# oligoClasses

April 19, 2009

AffyGenePDInfo-class

Class AffyGenePDInfo

## Description

Short description

#### **Objects from the Class**

Objects can be created by calls of the form new ("AffyGenePDInfo", ...).

# Slots

getdb: Object of class "function"
tableInfo: Object of class "data.frame"
geometry: Object of class "integer"
manufacturer: Object of class "character"
genomebuild: Object of class "character"

# Extends

Class "AffyExpressionPDInfo", directly. Class "ExpressionPDInfo", by class "Affy-ExpressionPDInfo", distance 2. Class "DBPDInfo", by class "AffyExpressionPDInfo", distance 3. Class "PDInfo", by class "AffyExpressionPDInfo", distance 4.

## Methods

No methods defined with class "AffyGenePDInfo" in the signature.

#### Author(s)

RS

# Examples

showClass("AffyGenePDInfo")

DBPDInfo-class Class "DBPDInfo"

## Description

A class for Platform Design Information objects, stored using a database approach

# **Objects from the Class**

Objects can be created by calls of the form new ("DBPDInfo", ...).

## Slots

getdb: Object of class "function"
tableInfo: Object of class "data.frame"
manufacturer: Object of class "character"
genomebuild: Object of class "character"
geometry: Object of class "integer" with length 2 (rows x columns)

## Extends

Class "PDInfo", directly.

#### Methods

No methods defined with class "DBPDInfo" in the signature.

## Examples

##---- Should be DIRECTLY executable !! ----

FeatureSet-class Classes for Feature level data

## Description

Virtual class to store feature level data.

## **Objects from the Class**

This is a VIRTUAL class.

#### ExonFeatureSet-class

## Slots

```
manufacturer: Object of class "character"
platform: Object of class "character"
assayData: Object of class "AssayData"
phenoData: Object of class "AnnotatedDataFrame"
featureData: Object of class "AnnotatedDataFrame"
experimentData: Object of class "MIAME"
annotation: Object of class "character"
.__classVersion_: Object of class "Versions"
```

# Extends

Class class.eSet, directly. Class class.VersionedBiobase, by class "eSet", distance 2. Class class.Versioned, by class "eSet", distance 3.

## Methods

No methods defined with class "FeatureSet" in the signature.

#### Author(s)

Benilton Carvalho

#### See Also

eSet, VersionedBiobase, Versioned

```
ExonFeatureSet-class
```

"FeatureSet" Extensions

#### Description

Classes to store data from Expression/Exon/SNP/Tiling arrays at the feature level.

#### **Objects from the Class**

```
Objects can be created by calls of the form new ("ExonFeatureSet", assayData, manufacturer, platform, exprs, phenoData, featureData, experimentData, annotation, ...).
```

# Slots

manufacturer: Object of class "character"
platform: Object of class "character"
assayData: Object of class "AssayData"
phenoData: Object of class "AnnotatedDataFrame"
featureData: Object of class "AnnotatedDataFrame"
experimentData: Object of class "MIAME"
annotation: Object of class "character"
.\_\_classVersion\_: Object of class "Versions"

#### Extends

Class FeatureSet, directly. Class eSet, by class "FeatureSet", distance 2. Class VersionedBiobase, by class "FeatureSet", distance 3. Class Versioned, by class "FeatureSet", distance 4.

#### Methods

No methods defined with class "ExonFeatureSet" in the signature.

## Author(s)

Benilton Carvalho

## See Also

eSet, VersionedBiobase, Versioned

#### Examples

```
set.seed(1)
tmp <- 2^matrix(rnorm(100), ncol=4)
rownames(tmp) <- 1:25
colnames(tmp) <- paste("sample", 1:4, sep="")
efs <- new("ExpressionFeatureSet", exprs=tmp)</pre>
```

GeneFeatureSet-class

Class GeneFeatureSet

#### Description

A short description

#### **Objects from the Class**

Objects can be created by calls of the form new("GeneFeatureSet", assayData, phenoData, featureData, experimentData, annotation, ...).

## Slots

manufacturer: Object of class "character"
platform: Object of class "character"
assayData: Object of class "AssayData"
phenoData: Object of class "AnnotatedDataFrame"
featureData: Object of class "AnnotatedDataFrame"
experimentData: Object of class "MIAME"
annotation: Object of class "character"
.\_\_classVersion\_: Object of class "Versions"

#### PDInfo-class

## Extends

Class "FeatureSet", directly. Class eSet, by class "FeatureSet", distance 2. Class VersionedBiobase, by class "FeatureSet", distance 3. Class Versioned, by class "FeatureSet", distance 4.

#### Methods

No methods defined with class "GeneFeatureSet" in the signature.

