Bioconductor Notes, September 2024

by Maria Doyle, Bioconductor Community Manager, and Bioconductor Core Developer Team

Abstract We discuss general project news.

1 Introduction

Bioconductor provides tools for the analysis and comprehension of high-throughput genomic data. The project has entered its twentieth year, with funding for core development and infrastructure maintenance secured through 2025 (NIH NHGRI 2U24HG004059). Additional support is provided by NIH NCI, Chan-Zuckerberg Initiative, National Science Foundation, Microsoft, and Amazon. In this news report, we give some updates on core team and project activities.

2 Software

In May 2024, Bioconductor 3.19 was released*. It is compatible with R 4.4 and includes 2300 software packages, 430 experiment data packages, 926 up-to-date annotation packages, 30 workflows, and 5 books. Books are built regularly from source, ensuring full reproducibility; an example is the community-developed Orchestrating Single-Cell Analysis with Bioconductor.

**Note: Bioconductor 3.20 was subsequently released in October 2024. For details on the latest release, visit the Bioconductor website.*

3 Community and Impact

3.1 Outreachy Internships

We participated in the May-August 2024 Outreachy Internship program, during which intern Scholastica Urua contributed to the Microbiome Study Curation project. Scholastica reflected on her experience in a blog post, available here. Her work was recognized with the award for best Microbiome Virtual International Forum MicroTalk. The recording of her talk can be viewed on YouTube.

3.2 Bioconductor Athena Award

In July 2024, Beatriz Calvo-Serra was honoured as the inaugural recipient of the Bioconductor Athena Award. Beatriz was a passionate contributor to computational biology and an active member of the Bioconductor community. For more details, see this blog post.

4 Conferences

4.1 BioC2024 Recap

The annual BioC conference was held July 24-26 2024 at the Van Andel Institute in Grand Rapids, Michigan. Over 350 participants took part, with 116 attending in person and 240 joining virtually, allowing participants from regions as far away as Latin America, Africa, and Asia to be part of the event. This year's conference also marked our first time in the Mid-West US, highlighting the expanding reach and diversity of our community. See recap blog post here

4.2 EuroBioC2024 Recap

The European Bioconductor Conference (EuroBioC2024), held in Oxford in September 2024, welcomed over 100 in-person attendees. Highlights included keynote talks and workshops. Community-driven events like EuroBioC continue to foster collaboration and innovation. See recap blog post here.

4.3 BioCAsia 2024 Registration Open

Registration for BioCAsia 2024 is now open! The conference will take place on November 7–8, 2024, in Sydney, Australia, fostering collaboration among the bioinformatics community in the Asia-Pacific region. A Conference Access Award is available to assist presenters and participants with registration fees.

5 Boards and Working Groups Updates

5.1 Annual Call for CAB and TAB Nominations

In July 2024, Bioconductor opened its annual call for nominations to the Community Advisory Board (CAB) and Technical Advisory Board (TAB). These boards play a vital role in guiding Bioconductor's technical development, community outreach, and long-term viability. The nomination period closed on August 31, 2024, and we thank everyone who applied or shared the call within their networks. For more information on the CAB and TAB, visit:

- Community Advisory Board (CAB)
- Technical Advisory Board (TAB)

If you are interested in becoming involved with any Bioconductor working group please contact the group leader(s).

6 Using Bioconductor

Start using Bioconductor by installing the most recent version of R and evaluating the commands

```
if (!requireNamespace("BiocManager", quietly = TRUE))
    install.packages("BiocManager")
BiocManager::install()
```

Install additional packages and dependencies, e.g., SingleCellExperiment, with

```
BiocManager::install("SingleCellExperiment")
```

Docker images provides a very effective on-ramp for power users to rapidly obtain access to standardized and scalable computing environments. Key resources include:

- bioconductor.org to install, learn, use, and develop Bioconductor packages.
- A list of available software linking to pages describing each package.
- A question-and-answer style user support site and developer-oriented mailing list.
- A community slack workspace (sign up) for extended technical discussion.
- The F1000Research Bioconductor gateway for peer-reviewed Bioconductor workflows as well as conference contributions.
- The Bioconductor YouTube channel includes recordings of keynote and talks from recent conferences, in addition to video recordings of training courses.
- Our package submission repository for open technical review of new packages.

Upcoming and recently completed events are browsable at our events page.

The Technical and and Community Advisory Boards provide guidance to ensure that the project addresses leading-edge biological problems with advanced technical approaches, and adopts practices (such as a project-wide Code of Conduct) that encourages all to participate. We look forward to welcoming you!

We welcome your feedback on these updates and invite you to connect with us through the Bioconductor Slack workspace or by emailing `community@bioconductor.org`.

Maria Doyle, Bioconductor Community Manager
University of Limerick

Bioconductor Core Developer Team
Dana-Farber Cancer Institute, Roswell Park Comprehensive Cancer Center, City University of New York, Fred Hutchinson Cancer Research Center, Mass General Brigham