

Visualizing Tables

Visualize relations

- Circular visualization/relations between objects by links
- Visualize relations with circos (in R or using online version of Circos)
- Visualize relations with networks (Cytoscape and R)

- Circos is a software package for visualizing data and information. It visualizes data in a circular layout — this makes Circos ideal for exploring relationships between objects or positions. There are other reasons why a circular layout is advantageous, not the least being the fact that it is attractive.
- Circos is ideal for creating publication-quality infographics and illustrations with a high data-to-ink ratio, richly layered data and pleasant symmetries. You have fine control each element in the figure to tailor its focus points and detail to your audience.

Circular representation in Manuscripts

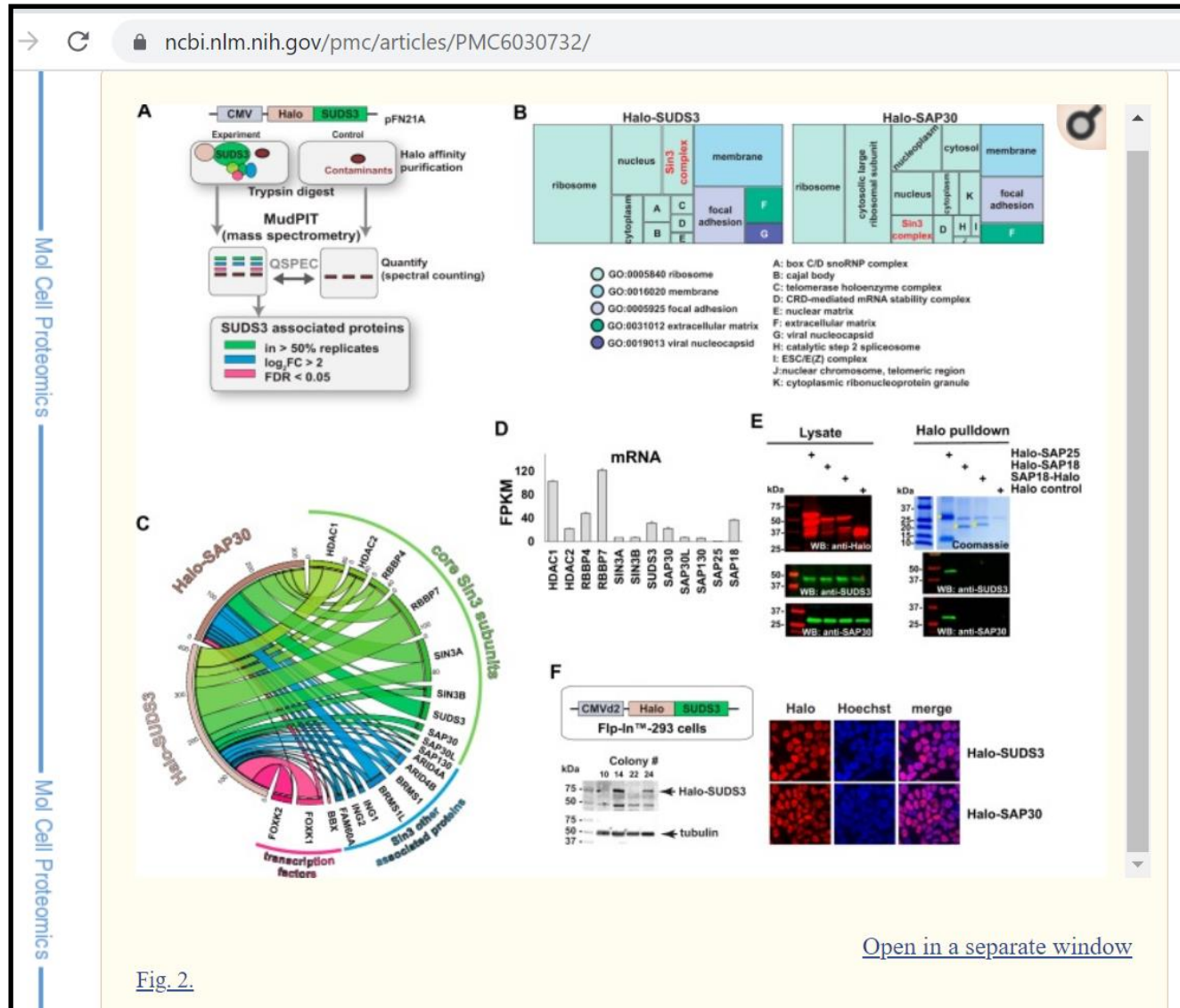
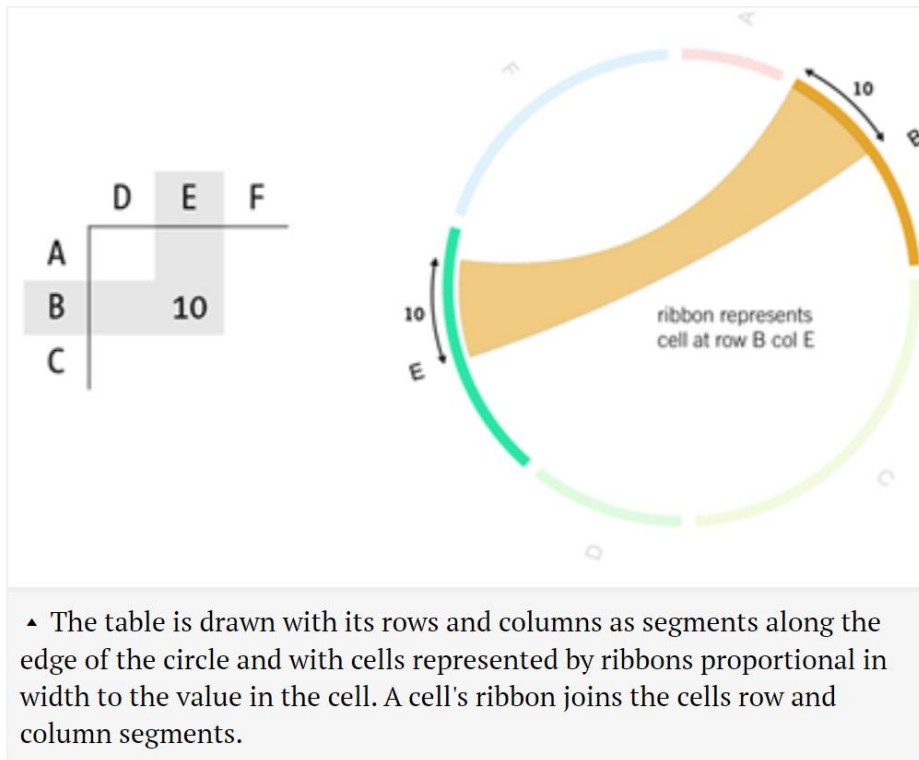


