

# Package ‘iSEHex’

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**Title** iSEE extension for summarising data points in hexagonal bins

**Version** 1.4.0

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**Description** This package provides panels summarising data points in hexagonal bins for ‘iSEE’. It is part of ‘iSEEu’, the iSEE universe of panels that extend the ‘iSEE’ package.

**License** Artistic-2.0

**URL** <https://github.com/iSEE/iSEHex>

**BugReports** <https://support.bioconductor.org/t/iSEHex>

**biocViews** Software, Infrastructure

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iSEHex-pkg	<i>iSEHex: iSEE extension for summarising data points in hexagonal bins</i>
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### Description

iSEHex is a package that provides panels summarising data points in hexagonal bins for iSEE.

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### See Also

Useful links:

- <https://github.com/iSEE/iSEHex>
- Report bugs at <https://support.bioconductor.org/t/iSEHex>

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ReducedDimensionHexPlot-class	<i>The ReducedDimensionHexPlot class</i>
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### Description

The ReducedDimensionHexPlot is a [ReducedDimensionPlot](#) subclass that is dedicated to creating a reduced dimension plot summarising data points in hexagonal bins.

### Slot overview

The following slots control the parameters used in the visualization:

- BinResolution, a numeric positive scalar specifying the number of hexagonal bins in both vertical and horizontal directions. Defaults to 100.

In addition, this class inherits all slots from its parent [ReducedDimensionPlot](#), [ColumnDotPlot](#), [DotPlot](#) and [Panel](#) classes.

## Constructor

`ReducedDimensionHexPlot(...)` creates an instance of a `ReducedDimensionHexPlot` class, where any slot and its value can be passed to `...` as a named argument.

## Supported methods

In the following code snippets, `x` is an instance of a `ReducedDimensionHexPlot` class. Refer to the documentation for each method for more details on the remaining arguments.

For defining the interface:

- `.panelColor(x)` will return the specified default color for this panel class.
- `.fullName(x)` will return "Hexagonal reduced dimension plot".
- `.hideInterface(x, field)` will return TRUE for `field="Downsample"` as downsampling is not applicable to this panel that summarizes all data points in each hexagonal bin; otherwise this function will call the `ReducedDimensionPlot` method.
- `.defineVisualShapeInterface(x)` will return NULL for this panel, as the shape aesthetic is not applicable to this panel that does not display individual data points.
- `.defineVisualSizeInterface(x)` overrides the equivalent method inherited from all parents classes and will return instead an HTML tag definition that contains a user input controlling the number of hexagonal bins in both vertical and horizontal directions.
- `.defineVisualOtherInterface(x)` will return NULL, as there are no additional visual parameters for this panel.
- `.allowableColorByDataChoices(x, se)` will return a character vector with the names of all continuous fields in `colData(se)`, where `se` is the input `SummarizedExperiment` object.

For monitoring reactive expressions:

- `.createObservers(x, se, input, session, pObjects, rObjects)` sets up observers for all new slots described above, as well as in the parent classes via the `ReducedDimensionPlot` method.

For creating the plot:

- `.generateDotPlot(x, envir)` will return a list with `plot`, a `ggplot2::ggplot()` object; and `commands`, a character vector of commands to produce that object when evaluated inside `envir`.

For documentation:

- `.definePanelTour(x)` returns a data.frame containing the steps of a panel-specific tour.
- `.getDotPlotColorHelp(x, color_choices)` returns a function that generates an **rintrojs** tour for the color choice UI.

## Author(s)

Kevin Rue-Albrecht

**See Also**

[ReducedDimensionPlot](#), for the base class.

**Examples**

```
library(scRNAseq)

# Example data ----
sce <- ReprocessedAllenData(assays="tophat_counts")
class(sce)

library(scater)
sce <- logNormCounts(sce, exprs_values="tophat_counts")

sce <- runPCA(sce, ncomponents=4)
sce <- runTSNE(sce)
rowData(sce)$ave_count <- rowMeans(assay(sce, "tophat_counts"))
rowData(sce)$n_cells <- rowSums(assay(sce, "tophat_counts") > 0)

# launch the app itself ----

if (interactive()) {
  iSEE(sce, initial=list(
    ReducedDimensionHexPlot(BinResolution=50),
    ReducedDimensionPlot()
  ))
}
```

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