from a file for metQTL data

Description

Creates a track from a BED file for metQTL data using the Gviz bioconductor package. A complete list of features and their associated colours can be found in the user guide.

Usage

```
metQTL(gen, chr, start, end, bedFilePath, featureDisplay, showId=FALSE, type_stacking="squish", just_group)
```

Arguments

gen	the name of the genome. Default value=hg19
chr	The chromosome of interest
start	The starting position in the region of interest (the smallest value)
end	The end position in the region of interest (the largest value)
bedFilePath	The file path to the .BED file containing the data to be visualised
featureDisplay	A vector of metQTL features to be displayed, such as SNP. Spelling and capitalisation of features must be identical to those in the user guide. There are three possibilities. First, the visualisation of only one feature (e.g. featureDisplay <- "CpG"), only the name of the specific feature is required. Second, visualisation of a set of features, for this a vector of features is required (e.g. featureDisplay <- c("SNP","CpG")). Finally, visualisation all features in the genomic region, achieved by using the word "all" (e.g. featureDisplay <- "all"), "all" is set by default. You can find the complete list of features and their associated colours in the user guide.
showId	Allows the visualization of the Id of metQTL group.
type_stacking	Sets the type of stacking used by Gviz for plots. By default this is set to 'squish'. For more information see Gviz user guide.
just_group	position. say where we write the name of group (choice in c("above","right","left"))

Value

An AnnotationTrack object of Gviz

Author(s)

Tiphaine Martin
Tom Hardiman

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>
Got to ENSEMBLregulation binding motif biomart

Examples

```

library("Gviz")

gen <- 'hg19'
chr <- "chr15"
start <- 74889136
end <- 75018200
featureDisplay <- "trans_local_metQTL"
type_stacking <- "squish"

extdata <- system.file("extdata", package="coMET", mustWork=TRUE)
mqlbedFilePath <- file.path(extdata, "metQTL.bed")

if(interactive()){
  metQTLTrackSingle <- metQTL(gen,chr,start, end,mqlbedFilePath, featureDisplay = featureDisplay )
  plotTracks(metQTLTrackSingle, from = start, to = end)
} else {
  data(metQTLTrackSingle)
  plotTracks(metQTLTrackSingle, from = start, to = end)
}

###

library("Gviz")

gen <- 'hg19'
chr <- "chr15"
start <- 74889136
end <- 75018200

featureDisplay <- c("trans_local_metQTL", "CpG")

extdata <- system.file("extdata", package="coMET", mustWork=TRUE)
bedFilePath <- file.path(extdata, "metQTL.bed")

if(interactive()){
  metQTLTrackMultiple <- metQTL(gen,chr,start, end, bedFilePath, featureDisplay = featureDisplay )
  plotTracks(metQTLTrackMultiple, from = start, to = end)
} else {
  data(metQTLTrackMultiple)
  plotTracks(metQTLTrackMultiple, from = start, to = end)
}

#####

library("Gviz")

gen <- 'hg19'
chr <- "chr15"
start <- 74889136
end <- 75018200

featureDisplay <- "all"

extdata <- system.file("extdata", package="coMET", mustWork=TRUE)
bedFilePath <- file.path(extdata, "metQTL.bed")

```



```

if(interactive()){
  metQTLTrackAll <- metQTL(gen,chr,start, end, bedFilePath, featureDisplay = featureDisplay )
  plotTracks(metQTLTrackAll, from = start, to = end)
} else {
  data(metQTLTrackAll)
  plotTracks(metQTLTrackAll, from = start, to = end)
}

```

miRNATargetRegionsBiomart_ENSEMBL

Creates a track of miRNA target regions from ENSEMBL

Description

Creates a track of miRNA target regions from ENSEMBL using the Gviz bioconductor package.

