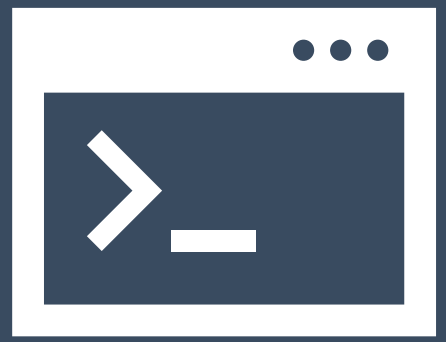
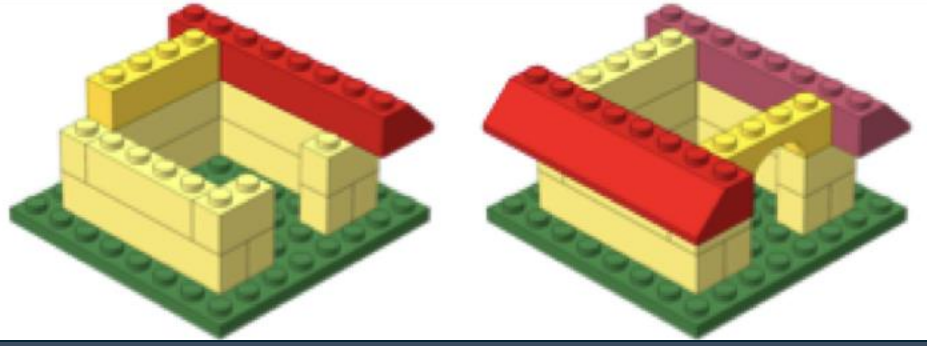
Introduction to Single-cell RNA-seq analysis

http://tinyurl.com/hbc-scRNAseq-online



Harvard Chan Bioinformatics Core

Workshop Scope

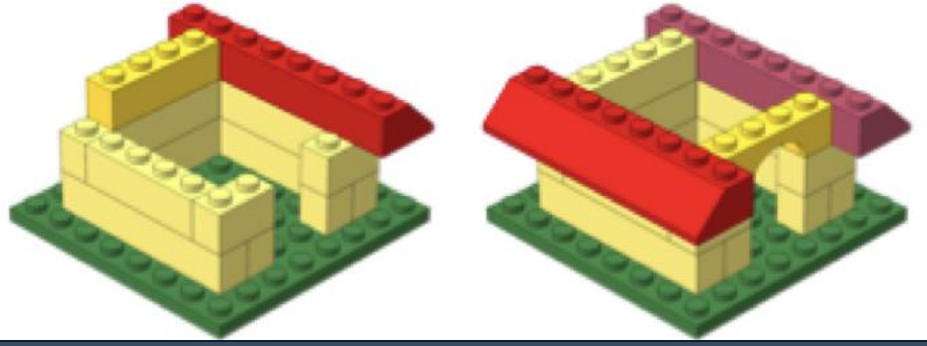


- Describe best practices for designing a single-cell RNA-seq experiment
- Describe steps in a single-cell RNA-seq analysis workflow
- Use Seurat and associated tools to perform analysis of single-cell expression data, including data filtering, QC, integration, clustering, and marker identification
- Understand practical considerations for performing scRNA-seq, rather than in-depth exploration of algorithm theory

