

## AREScLOUD

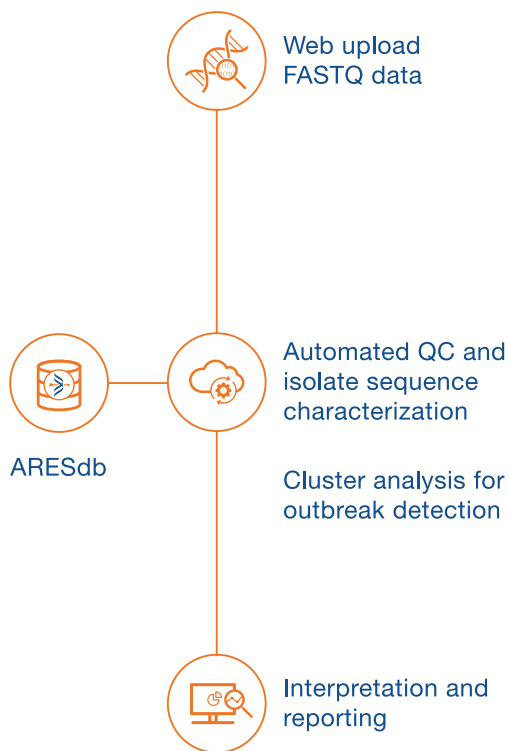
The Web Application for Infectious Disease Genomic Analysis

### Validated Software for Pathogen Sequence Analysis Including:

- Pathogen identification and typing
- Cluster and comparative analysis for outbreak detection with metadata integration
- AMR markers, virulence factors, mobile genetic elements
- Genomic antibiotic susceptibility testing (Genomic AST)



### How it Works:



### Why AREScLOUD:

Save time and lower cost with fully automated bioinformatics

#### Reliability

- Validated and published workflows\*
- Short and long read sequences

#### Accessibility / Scalability

- Browser accessible
- Scalable for large projects
- Secure long term data storage

#### Applicability

- Isolates
- Native samples
- Environmental samples

#### Capability

- MLST / cgMLST clustering for outbreaks
- Metadata integration
- AMR, virulence, mobile genetic elements
- Genomic AST
- 16S and ITS analysis

Bioinformatics for in-house sequence analysis and  
**ARESiSS** sequencing services

AREScLOUD [opgen.com](http://opgen.com)

#### \* Validation studies:

1. Lepuschitz, S. et al. Analytical Performance Validation of Next-Generation Sequencing Based Clinical Microbiology Assays Using a K-mer Analysis Workflow. *Front Microbiol* 11, 1883 (2020). doi: [10.3389/fmicb.2020.01883](https://doi.org/10.3389/fmicb.2020.01883)
2. Beisken, S. et al. Multicenter validation of whole genome nanopore sequencing for AMR surveillance. (2021). <https://www.opgen.com/multicenter/>
3. Ferreira, I. et al. Species Identification and Antibiotic Resistance Prediction by Analysis of Whole-Genome Sequence Data by Use of ARESdb: an Analysis of Isolates from the Unyvero Lower Respiratory Tract Infection Trial. *J Clin Microbiol* 58, (2020). doi: [10.1128/jcm.00273-20](https://doi.org/10.1128/jcm.00273-20)

# AI Powered Precision Analytics for Infectious Disease Genomics and Outbreak Analysis

## Genomic Characterization of Pathogens

- Identification and typing – MLST, cgMLST
- Plasmid profiling
- Antibiotic resistance marker profiling
- Virulence marker profiling

### ARESiss Report

For Research Use Only

#### Sample Information

Sample ID ARLG-1316  
 Laboratory ID ARLG-1316  
 Sample Type Isolate  
 Received on Sat Aug 13 2022  
 Reported on Sat Aug 13 2022

#### Order Information

Reference Isolate Profiling  
 Ordered on Sat Aug 13 2022  
 Ordered by Theo deVos  
 Address Ares Genetics, Ok

#### Test Results

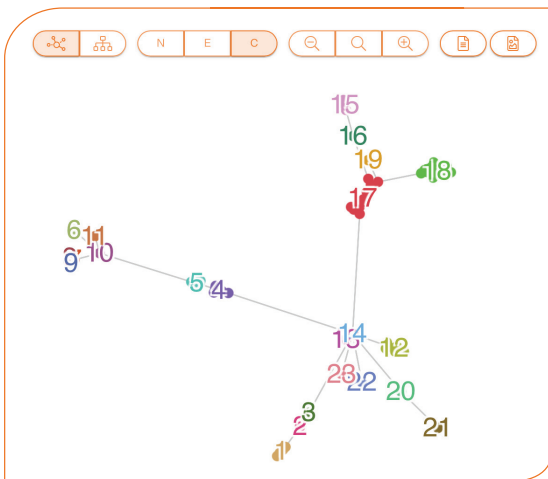
##### Microorganisms Identified

*Acinetobacter baumannii* 96.62% Reads On-Target Passed Quality Control

Bacteria; Proteobacteria; Gammaproteobacteria; Pseudomonadales; Moraxellaceae; Acinetobacter; Acinetobacter calcoaceticus/baumannii complex; Acinetobacter baumannii

##### Microbial Typing

25 Sequence Type abumannii\_2 Scheme MLST Method



## Outbreak Analysis – Identify and Track HAI's

- Cluster analysis of sequenced isolates
- Minimum spanning trees / dendrograms
- Comparison tables of Isolate features
- Integration of metadata

## Genomic Antimicrobial Susceptibility Testing (AST)

- Genomic AST profiles based on AI/ML algorithms
- Individual and aggregate genomic antibiograms

### Antimicrobial Susceptibility Testing

Panel: Acinetobacter GP CR

Search

Compound Class <sup>1</sup>	Compound <sup>2</sup>	Interpretive Category	Guideline Breakpoints	Actions	Details
<input checked="" type="checkbox"/> Aminoglycosides	<input checked="" type="checkbox"/> Amikacin	Susceptible	S ≤ 16 µg/ml R > 32 µg/ml	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Aminoglycosides	<input checked="" type="checkbox"/> Tobramycin	Resistant	S ≤ 4 µg/ml R > 8 µg/ml	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Carbapenems	<input checked="" type="checkbox"/> Daptomycin	Resistant	S ≤ 2 µg/ml R > 4 µg/ml	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Carbapenems	<input checked="" type="checkbox"/> Imipenem	Resistant	S ≤ 2 µg/ml R > 4 µg/ml	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Carbapenems	<input checked="" type="checkbox"/> Meropenem	Resistant	S ≤ 2 µg/ml R > 4 µg/ml	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Cephalosporins (3rd)	<input checked="" type="checkbox"/> Ceftriaxone	Resistant	S ≤ 8 µg/ml R > 32 µg/ml	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Penicillin Combinations	<input checked="" type="checkbox"/> Ampicillin / Sulbactam	Resistant	S ≤ 8 µg/ml R > 16 µg/ml	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Tetracyclines	<input checked="" type="checkbox"/> Minocycline	Susceptible	S ≤ 4 µg/ml R > 8 µg/ml	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Trimethoprim Combinations	<input checked="" type="checkbox"/> Sulfamethoxazole / Trimethoprim	Resistant	S ≤ 2 µg/ml R > 2 µg/ml	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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Get in touch [sequencing@opgen.com](mailto:sequencing@opgen.com)  
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