

# Package ‘shinyMethyl’

July 12, 2025

**Title** Interactive visualization for Illumina methylation arrays

**Description** Interactive tool for visualizing Illumina methylation array data.  
Both the 450k and EPIC array are supported.

**Version** 1.45.0

**Imports** Biobase, BiocGenerics, graphics, grDevices, htmltools,  
MatrixGenerics, methods, minfi, RColorBrewer, shiny, stats,  
utils

**Suggests** shinyMethylData, minfiData, BiocStyle, knitr, testthat

**URL** <https://github.com/Jfortin1/shinyMethyl>

**BugReports** <https://github.com/Jfortin1/shinyMethyl>

**VignetteBuilder** knitr

**License** Artistic-2.0

**Encoding** UTF-8

**biocViews** DNAMethylation, Microarray, TwoChannel, Preprocessing,  
QualityControl, MethylationArray

**RoxygenNote** 7.2.1

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|                |                                                |
|----------------|------------------------------------------------|
| runShinyMethyl | <i>Run the interactive shinyMethyl session</i> |
|----------------|------------------------------------------------|

---

## Description

Function to run the interactive shinyMethyl session from a shinyMethylSet object.

## Usage

```
runShinyMethyl(shinyMethylSet1, shinyMethylSet2 = NULL)
```

## Arguments

**shinyMethylSet1**  
shinyMethylSet that must be extracted from an RGChannelSet object.

**shinyMethylSet2**  
Optional shinyMethylSet that must be extracted from a GenomicRatioSet.

## Value

No value returned. Instead the shinyMethyl interactive session is launched.

## Author(s)

Jean-Philippe Fortin

## See Also

[shinyMethylSet](#)

## Examples

```
if (interactive()){  
  library(minfi)  
  library(minfiData)  
  baseDir <- system.file("extdata", package = "minfiData")  
  targets <- read.metharray.sheet(baseDir)  
  targets$Sample_Plate <- substr(targets$Slide,1,7)  
  RGSet <- read.metharray.exp(targets=targets)  
  summarized.data <- shinySummarize(RGSet)  
  runShinyMethyl(summarized.data)  
}
```

---

shinyMethylSet-class    *shinyMethylSet* instances

---

## Description

This class holds summarized data from Illumina methylation microarrays for interactive visualization purpose.

## Usage

## Constructor

```
shinyMethylSet(sampleNames = new("character"),
               phenotype = new("data.frame"),
               mQuantiles = new(vector("list",5)),
               betaQuantiles = new(vector("list",5)),
               methQuantiles = new(vector("list",5)),
               unmethQuantiles = new(vector("list",5)),
               cnQuantiles = new(vector("list",5)),
               greenControls = new(vector("list",12)),
               redControls = new(vector("list",12)),
               pca = new("list"),
               originObject = new("character"),
               array = new("character"))
```

## Data extraction / Accessors

```
## S4 method for signature 'shinyMethylSet'
getMeth(object)
## S4 method for signature 'shinyMethylSet'
getUnmeth(object)
## S4 method for signature 'shinyMethylSet'
getBeta(object)
## S4 method for signature 'shinyMethylSet'
getM(object)
## S4 method for signature 'shinyMethylSet'
getCN(object)
## S4 method for signature 'shinyMethylSet'
pData(object)
## S4 method for signature 'shinyMethylSet'
sampleNames(object)
```

## Arguments

|             |                      |
|-------------|----------------------|
| object      | A shinyMethylSet.    |
| sampleNames | A character vector   |
| phenotype   | A data.frame object. |

|                 |                                                                                                                                                                                                                |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| methQuantiles   | A list of 5 matrices containing several quantiles for the methylation values (between zero and infinity) separated by probe type and autosomal/sex probes. Each row is a quantile and each column is a sample. |
| unmethQuantiles | Similar to Meth                                                                                                                                                                                                |
| betaQuantiles   | Similar to Meth but for Beta-values                                                                                                                                                                            |
| mQuantiles      | Similar to Meth but for M-values                                                                                                                                                                               |
| cnQuantiles     | Similar to Meth but for Copy Number                                                                                                                                                                            |
| greenControls   | A list containing the matrices of different raw control probes intensities in the green channel                                                                                                                |
| redControls     | Similar to greenControls but for the red channel                                                                                                                                                               |
| pca             | List containing the PCA scores for the 20,000 most variable CpGs and the percentages of variance explained                                                                                                     |
| originObject    | Name of the minfi object from which the data were extracted                                                                                                                                                    |
| array           | Name of the Illumina array platform: 450k or EPIC                                                                                                                                                              |

### Details

These class is a representation of a Meth matrix and a Unmeth matrix linked to a pData data frame.

A creationMethod slot is present to indicate from which object type the shinyMethylSet has been created: either a RGChannelSet or GenomicRatioSet

A MethylSet stores meth and Unmeth.

### Constructor

Instances are constructed using the shinyMethylSet function with the arguments outlined above.

### Accessors

In the following code, object is a shinyMethylSet.

getMeth(object), getUnmeth(object) Get the Meth or Unmeth matrix.

getBeta(object) get Beta, see details.

getM(object) get M-values, see details.

getCN(object) get copy number values which are defined as the sum of the methylation and unmethylation channel.

sampleNames(object) Get the sampleNames

combine(object1,object2) combine shinyMethylSet objects

### Author(s)

Jean-Philippe Fortin

### See Also

Objects of this class are typically created by using the function [shinySummarize](#) on a [RGChannelSet](#) or [GenomicRatioSet](#).

### Examples

```
showClass("shinyMethylSet")
```

---

`shinySummarize-methods`*Summarizing a large 450K experiment into a shinyMethylSet*

---

**Description**

Summarizing methylation data from a `RGChannelSet` or `GenomicRatioSet` into a `shinyMethylSet` needed to launch the interactive interface of `shinyMethyl`. That works for both the 450k and EPIC arrays.

**Usage**

```
## S4 method for signature 'RGChannelSet'
shinySummarize(object)
## S4 method for signature 'GenomicRatioSet'
shinySummarize(object)
```

**Arguments**

`object` Either a `RGChannelSet` or a `GenomicRatioSet`.

**Details**

Either a `RGChannelSet` is transformed into a `shinyMethylSet`, or a `GenomicRatioSet` is transformed to a `shinyMethylSet`

**Author(s)**

Jean-Philippe Fortin

**See Also**

[shinyMethylSet](#) for the output object and [RGChannelSet](#) or [GenomicRatioSet](#) for the input object.

**Examples**

```
if (require(minfiData)){
  library(minfiData)
  summarized.data <- shinySummarize(RGsetEx)
}
```

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