Fig. 2.

[Open in a separate window](#)

VISUALIZING TABLES

The Circos table viewer uses the [Circos](http://circos.ca) application to turn data tables into chord diagrams.

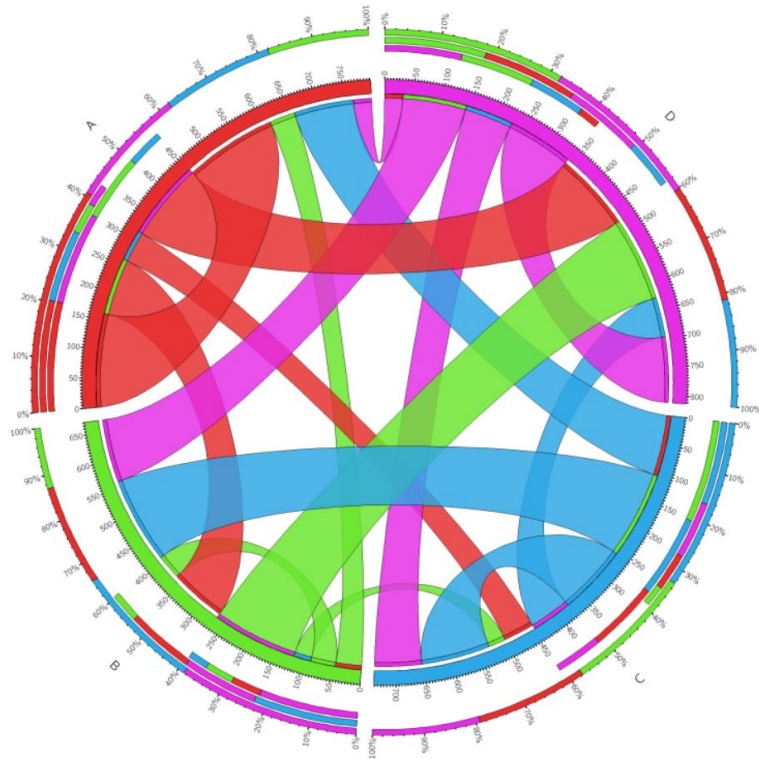


VISUALIZING TABLES

TABLE DATA USED FOR FIGURE

```
/home/martink/work/circos/svn/tools/tableviewer/bin/./etc/make-table.confdata
```

	A	B	C	D
A	162	99	54	138
B	45	43	30	148
C	105	152	121	70
D	32	111	83	115






DATA FORMAT

online version of Circos

eb.bcgsc.ca/tableviewer/

0. READ SLOGAN BADGES



1. CHECK DATA FORMAT

Before uploading a data file, check the [samples gallery](#) to make sure that your data format is compatible.

- Your file must be **plain text**.
- Your data values must be **non-negative integers**.
- Data must be space-separated (**one or more** tab or space, which will be collapsed).
- No two rows or columns may have the same name.
- Column and row names must **begin with a letter** (e.g. 'A', 'A0', 'A-0') and can only contain letters, numbers and `_`. No punctuation!
- Maximum row + column total is 150 — if exceeded, rows and columns are limited to 75.
- If you are using order, size and color rows/columns in combination they must appear in that order.
- No double underscores.

Need help? Post questions to the [Circos Google Group](#).

2A. UPLOAD YOUR FILE

If you are using the size, order or color options below, make sure your input file has the appropriate content (see [samples 5-9](#)).

Choose File

No file chosen

order

☐ col with row order

☐ row with col order

size

☐ col with row size

☐ row with col size

color

☐ col with row colors

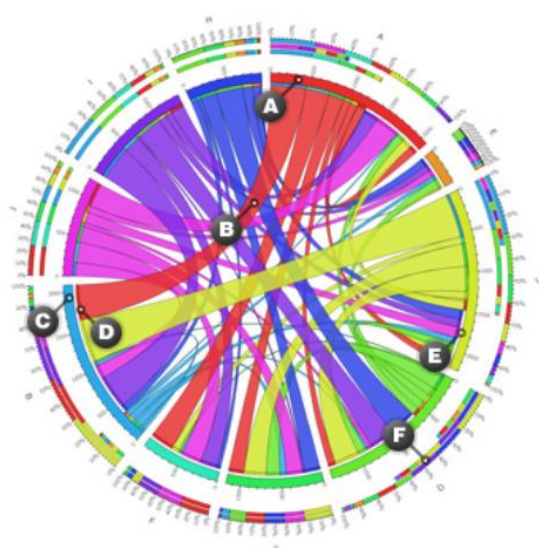
☐ row with col colors

0. WHAT IS THIS:

The Circos table viewer uses the [Circos](#) application to turn data tables into chord diagrams.

	A	B	C	D	E	F	G
A	105	450	92	96	5	301	195
B	20	46	78	33	53	28	83
C	118	553	94	317	25	89	287
D	100	18	108	104	105	25	173
H	23	83	123	342	98	48	205
I	173	428	103	325	82	215	23
J	305	173	138	49	81	258	207

into circularly composited visualizations like this



A Row and column segments.

B Ribbon size encodes cell value associated with row/column segment pair.

