

# nf-core mentorship: From wet lab to DSL2

Mentor: Maxime Borry, Max Planck Institute of Evolutionary Anthropology, Germany Mentee: Suchitra Thapa, Amrit Campus, Tribhuvan University, Nepal

suchitrathapa69@gmail.com, suchitrathapa@ac.tu.edu.np

### Background

Being a life scientist, it has been a roller coaster ride to learn about genomic analysis and apply them on my sequencing data. With little knowledge of computers, programming and genomics, I struggled to carry out analyses on my own. I had heard about Nextflow but never tried it and this mentorship program gave me an opportunity to get to learn and apply it to my research questions.

#### Nextflow favourable features

- Basic knowledge of any scripting language is enough to get started
- Parallel tasking makes work quicker
- Resume function helps to avoid re-processing the same steps
- Troubleshooting is easier as all executions are saved in a specific space

## Challenges

- Though pre-formed modules are available, DSL2 is more complex than DSL1.
- Slow internet connection in Nepal
- Inaccessible cloud computing infrastructure
- Windows OS system troubleshooting difficult

### Conclusion

During this fellowship, I learned the bash script, basics, nextflow pipeline language Groovy development, pipeline testing using test data, troubleshooting, cloud computing basics, result visualization, sharing pipelines on GitHub and many more.

### Pipeline developed: Metaphlankrona

Fastq reads Input dataset

**FastQC** 

 Quality checking of individual reads

MultiQC

 Quality checking of multiple reads at once

Fastp

 Filtering for quality reads

Metaphl an3

 Taxonomic assignment based on clade specific markers

Krona chart

Visualization

#### References

- First pipeline in DSL1: <a href="https://github.com/maxibor/nextflow-mentoring/tree/main/first\_pipeline">https://github.com/maxibor/nextflow-mentoring/tree/main/first\_pipeline</a>
- Second pipeline in DSL1: <a href="https://github.com/maxibor/nextflow-mentoring/tree/main/second\_pipeline">https://github.com/maxibor/nextflow-mentoring/tree/main/second\_pipeline</a>
- Second pipeline converted to DSL2: <a href="https://github.com/suchitrathapa/metaphlankrona">https://github.com/suchitrathapa/metaphlankrona</a>