

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

Harvard Chan Bioinformatics Core

in collaboration with

HMS Research Computing

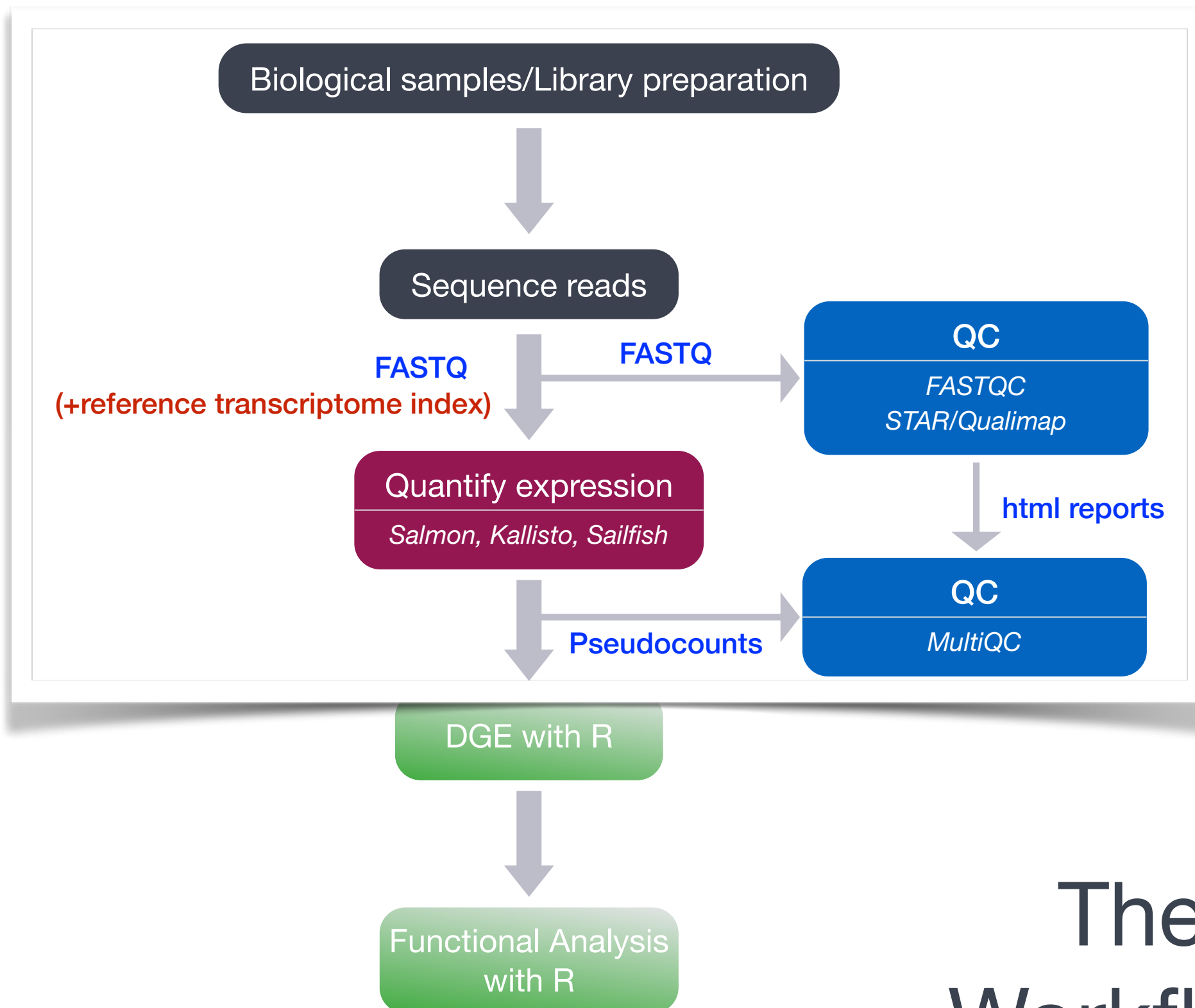
<https://tinyurl.com/hbc-rnaseq>

Learning Objectives



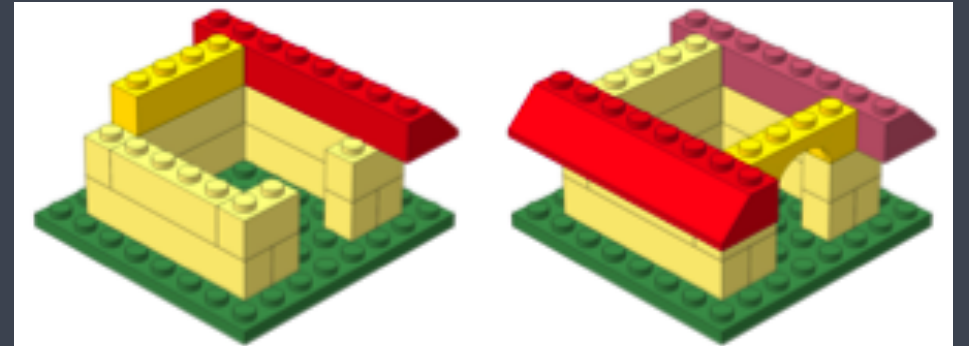
- ✓ Describe best practices for designing a bulk RNA-seq experiment
- ✓ Describe steps in an RNA-seq analysis workflow (from sequence data to expression quantification).
- ✓ Implement shell scripts on a high-performance compute cluster to perform the above steps.

We won't be covering how to perform differential gene expression (DGE) analysis on count data in this workshop. A DGE workshop will be held on April 1st/2nd and the pre-requisite for it is a working knowledge of R (March 12th/13th).



The Workflow

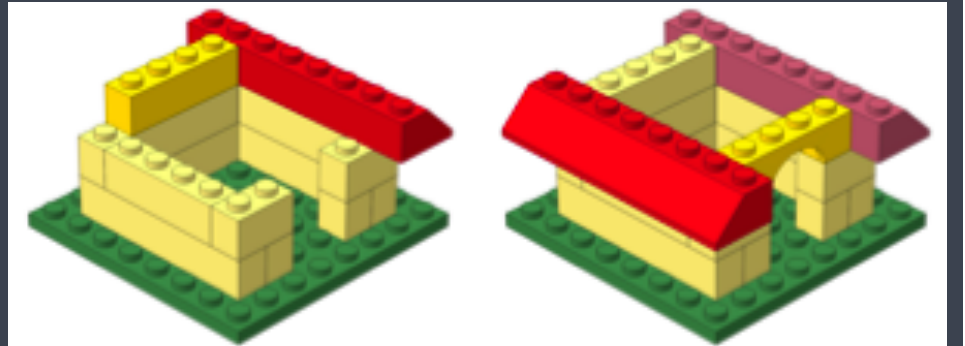
Learning Objectives



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Survey



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

R and DGE



Workshop registration opens about 3 weeks prior to workshop date(s). Register by clicking on the class title.

Topic	Category	Date	Duration	Prerequisites
Introduction to RNA-seq Part 1 (Experimental design -> Raw data -> Count matrices)	Advanced	March 29th, April 1st & 5th	Three 2.5h sessions	Shell
Introduction to R	Basic	April 19th, 22nd, 26th & 29th	Four 2h sessions	None
Bulk RNA-seq Part 2 (Differential Gene Expression on expression counts)	Advanced	May 6th, 10th, 13th & 17th	Four 2h sessions	R

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

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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?

Thanks!

- Kathleen Chappell and Andy Bergman from HMS-RC
- [Data Carpentry](#)

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Contact us!

HBC training team: hbctraining@hsph.harvard.edu

O2 (HMS-RC): rchelp@hms.harvard.edu

HBC consulting: bioinformatics@hsph.harvard.edu

Twitter

HBC: @bioinfocore

HMS-RC: @hms_rc