C Ribbons can be colored by

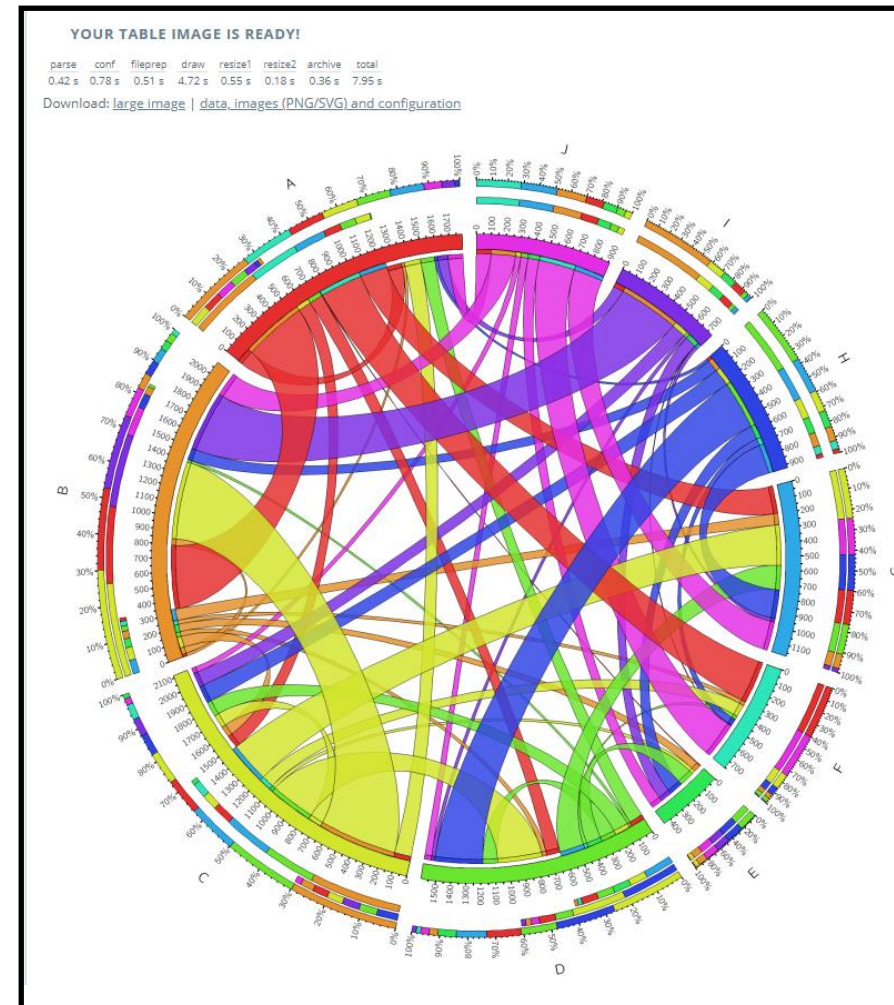
D Ribbon ends colored by column segment.

E Gap between ribbon and associated column segment.

F Relative row, column and ribbon color.

Example output

File needs to be in a .txt format
Read the file example_forcircos.txt



Creating circular plots with GALAXY

<https://usegalaxy.org/>

The screenshot displays the Galaxy web interface. On the left, the 'Tools' sidebar shows a search for 'circos' and a list of tools. The 'Circos: Table viewer' tool is highlighted with a red oval. The main panel shows the configuration for this tool, including an input table selection and output format options.

Galaxy

Workflow Visualize Shared Data ▾ Help ▾ Login or Register

Tools

circos

Upload Data

Show Sections

scatter/line/histogram plots

Circos: Link Density Track reduce links to a density plot

Circos: Bundle Links reduce numbers of links in datasets before plotting

Circos: Table viewer easily creates circos plots from tabular data

Circos: Resample 1/2D data reduce numbers of points in a dataset before plotting

GC Skew calculates skew over genomic sequences

WORKFLOWS

Circos: Table viewer easily creates circos plots from tabular data (Galaxy Version 0.69.8+galaxy7)

Input table

1: example_forcircos.csv (as tabular)

