

[All funders] Introduction to Differential Gene Expression Analysis workshop

Introduction to bulk RNA-seq (Part II)

(Differential Gene Expression and Functional analysis)

Note: Until further notice, workshops will be taught online via Zoom. However, we anticipate returning to in-person teaching in 2022.

Next workshop dates and times:

Friday, May 6th : 10 AM - 12 PM

Tuesday, May 10th : 10 AM - 12 PM

Friday, May 13th : 10 AM - 12 PM

Tuesday, May 17th : 10 AM - 12 PM

Instruction for this workshop will be mostly learner-centric requiring workshop participants to spend between 3-5 hours on reading and exercises from selected lessons before the workshop sessions. **Online and in-person classes will be focused on exercises and discussion**. Please make sure you take this into account when you sign up for the workshop!

Description:

This **hands-on** workshop will introduce participants to **statistical methods and considerations** utilized to perform differential gene expression analysis on **bulk RNA-seq** data. Participants will learn about best practices in **quality control**, how to perform statistical analysis to obtain lists of differentially expressed (DE) genes using **DESeq2**. The workshop will also give participants an overview of tools for **functional analysis** of DE genes and how to extract some biological meaning from large gene lists.

*** Please note that this workshop does **NOT** cover **single-cell RNA-seq** analysis. ***

*** Please note that you **DO NOT** need to attend Part I to attend this workshop, all you need is R fluency.*

Prerequisites:

This is one of our **advanced** workshops, and **requires registrants to have attended the following basic workshop** offered by our training team within the **last 6 months**:

- [Introduction to R](#)

Prerequisite FAQ - I am fluent in R but have not attended the HBC prerequisite workshop, can I still register?

Yes, you can register but please do the following:

- Complete the registration first
- Then **email us directly** at hbctraining@hsph.harvard.edu with a description of your knowledge/experience. ***Failure to do this step may prevent you from being eligible to our advanced workshop.***

Who should attend?

Eligible* Harvard researchers who have attended our Introduction to R workshop (or have working knowledge of R), and want to learn:

1. How to perform a differential expression analysis at the gene-level
2. How to effectively use R to get your data in the appropriate format for DE analysis
3. The steps and statistical approaches used in assessing the quality of your abundance estimates (count data)
4. How to visualize expression patterns for differentially expressed genes
5. How to perform functional analysis on gene lists with R-based tools

Cost and Registration:

There is a **non-refundable** and **non-transferable** **\$50 registration fee** for this online workshop.

We will be accepting 35-45 participants on a first-come, first-served basis:

- **If you are one of the first 35-45 eligible* registrants**, you will receive an email within 1 week with a link to pay the (non-refundable & non-transferable) **\$50 registration fee**.
- **If you are not among the first 35-45 eligible* registrants**, you will be added to the waitlist and notified when we open registration for the next iteration of this workshop.

NOTE: You will not have a reserved seat for this workshop until you pay the registration fee. Please make sure you pay within the time stated in that email, else you will lose your spot to someone on the waitlist.

Eligibility requirements:

* To be eligible to attend this workshop you should fulfill at least one of the following criteria:

- Harvard Medical School researcher in a lab on the Quad, with grants administered by Gordon Hall
- Harvard School of Dental Medicine researcher, with grants administered by Gordon Hall
- Graduate student at the Harvard Medical School
- Researcher affiliated with the [Dana-Farber / Harvard Cancer Center](#) (DF/HCC).
- Harvard researcher whose PI is associated with the HSCI as [Principal](#) or [Affiliated](#) faculty

If you are unsure of your eligibility, please register anyways and we will get back to you.

Registration is closed

(Registration will open 3 weeks prior to first day of the workshop)

NOTE: We do *not* record our training sessions.

Questions?

Please contact us at hbctraining@hsph.harvard.edu with any questions.