Viewing Multiple Interactive Plots with `plotly` And `trelliscopejs`

For uRos2022 Conference

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jauntyjjs-nhs-r-2022.netlify.app

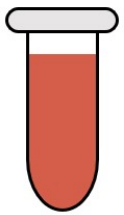
Introduction to Lipids

Lipids are organic compounds that are mostly insoluble in polar solvents like water.

The most common ones are cholesterol and triglycerides in blood lipid panel test.

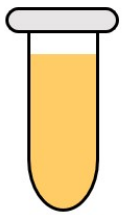
Blood sample image from brgfx

How Lipids are measured (Targeted Lipidomics)



Sample

Lipid extraction

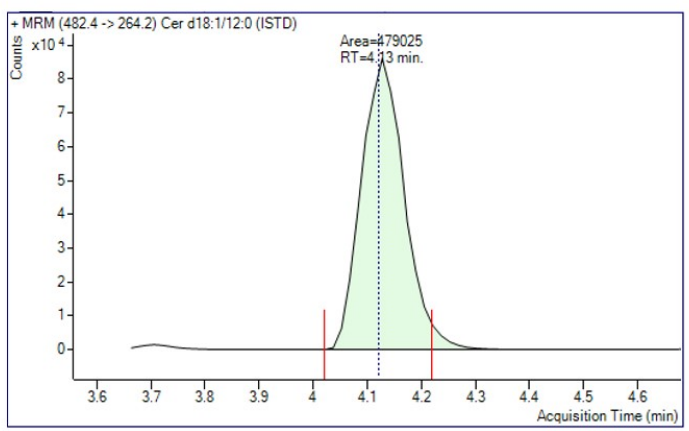


Lipid Extract

Lipid measurement

Transition_Name	Precursor_Ion	Product_Ion
Cer d18:1/12:0 (ISTD)	482.4	264.4

Liquid Chromatography/Mass Spectrometry



Peak integration

Sample_Name	Cer d18:1/12:0 (ISTD)
Sample 01	479025
Sample 02	570275
Sample 03	374854
Sample 04	319491
Sample 05	231691