Usage

```
miRNATargetRegionsBiomart_ENSEMBL(gen, chr, start, end, showId=FALSE, datasetEnsembl = "hsapiens_
```

Arguments

gen	The name of the genome. Currently only handles human data from either the previous version, GRCh37 (also known as hg19) or the current version, GRCh38 (also known as hg38).
chr	The chromosome of interest
start	The starting position in the region of interest (the smallest value)
end	The end position in the region of interest (the largest value)
showId	Show the ID of the genetic elements
datasetEnsembl	Allows the user to manually set which data set is used if required.Default=hsapiens_mirna_target_feat

Value

An AnnotationTrack object of Gviz

Author(s)

Tiphaine Martin

Tom Hardiman

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

Got to ENSEMBLregulation binding motif biomart

Examples

```

library("Gviz")
gen <- "hg38"
chr <- "chr1"
start <- 1000000
end <- 2000000

if(interactive()){
  miRNATargetRegionsBiomartTrack<-miRNATargetRegionsBiomart_ENSEMBL(gen,chr,start,end,
    datasetEnsembl = "hsapiens_mirna_target_feature")
  plotTracks(miRNATargetRegionsBiomartTrack, from = start, to = end)
} else {
  data(miRNATargetRegionsBiomartTrack)
  plotTracks(miRNATargetRegionsBiomartTrack, from = start, to = end)
}

```

otherRegulatoryRegions_ENSEMBL

Creates a track of other regulatory regions from ENSEMBL

Description

Creates a track from ENSEMBL of other regulatory regions using the Gviz bioconductor package. A complete list of features and their associated colours can be found in the user guide.

Usage

```
otherRegulatoryRegions_ENSEMBL(gen, chr, start, end, featureDisplay = "all", datasetEnsembl = "hsapiens_mirna_target_feature")
```

Arguments

gen	The name of the genome. Currently only handles human data from either the previous version, GRCh37 (also known as hg19) or the current version, GRCh38 (also known as hg38).
chr	The chromosome of interest
start	The starting position in the region of interest (the smallest value)
end	The end position in the region of interest (the largest value)
featureDisplay	A vector of regulatory features to be displayed, such as Enhancer. Spelling and capitalisation of features must be identical to those in the user guide. There are two possibilities. First, the visualisation of only one feature (e.g. featureDisplay <- "Enhancer"), only the name of the specific feature is required. Second, visualisation all features in the genomic region, achieved by using the word "all" (e.g. featureDisplay <- "all"), "all" is set by default. You can find the complete list of features and their associated colours in the user guide.
datasetEnsembl	Allows the user to manually set which data set is used if required.

Value

An AnnotationTrack object of Gviz

Author(s)

Tiphaine Martin
Tom Hardiman

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>
Got to ENSEMBLregulation binding motif biomart

Examples

```
library("Gviz")
gen <- "hg38"
chr <- "chr1"
start <- 100000
end <- 5000000
featureDisplay <- "Enhancer"

if(interactive()){
  otherRegulatoryRegionsTrackSingle<-otherRegulatoryRegions_ENSEMBL(gen,chr,start,end,featureDisplay)
  plotTracks(otherRegulatoryRegionsTrackSingle, from = start, to = end)
} else {
  data(otherRegulatoryRegionsTrackSingle)
  plotTracks(otherRegulatoryRegionsTrackSingle, from = start, to = end)
}

#####

library("Gviz")
gen <- "hg38"
chr <- "chr1"
start <- 100000
end <- 5000000
featureDisplay <- "all"
if(interactive()){
  otherRegulatoryRegionsTrackAll<-otherRegulatoryRegions_ENSEMBL(gen,chr,start,end,featureDisplay)
  plotTracks(otherRegulatoryRegionsTrackAll, from = start, to = end)
} else {
  data(otherRegulatoryRegionsTrackAll)
  plotTracks(otherRegulatoryRegionsTrackAll, from = start, to = end)
}
```

psiQTL_GTEEx

Creates a psiQTL track from GTEEx

Description

Creates a track of psiQTL from GTEEx using the Gviz bioconductor package. A complete list of features and their associated colours can be found in the user guide.

