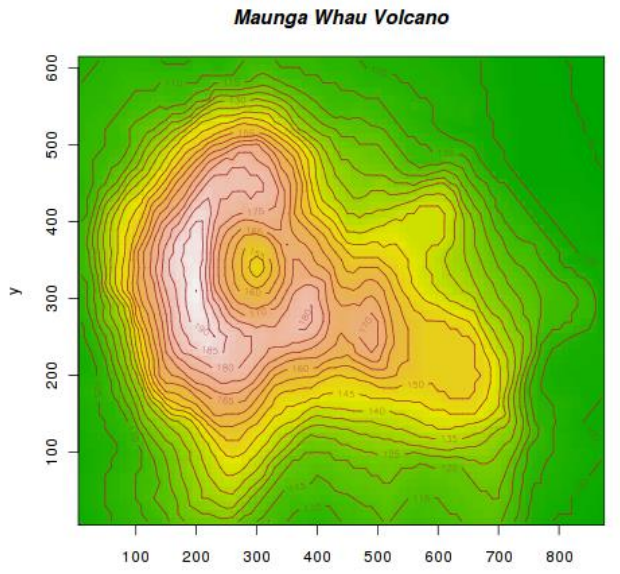
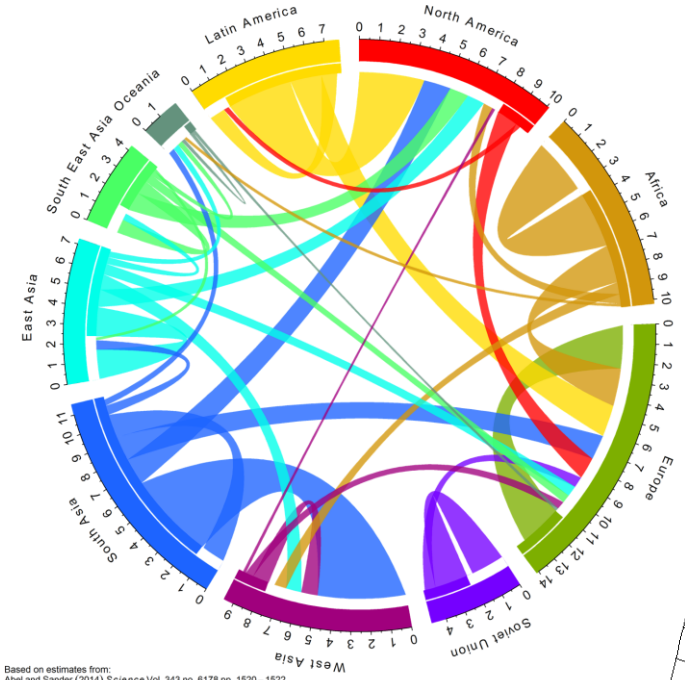
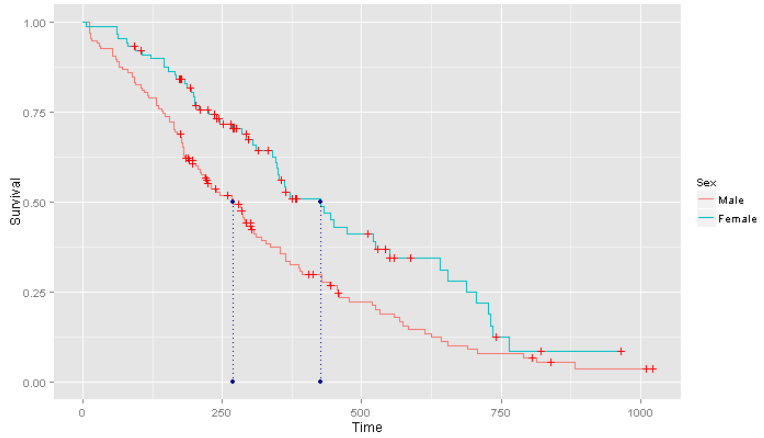
Data is Beautiful

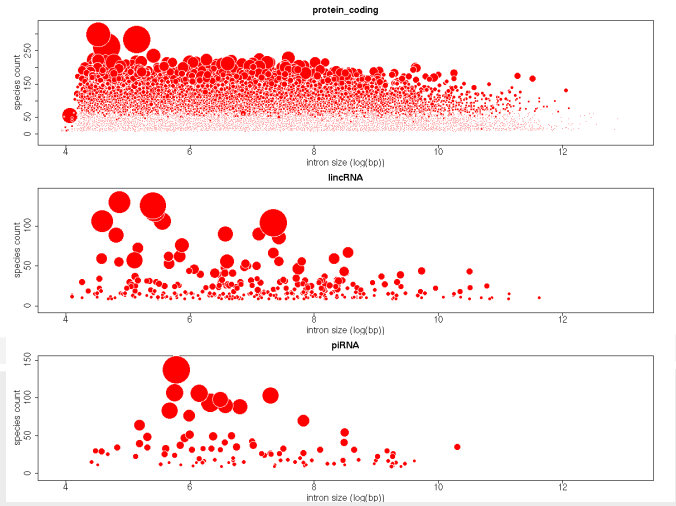
Tom Kelly: Quickfire SYSKA Oct 22nd 2015

