Keep Science Going

Let's make the best of your work-at-home time

A Short Guide to dive into scRNA-seq analysis

Arvind Iyer
Computational Systems Oncology
Department of Computational Biology.

UNIL | Université de Lausanne

HI!!

I am **Arvind Iyer,** Quantitative Biology PhD student at UNIL under Prof Giovanni Ciriello.


arvind.iyer@unil.ch


www.arvindkiyer.com

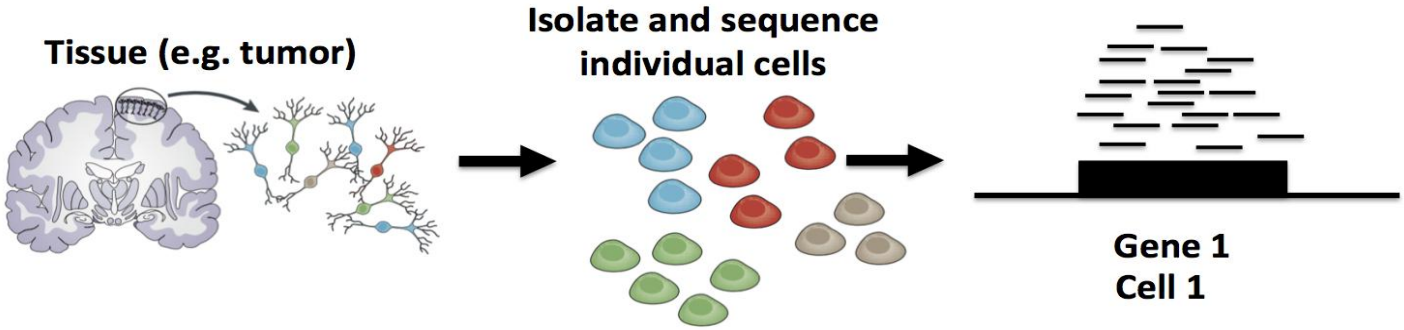

@Arvind K Iyer

Transcriptomics At a Glance!!

High dimensional snapshot of transcriptomic activity of all RNA species in a sample.

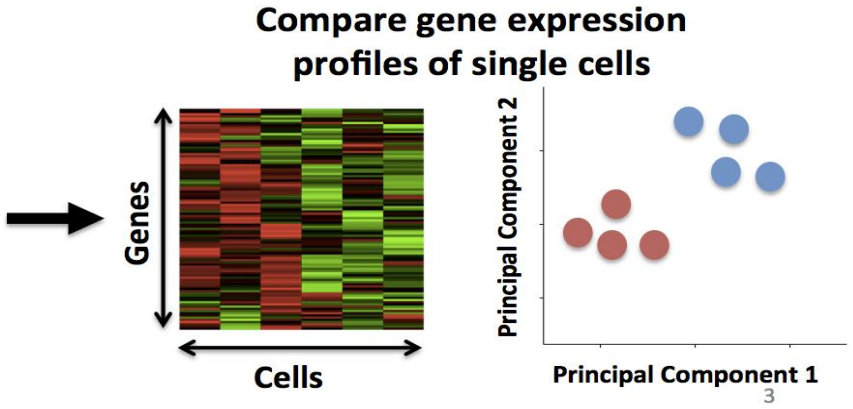
Data: Genes * Samples (Bulk/Single Cells)

Single-cell RNA-Seq (scRNA-Seq)

