

Microbial data analysis in Galaxy

Whether you are analysing microbiome samples or bacterial isolates, long reads or short, shotgun or 16S, genomics transcriptomics or proteomics, this is the place to be!

[microGalaxy](#) is a community of practice in the Galaxy community for anything regarding microbial data analysis in Galaxy!

What is available?

Tools

Many tools for microbial data analysis are freely available in the ToolShed which can be installed on any Galaxy server. To keep an overview, the microGalaxy community maintains a [curated list](#) of the **150+ tools** available.

If tools are missing or information is not up-to-date in the list, please help us! Contact Saskia or Bérénice about it.

Workflows and tutorials

Several curated Galaxy workflows are publicly available for different kinds of microbial data analysis. Many of these are accompanied by comprehensive [GTN Tutorials](#) that will guide you through the analysis step by step.

Microbiome

Target	Technique	Sequencing	Analysis	GTN Tutorial	Workflow	Notes
Bacteria	16S	Short reads	Taxonomic Profiling	View Tutorial	View Workflow	mothur SOP
Bacteria	16S	Long reads	Taxonomic Profiling	View Tutorial	View Workflow	
All	Shotgun metagenomics	Short reads	Taxonomic Profiling, Functional Analysis		View Workflows	ASaiM (missing reference)
All	Shotgun metagenomics	Long reads	Taxonomic profiling	View Tutorial		

Plasmid	Shotgun	Long reads	AMR detection	View Tutorial		
All	Shotgun metatranscriptomics	Short reads	Functional Analysis	View Tutorial	View Workflow	ASaiM-MT (missing reference)

Bacterial Isolates

Target	Sequencing	Analysis	GTN Tutorial	Workflow	Notes
M. tuberculosis	Short reads	Variant Detection	View Tutorial	View Workflow	
M. tuberculosis	Short reads	Transmission of Mtb	View tutorial		
M. tuberculosis	Short reads	Phylogenetics applied to Mtb evolution & epidemiology	View tutorial		
Plasmids	Long reads	AMR detection		View Workflows	

Want to include your workflow here? Let us know!

A dedicated interface

Training material and events

How is Galaxy used for microbial data analysis?

Projects / Showcases

Below is a list of projects involving members of this community:

Project (name, link)	Description	Techniques	Sequencing	Analyses	People involved	Funding	Status
 IRIDA (Website)	The Integrated Rapid Infectious Disease Analysis				Aaron Petkau		
Foodborne pathogen detection		Metagenomics	Long reads		Bérénice Batut, Engy Nasr	EOSC-Life	Ongoing
BeerDEcoded,		Metagenomics	Long reads		Bérénice Batut, Street Science Community	Mozilla, de.NBI,	Ongoing
DNAlyzer		Metagenomics	Long reads		Bérénice Batut, Street Science Community	University of Freiburg	Ongoing
Cloud data		Metagenomics, metatranscriptomics	Short reads	Taxonomy profiling, Functional profiling, Assembly, MAGs building	Bérénice Batut, Engy Nasr		Ongoing
ASaiM		Metagenomics, metatranscriptomics	Short reads	Taxonomy profiling, Functional profiling	Bérénice Batut, Saskia Hiltman, Pratik Jagtap, Subina Mehta, etc		Finished?

Mycobacterium tuberculosis NGS made easy: data	Series of modules containing recorded videos by experts and tutorials		Illumina (wanting to expand to nanopore)	Mapping & Variant calling Molecular epidemiology of TB using NGS Phylogenetics for studying TB evolution and epidemiology	Daniela Brites; Peter van Heusden; Galo A. Goig Christoph Stritt	Initially funded through TB projects of capacity building ; currently no funding	Ready to be used but also Working on improvements
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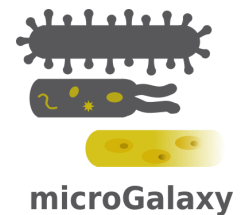
Papers

Reference	Short summary, including how Galaxy was used

Partners

Partners (name, link)	Description	People involved
 Seq4AMR (Website)	JPIAMR Network for Integrating Microbial Sequencing and Platforms for Antimicrobial Resistance	Saskia Hiltman
ELIXIR Emerging Microbiome Community		Bérénice Batut
µbioinfo Slack		

microGalaxy Community



microGalaxy is a community of practice to

- **Develop** and **Sustain** microbial data analysis in Galaxy
- Implement **standardised “best practices”**
- Expand **documentation** and **training**
- **Coordinate efforts** to avoid redundancy in tools, workflows and training
- **Share** the amazing things we are all doing together and outside Galaxy
- Support each other

Meetings

The microGalaxy community usually meets **4 times per year** (including 1 BoF at GCC and other community events) for a **2-hour meeting**. The meeting **time alternates** between 5-7pm Central European time and 9-11am Central European time in order to support members leaving in different timezones. The main aims of the meetings are to

- Get news and updates from the community
- Have 1 or more “short” talks about a project or a topic of interest
- Discuss and coordinate our efforts.

Details about the next events and minutes of previous meetings can be found [here](#).

Join us

Anybody interested in microbial data analysis in the Galaxy is welcome to join microGalaxy!
Everybody is Welcome!

- Join our [quarterly meetings](#)!
- Join the [Gitter Chat](#) (also available via [Matrix](#))
- Join the [mailing list](#) microgalaxy@lists.galaxyproject.org

Resources

Resource	Description	Links
 jpiamr	JPIAMR: Global Coordination of Antimicrobial Resistance Research	Website