

# Differential Expression Results

2021-07-22

# (Some) of the Many Gene IDs

- Ensembl ids
  - ENS[species prefix][feature type prefix][a unique eleven digit number].[version number]
  - Human: **ENSG00000168769**, Mouse: **ENSMUST00000101509.9**
- HUGO Gene Naming Consortium sets gene names like BRCA1
- Other ids:
  - Entrez
  - UCSC
  - NCBI
  - RefSeq
  - OMIM
  - Uniprot
- If you don't know what type of id it is, google the id

## Gene name errors are widespread in the scientific literature

[Mark Ziemann](#), [Yotam Eren](#) & [Assam El-Osta](#) 

*Genome Biology* 17, Article number: 177 (2016) | [Cite this article](#)

134k Accesses | 53 Citations | 3209 Altmetric | [Metrics](#)

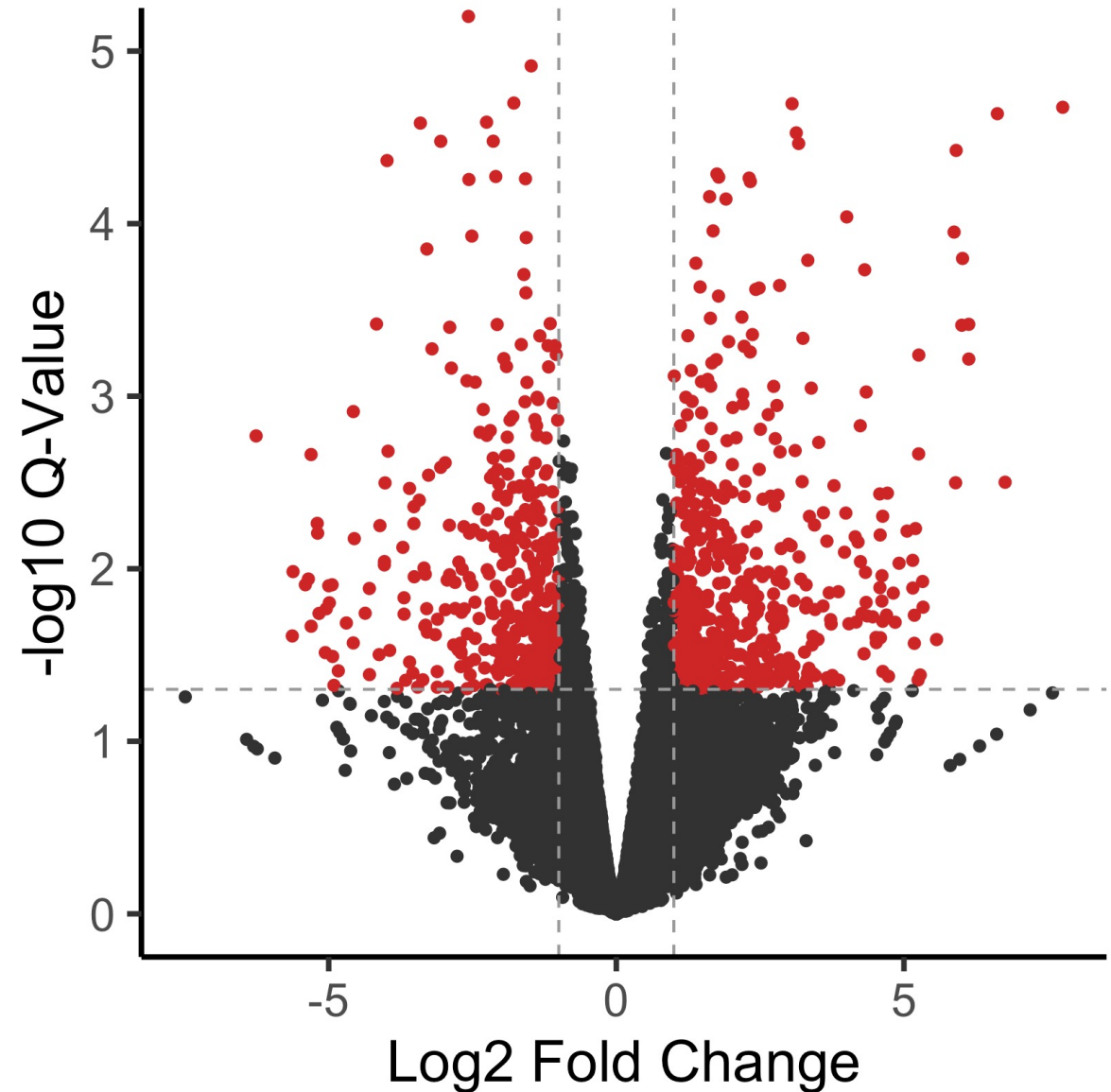
### Abstract

The spreadsheet software Microsoft Excel, when used with default settings, is known to convert gene names to dates and floating-point numbers. A programmatic scan of leading genomics journals reveals that approximately one-fifth of papers with supplementary Excel gene lists contain erroneous gene name conversions.