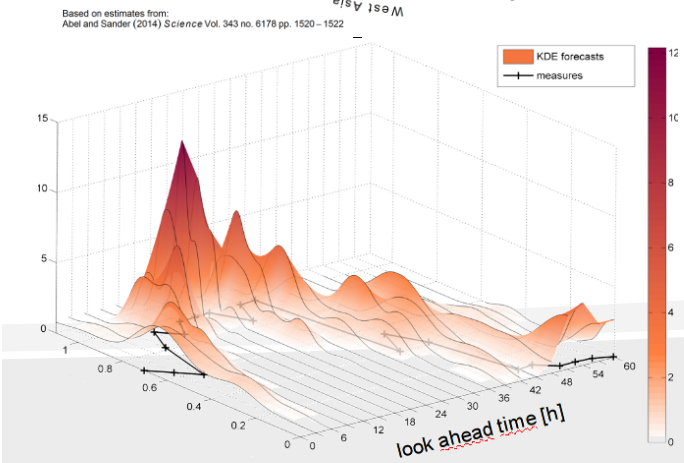
R is a powerful tool to visualise data

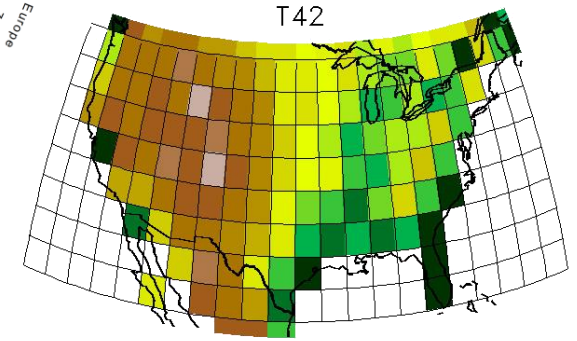


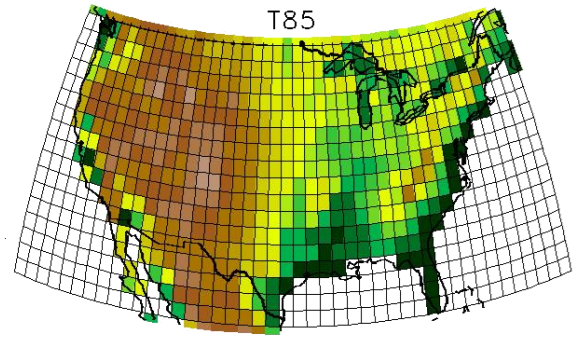


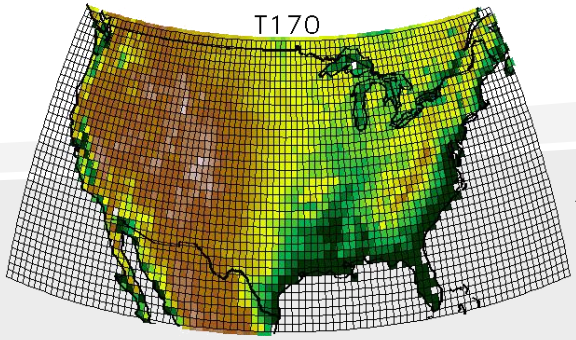


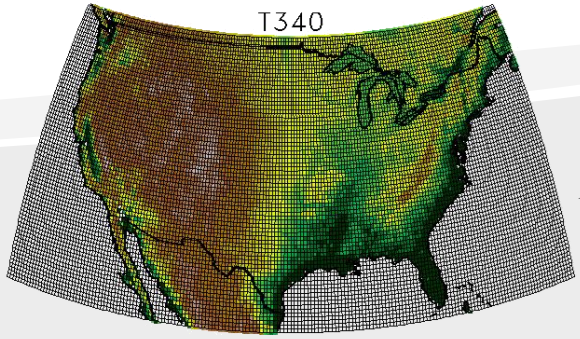






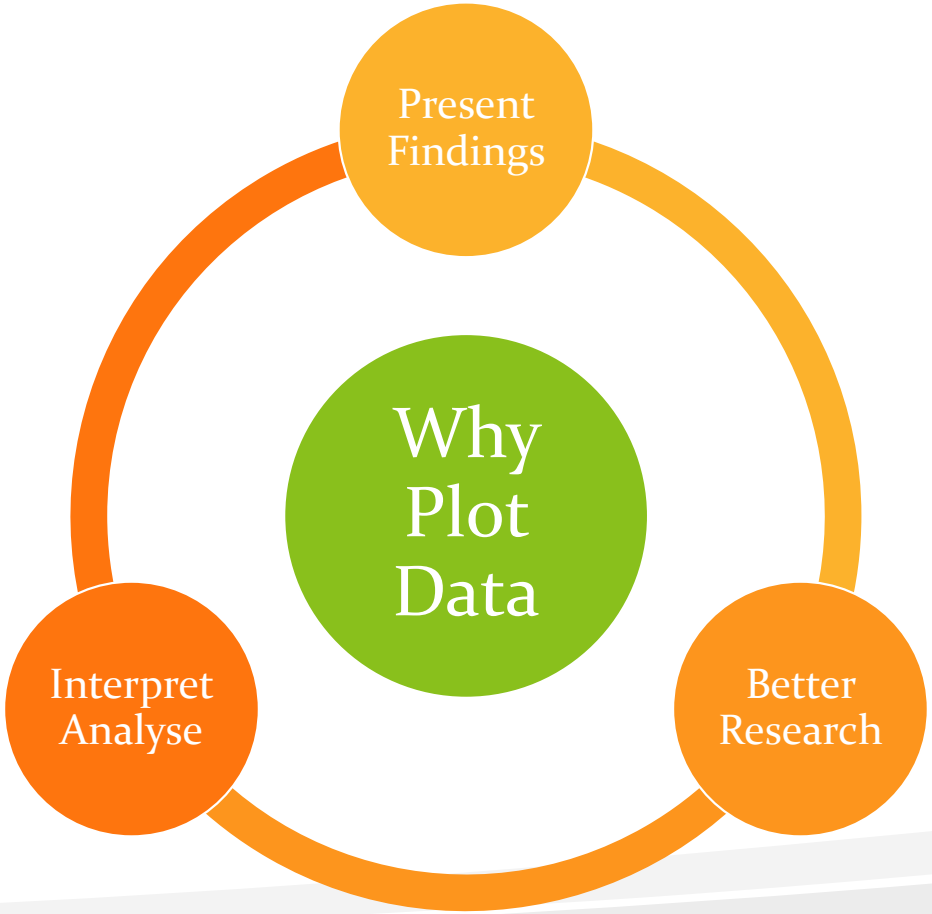