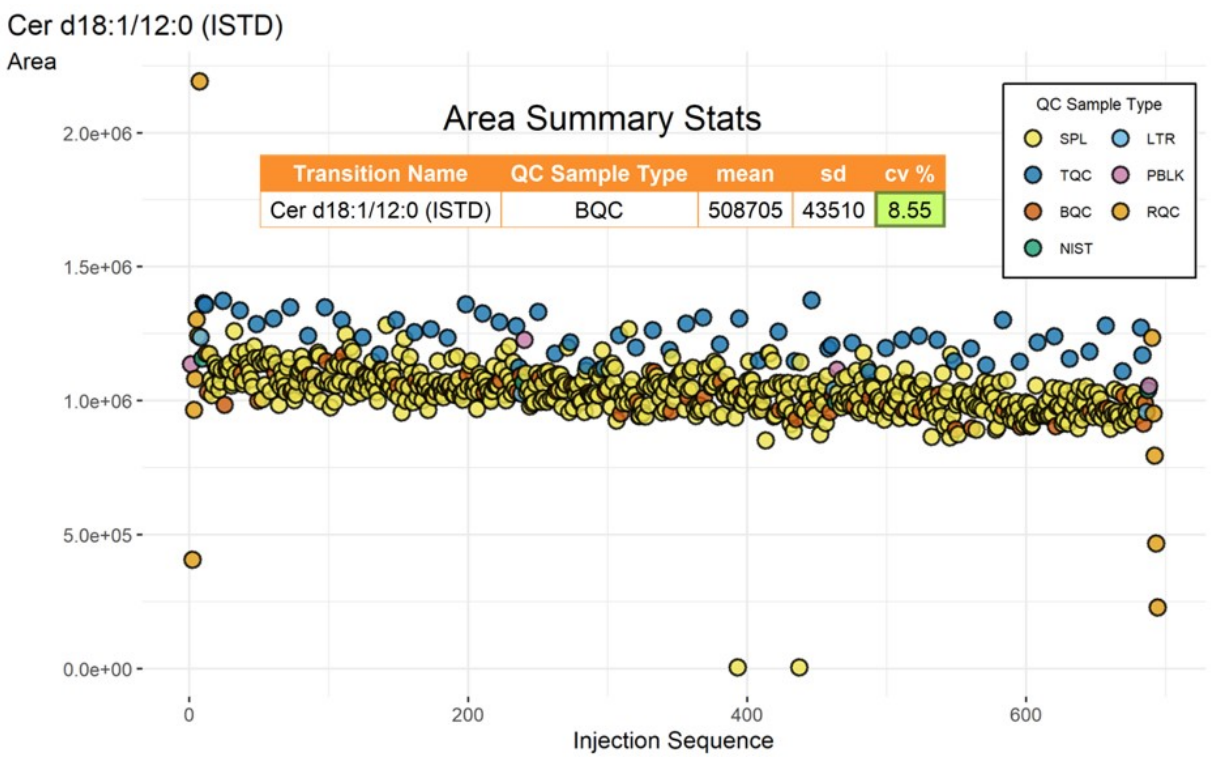
Peak Area Data

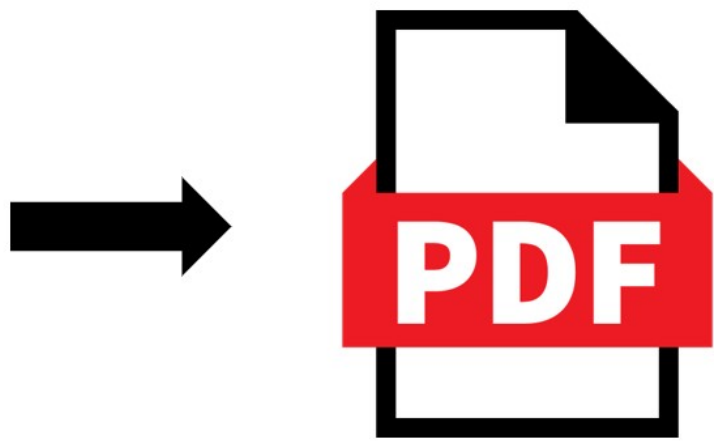
Quality Control (QC) Samples

QC samples helps to check the severity of variation from external sources such as contaminant ions.

We want to keep molecules that gives a low variation on the QC samples.

Plots are exported as pages in a pdf file.