Outputs

Output PNG

Yes

Output SVG

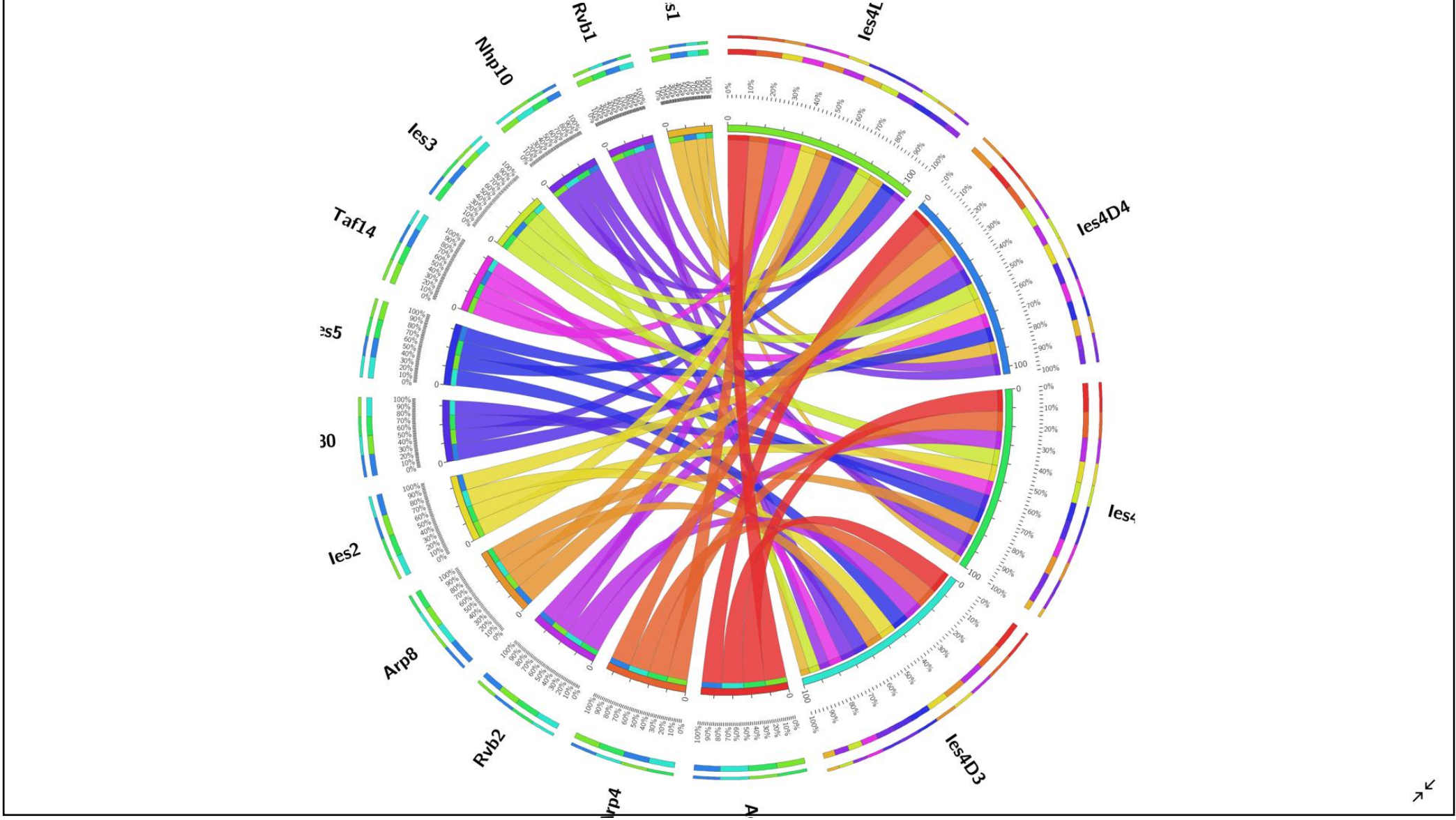
No

Output Configuration Archive

No

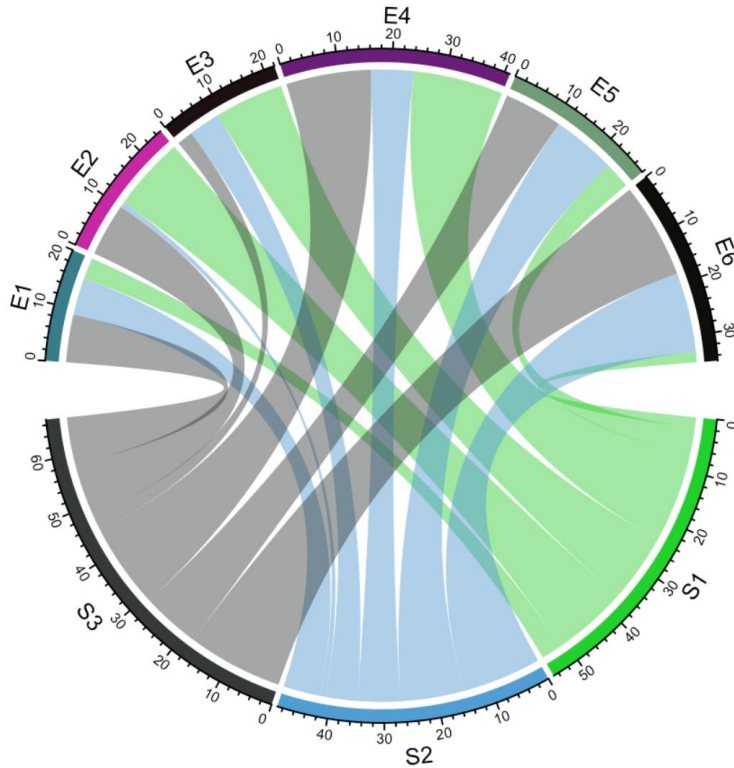
Ticks & Labels

Execute



Create relations in R

```
install.packages("circlize")  
library("circlize")
```



https://jokergoo.github.io/circlize_book/book/the-chorddiagram-function.html#adjust-by-circos.par