Usage

```
psiQTL_GTEEx(gen,chr,start, end, bedFilePath, featureDisplay = 'all', showId=FALSE, type_stacking=
```

Arguments

<code>gen</code>	the name of the genome.
<code>chr</code>	The chromosome of interest
<code>start</code>	The starting position in the region of interest (the smallest value)
<code>end</code>	The end position in the region of interest (the largest value)
<code>bedFilePath</code>	The path of the BED file from Kheradpour and Kellis, 2014.
<code>featureDisplay</code>	A vector of regulatory features to be displayed, such as Predicted heterochromatin. Spelling and capitalisation of features must be identical to those in the user guide. There are three possibilities. First, the visualisation of only one feature (e.g. <code>featureDisplay <- "Predicted heterochromatin"</code>), only the name of the specific feature is required. Second, visualisation of a set of features, for this a vector of features is required (e.g. <code>featureDisplay <- c("Predicted low activity", "Predicted heterochromatin")</code>). Finally, visualise all features in the genomic region, achieved by using the word "all" (e.g. <code>featureDisplay <- "all"</code>), "all" is set by default. You can find the complete list of features and their associated colours in the user guide.
<code>showId</code>	logical. say if we write the name of group
<code>type_stacking</code>	Object of class "character", the stacking type of overlapping items on the final plot. One in <code>c(hide, dense, squish, pack, full)</code> . More information of the option "stacking" in Gviz
<code>just_group</code>	position. say where we write the name of group (choice in <code>c("above", "right", "left")</code>)

Value

An `AnnotationTrack` object of Gviz

Author(s)

Tiphaine Martin

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

Got to `BindingMotifsBiomart` binding motif biomart

Examples

```
library("Gviz")
gen <- "hg19"
chr <- "chr13"
start <- 52713837
end <- 52715894
extdata <- system.file("extdata", package="coMET", mustWork=TRUE)
psiQTLFilePath <- file.path(extdata, "/GTEX/psiQTL_Assoc-total.AdiposeTissue.txt")

if(interactive()){
  psiQTLTrackall <- psiQTL_GTEx(gen, chr, start, end, psiQTLFilePath, featureDisplay = 'all', showId=TRUE, type_stacking="squish", just_group="right")
  plotTracks(psiQTLTrackall, from = start, to = end)
} else {
```

```

    data(psiGTexTrackall)
    plotTracks(psiGTexTrackall, from = start, to = end)
  }

  if(interactive()){
    psiGTexTrackSNP<- psiQTL_GTex(gen,chr,start, end, psiQTLFilePath, featureDisplay = 'SNP', showId=TRUE, type=
    plotTracks(psiGTexTrackSNP, from = start, to = end)
  } else {
    data(psiGTexTrackSNP)
    plotTracks(psiGTexTrackSNP, from = start, to = end)
  }

```

refGenes_UCSC

Create a track of RefSeq genes from the UCSC genome browser

Description

Create a track of RefSeq genes from the UCSC genome browser using the Gviz bioconductor package

Usage

```
refGenes_UCSC(gen, chr, start, end, IdType="Ref", showId=TRUE)
```

Arguments

gen	The name of the genome
chr	The chromosome of interest
start	The first position in the region of interest (the smallest value)
end	The last position in the region of interest (the largest value)
IdType	When set to 'ref' shows the gene reference, when set to "name" shows the gene name
showId	Shows the ID or name of the genetic elements

Value

An UcsTrack object of Gviz

Author(s)

Tiphaine Martin
Tom Hardiman

References

http://genome-euro.ucsc.edu/cgi-bin/hgTrackUi?hgsid=202839739_2hYQ1BAOuBMAR620GjrtdrFAy6dn&c=chr6&g=
<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

See Also

[ISCA_UCSC](#), [GWAScatalog_UCSC](#), [genesName_ENSEMBL](#), [GeneReviews_UCSC](#), [GAD_UCSC](#), [genes_ENSEMBL](#), [xenorefGenes_UCSC](#), [transcript_ENSEMBL](#), [knownGenes_UCSC](#)

Examples

```
library("Gviz")
gen <- "hg38"
chr <- "chr7"
start <- 38203219
end <- 38303219
IdType <- "name"

if(interactive()) {
  genesUcsctrack<-refGenes_UCSC(gen,chr,start,end,IdType)
  plotTracks(genesUcsctrack, from = start, to =end)
}else {
  data(genesUcsctrack)
  plotTracks(genesUcsctrack, from = start, to =end)
}
```

regulationBiomart_ENSEMBL

Create a regulation track from ENSEMBL

Description

Create a 'Regulation' track from ENSEMBL using the Gviz bioconductor package

Usage

```
regulationBiomart_ENSEMBL(gen, chr, start, end)
```

Arguments

gen	the name of the genome
chr	the chromosome of interest
start	the first position in the region of interest (the smallest value)
end	the last position in the region of interest (the largest value)