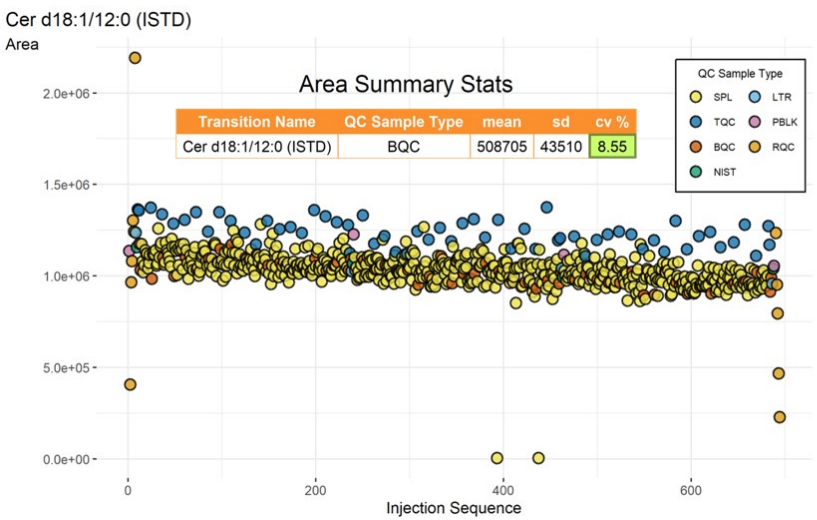


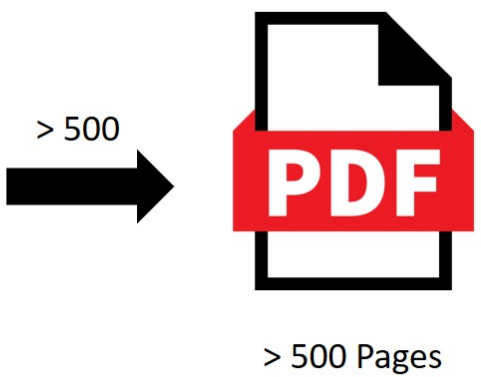
Motivation for using `plotly` and `trelliscopejs`

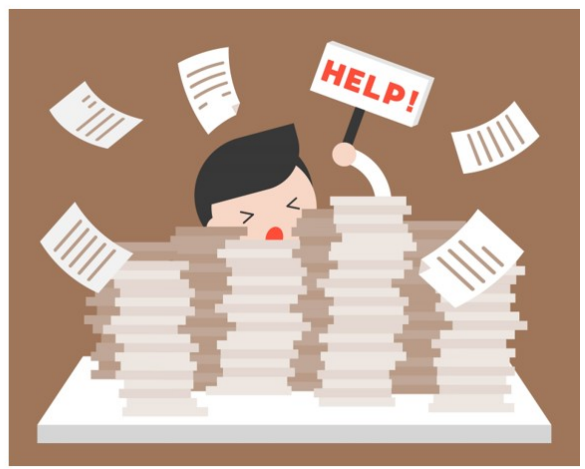
Today's targeted lipidomics workflow can measure up to a few hundred molecules.

This gives a pdf file of over 500 pages.

Looking at these static plot individually to gain insights is tedious.





