

# Galaxy for long-read ONT data analysis and public education

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## Nanopore data analysis

### Advantages

Realtime sequencing  
Simplified and less ambiguous genome assembly  
Capability to span repetitive genomic regions  
Identification of large structural variation

### Trends

More accessible and easier/simpler: higher throughputs  
Rapid and constant tool development and upgrade of algorithms and software

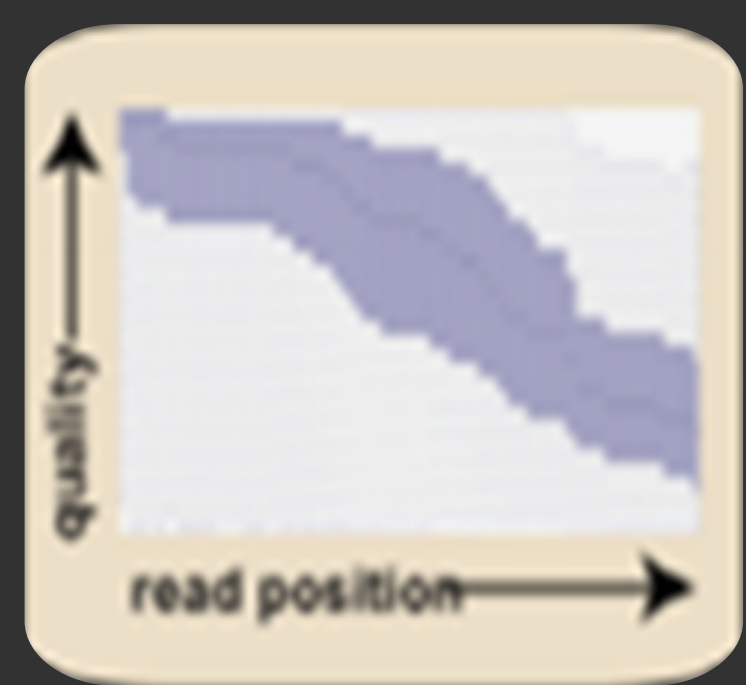
### Challenges

Bioinformatics data analysis

## NanoGalaxy: A Galaxy toolkit, workflows & training



### Tools



#### Polishing, QC & preprocessing

Porechop  
Filtlong  
Nanopolish  
Poretools



#### Genome Assembly

Minimap2  
Miniasm  
Racon  
Flye  
Unicycler  
Wtdbg2  
Canu



#### Mapping

Minimap2  
GraphMap

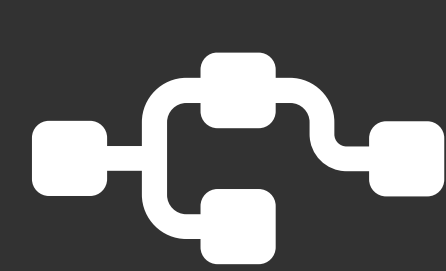


#### Visualisation

Nanoplot  