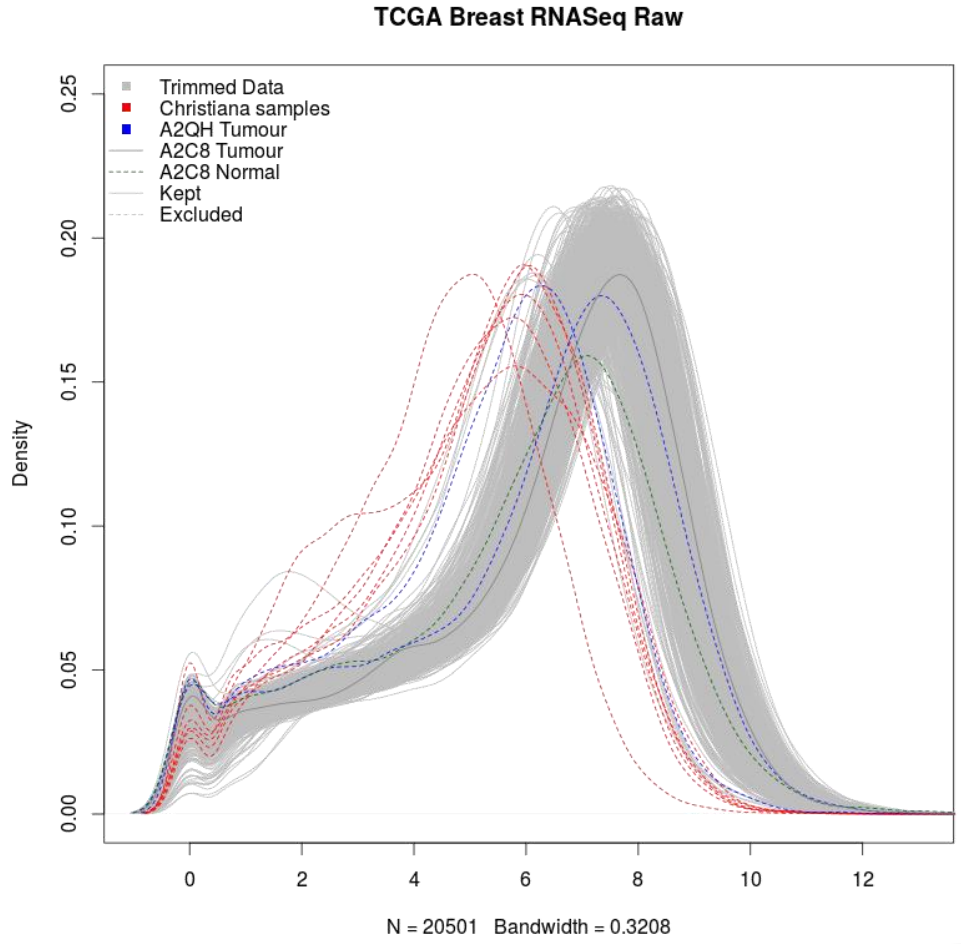


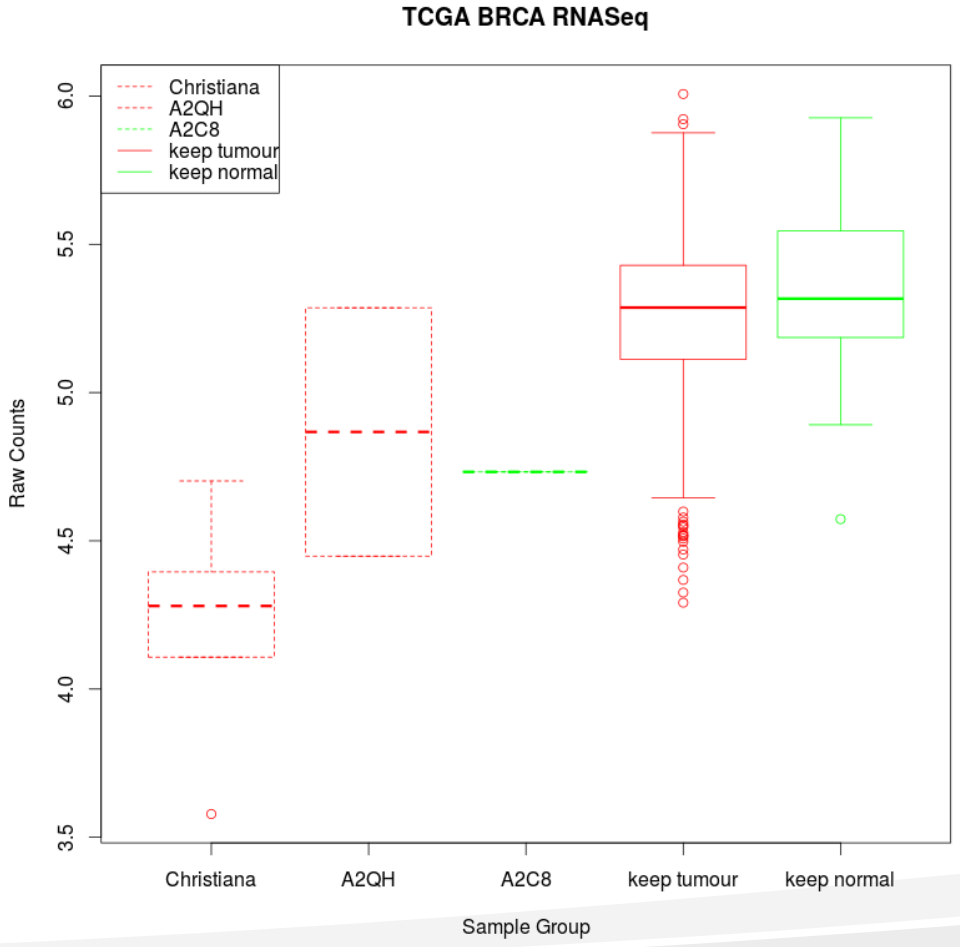
Visualising Data is Crucial to Research

- Effective communication is essential in research
- It helps us do better research and make better papers / theses
- So think about it critically