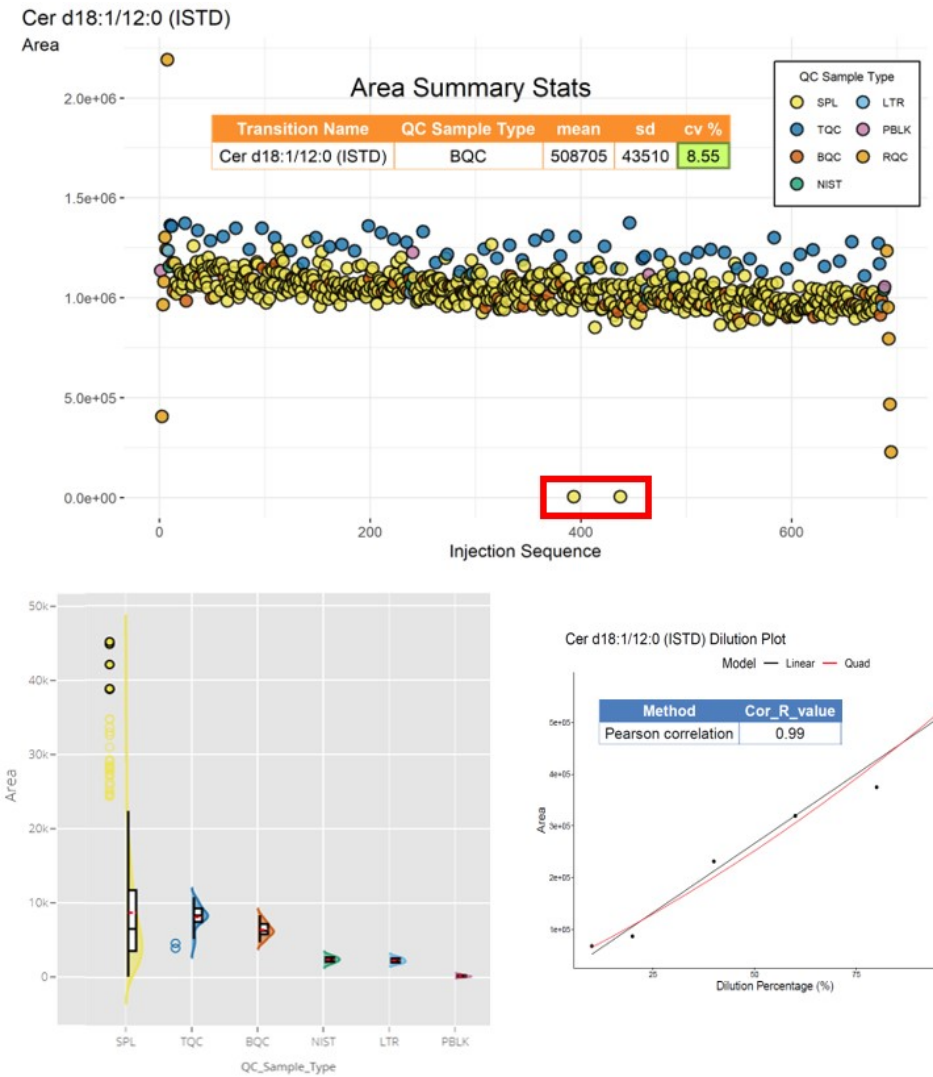


Images by Amonrat Rungreangfangsai

Motivation for using `plotly` and `trelliscopejs`

Out of > 500 molecules,

- **Can I have more info about the outlying samples in the red box ?**