## Author(s)

RS

# Examples

showClass("GeneFeatureSet")

PDInfo-class Classes "PDInfo" and "SNPPDInfo"

## Description

Containers for chip information

# Slots

manufacturer: Object of class "character"

genomebuild: Object of class "character"

geometry: Object of class "integer" with length 2 (rows x columns)

# Methods

No methods defined with class "PDInfo" in the signature.

## Examples

##---- Should be DIRECTLY executable !! ----

QuantificationSet-class

Class "QuantificationSet"

# Description

A virtual class to store summarized measures.

## **Objects from the Class**

A virtual Class: No objects may be created from it.

# Slots

assayData: Object of class "AssayData"
phenoData: Object of class "AnnotatedDataFrame"
featureData: Object of class "AnnotatedDataFrame"
experimentData: Object of class "MIAME"
annotation: Object of class "character"
.\_\_classVersion\_: Object of class "Versions"

# Extends

Class eSet, directly. Class VersionedBiobase, by class "eSet", distance 2. Class Versioned, by class "eSet", distance 3.

#### Methods

No methods defined with class "QuantificationSet" in the signature.

# See Also

SnpQSet, SnpCnvQSet

# Examples

showClass("QuantificationSet")

calls

# Description

Accessors and replacement methods for genotype calls and associated confidences.

# Usage

```
calls(object)
callsConfidence(object)
calls(object)<-value
callsConfidence(object)<-value</pre>
```

## Arguments

object	SnpCallSet object.
value	matrix

## Value

Matrix with R rows (SNP's) and C columns (Samples) with genotype calls (1 - AA; 2 - AB; 3 - BB) or confidences.

## See Also

crlmm

SnpCallSetPlus-class

Class "SnpCallSetPlus"

## Description

Description for Genotyping

# **Objects from the Class**

Objects of this class are unions of Quantification and Calls.

#### Slots

assayData: Object of class "AssayData"
phenoData: Object of class "AnnotatedDataFrame"
featureData: Object of class "AnnotatedDataFrame"
experimentData: Object of class "MIAME"
annotation: Object of class "character"
.\_\_classVersion\_: Object of class "Versions"

#### Extends

Class "SnpQSet", directly. Class "SnpCnvQSet", directly. Class "SnpCallSet", directly. Class "QuantificationSet", by class "SnpQSet", distance 2. Class eSet, by class "SnpQSet", distance 3. Class VersionedBiobase, by class "SnpQSet", distance 4. Class Versioned, by class "SnpQSet", distance 5. Class "QuantificationSet", by class "SnpCnvQSet", distance 2. Class eSet, by class "SnpCnvQSet", distance 3. Class VersionedBiobase, by class "SnpCnvQSet", distance 4. Class VersionedBiobase, by class "SnpCnvQSet", distance 4. Class Versioned, by class "SnpCnvQSet", distance 3. Class VersionedBiobase, by class "SnpCnvQSet", distance 5. Class "SnpLevelSet", by class "SnpCallSet", distance 2. Class eSet, by class "SnpCallSet", distance 3. Class VersionedBiobase, by class "SnpCallSet", distance 4. Class Versioned, by class "SnpCallSet", distance 5.

#### Methods

calculateCopyNumber signature(object="SnpCallSetPlus") See calculateCopyNumber db signature(object="SnpCallSetPlus")

#### Examples

showClass("SnpCallSetPlus")

#### Description

A class to store feature-level intensities from arrays that contain both SNP and CNV probes.

#### **Objects from the Class**

```
Objects can be created by calls of the form new ("SnpCnvFeatureSet", assayData, phenoData, featureData, experimentData, annotation, ...).
```

#### Slots

manufacturer: Object of class "character"

platform: Object of class "character"

assayData: Object of class "AssayData"

phenoData: Object of class "AnnotatedDataFrame"

featureData: Object of class "AnnotatedDataFrame"

experimentData: Object of class "MIAME"

annotation: Object of class "character"

.\_\_\_classVersion\_\_: Object of class "Versions"

## Extends

Class "SnpFeatureSet", directly. Class "FeatureSet", by class "SnpFeatureSet", distance 2. Class eSet, by class "SnpFeatureSet", distance 3. Class VersionedBiobase, by class "SnpFeatureSet", distance 4. Class Versioned, by class "SnpFeatureSet", distance 5.

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#### SnpCnvQSet-class

#### Methods

No methods defined with class "SnpCnvFeatureSet" in the signature.

# Examples

showClass("SnpCnvFeatureSet")

SnpCnvQSet-class Class "SnpCnvQSet"

# Description

A class to store summarized measures from SnpCnvFeatureSet objects

## **Objects from the Class**

Objects can be created by calls of the form new ("SnpCnvQSet", assayData, phenoData, featureData, experimentData, annotation, ...).