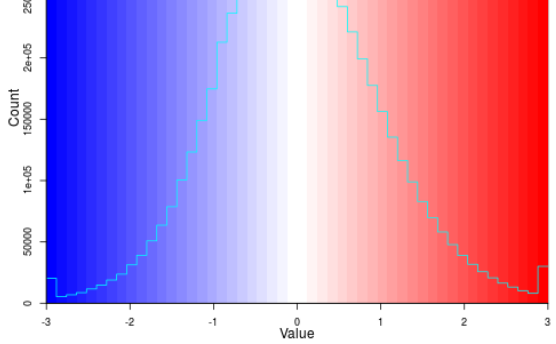


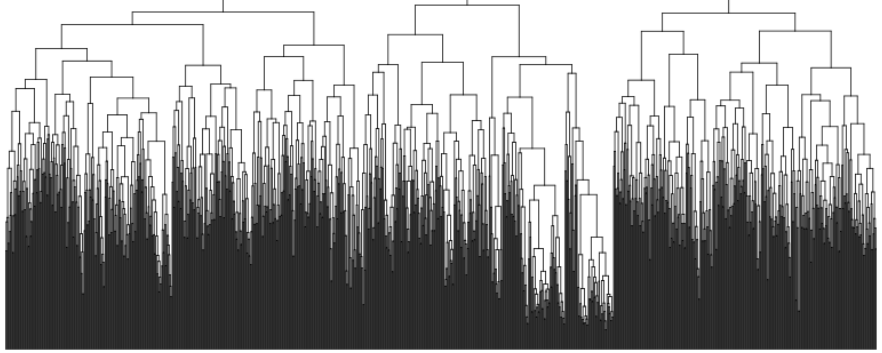
Use Visualisation to check data quality

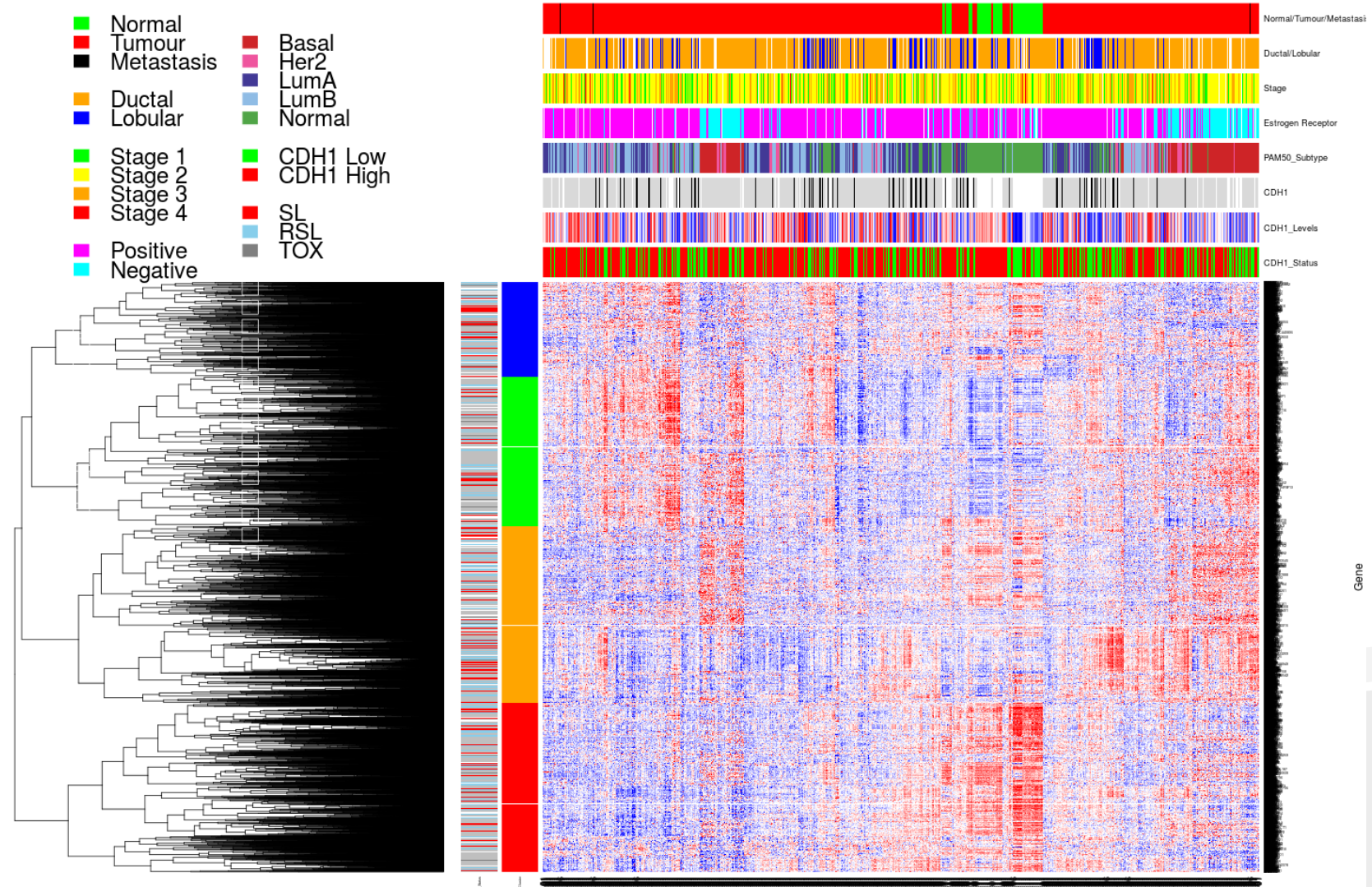




Heatmaps


Count
Value




Normal
Tumour
Metastasis
Ductal
Lobular
Stage 1
Stage 2
Stage 3
Stage 4
Positive
Negative
Basal
Her2
LumA
LumB
Normal
CDH1 Low
CDH1 High
SL
RSL
TOX
Normal/Tumour/Metastasis
Ductal/Lobular