Value

An AnnotationTrack object of Gviz

Author(s)

Tiphaine Martin

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>
 Got to ENSEMBLregulation biomart

Examples

```
library("Gviz")
gen <- "hg19"
chr <- "chr7"
start <- 38290160
end <- 38303219

if(interactive()){
  regulationENSEMBLtrack<-regulationBiomart_ENSEMBL(gen,chr,start,end)
  plotTracks(regulationENSEMBLtrack, from = start, to =end)
} else {
  data(regulationENSEMBLtrack)
  plotTracks(regulationENSEMBLtrack, from = start, to =end)
}
```

regulatoryEvidenceBiomart_ENSEMBL

Creates a regulatory feature track from ENSEMBL

Description

Creates a regulatory feature track from ENSEMBL using the Gviz bioconductor package. A complete list of features and their associated colours can be found in the user guide.

Usage

```
regulatoryEvidenceBiomart_ENSEMBL (gen, chr, start, end, featureDisplay = "all", datasetEnsembl =
```

Arguments

gen	The name of the genome. Currently only handles human data from either the previous version, GRCh37 (also known as hg19) or the current version, GRCh38 (also known as hg38).
chr	The chromosome of interest
start	The starting position in the region of interest (the smallest value)
end	The end position in the region of interest (the largest value)
featureDisplay	A vector of regulatory features to be displayed, such as DNase1. Spelling and capitalisation of features must be identical to those in the user guide. There are three possibilities. First, the visualisation of only one feature (e.g. featureDisplay <- "DNase1"), only the name of the specific feature is required. Second, visualisation of a set of features, for this a vector of features is required (e.g. featureDisplay <- c("CTCF","DNase1")). Finally, visualisation all features in the genomic region, achieved by using the word "all" (e.g. featureDisplay <- "all"), "all" is set by default. You can find the complete list of features and their associated colours in the user guide.
datasetEnsembl	Allows the user to manually set which data set is used if required.

Value

An AnnotationTrack object of Gviz

Author(s)

Tiphaine Martin

Tom Hardiman

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

Got to ENSEMBLregulation binding motif biomart

Examples

```
library("Gviz")
gen <- "hg38"
chr <- "chr1"
start <- 40000
end <- 50000
featureDisplay <- "H3K27me3"

if(interactive()){
  regulatoryEvidenceBiomartTrackSingle <- regulatoryEvidenceBiomart_ENSEMBL(gen,chr,start,end,featureDisplay)
  plotTracks(regulatoryEvidenceBiomartTrackSingle, from = start, to = end)
} else {
  data(regulatoryEvidenceBiomartTrackSingle)
  plotTracks(regulatoryEvidenceBiomartTrackSingle, from = start, to = end)
}

#####

library("Gviz")
gen <- "hg38"
chr <- "chr1"
start <- 40000
end <- 100000
featureDisplay <- c("H3K27me3","H3K36me3")

if(interactive()){
  regulatoryEvidenceBiomartTrackMultiple<-regulatoryEvidenceBiomart_ENSEMBL (gen,chr,start,end,featureDisplay)
  plotTracks(regulatoryEvidenceBiomartTrackMultiple, from = start, to = end)
} else {
  data(regulatoryEvidenceBiomartTrackMultiple)
  plotTracks(regulatoryEvidenceBiomartTrackMultiple, from = start, to = end)
}

#####

library("Gviz")
gen <- "hg38"
chr <- "chr1"
start <- 50000
end <- 100000
featureDisplay <- "all"
```



```

if(interactive()){
  regulatoryEvidenceBiomartTrackAll<-regulatoryEvidenceBiomart_ENSEMBL (gen,chr,start,end,featureDisplay)
  plotTracks(regulatoryEvidenceBiomartTrackAll, from = start, to = end)
} else {
  data(regulatoryEvidenceBiomartTrackAll)
  plotTracks(regulatoryEvidenceBiomartTrackAll, from = start, to = end)
}

```

regulatoryFeaturesBiomart_ENSEMBL

Creates a regulatory feature track from ENSEMBL

Description

Creates a regulatory feature track from ENSEMBL using the Gviz bioconductor package. A complete list of features and their associated colours can be found in the user guide.

