
ASTar[®]

– designed to save lifetimes



Rapid AST Results Directly From Positive Blood Cultures

ASTar is a fully-automated system for rapid antimicrobial susceptibility testing (AST). ASTar cuts the time to clinically-actionable results and shortens time to optimal treatment to hours instead of days.

Early information on bacterial pathogens and their antimicrobial susceptibility is of key importance for managing sepsis patients. Within approximately six hours, ASTar delivers true minimum inhibitory concentration (MIC) results directly from positive blood cultures and against a comprehensive and broad panel. The AST Disc has over 330 chambers available for antimicrobials, covering both fastidious and non-fastidious pathogens, allowing optimal targeted therapy of antimicrobials and potential antimicrobial expansion. ASTar also combines high throughput with a user-friendly interface and load-and-go operation.

Key features

Phenotypic AST

- Directly from positive blood cultures
- True MIC results in ~ 6 hours

Fully-automated analysis

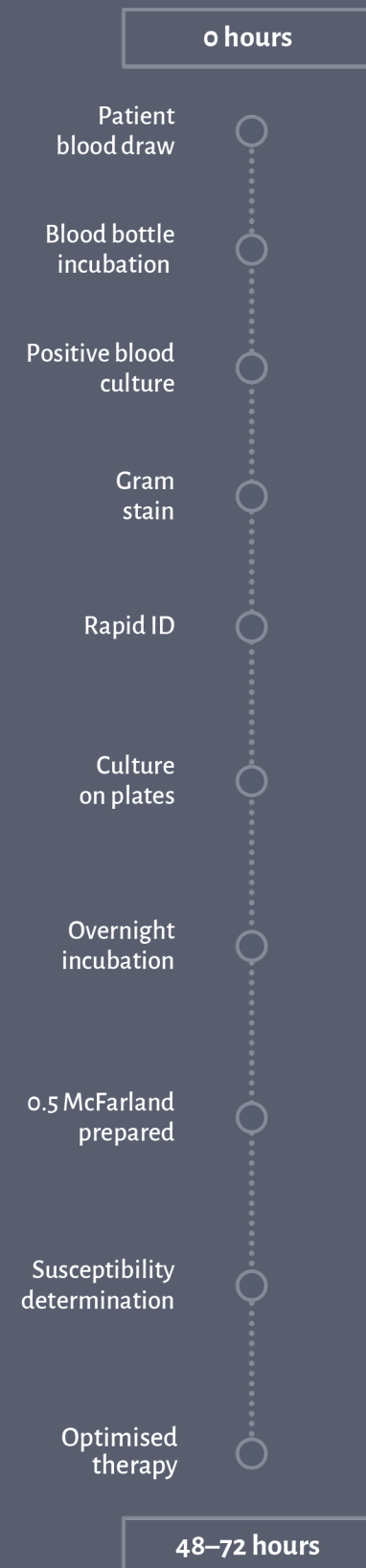
- 12 samples analysed simultaneously, random-access
- Load-and-go workflow, less than 2 min hands-on time