Stage
Estrogen Receptor
PAM50_Subtype
CDH1
CDH1_Levels
CDH1_Status
Gene

Venn Diagrams

3525

Translation, non-sense mediated decay, SRP-dependent co-trans, RNA metabo, Immune, IFNγ, TLR, Chemokine, Gα(i), TCR, PD-1

2901

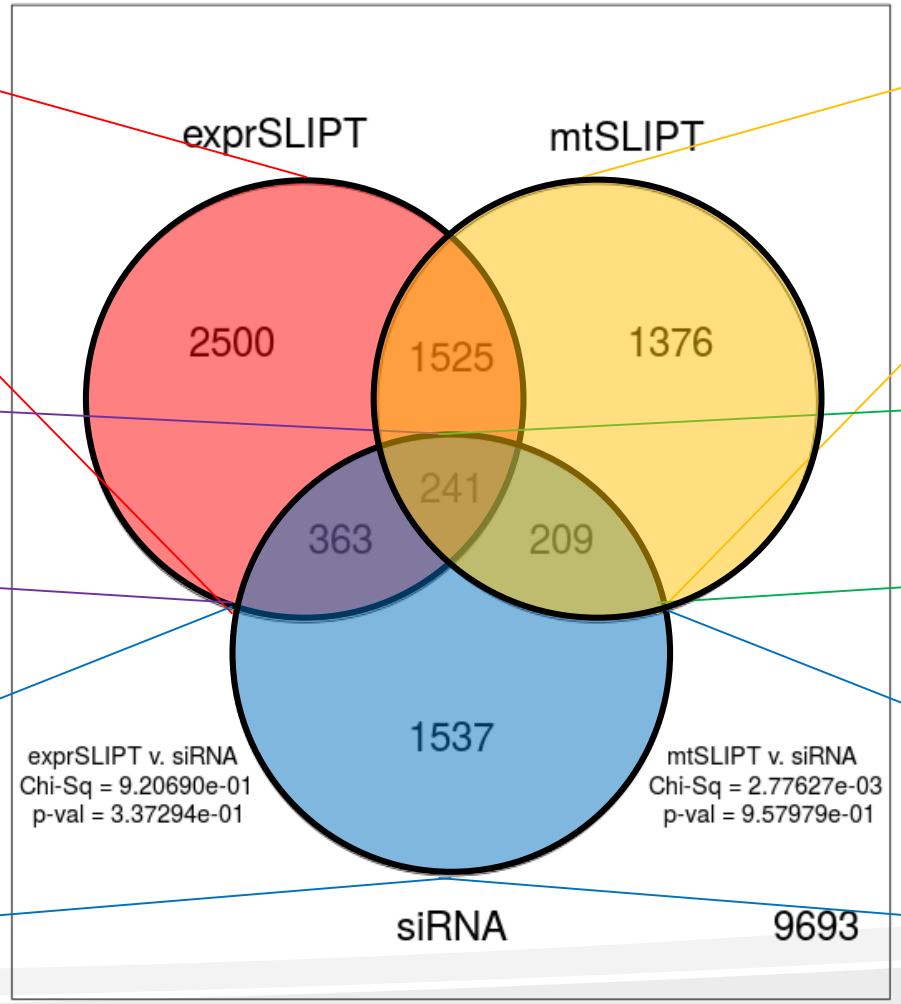
Translation, non-sense mediated decay, SRP dependent cotrans, RNA Metab, secondary messenger, TCR, ZAP70, IGF, CD3, PD-1