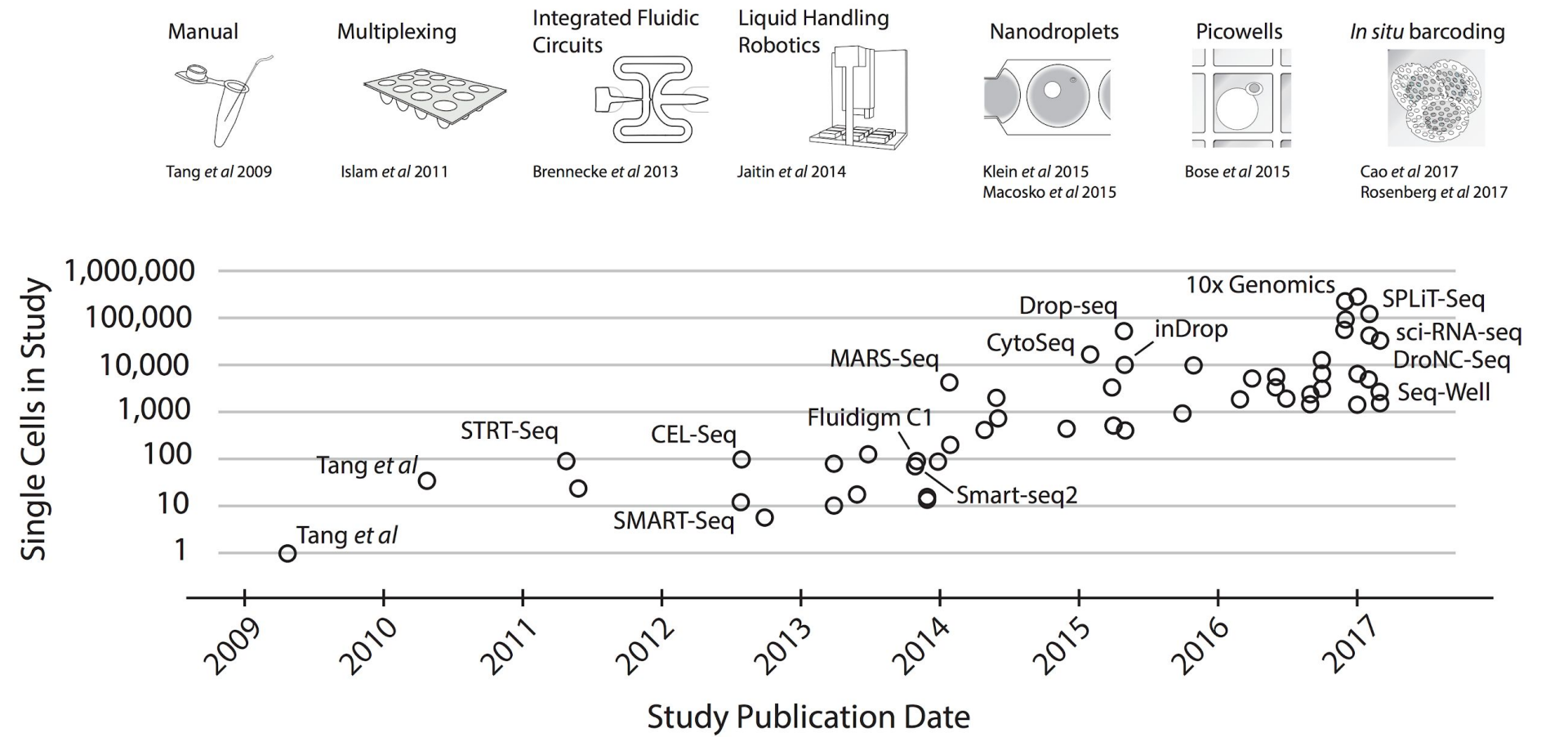


Read Counts

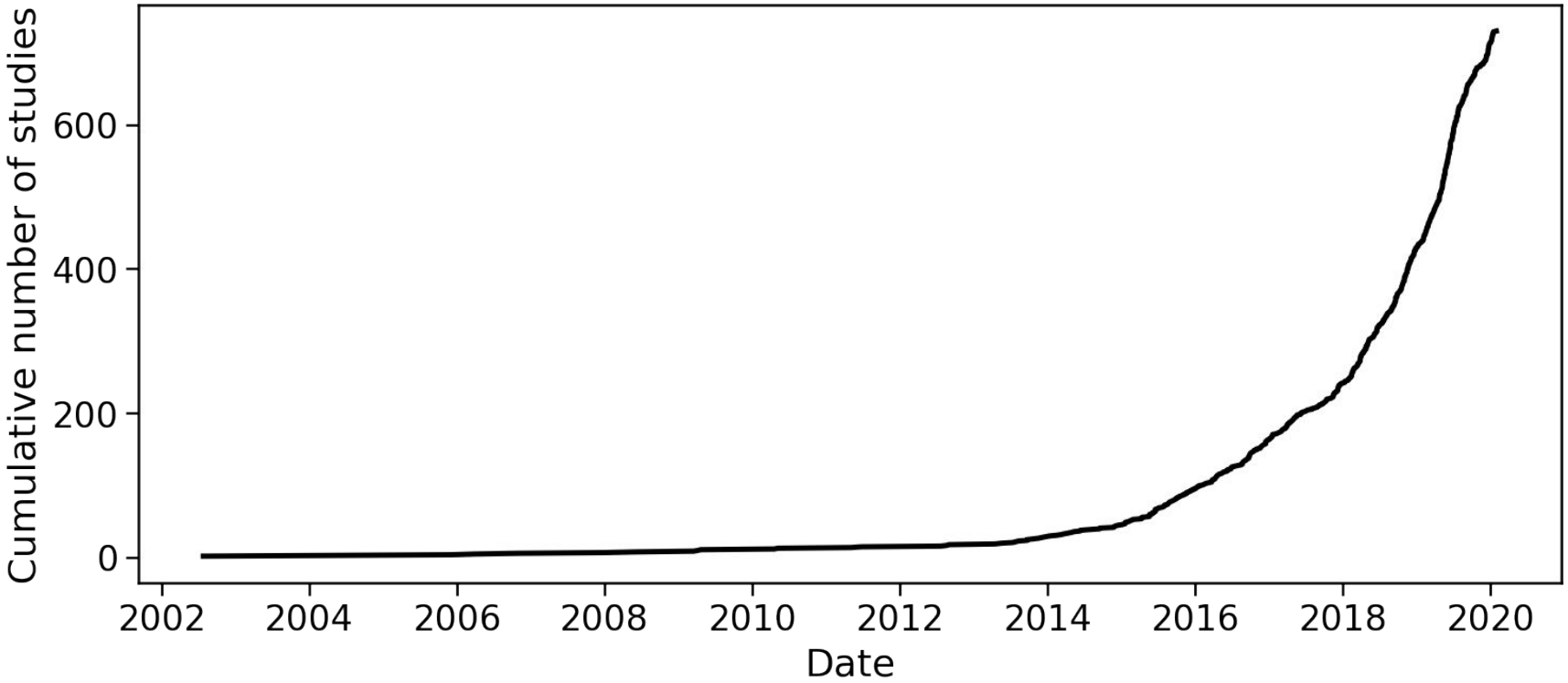
	Cell 1	Cell 2	...
Gene 1	18	0	
Gene 2	1010	506	
Gene 3	0	49	
Gene 4	22	0	
...			



Taken From: https://speakerdeck.com/stephaniehicks/welcome-to-the-world-of-single-cell-rna-sequencing