Comprehensive AST panel

- 6–14 two-fold dilutions of each antimicrobial in panel

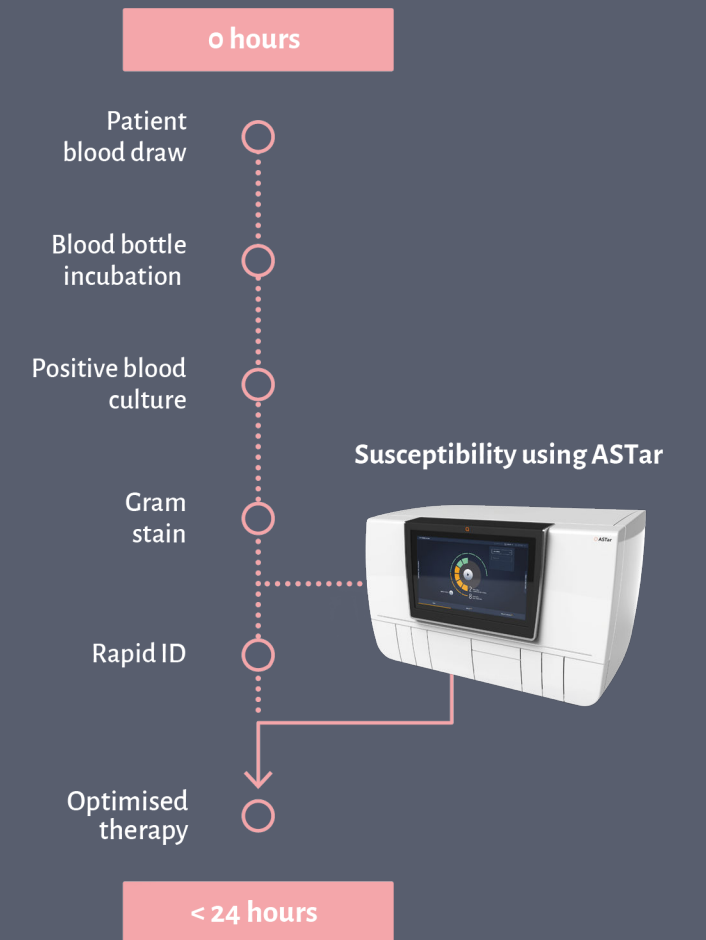


Traditional workflow



Workflow analysis performed by Q-linea at several European and US hospitals. Workflow may differ between laboratories.

ASTar workflow

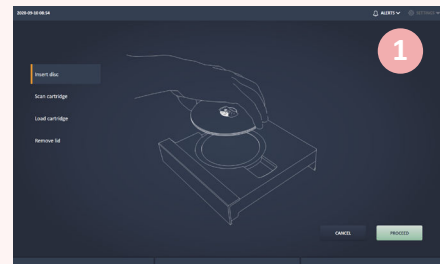


ASTar meets your need for rapid and comprehensive AST

Several approaches for rapid pathogen identification (ID), e.g. molecular techniques and MALDI-TOF mass spectrometry, are available today. Our phenotypic AST solution can be combined with any of these rapid ID technologies. The AST run can be started independently of pathogen ID. Input of pathogen ID is only needed to create the final MIC results report.

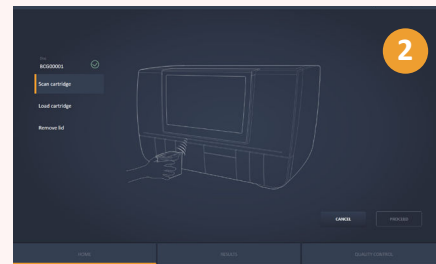
Three Simple Steps for Complete MIC Results

ASTar simplifies the analysis workflow: less than 2 minutes hands-on time is all that's needed. Simply transfer 1 ml of positive blood culture to the sample preparation Cartridge. Choose the AST Disc and load. Scan and load the Cartridge and tap the START RUN icon on the touch screen to start the run. Pathogen ID can be entered before, during or after the run to generate true MIC results.



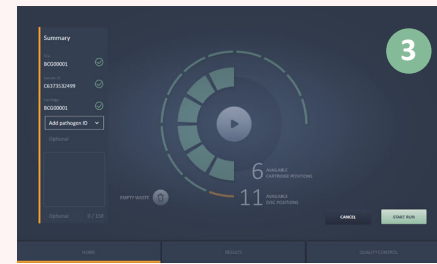
Load AST Disc

The AST Disc allows automated time-lapse imaging of bacterial population growth in wells containing different concentrations of antimicrobial agents.



Scan and load Cartridge

The sample preparation Cartridge automatically isolates bacterial cells from the sample matrix and adjusts the concentration for a controlled inoculation to the AST Disc.



Tap START RUN

Proprietary algorithms translate visual information into MIC values. Based on antimicrobial breakpoints, MIC values are interpreted as S, I, or R.

ASTar Result Report

ASTar results report delivering MIC values and “Susceptible” (S), “Susceptible, increased exposure” (I), and “Resistant” (R) categorisation. SIR categorisations are generated using EUCAST clinical breakpoints and are regularly updated following official breakpoint revisions.

Optimal use of antibiotics leads to improved care quality and preservation of antibiotic efficacy for future patients.

