Introduction to RNA-seq using High-Performance Computing (HPC)

Harvard Chan Bioinformatics Core

in collaboration with

HMS Research Computing

https://tinyurl.com/hbc-rnaseq

Learning Objectives

- ✓ Describe best practices for designing a bulk RNA-seq experiment

- ✓ Describe steps in an RNA-seq analysis workflow (from sequence data to expression quantification).

- ✓ Implement shell scripts on a high-performance compute cluster to perform the above steps.

We won't be covering how to perform differential gene expression (DGE) analysis on count data in this workshop.
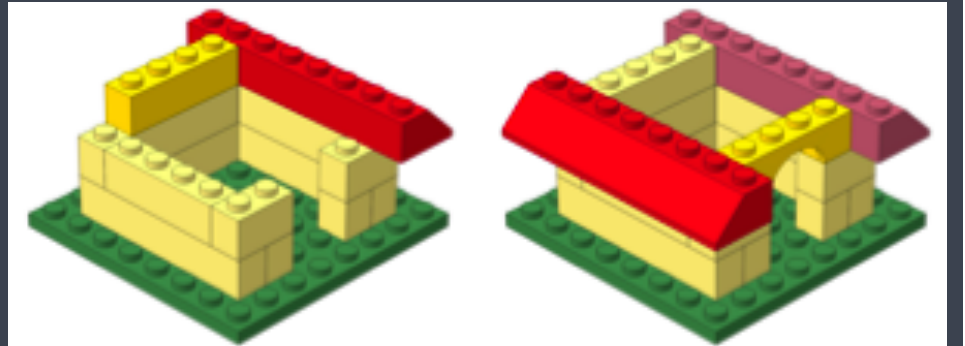
DGE and scRNA-seq

Topic	Category	Date	Duration	Prerequisites
Introduction to RNA-seq Part I	Advanced	March 17th, 21st, 24th	Three 2.5h sessions	Shell
Introduction to R	Basic	April 28th, May 2nd, 5th, 9th	Four 2h sessions	None
Introduction to RNA-seq Part II	Advanced	May 16th, 19th, 23rd, 26th	Four 2h sessions	R
Introduction to Shell	Basic	June 20th, 23rd, 27th	Three 2.5h sessions	None
Variant Calling	Advanced	TBD	TBD	TBD
Introduction to Shell	Basic	TBD	Three 2.5h sessions	None

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

Survey

https://tinyurl.com/hbc-rnaseq-exit

Get an O2 account!

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O2 Cluster Account

Description ⌄

What does it do?

Get an account on O2, the HMS High Performance Compute cluster

Available To ⌄

Who is eligible?

Any HMS or HMS-affiliated researcher who has an HMS eCommons account.

Cost ⌄

What does it cost?

There is no cost to labs whose PI has a primary or secondary faculty appointment in an HMS Quad department.

If the PI of your lab does not have a primary or secondary faculty appointment in an HMS Quad department, cluster usage will be charged for beginning later in 2021. Please see the following page for current details about rates: https://it.hms.harvard.edu/rc/core/rates.

Support ⌄

Please fill out the online help request form, or email rchelp@hms.harvard.edu.

How to Access ⌄

How do I get it?

Two-factor authentication is required to request an account on O2, as well as for O2 logins once your account is created. Harvard University uses a mobile app called Duo that makes the process quick and easy. Even if you already use Duo for HarvardKey, you will still need to setup a Duo profile for HMS.

- Setup HMS two-factor Authentication (HMS Duo Mobile)
- Reactivate or Reconnect HMS two-factor Authentication (HMS Duo Mobile)

Once you have Duo set up, Click the "Get Service" link to login and complete the request form.

Get this service   Learn more

Don't see what you're looking for?

Interested in additional training?

https://hbctraining.github.io/Training-modules/

- **Workshops** on bioinformatics methods & related skills.
- Once a month for 3 hours
- Hands-on workshops - be prepared with your MAC or Windows computer
- **Free and open to everyone at Harvard University and its affiliates**
- Will typically meet the **third Wednesday of the month from 1-4 online via Zoom** (meeting time is subject to change-please check)

Topic	Pre-requisites	Date/Time	Time	Registration
Advanced Shell	Intermediate Shell	3/15/2023	1 – 4pm	*Register!*
Git/Github	Shell	4/19/2023	1 – 4pm	*Register!*
ML4Bio	TBD	TBD	TBD	Coming soon
Python basics	None	6/21/2023	1 – 4pm	*Register!*

Interested in additional training?

All workshop materials available at:

https://hbctraining.github.io/main

Upcoming relevant courses from our partners at Countway Library

Thanks!

- Kathleen Chappell and Andy Bergman from HMS-RC

- [Data Carpentry](#)

Contact us!

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