SCRIPT

Examples by circlize

← → ↻ 🔒 jokergoo.github.io/circlize_book/book/introduction.html

Circular Visualization in R

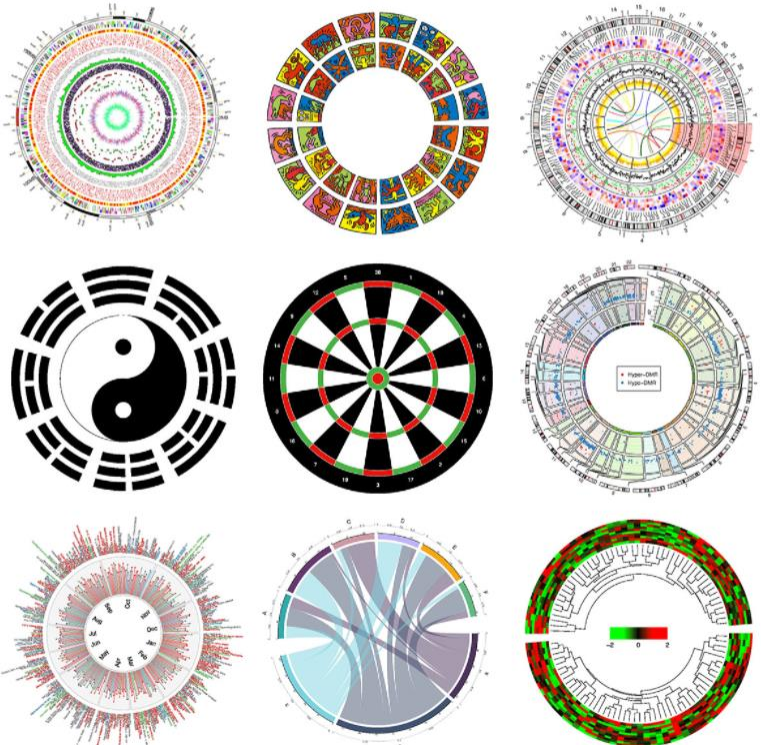
About

General Functionality

1 Introduction

- 1.1 Principle of design
- 1.2 A quick glance**
- 2 Circular layout
 - 2.1 Coordinate transformation
 - 2.2 Rules for making the circular...
 - 2.3 Sectors and tracks
 - 2.4 Graphic parameters
 - 2.5 Create plotting regions
 - 2.6 Update plotting regions
 - 2.7 panel.fun argument
 - 2.8 Other utilities
 - 2.9 Set gaps between tracks
- 3 Graphics
 - 3.1 Setting colors
 - 3.2 Points
 - 3.3 Lines
 - 3.4 Segments
 - 3.5 Text
 - 3.6 Rectangles and polygons
 - 3.7 Axes

Thus, theoretically, you are able to draw most kinds of circular figures by the above functionalities. Figure 1.1 lists several complex circular plots made by **circlize**. After going through this book, you will definitely be able to implement yours.