604

GPCR ligand binding, GPCR (A/1), Chemokines, peptide-ligand bind, Gα(i), Gα(q), Platelet activation, Homeostasis, GPCR (B/2), Gα(z)

450

GPCR ligand bind, GPCR (A/1), NOTCH4, Platelet activation, GPCR (B/2), Circadian clock, Gα(i), Gα(s), Growth hormone R



1746

GPCR (A/1), GPCR ligand binding, Gα(i), peptide-ligand bind, ion trans, Gα(q), purine receptor, phospholipase C, PI3K Cascade

1900

GPCR (A/1), GPCR ligand bind, Gα(i), peptide-ligand, Gα(q), chemokines, Cyclin A/B1 (G2->M), GPCR (C/3), ion trans, Phospho C

CirCos Plots

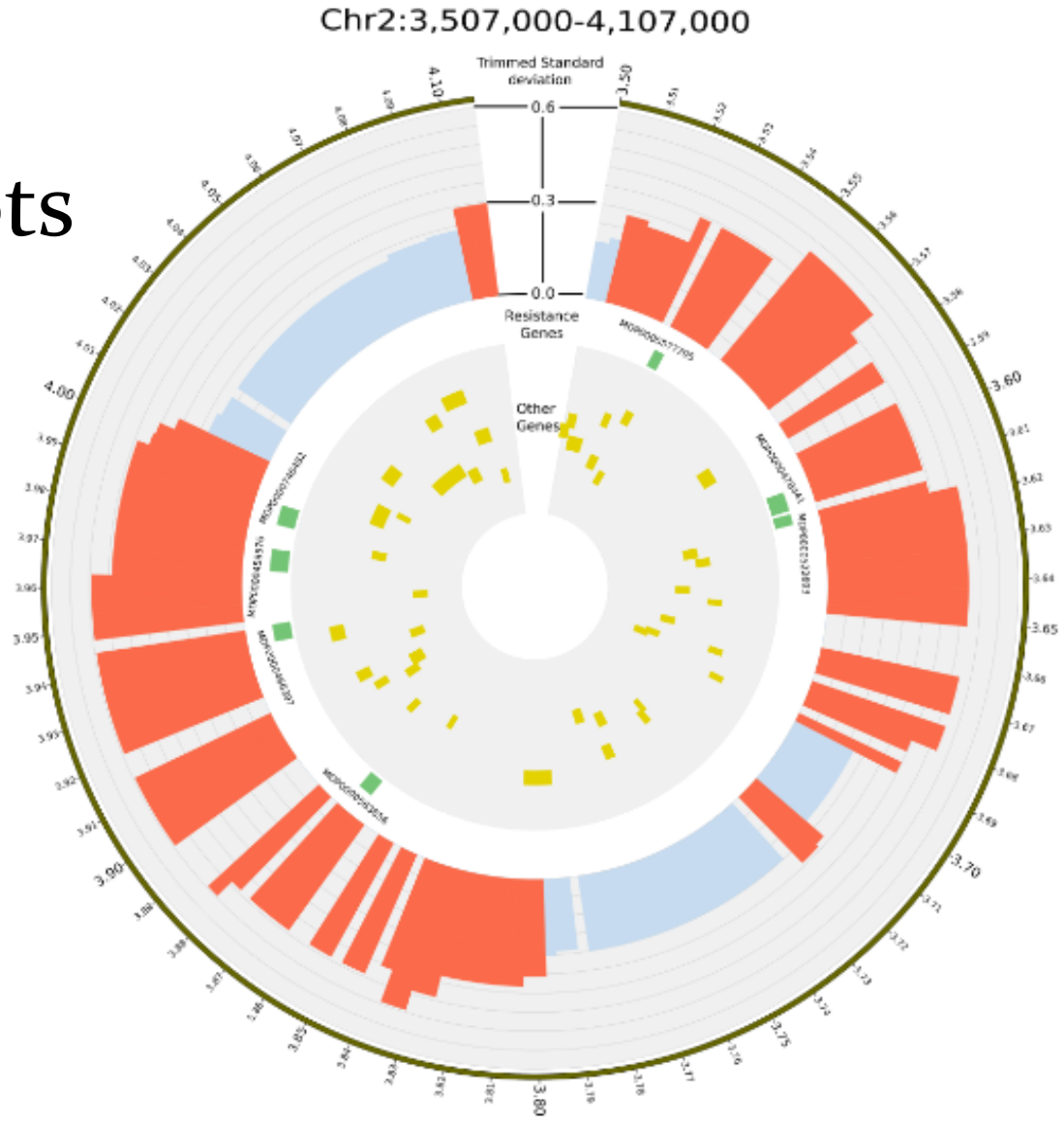


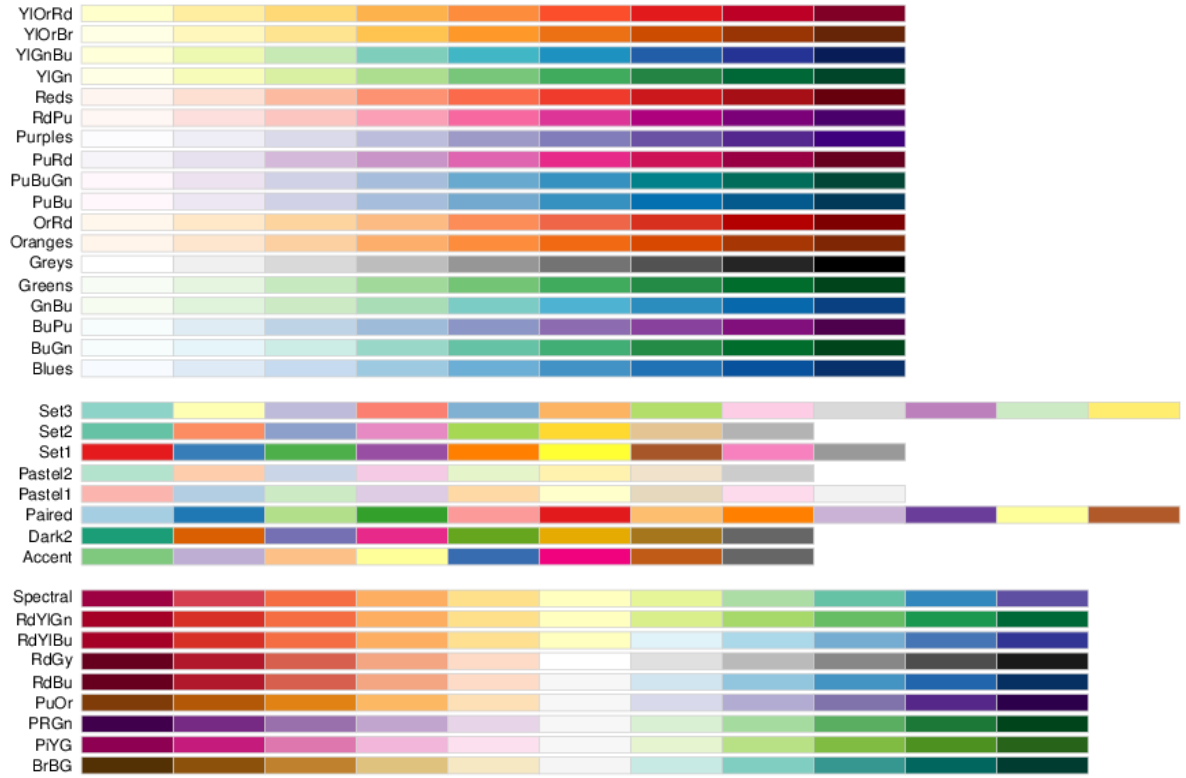
Figure 6. Circos plot displaying the copy-number variable regions (CNVRs), R genes, and genes in the region between positions 3,507,000 bp and 4,107,000 bp on apple chromosome 2.