- **How many Ceramides have BQC CV over 20% ?**
- **Can you plot the same data as a Raincloud Plot ?**



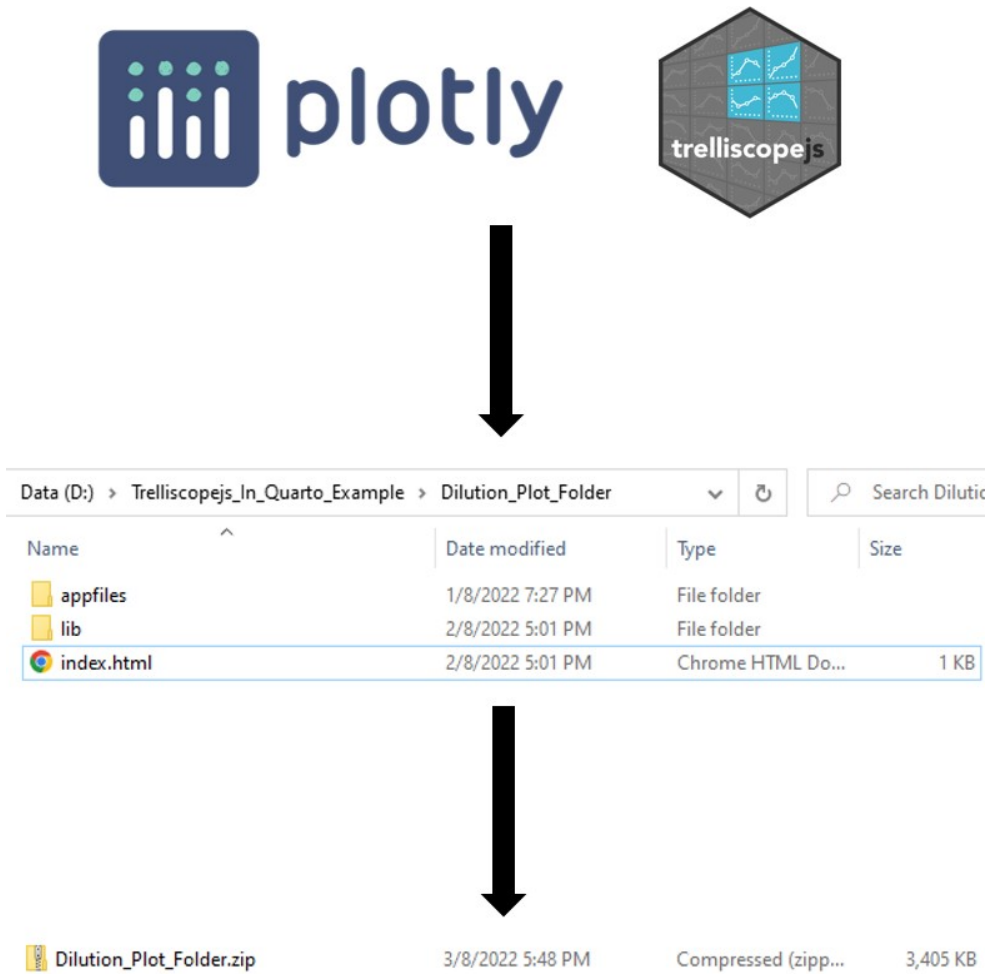
Motivation for using `plotly` and `trelliscopejs`