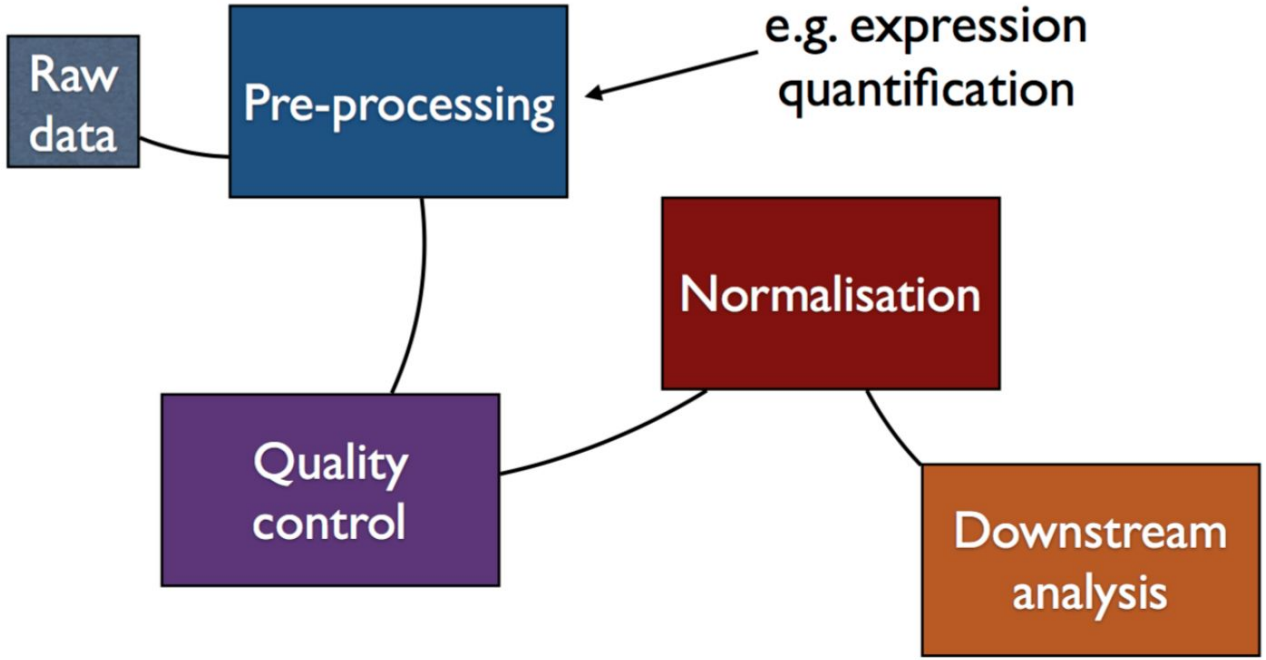


Taken from: https://arxiv.org/abs/1704.01379

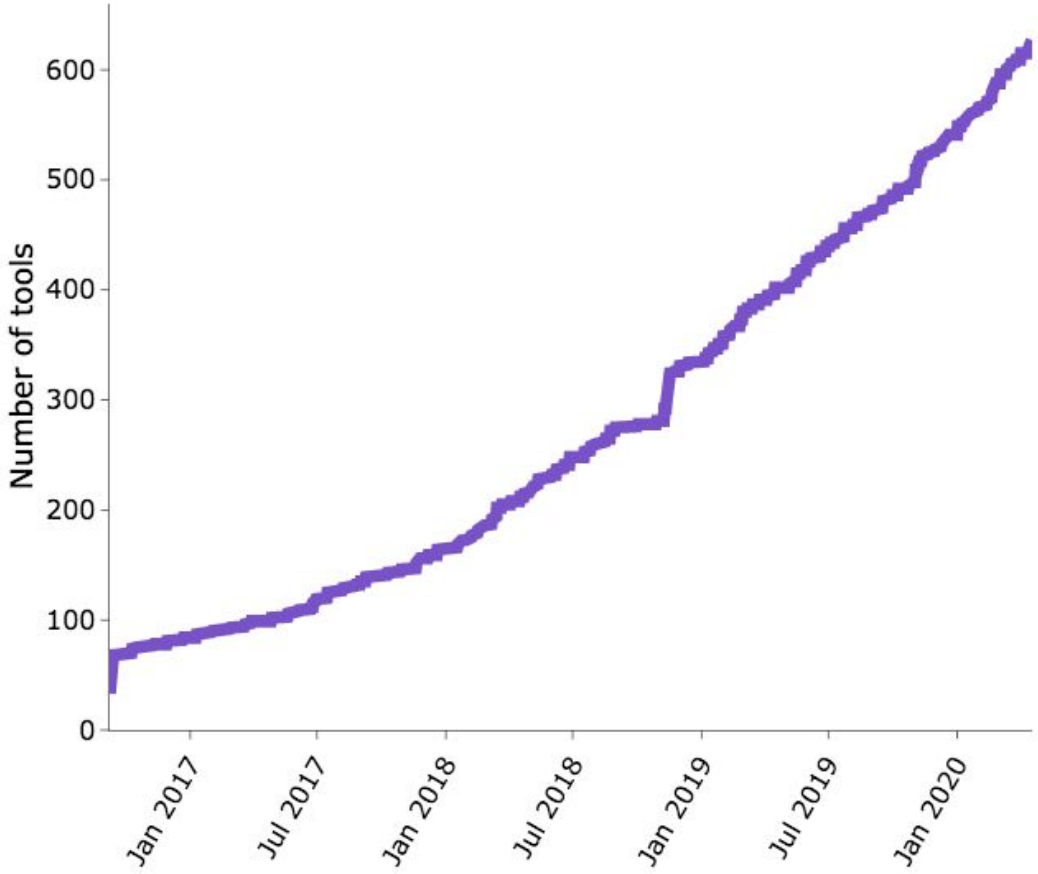


Taken: https://github.com/pachterlab/kallistobustools/blob/master/notebooks/Introduction_single_cell_RNA_seq.ipynb

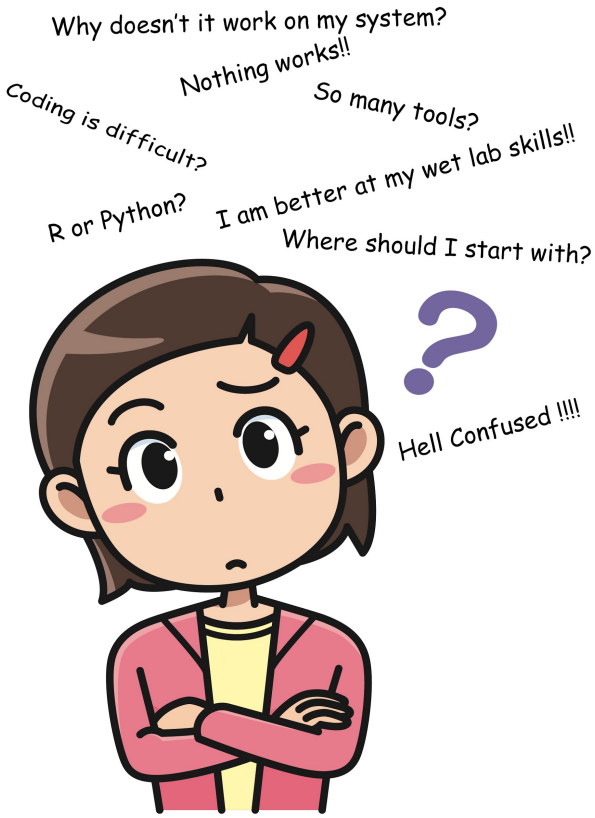
Going from “raw” data to “clean” data



Taken From: https://speakerdeck.com/davismcc/what-do-we-need-computationally-to-make-the-most-of-single-cell-rna-seq-data



Taken from: https://www.scrna-tools.org/



Taken from online resources

Where To Begin??

A paper to read https://www.embopress.org/doi/10.15252/msb.20188746

Courses to follow:

https://scrnaseq-course.cog.sanger.ac.uk/website/index.html (R version) (little knowledge)

https://chanzuckerberg.github.io/scRNA-python-workshop/intro/about (Python version) (little knowledge)

https://broadinstitute.github.io/2020_scWorkshop/ (very beginner) (start here)

Case Study

- Will take you through a basic analysis of lung cancer dataset.
- Code/Slides will be shared.

- Feel free to ping me. Always up for science or banter conversation.
- Stay safe and #keepsciencegoing :)


Thank
you !