Usage

```
regulatoryFeaturesBiomart_ENSEMBL(gen, chr, start, end, featureDisplay = "all", datasetEnsembl = "H
```

Arguments

gen	The name of the genome. Currently only handles human data from either the previous version, GRCh37 (also known as hg19) or the current version, GRCh38 (also known as hg38).
chr	The chromosome of interest
start	The starting position in the region of interest (the smallest value)
end	The end position in the region of interest (the largest value)
featureDisplay	A vector of regulatory features to be displayed, such as Promoter. Spelling and capitalisation of features must be identical to those in the user guide. There are three possibilities. First, the visualisation of only one feature (e.g. featureDisplay <- "Promoter"), only the name of the specific feature is required. Second, visualisation of a set of features, for this a vector of features is required (e.g. featureDisplay <- c("TF binding site","Promoter")). Finally, visualisation all features in the genomic region, achieved by using the word "all" (e.g. featureDisplay <- "all"), "all" is set by default. You can find the complete list of features and their associated colours in the user guide.

datasetEnsembl Allows the user to manually set which data set is used if required. Default=hsapiens_regulatory_features

Value

An AnnotationTrack object of Gviz

Author(s)

Tiphaine Martin

Tom Hardiman

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

Got to ENSEMBLregulation binding motif biomart

Examples

```
library("Gviz")
gen <- "hg38"
chr <- "chr1"
start <- 10000
end <- 500000
featureDisplay <- "Enhancer"

if(interactive()){
  regulatoryFeaturesBiomartTrackSingle<-regulatoryFeaturesBiomart_ENSEMBL(gen,chr,start,end,featureDisplay)
  plotTracks(regulatoryFeaturesBiomartTrackSingle, from = start, to = end)
} else {
  data(regulatoryFeaturesBiomartTrackSingle)
  plotTracks(regulatoryFeaturesBiomartTrackSingle, from = start, to = end)
}

#####

library("Gviz")
gen <- "hg38"
chr <- "chr1"
start <- 10000
end <- 100000
featureDisplay <- c("CTCF Binding Site","Enhancer")

if(interactive()){
  regulatoryFeaturesBiomartTrackMultiple<-regulatoryFeaturesBiomart_ENSEMBL(gen,chr,start,end,featureDisplay)
  plotTracks(regulatoryFeaturesBiomartTrackMultiple, from = start, to = end)
} else {
  data(regulatoryFeaturesBiomartTrackMultiple)
  plotTracks(regulatoryFeaturesBiomartTrackMultiple, from = start, to = end)
}

#####

library("Gviz")
gen <- "hg38"
chr <- "chr1"
start <- 10000
end <- 50000
featureDisplay <- "all"
if(interactive()){
  regulatoryFeaturesBiomartTrackAll<-regulatoryFeaturesBiomart_ENSEMBL(gen,chr,start,end,featureDisplay)
  plotTracks(regulatoryFeaturesBiomartTrackAll, from = start, to = end)
} else {
  data(regulatoryFeaturesBiomartTrackAll)
  plotTracks(regulatoryFeaturesBiomartTrackAll, from = start, to = end)
}

}
```

 regulatorySegmentsBiomart_ENSEMBL

Creates a binding motif track from ENSEMBL

Description

Creates a track of regulatory segments from ENSEMBL using the Gviz bioconductor package. A complete list of features and their associated colours can be found in the user guide.