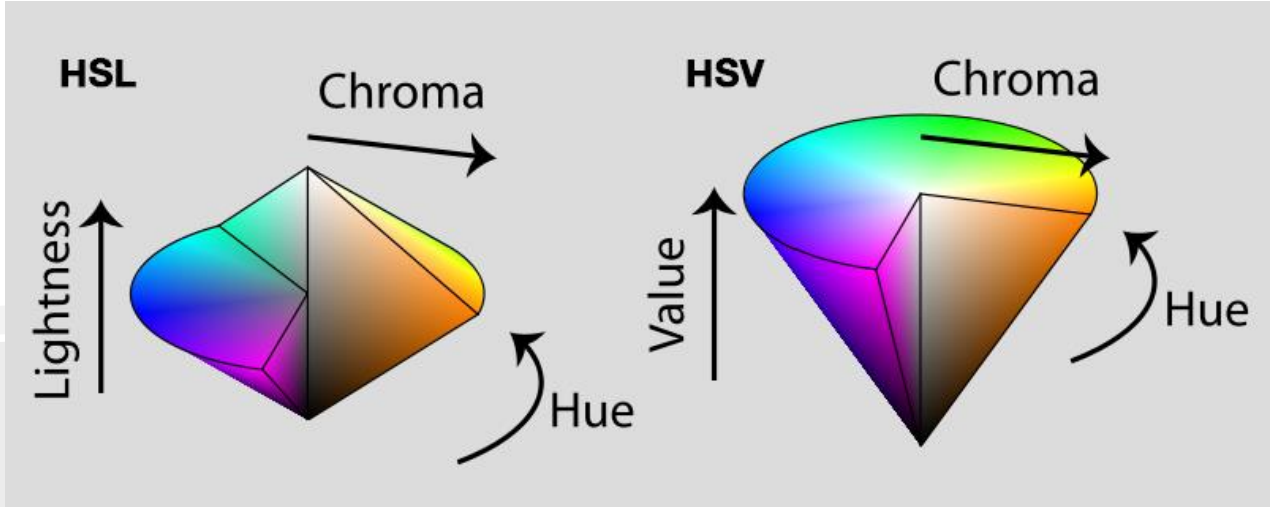
Boocock *et al.* (2015) *BMC Genomics*

Facebook Map

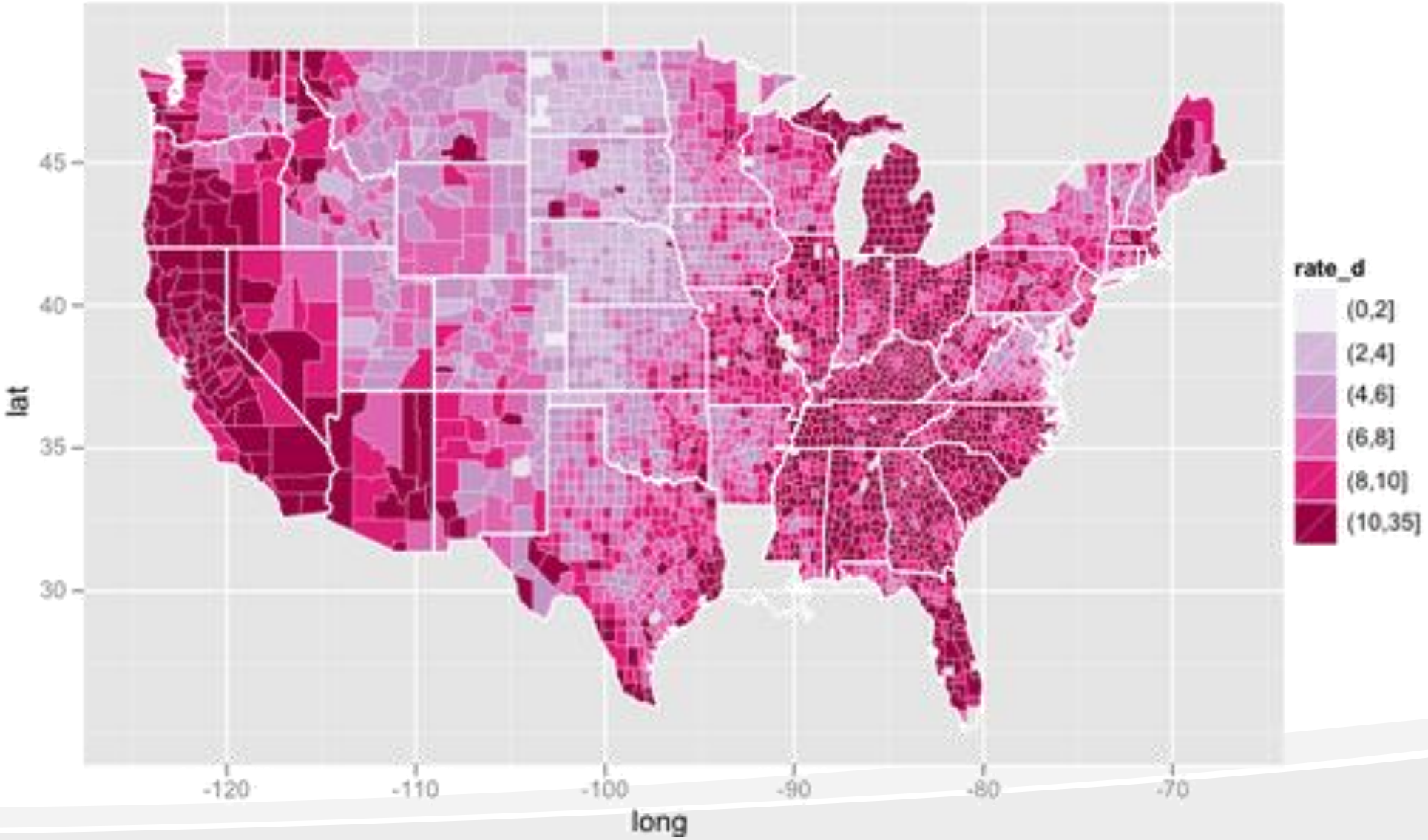
Colour

- Colour Palettes:
  - Brewer Colours are based on perception research and colourblind-friendly
  - RColorBrewer package
- https://www.nceas.ucsb.edu/~frazier/RSpatialGuides/colorPaletteCheatsheet.pdf
- http://colorbrewer2.org/





Colour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-110
-100
-90
-80
-70
long
rate_d
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(2,4]
(4,6]
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(8,10]
(10,35]

Visualising Data – Key Points