Exit survey

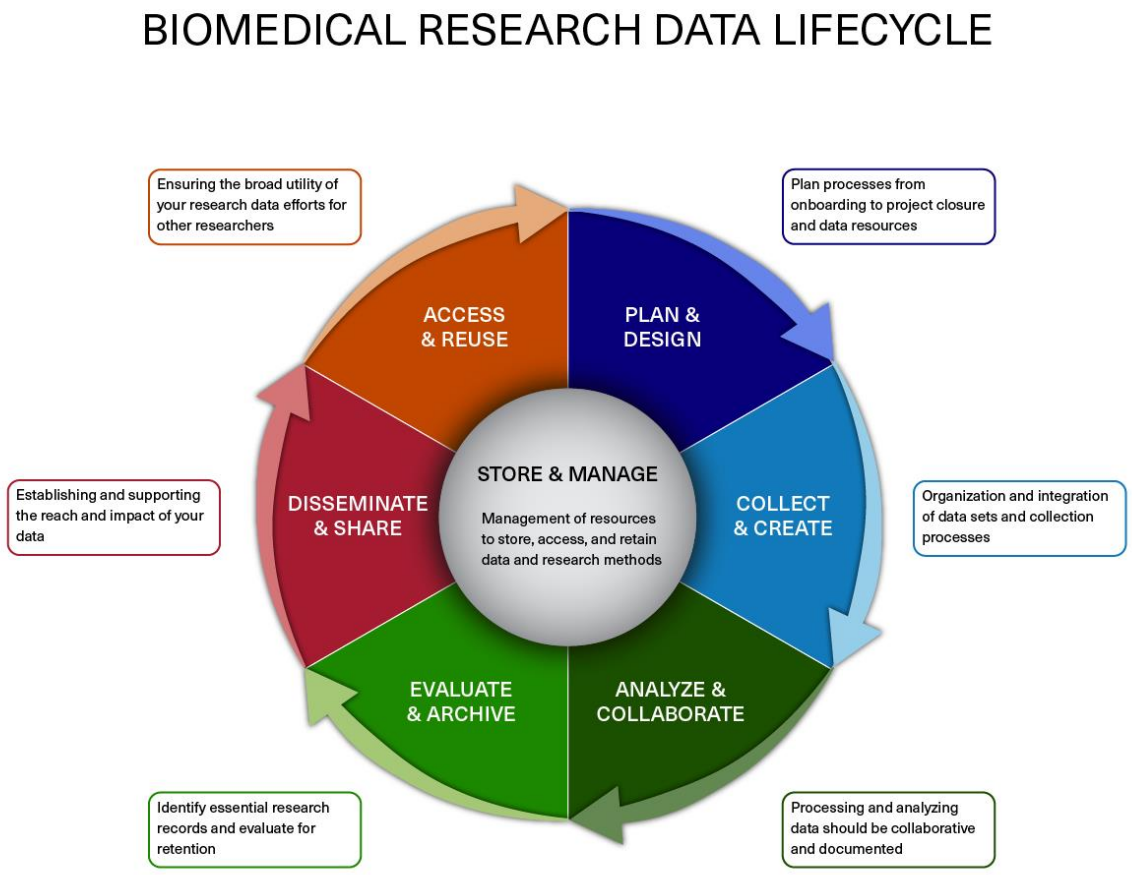
https://tinyurl.com/scRNAseq-online

Useful resources



- **Computational packages for single-cell analysis:**
  - http://bioconductor.org/packages/devel/workflows/html/simpleSingleCell.html
  - https://satijalab.org/Seurat/
  - https://scanpy.readthedocs.io/
  - https://github.com/seandavi/awesome-single-cell
- **Online courses:**
  - https://hemberg-lab.github.io/scRNA.seq.course/
  - https://github.com/SingleCellTranscriptomics
- **Resources for scRNA-seq Sample Prep:**
  - https://www.protocols.io/
  - https://support.10xgenomics.com/single-cell-gene-expression/sample-prep
  - https://community.10xgenomics.com/

Research Data Management (RDM)



Better RDM practice benefits you

- **HMS Data Management LMA**
  - **Webpage:** https://datamanagement.hms.harvard.edu
  - **Sign up for quarterly email updates**
- **Harvard-wide Research data Management**
  - https://researchdatamanagement.harvard.edu/

Date	Time	Event	Location
Aug 7	1pm	**Demystifying Commercial LLMs for Medical Researchers**	Zoom
Aug 8	10am	**Intro to O2**	Zoom
Aug 12	2pm	**protocols.io webinar: Introduction**	Zoom
Aug 20	1pm	**Hello? It's Me, Your Data! Recommendations and Resources for Managing Research Data**	Zoom

https://datamanagement.hms.harvard.edu/about/news-events/rdmwg-calendar

Join us for HBC Community Breakfast!