Usage

```
regulatorySegmentsBiomart_ENSEMBL(gen, chr, start, end, featureDisplay = 'all', datasetEnsembl = '')
```

Arguments

gen The name of the genome. Currently only handles human data from either the previous version, GRCh37 (also known as hg19) or the current version, GRCh38 (also known as hg38).

chr The chromosome of interest

start The starting position in the region of interest (the smallest value)

end The end position in the region of interest (the largest value)

featureDisplay A vector of regulatory features to be displayed, such as Predicted heterochomatin. Spelling and capitalisation of features must be identical to those in the user guide. There are three possibilities. First, the visualisation of only one feature (e.g. `featureDisplay <- "Predicted heterochomatin"`), only the name of the specific feature is required. Second, visualisation of a set of features, for this a vector of features is required (e.g. `featureDisplay <- c("Predicted low activity", "Predicted heterochomatin")`). Finally, visualison all features in the genomic region, achived by using the word "all" (e.g. `featureDisplay <- "all"`), "all" is set by default. You can find the complete list of features and their associated colours in the user guide.

datasetEnsembl Allows the user to manually set which data set is used if required. Default=hsapiens_segmentation_fea

Value

An AnnotationTrack object of Gviz

Author(s)

Tiphaine Martin

Tom Hardiman

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

Got to ENSEMBLregulation binding motif biomart

Examples

```

library("Gviz")
gen <- "hg38"
chr <- "chr1"
start <- 10000
end <- 50000
featureDisplay <- "CTCF enriched"

if(interactive()){
  regulatorySegmentsBiomartTrackSingle<-regulatorySegmentsBiomart_ENSEMBL(gen,chr,start,end,featureDisplay)
  plotTracks(regulatorySegmentsBiomartTrackSingle, from = start, to = end)
} else {
  data(regulatorySegmentsBiomartTrackSingle)
  plotTracks(regulatorySegmentsBiomartTrackSingle, from = start, to = end)
}

####

library("Gviz")
gen <- "hg38"
chr <- "chr1"
start <- 10000
end <- 50000
featureDisplay <- c("CTCF enriched","Predicted Promoter Flank")

if(interactive()){
  regulatorySegmentsBiomartTrackMultiple<-regulatorySegmentsBiomart_ENSEMBL(gen,chr,start,end,featureDisplay)
  plotTracks(regulatorySegmentsBiomartTrackMultiple, from = start, to = end)
} else {
  data(regulatorySegmentsBiomartTrackMultiple)
  plotTracks(regulatorySegmentsBiomartTrackMultiple, from = start, to = end)
}

####

library("Gviz")
gen <- "hg38"
chr <- "chr1"
start <- 10000
end <- 50000
featureDisplay <- "all"
if(interactive()){
  regulatorySegmentsBiomartTrackAll<-regulatorySegmentsBiomart_ENSEMBL(gen,chr,start,end,featureDisplay)
  plotTracks(regulatorySegmentsBiomartTrackAll, from = start, to = end)
} else {
  data(regulatorySegmentsBiomartTrackAll)
  plotTracks(regulatorySegmentsBiomartTrackAll, from = start, to = end)
}

```

Description

Create one track of the genomic positions of regions from repeatMasker_UCSC using the Gviz bioconductor package

Usage

```
repeatMasker_UCSC(gen, chr, start, end, showId=FALSE, type_stacking="full")
```

Arguments

gen	the name of the genome
chr	the chromosome of interest
start	the first position in the region of interest (the smallest value)
end	the last position in the region of interest (the largest value)
showId	Show the ID of the genetic elements
type_stacking	the type of stacking data for this track. More information go to Gviz (the option "stacking")

Value

An UcsTrack object of Gviz

Author(s)

Tiphaine Martin

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

http://genome-euro.ucsc.edu/cgi-bin/hgTrackUi?hgsid=202839739_2hYQ1BAOuBMAR620GjrtdrFAy6dn&c=chr6&g=

Examples

```
library("Gviz")
gen <- "hg38"
chr <- "chr2"
start <- 38290160
end <- 38303219

if(interactive()){
  rmtrack <- repeatMasker_UCSC(gen, chr, start, end, showId=TRUE)
  plotTracks(rmtrack, from = start, to = end)
} else {
  data(repeatMaskerTrack)
  plotTracks(rmtrack, from = start, to = end)
}
```

segmentalDups_UCSC	<i>Create one track of the genomic positions of regions from segmentalDups_UCSC</i>
--------------------	---

Description

Create one track of the genomic positions of regions from segmentalDups_UCSC using the Gviz bioconductor package