Using circos to create heatmaps and clusters

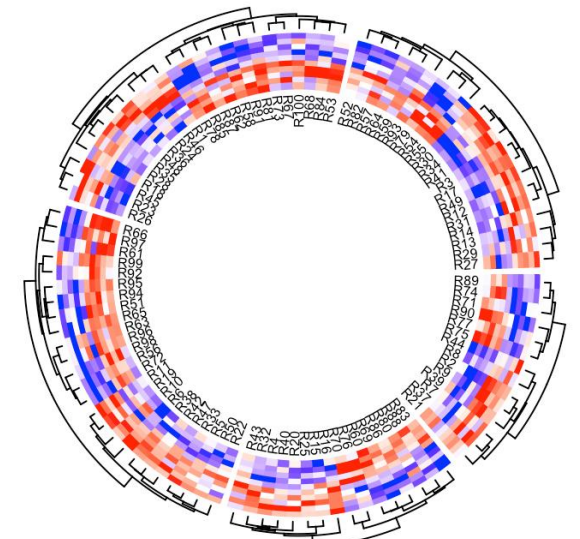
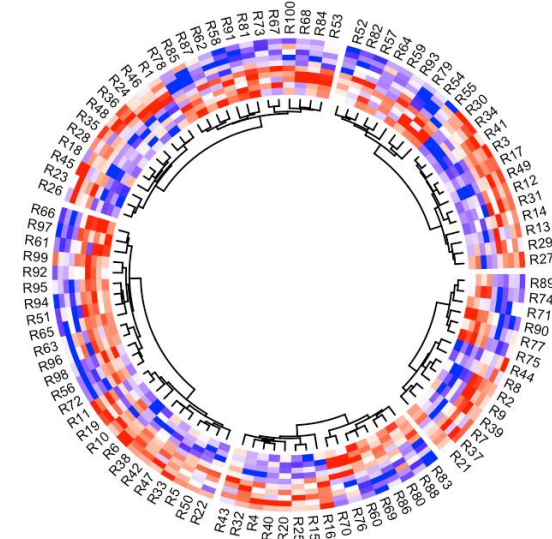
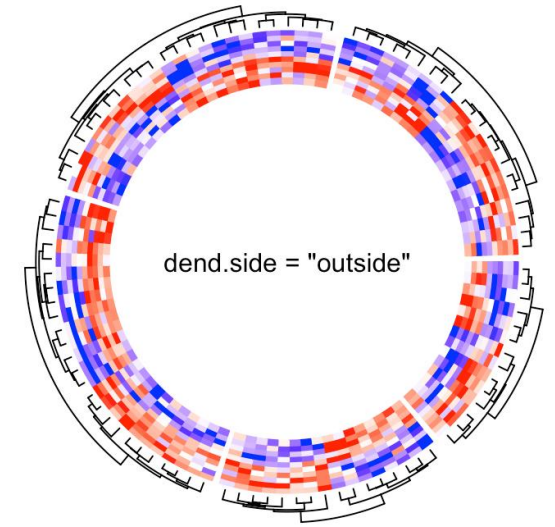
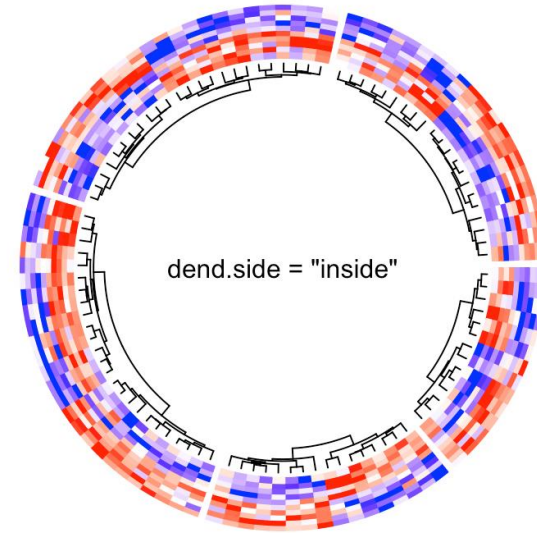
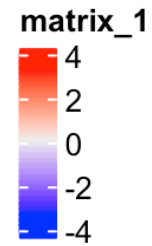
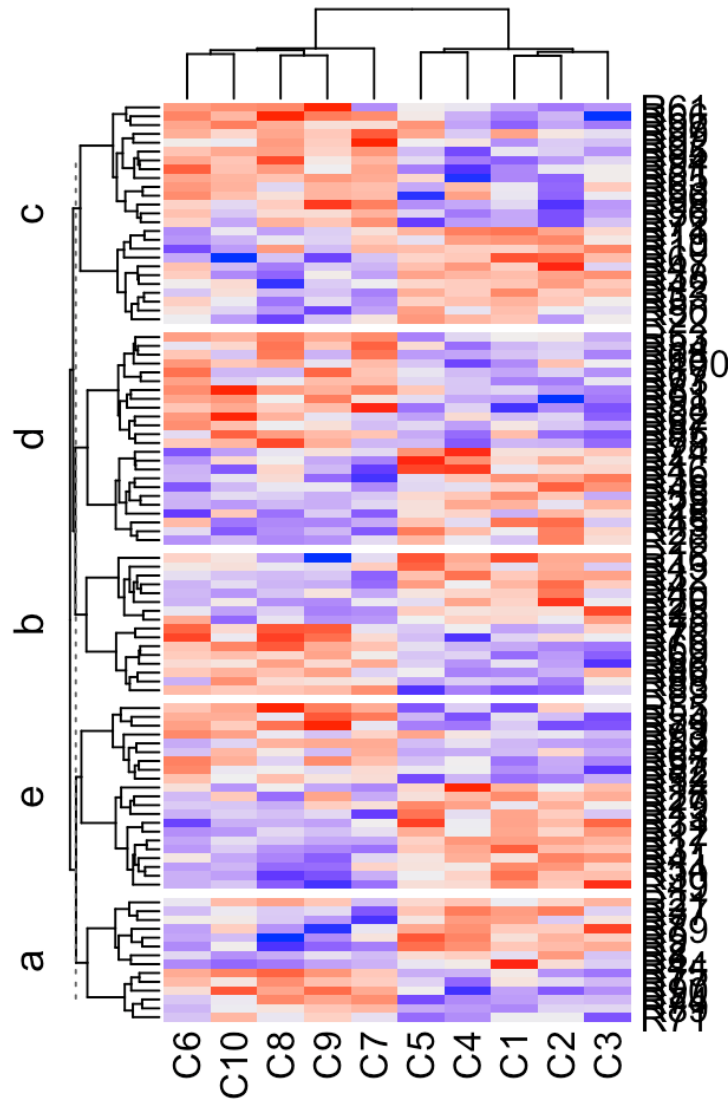
- With circlize package, it is possible to implement circular heatmaps by the low-level function `circos.rect()` (in an older version). However, there is a high-level function `circos.heatmap()` which simplifies the creation of circular heatmaps.

Install the library “ComplexHeatmap”

```
if (!requireNamespace("BiocManager", quietly = TRUE))  
  install.packages("BiocManager")
```

```
BiocManager::install("ComplexHeatmap")
```


From 2D hierarchical clustering to circular clustering



Using circos to create histograms