## Slots

assayData: Object of class "AssayData"
phenoData: Object of class "AnnotatedDataFrame"
featureData: Object of class "AnnotatedDataFrame"
experimentData: Object of class "MIAME"
annotation: Object of class "character"
.\_\_classVersion\_: Object of class "Versions"

## Extends

Class QuantificationSet, directly. Class eSet, by class "QuantificationSet", distance 2. Class VersionedBiobase, by class "QuantificationSet", distance 3. Class Versioned, by class "QuantificationSet", distance 4.

#### Methods

No methods defined with class "SnpCnvQSet" in the signature.

# Examples

showClass("SnpCnvQSet")

cnConfidence

## Description

Accessors and replacement methods for SnpCopyNumberSet objects.

## Usage

```
copyNumber(object)
cnConfidence(object)
copyNumber(object)<-value
cnConfidence(object)<-value</pre>
```

#### Arguments

object	SnpCopyNumberSet object
value	matrix

#### Value

Matrix with R rows (SNP's) and C columns (Samples) containing copy number estimates and confidences.

SnpLevelSet-class Class "SnpLevelSet"

## Description

Virtual class for SNP-level data

## **Objects from the Class**

A virtual Class: No objects may be created from it.

#### Slots

**assayData:** The usual restrictions on assayData: contains matrices with equal dimensions, and with column number equal to nrow (phenoData). Class:class.AssayData

```
phenoData: See class.eSet
```

featureData: See class.eSet

experimentData: See class.eSet

annotation: See class.eSet

.\_\_\_classVersion\_\_: Object of class "Versions"

#### Extends

Class eSet, directly. Class VersionedBiobase, by class "eSet", distance 2. Class Versioned, by class "eSet", distance 3.

#### SnpQSet-class

#### Methods

```
calls signature (object = "SnpLevelSet"): Accessor for matrix of genotype calls
```

- calls<- signature(object = "SnpLevelSet", value = "matrix"): Replacement method for genotype calls.
- callsConfidence signature(object = "SnpLevelSet"): Accessor for matrix of confidence scores for the genotype calls
- callsConfidence<- signature(object = "SnpLevelSet", value = "matrix"): Replacement method
- chromosome signature(object = "SnpLevelSet"): See also chromosome
- chromosome<- signature(object = "SnpLevelSet", value = "character"): See also chromosome
- cnConfidence signature(object = "SnpLevelSet"): Accessor for matrix of confidence
   scores for the copy number estimates.
- cnConfidence<- signature(object = "SnpLevelSet", value = "matrix"): Replacement method for confidence scores of copy number estimates.

**combine** signature (x = "SnpLevelSet", y = "SnpLevelSet"): Useful for combining two objects with the same phenoData. For instance, combine an object created from the Hind 50k chip and an object created from the Xba 50k chip.

- copyNumber signature(object = "SnpLevelSet"): Accessor for matrix of copy numbers.
- copyNumber<- signature(object = "SnpLevelSet", value = "matrix"): Replacement method for copy number matrices
- db signature(object = "SnpLevelSet"): See also db

position signature(object = "SnpLevelSet"): See also position

#### Author(s)

RS

# Examples

showClass("SnpLevelSet")

SnpQSet-class Class "SnpQSet"

#### Description

Class to store Snp (Quantifications) Summaries

#### **Objects from the Class**

```
Objects can be created by calls of the form new ("SnpQSet", assayData, senseThetaA, senseThetaB, antisenseThetaA, antisenseThetaB, phenoData, featureData, experimentData, annotation).
```

## Slots

assayData: Object of class "AssayData"
phenoData: Object of class "AnnotatedDataFrame"
featureData: Object of class "AnnotatedDataFrame"
experimentData: Object of class "MIAME"
annotation: Object of class "character"
.\_\_classVersion\_: Object of class "Versions"

#### Extends

Class eSet, directly. Class VersionedBiobase, by class "eSet", distance 2. Class Versioned, by class "eSet", distance 3.

#### Methods

No methods defined with class "SnpQSet" in the signature.

# See Also

eSet, VersionedBiobase, Versioned

#### Examples

##---- Should be DIRECTLY executable !! ----

SnpCallSet-class "SnpSet" Extensions

#### Description

Class to store genotype calls / copy number estimates (and confidences) obtained via SNP arrays.

#### **Objects from the Class**

```
Objects can be created by calls of the form new ("SnpCallSet", assayData, featureData, phenoData, experimentData, annotation, calls, callsConfidence, ...).
```

#### Slots

assayData: Object of class "AssayData"
phenoData: Object of class "AnnotatedDataFrame"
featureData: Object of class "AnnotatedDataFrame"
experimentData: Object of class "MIAME"
annotation: Object of class "character"
.\_\_classVersion\_: Object of class "Versions"

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#### TilingQSet-class

#### Extends

Class eSet, directly. Class VersionedBiobase, by class "eSet", distance 2. Class Versioned, by class "eSet", distance 3.