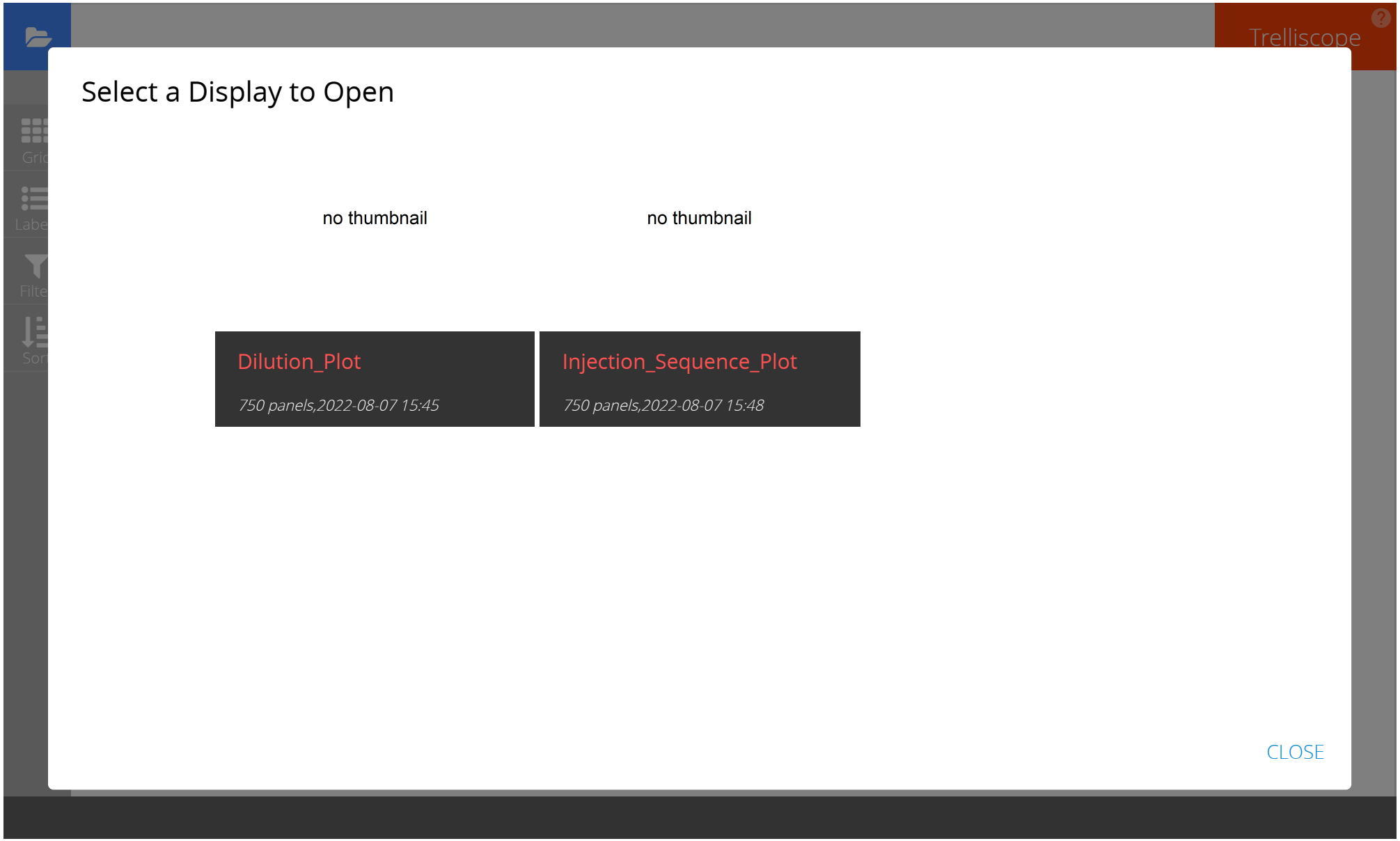
Shiny was considered but

- Lack expertises to maintain a secure web server to run Shiny applications.
- Cannot expect collaborators/managers to install/run R packages and code to rebuild the Shiny application just to view the results.

Use `plotly` to make plots interactive.

Use`trelliscopejs` to explore interactive plots in an effective way and results distribution.