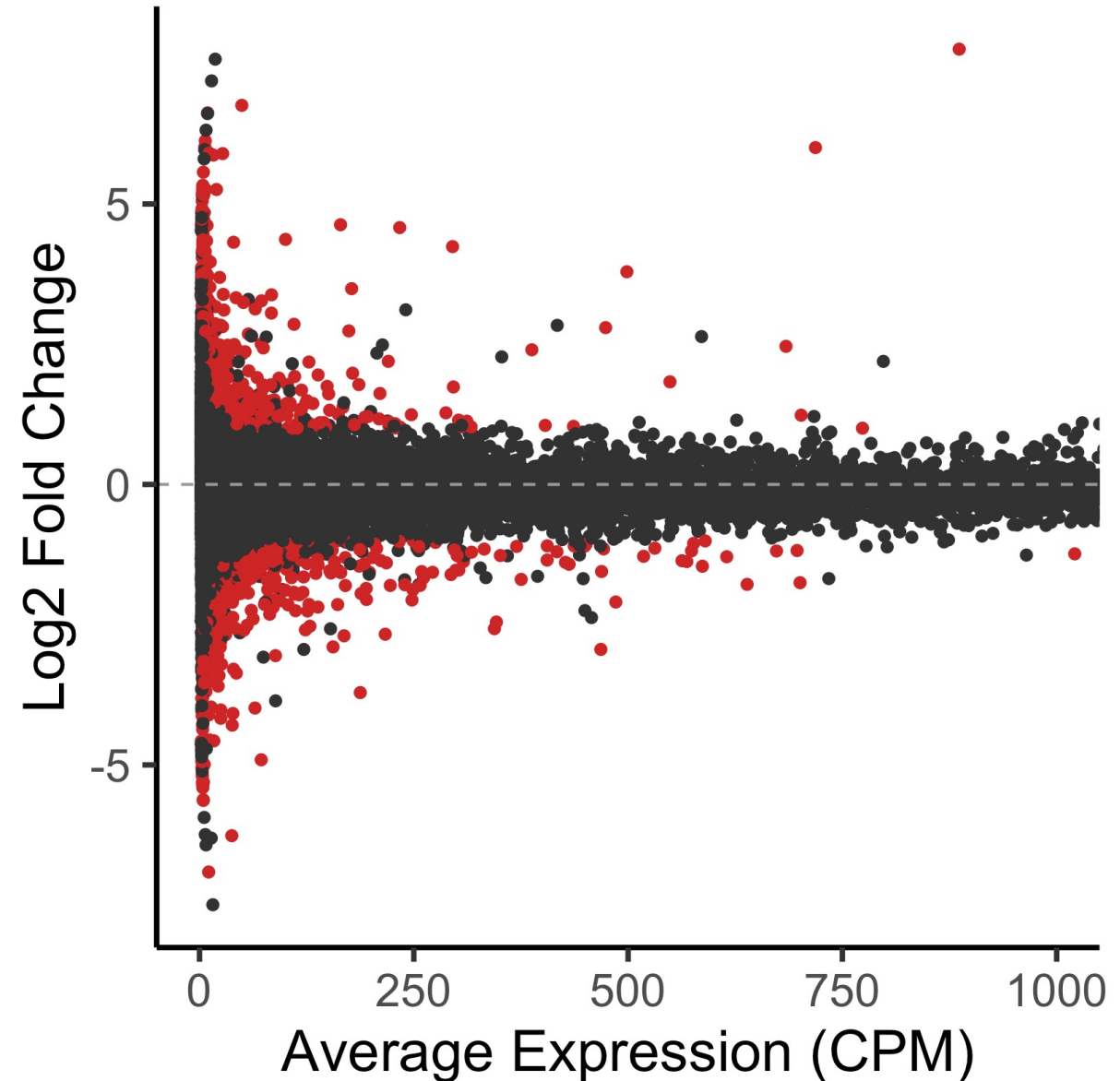
# Volcano Plot

- X-axis shows the average log<sub>2</sub> fold change for the variable of interest
- Y-axis negative log<sub>10</sub> corrected p-value
- Overall shows how the expression in the treatment group changes and how statistically significant the changes are



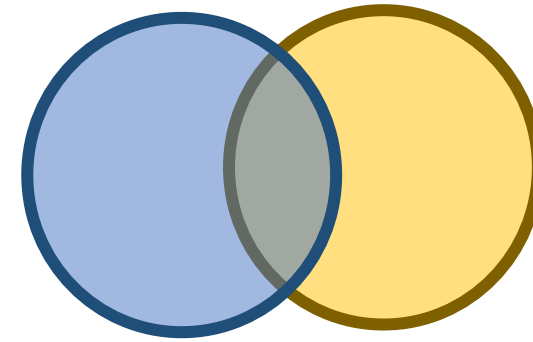
# MA Plot

- X-axis shows the average expression for all samples
- Y-axis shows the log<sub>2</sub> fold change for the variable of interest
- Overall shows how the expression in the variable group changes relative to all other samples



# UpSet Plot

- New variation on a venn diagram because venn diagrams are not great at visualizing more than 2 or 2 sets
- [https://en.wikipedia.org/wiki/Venn\\_diagram](https://en.wikipedia.org/wiki/Venn_diagram)
- Points and line on the bottom show the overlap between the conditions on the left
- Bar height and counts show the number of features that overlap



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