Antimicrobial	MIC (mg/L)	Interpretation
Ampicillin	4	S ¹
Amoxicillin-clavulanic acid	8	S ¹
Piperacillin-tazobactam	4	S
Cefazolin	4	I
Cefepime	≤0,125	S
Cefotaxime	0,125	S ²
Cefoxitin	4	NEG ³
Ceftazidime	≤0,25	S
Ceftazidime-avibactam	0,25	S
Ceftolozane-tazobactam	0,5	S
Ceftriaxone	0,125	S ²
Cefuroxime	8	I ¹
Ertapenem	0,06	S
Meropenem	≤0,03	S ²
Meropenem-vaborbactam	≤0,25	S
Aztreonam	≤0,25	S
Ciprofloxacin	≤0,06	S
Levofloxacin	≤0,125	S
Amikacin	2	S ⁴
Gentamicin	1	S ⁴
Tobramycin	0,5	S ⁴
Tigecycline	0,125	S
Colistin	0,25	S ⁵
Trimethoprim-sulfamethoxazole	0,06	S

Sample ID: C6386207504 Run ID: 2541240916071737

Finished: 2024-09-16 09:21 Pathogen ID: E. coli ^Δ

Detailed Information (expanded)

Comments and Expert rules (expanded)

- Breakpoints are based on intravenous administration.
- Breakpoints apply to infections other than meningitis.
- MIC > 8 mg/L is interpreted as a positive screening test for AmpC.
- For systemic infections, aminoglycosides should be used in combination with another active therapy. EUCAST breakpoints in brackets, December 2021.
- For systemic infections, colistin should be used in combination with another active therapy. EUCAST breakpoints in brackets, December 2021.

Add notes (expanded)

Information (expanded)

ASTar - the Essentials

The Cartridge & Frozen insert



The Cartridge is a mini-lab that contains all reagents and disposable articles needed for sample preparation, concentration determination, dilution, and growth medium adaptation.

- Contains pre-deposited reagents.
- Generates controlled inoculum for AST.
- A Frozen insert is added to the Cartridge before use.
- Has barcodes for identifying and linking the Cartridge and patient sample.
- Cartridge stored at room temperature, frozen insert stored at -15° C to -25° C.

The Disc



The AST Disc is used for AST and concentration determination.

- The AST Disc contains more than 330 culturing chambers pre-filled with antimicrobials in various concentration ranges, as well as chambers for growth controls, and chambers used to determine bacterial concentration for inoculum preparation.
- Contains a unique barcode for identification and linking to each respective sample preparation Cartridge and patient.
- Stored at room temperature.

Health Economic Impact of Rapid AST

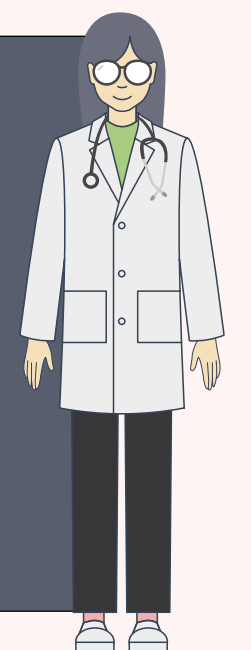
All these components of ASTar come together to form a comprehensive rapid AST system that, when strategically integrated into critical points of healthcare, could potentially enhance patient care and reduce costs, aligning with the core goals of healthcare policies and clinical decision-making¹⁻³.



Shortened time to optimal therapy

Effective Antimicrobial Stewardship

Reduced Length of Stay



References:

1. J. H. Kim et al. Clin Microbiol Infect 27, 69-75 (2021). PMID: 32272171.
2. V. Anton-Vazquez, C. Suarez, T. Planche. J Antimicrob Chemother 77, 771-781 (2022). PMID: 34928343
3. K. Ehren et al. Clin Infect Dis 70, 1285-1293 (2020). PMID: 31094414.

Save lifetimes

At Q-linea, we design, develop, and deliver innovative technology to aid physicians and technicians to improve patient outcomes and save lives. We aim to vastly reduce the time to optimal therapy and ensure antibiotics continue to be an effective treatment for future generations. Q-linea helps to create sustainable healthcare, now and in the future. For patients, physicians, and society.

Q-linea was founded in 2008 by scientists from the Rudbeck Laboratory in Uppsala, Sweden. Today, Q-linea comprises an interdisciplinary, highly motivated team that operates out of state-of-the-art, customised facilities in Sweden, Italy, and the United States of America.



www.qlinea.com

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