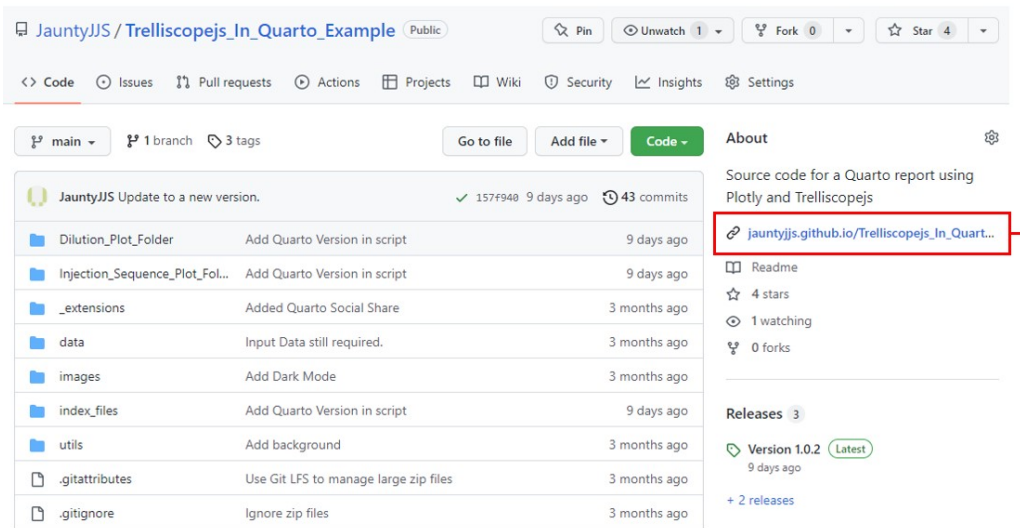


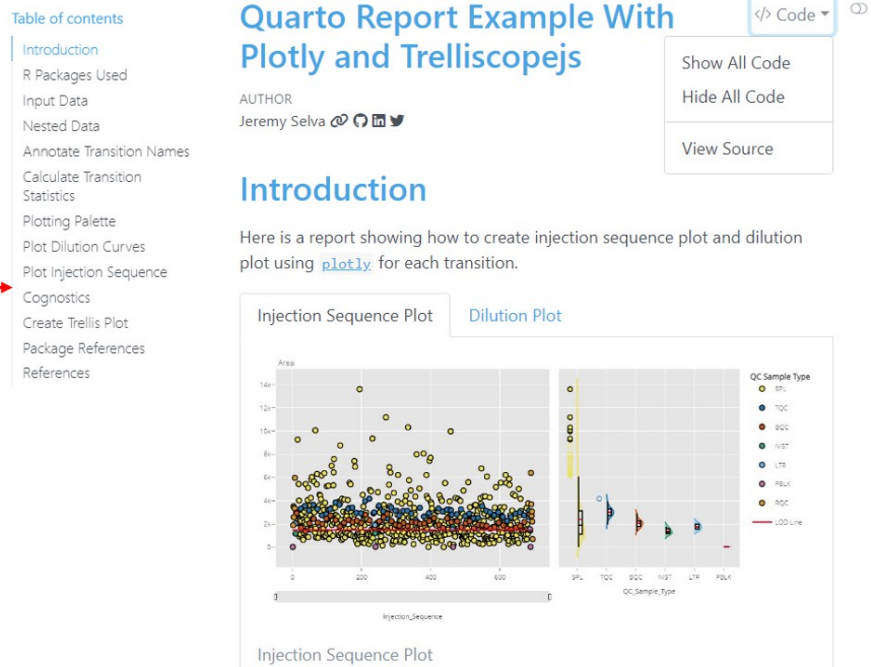
Embedded trelliscopejs results in

jauntyjjs-nhs-r-2022.netlify.app

Guidelines

A walk through example using Quarto is created on the below GitHub page.