Usage

```
segmentalDups_UCSC(gen, chr, start, end)
```

Arguments

gen	the name of the genome
chr	the chromosome of interest
start	the first position in the region of interest (the smallest value)
end	the last position in the region of interest (the largest value)

Value

An UcsTrack object of Gviz

Author(s)

Tiphaine Martin
Tom Hardiman

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>
http://genome-euro.ucsc.edu/cgi-bin/hgTrackUi?hgsid=202839739_2hYQ1BAOuBMAR620GjrtdrFAy6dn&c=chr6&g=

Examples

```
library("Gviz")
gen <- "hg38"
chr <- "chr2"
start <- 100000
end <- 200000

if(interactive()){
  DupTrack <- segmentalDups_UCSC(gen,chr,start,end)
  plotTracks(DupTrack, from = start, to = end)
} else {
  data(DupTrack)
  plotTracks(DupTrack, from = start, to = end)
}
```

snpBiomart_ENSEMBL *Create a short variation track from ENSEMBL*

Description

Create a 'Short Variation' track from ENSEMBL using the Gviz bioconductor package

Usage

```
snpBiomart_ENSEMBL(gen,chr, start, end, dataset, showId=FALSE, title_track = NULL)
```

Arguments

gen	the name of the genome
chr	the chromosome of interest
start	the first position in the region of interest (the smallest value)
end	the last position in the region of interest (the largest value)
dataset	The name of the database. Example "hsapiens_snp_som"
showId	Show the the ID of element or not
title_track	The name of the annotation track

Value

An AnnotationTrack object of Gviz

Author(s)

Tiphaine Martin

References

Go to ENSEMBL Biomart

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

See Also

[snpLocations_UCSC](#), [structureBiomart_ENSEMBL](#), [COSMIC_UCSC](#), [CoreillCNV_UCSC](#), [ClinVarMain_UCSC](#), [ClinVarCnv_UCSC](#),

Examples

```
library("Gviz")
gen <- "hg38"
chr <- "chr2"
start <- 38290160
end <- 38303219

if(interactive()){
  snptrack <- snpBiomart_ENSEMBL(gen,chr, start, end,
                                dataset="hsapiens_snp",showId=FALSE)
  plotTracks(snptrack, from=start, to=end)
```

```

} else {
  data(snpBiomarttrack)
  plotTracks(snptrack, from=start, to=end)
}

```

snpLocations_UCSC *Create a SNP track from UCSC*

Description

Create a SNP track from UCSC using the Gviz bioconductor package

Usage

```
snpLocations_UCSC(gen, chr, start, end, track="All SNPs(142)")
```

Arguments

gen	the name of the genome. Data is not currently available for GRCh38 (hg38).
chr	the chromosome of interest
start	the first position in the region of interest (the smallest value)
end	the last position in the region of interest (the largest value)
track	The name of the database. Default "All SNPs(142)"

Value

An UcsTrack object of Gviz

Author(s)

Tiphaine Martin

References

http://genome-euro.ucsc.edu/cgi-bin/hgTrackUi?hgsid=202839739_2hYQ1BAOuBMAR620GjrtdrFAy6dn&c=chr6&g=
<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

See Also

[snpLocations_UCSC](#), [structureBiomart_ENSEMBL](#), [COSMIC_UCSC](#), [CoreilCNV_UCSC](#), [ClinVarMain_UCSC](#), [ClinVarCnv_UCSC](#),

Examples

```
library("Gviz")
gen <- "hg38"
chr <- "chr7"
start <- 38290160
end <- 38303219

if(interactive()) {
  snpUCSCtrack<-snpLocations_UCSC(gen,chr,start,end,"All SNPs(142)")
  plotTracks(snpUCSCtrack, from = start, to =end)
} else {
  data(snpUCSCtrack)
  plotTracks(snpUCSCtrack, from = start, to =end)
}
```

structureBiomart_ENSEMBL

Create a structural variation track from ENSEMBL

Description

Create a 'Structural Variation' track from ENSEMBL using the Gviz bioconductor package

Usage

```
structureBiomart_ENSEMBL(gen, chr, start, end, strand, dataset, showId=FALSE, title_track = NULL)
```