# Methods

No methods defined with class "SnpCallSet" in the signature.

#### See Also

eSet, VersionedBiobase, Versioned

#### Examples

##---- Should be DIRECTLY executable !! ----

TilingQSet-class Class "TilingQSet"

#### Description

A place-holder for future uses of Quantification on Tiling Arrays.

#### **Objects from the Class**

Objects can be created by calls of the form new("TilingQSet", assayData, M, phenoData, featureData, experimentalData, annotation).

#### Slots

**assayData:** Object of class "AssayData"

phenoData: Object of class "AnnotatedDataFrame"

featureData: Object of class "AnnotatedDataFrame"

experimentData: Object of class "MIAME"

annotation: Object of class "character"

.\_\_\_classVersion\_\_: Object of class "Versions"

# Extends

Class "QuantificationSet", directly. Class "class.eSet", by class "QuantificationSet", distance 2. Class "class.VersionedBiobase", by class "QuantificationSet", distance 3. Class "class.Versioned", by class "QuantificationSet", distance 4.

#### Methods

```
initialize signature(.Object = "TilingQSet"):...
```

# Note

Alpha-version

## Author(s)

Benilton Carvalho

#### Examples

```
showClass("TilingQSet")
```

affyPlatforms Available Affymetrix platforms for SNP arrays

## Description

Provides a listing of available Affymetrix platforms currently supported by the R package oligo

## Usage

affyPlatforms()

# Value

A vector of class character.

## Author(s)

R. Scharpf

## Examples

```
affyPlatforms()
```

calculateCopyNumber

Calculates copy number as the average of SNP-level summaries from the A and B alleles

## Description

Calculates copy number as the average of SNP-level summaries from the A and B alleles from an object of class SnpCallSetPlus

## Usage

calculateCopyNumber(object, ...)

## Arguments

object	an instance of SnpCallSetPlus
	Not implemented

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#### chromosome

#### Details

The average A (and B) allele intensities for each SNP is centered by the median intensity across samples (should have a reasonable (e.g., > 10) samples). Additionally, we assume that the median intensity across all samples for autosomes should be the same for homozygous genotypes and heterozygous geneotypes. The resulting intensities are then recentered at 2 copies (for autosomes), 1 for the male X chromosome, 2 for the female X, etc. We assume that for a given SNP, the median copy number is normal. If this is not likely to be the case, alternative approaches should be explored.

## Value

A matrix of copy number intensities.

## Author(s)

R. Scharpf

# See Also

SnpCallSetPlus-class

chromosome

Accessor for chromosome information

## Description

Returns chromosome information.

# Usage

```
chromosome(object)
chromosome(object) <- value</pre>
```

#### Arguments

object	object inheriting from SnpLevelSet
value	vector of class character

## Value

Vector with chromosome information. Chromosomes are recorded as character strings (e.g., "1", "2", "X", ...)

# Author(s)

R. Scharpf

# Description

This function will return the SQLite connection to the database associated to objects used in oligo.

# Usage

db(object)

## Arguments

object Object of valid class. See methods.

# Value

SQLite connection.

# Methods

object = "SnpCallSet" object of class SnpCallSet object = "DBPDInfo" object of class DBPDInfo object = "SnpLevelSet" object of class SnpLevelSet

# Author(s)

Benilton Carvalho

# Examples

## db(object)

oligoSnpSet-methods

Methods for oligoSnpSet class

# Description

Methods for oligoSnpSet

platformDesign-class

Class "platformDesign"

#### Description

Container for chip information, this is environment-based and is being replaced by DBPDInfo.

### **Objects from the Class**

Objects can be created by calls of the form new ("platformDesign", ...).

#### Slots

featureInfo: Object of class "environment" containing vectors describing the array.

featureTypeDescription: Object of class "list"

**nrow:** Object of class "numeric" providing the number of rows.

- ncol: Object of class "numeric" providing the number of columns
- nwells: Object of class "numeric" providing the number of wells NimbleGen specific.
- lookup: Object of class "data.frame": a lookup table for complex designs by NimbleGen.

indexes: Object of class "list" ~~

platforms: Object of class "character" ~~

manufacturer: Object of class "character" ~~

genomebuild: Object of class "character" ~~

## Extends

Class "PDInfo", directly.

# Methods

No methods defined with class "platformDesign" in the signature.

## Examples

##---- Should be DIRECTLY executable !! ----

position

# Description

position will return the genomic position of a SNP.

# Usage

```
position(object)
```

## Arguments

object object inheriting from SnpLevelSet

## Details

position will return genomic position of a SNP (number of basepairs from the 5-prime chromosomal end)

# Value

an integer

# Author(s)

R. Scharpf

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