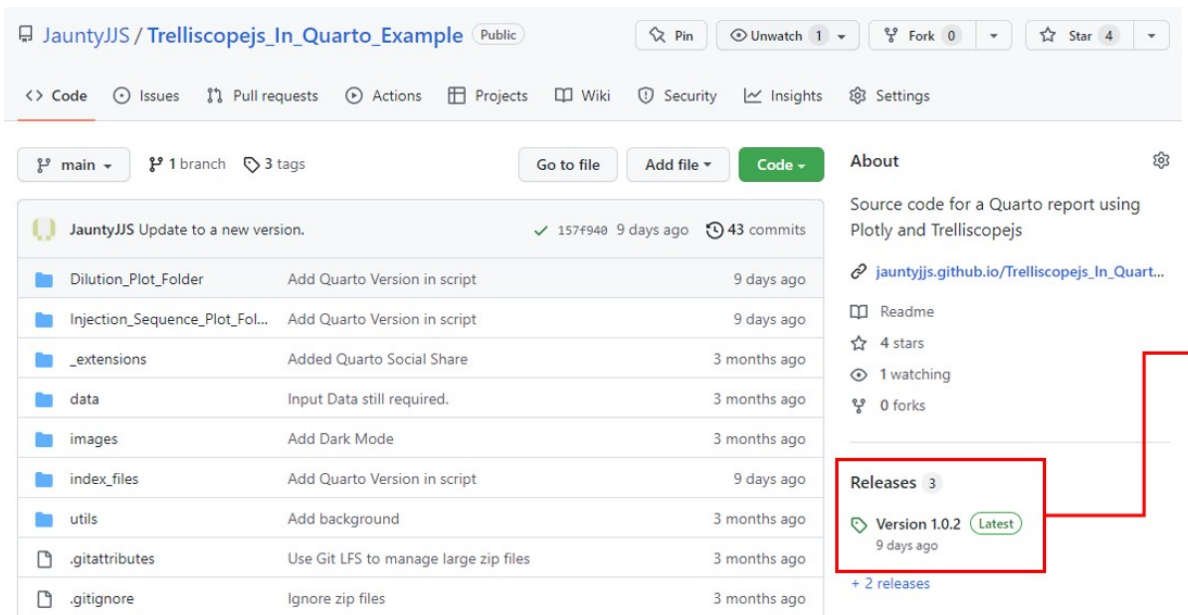


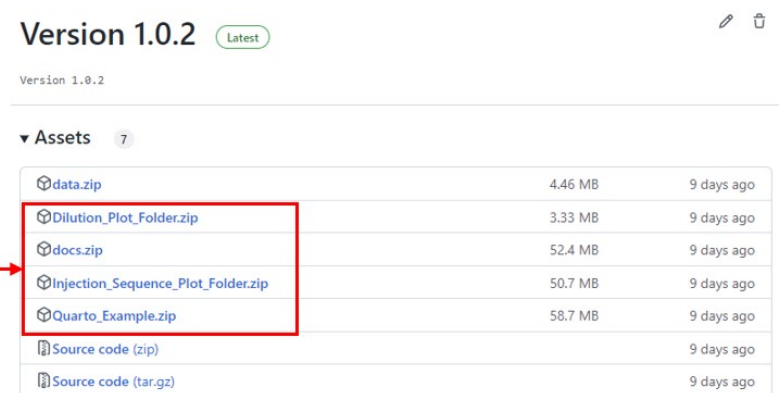
Walk through page in

jauntyjjs-nhs-r-2022.netlify.app

Examples

Exported examples are found under the Releases section in the below GitHub page.





Walk through GitHub page in

jauntyjjs-nhs-r-2022.netlify.app

References

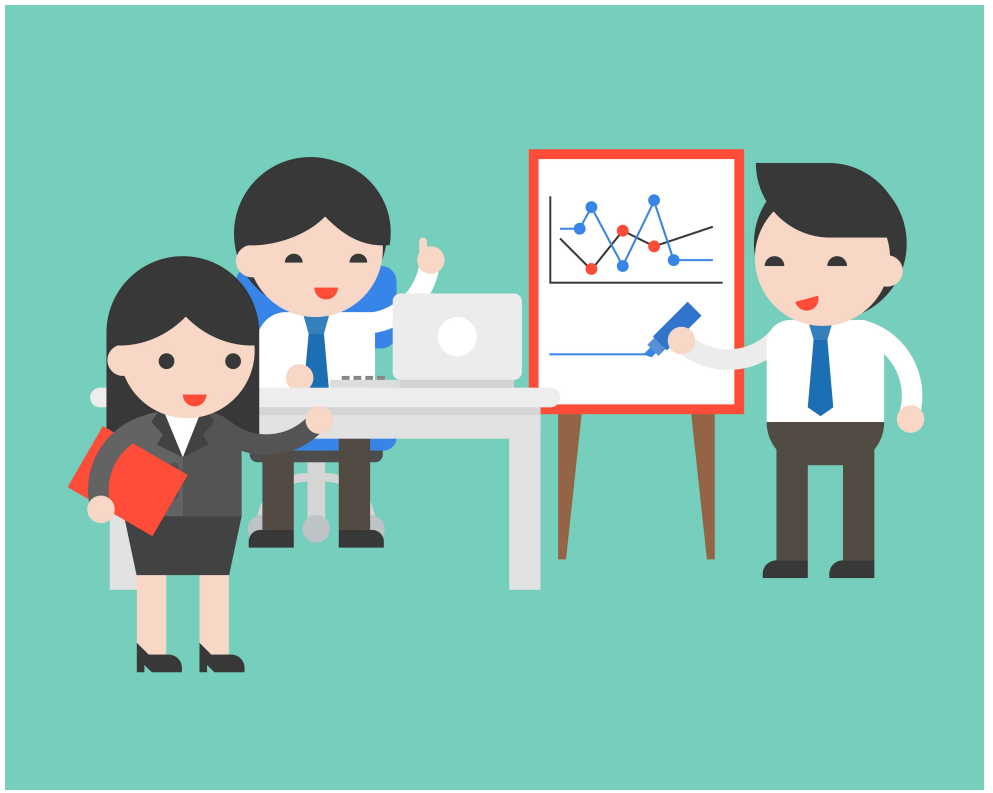
`trelliscopejs` **Examples**

- Pokemon and TrelliscopeJS
- The Mountain Goats with `trelliscopejs`

`trelliscopejs` **Presentation**

- rstudio::conf 2017
  - Slides
- useR! 2022
  - See talk at around 54.55
  - Slides

Thank you and enjoy the conference...



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