Arguments

gen	the name of the genome
chr	the chromosome of interest
start	the first position in the region of interest (the smallest value)
end	the last position in the region of interest (the largest value)
strand	the strand to extract structure data for
dataset	The name of the database. Example "hsapiens_structvar_som"
showId	Show the the ID of the element
title_track	The name of the annotation track

Value

An AnnotationTrack object of Gviz

Author(s)

Tiphaine Martin

References

Go to ENSEMBL Biomart

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

See Also

[snpLocations_UCSC](#), [snpBiomart_ENSEMBL](#), [COSMIC_UCSC](#), [CoreillCNV_UCSC](#), [ClinVarMain_UCSC](#), [ClinVarCnv_UCSC](#),

Examples

```
library("Gviz")
gen <- "hg38"
chr <- "chr2"
start <- 38290160
end <- 38303219

if(interactive()){
  strutrack <- structureBiomart_ENSEMBL(chr, start, end,
                                       strand, dataset="hsapiens_structvar_som")
  plotTracks(strutrack, from=start, to=end)
}else {
  data(strucBiomarttrack)
  plotTracks(strutrack, from=start, to=end)
}
```

TFBS_FANTOM

Creates a TFBS motif track from FANTOM

Description

Creates a track of TFBS motifs from FANTOM using the Gviz bioconductor package. A complete list of features and their associated colours can be found in the user guide.

Usage

```
TFBS_FANTOM(gen, chr, start, end, bedFilePath)
```

Arguments

gen	the name of the genome.
chr	The chromosome of interest
start	The starting position in the region of interest (the smallest value)
end	The end position in the region of interest (the largest value)
bedFilePath	The path of the BED file from Kheradpour and Kellis, 2014.

Value

An AnnotationTrack object of Gviz

Author(s)

Tiphaine Martin

References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

Got to BindingMotifsBiomart binding motif biomart

Examples

```
library("Gviz")
gen <- "hg19"
chr<- "chr1"
start <- 6000000
end <- 6500000

extdata <- system.file("extdata", package="coMET",mustWork=TRUE)
AP1FantomFile <- file.path(extdata, "/FANTOM/Fantom_hg19.AP1_MA0099.2.sites.txt")

if(interactive()){
  tfbsFANTOMtrack <- TFBS_FANTOM(gen,chr,start, end, AP1FantomFile)
  plotTracks(tfbsFANTOMtrack, from = start, to = end)
} else {
  data(tfbsFANTOMtrack)
  plotTracks(tfbsFANTOMtrack, from = start, to = end)
}
```

transcript_ENSEMBL *Create a track of transcripts from ENSEMBL*

Description

Create a track to visualize different transcripts from ENSEMBL using the Gviz bioconductor package

Usage

```
transcript_ENSEMBL(gen, chr, start, end,showId = FALSE)
```

Arguments

gen	the name of the genome
chr	the chromosome of interest
start	the first position in the region of interest (the smallest value)
end	the last position in the region of interest (the largest value)
showId	Show the ID of the genetic elements

Value

A BiomartGeneRegionTrack object of Gviz

Author(s)

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References

<http://bioconductor.org/packages/release/bioc/html/Gviz.html>

http://genome-euro.ucsc.edu/cgi-bin/hgTrackUi?hgsid=202839739_2hYQ1BAOuBMAR620GjrtdrFAy6dn&c=chr6&g=

See Also

[ISCA_UCSC](#), [GWAScatalog_UCSC](#), [knownGenes_UCSC](#), [genesName_ENSEMBL](#), [GeneReviews_UCSC](#), [GAD_UCSC](#), [genes_ENSEMBL](#), [xenorefGenes_UCSC](#),

Examples

```
library("Gviz")
gen <- "hg19"
chr <- "chr2"
start <- 32290160
end <- 33303219

if(interactive()){
  transENSMBLtrack<-transcript_ENSEMBL(gen,chr,start,end,showId=TRUE)
  plotTracks(transENSMBLtrack, from=start, to=end)
} else {
  data(transENSMBLtrack)
  plotTracks(transENSMBLtrack, from=start, to=end)
}
```

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