Package ‘CardinalWorkflows’

February 1, 2017

Type Package
Title Datasets and workflows for the Cardinal mass spectrometry imaging package
Version 1.6.0
Date 2015-1-12
Author Kylie A. Bemis <k.bemis@northeastern.edu>
Maintainer Kylie A. Bemis <k.bemis@northeastern.edu>
Description Datasets and workflows for Cardinal: DESI and MALDI examples including pig fetus, cardinal painting, and human RCC.
License Artistic-2.0
Depends R (>= 2.10), Cardinal
Suggests BiocStyle
biocViews ExperimentData, MassSpectrometryData, ImagingMassSpectrometryData
NeedsCompilation no

R topics documented:

CardinalWorkflows-package .................................................. 1
cardinal-data ........................................................................ 2
pig206-data ......................................................................... 3
rcc-data .............................................................................. 4

Index

CardinalWorkflows-package

Datasets and workflows for the Cardinal mass spectrometry imaging package

Description

Datasets and workflows for Cardinal: DESI and MALDI examples including pig fetus, cardinal farmhouse painting, and human RCC.
Details

CardinalWorkflows provides datasets and example workflows of mass spectrometry imaging experiments using the Cardinal package for MS imaging analysis.

To view the example workflows, type `browseVignettes("CardinalWorkflows")`.

Author(s)

Kyle D. Bemis
Maintainer: Kyle D. Bemis <kbemis@purdue.edu>

See Also

cardinal, pig206, rcc

description

DESI-imaging mass spectra collected from the oil painting of a cardinal.

Usage

```
data(cardinal)
data(cardinal_analyses)
```

Format

```
cardinal contains the following objects:

cardinal  raw dataset

   cardinal.peaklist  list of detected peaks

   cardinal.peaks    peak-picked dataset

```

cardinal_analyses contains the following objects:

```
cardinal.sscg     spatial shrunken centroids clustering (Gaussian weights)

   cardinal.ssca    spatial shrunken centroids clustering (adaptive weights)

```

Source

Aston Labs (Livia S. Eberlin, Christina Ferreira, and R. Graham Cooks).

Examples

```
data(cardinal)
data(cardinal_analyses)
```
Cross-Section of a Whole Pig Fetus

Description

DESI-imaging mass spectra collected from the cross-section of a whole pig fetus.

Usage

data(pig206)
data(pig206_analyses)

Format

pig206 contains the following objects:

pig206  raw dataset
pig206.peaklist  list of detected peaks
pig206.peaks  peak-picked dataset

pig206_analyses contains the following objects:

pig206.pca  principal components analysis
pig206.skmg  spatially-aware k-means clustering (Gaussian weights)
pig206.skma  spatially-aware k-means clustering (adaptive weights)
pig206.sscc  spatial shrunken centroids clustering (Gaussian weights)
pig206.ssca  spatial shrunken centroids clustering (adaptive weights)

Source

Aston Labs (Livia S. Eberlin, Christina Ferreira, and R. Graham Cooks).

Examples

data(pig206)
data(pig206_analyses)
Human Renal Cell Carcinoma

Description
Eight matched pairs of human renal cell carcinoma (RCC) labeled as cancer or normal.
Data are DESI-imaging mass spectra with each matched pair as a separate sample on a separate slide.

Usage
data(rcc)
data(rcc_analyses)

Format
rcc contains the following objects:

rcc raw dataset
rcc_resample dataset resampled to unit resolution
rcc_small resampled dataset without background pixels

rcc_analyses contains the following objects:

rcc_pca principal components analysis
rcc_cv.pls cross-validated PLS-DA
rcc_cv.opls cross-validated O-PLS-DA
rcc.pls PLS-DA on full dataset
rcc.opls O-PLS-DA on full dataset
rcc.cv.sscg cross-validated spatial shrunken centroids (Gaussian weights)
rcc.cv.ssca cross-validated spatial shrunken centroids (adaptive weights)
rcc.sscg spatial shrunken centroids (Gaussian weights) on full dataset
rcc.ssca spatial shrunken centroids (adaptive weights) on full dataset

Source
Aston Labs (Livia S. Eberlin and R. Graham Cooks).

References

Examples

data(rcc)
data(rcc_analyses)
Index

*Topic **datasets**
  - cardinal-data, 2
  - pig206-data, 3
  - rcc-data, 4

*Topic **package**
  - CardinalWorkflows-package, 1
  - cardinal, 2
  - cardinal(cardinal-data), 2
  - cardinal-data, 2
  - cardinal_analyses(cardinal-data), 2
  - CardinalWorkflows
    - (CardinalWorkflows-package), 1
  - CardinalWorkflows-package, 1
  - data:cardinal(cardinal-data), 2
  - data:cardinal_analyses(cardinal-data), 2
  - data:pig206(pig206-data), 3
  - data:pig206_analyses(pig206-data), 3
  - data:rcc(rcc-data), 4
  - data:rcc_analyses(rcc-data), 4
  - pig206, 2
  - pig206(pig206-data), 3
  - pig206-data, 3
  - pig206_analyses(pig206-data), 3
  - rcc, 2
  - rcc(rcc-data), 4
  - rcc-data, 4
  - rcc_analyses(rcc-data), 4