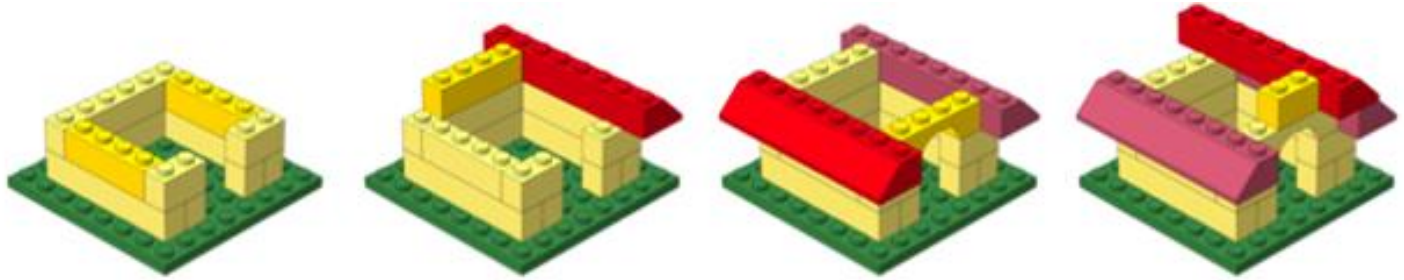
- An opportunity to get to know others in the community
- Free food and beverages
- Great conversations

Thursday September 5th, 2024
9:00 to 10:30am

More Info:

http://bioinformatics.sph.harvard.edu/breakfast/

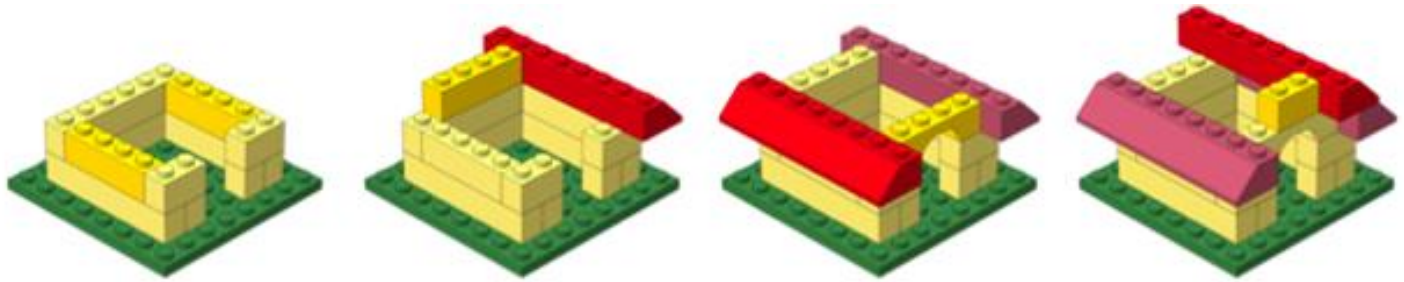
Keep building!



Topic	Pre-requisites	Date/Time	Time	Registration
Publication Perfect II	R basics	8/21/24	1 – 4pm	Coming soon!
RShiny	R basics	9/18/24	1 – 4pm	Coming soon!

https://bioinformatics.sph.harvard.edu/current-bioinformatics-topics-workshops

Keep building!



Topic	Category	Date	Duration	Prerequisites
Tools for Reproducible Research	Advanced	Aug 6, 9, 13	Three 2.5h sessions	R
Introduction to Differential Gene Expression (DGE) Analysis	Advanced	Aug 20, 23, 27, 30	Four 2h sessions	R
Shell on High Performace Computing (HPC) for Bioinformatics	Basic	September 3, 6, 10	Three 2.5h sessions	None
Variant Calling	Advanced	September 17, 20, 24	Three 2.5h sessions	Shell and HPC
Introduction to R	Basic	October 8, 11, 15, 18	Four 2h sessions	None
Peak analysis	Advanced	October 25, 29, November 1	Three 2.5h sessions	R
Advanced topics in SingleCell RNA-seq	Advanced	November 12, 15, 19	Three 2.5h sessions	R

https://bioinformatics.sph.harvard.edu/upcoming-workshops

Talk to us early!

Involvement in study design to optimize experiments

Thanks!

- **Dr. Arpita Kulkarni** – Associate Director, HMS Single Cell Core

More Information

- *HBC training materials: https://hbctraining.github.io/main*
- *HBC website: http://bioinformatics.sph.harvard.edu*

Contact Us

Sign up for our mailing list:

https://tinyurl.com/hbc-training-mailing-list

- *HBC training team:* hbctraining@hsph.harvard.edu
- *HBC consulting:* bioinformatics@hsph.harvard.edu