Bandage

#### Taxonomy & metagenomics

PlasFlow  
Staramr  
Kraken2

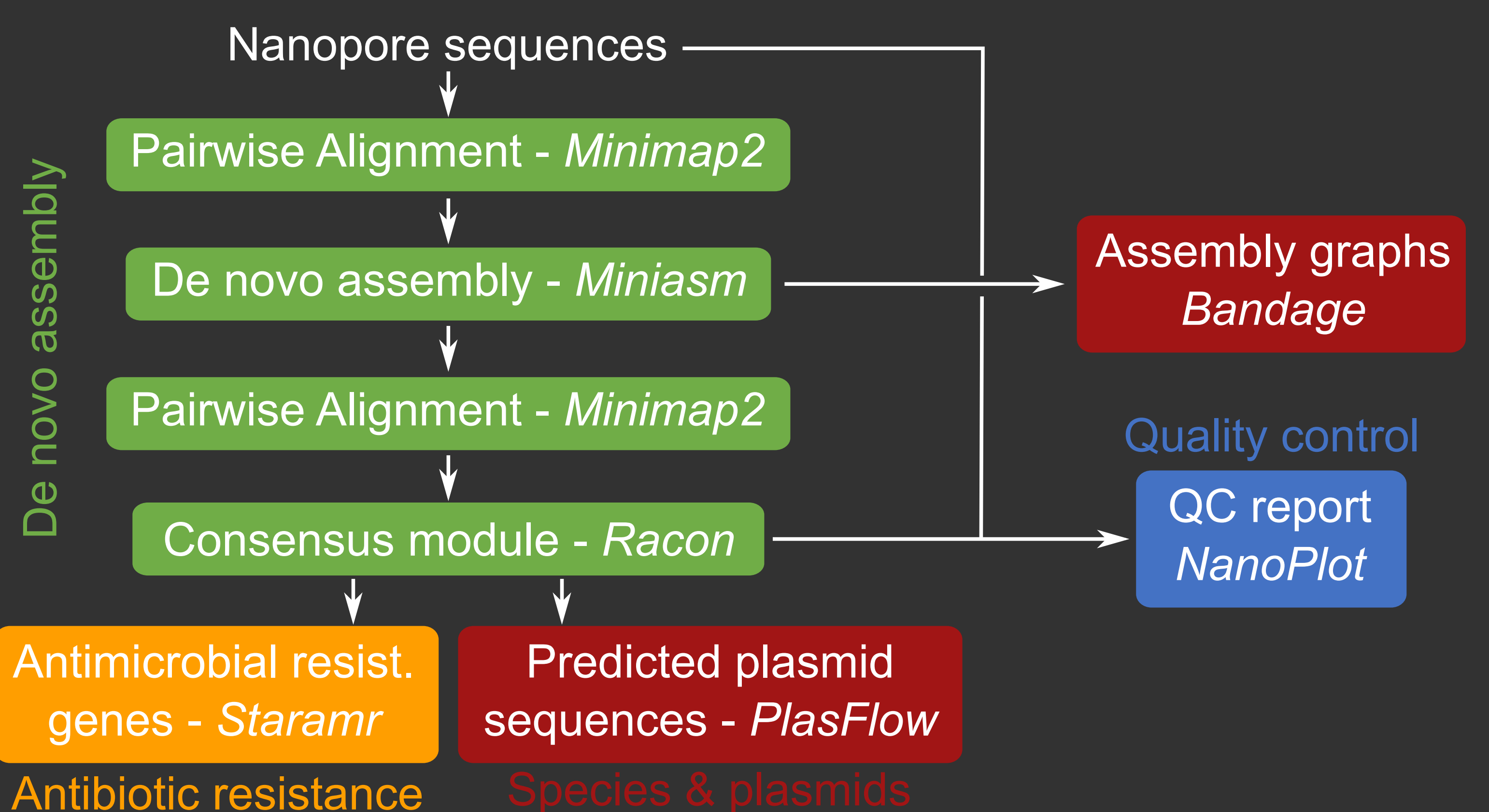


### Workflows

**Genome assembly** using *Flye* for highly repetitive genomes

**Genome assembly** using **Unicycler** (Illumina and ONT) for *K. pneumoniae*

**Antibiotic resistance detection**



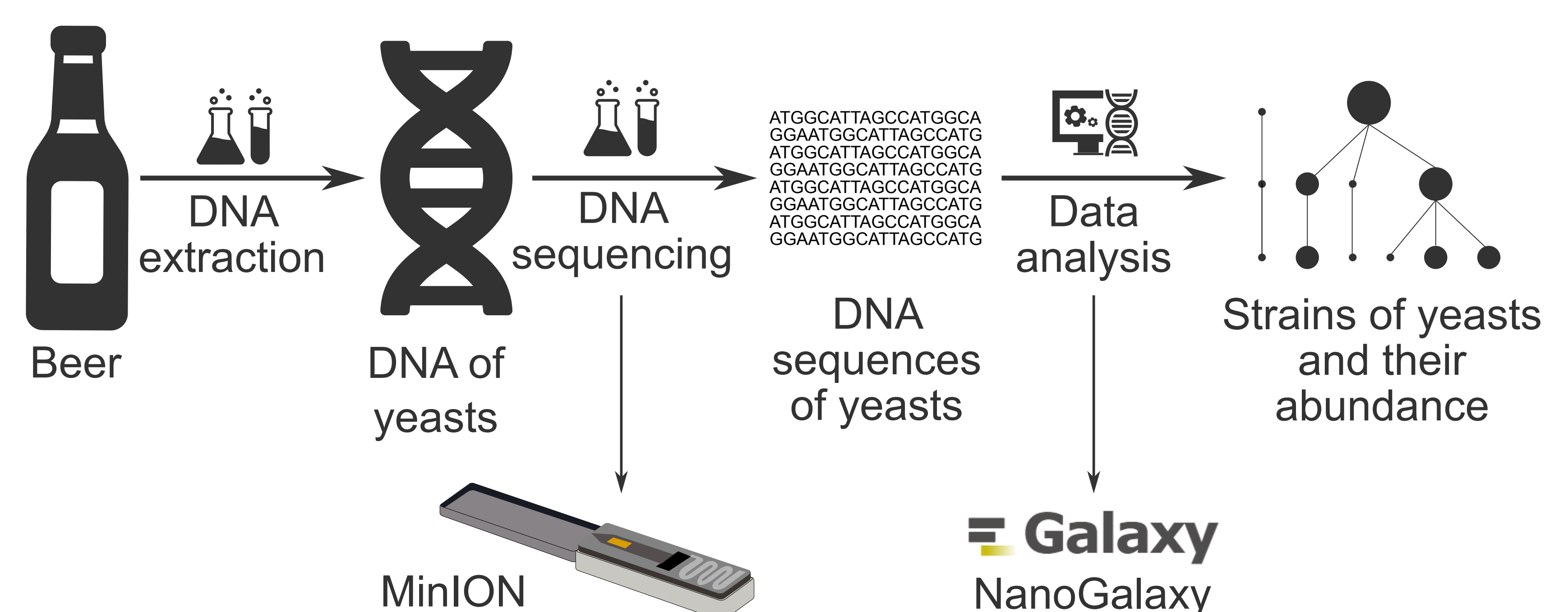
### Training material

Assembly of plasmids and determination of antibiotic resistance following the previous workflow

Available on [training.galaxyproject.org](https://training.galaxyproject.org)

## Application to public education: the BeerDEcoded project

Workshops where pupils, students and citizens extract, sequence and analyze the “DNA of beer” to bring them in contact with molecular biology, data-analysis, and open science.



[nanopore.usegalaxy.eu](https://nanopore.usegalaxy.eu)

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