

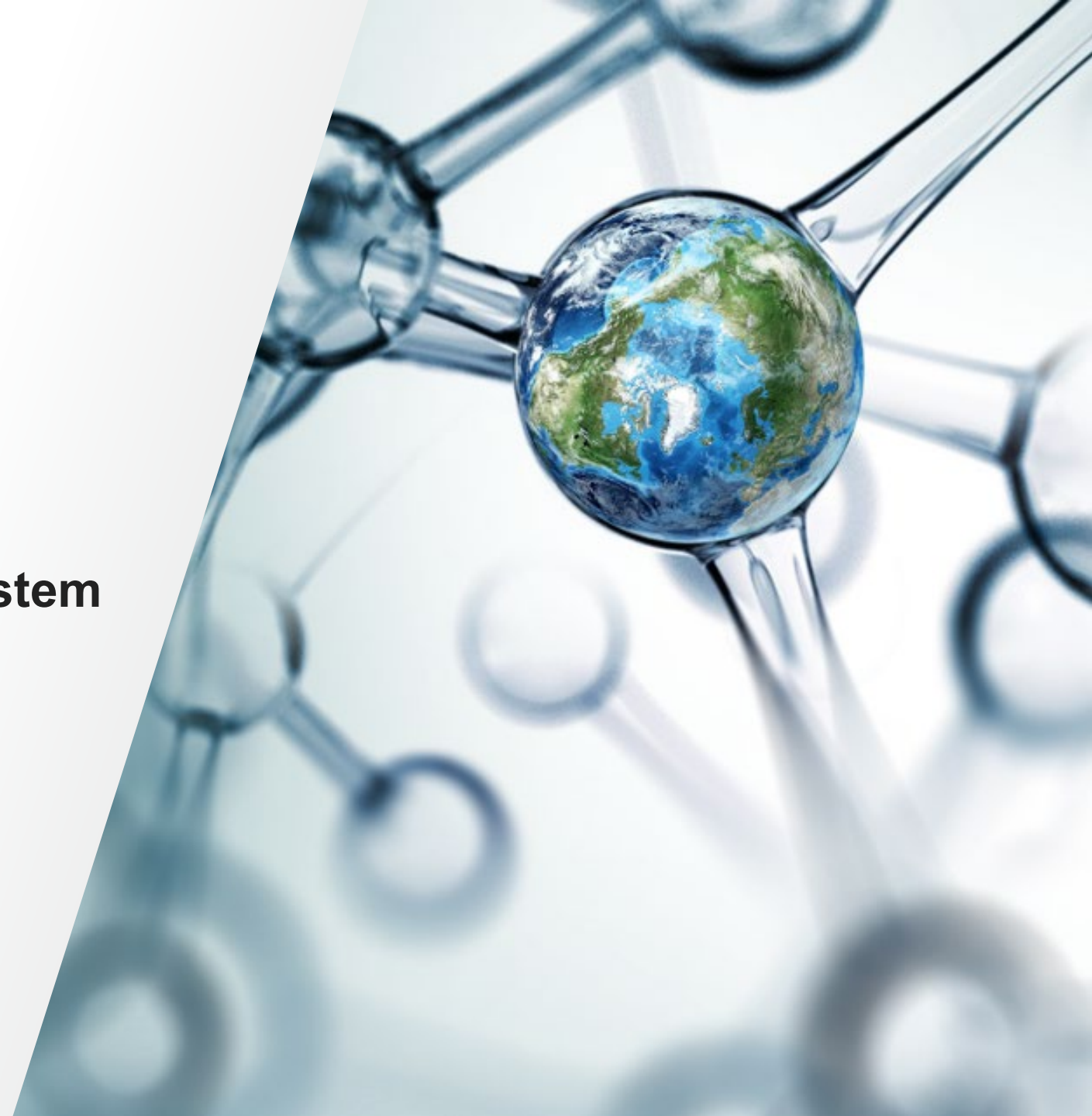
Fight against AMR

Thermo Scientific™ Sensititre™ System

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March 2025

 The world leader in serving science



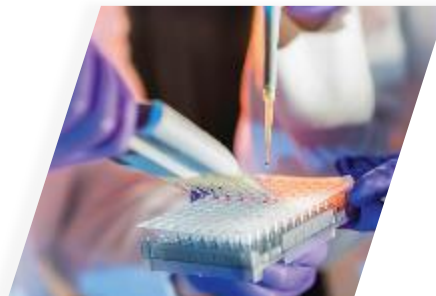
Thermo Scientific AST Portfolio

Helping to make the world healthier, cleaner and safer

AST Solutions

Our health is all connected

Whether the patient has fur, feathers or skin, delivering products that clinicians, veterinarians and public health experts can use to help diagnose and treat infections is paramount.



Clinical

Portfolio of products helps optimize treatment for the critically ill, promoting better patient outcomes.



Veterinary

Solutions can be used to detect resistance in a wide range of animals, from pets, livestock and wildlife, using species specific formats.



Environmental

Portfolio capabilities help determine pathogen antimicrobial susceptibility patterns – in food, animals, water – which many global surveillance organizations use.

Current challenges

30% of hospitalized inpatients at any given time receive antibiotics¹

In hospitals, more than 50% of antimicrobial use does not follow recommended prescribing practices²

Approximately 30% of hospital pharmacy costs are due to antimicrobial use³

10-30% of pharmacy costs can be saved by antimicrobial stewardship programs³

“the true cost of AMR will be 300 million premature deaths and up to \$100 trillion lost to the global economy by 2050” – Jim O’Neill

The Review on Antimicrobial Resistance Chaired by Jim O’Neill, December 2014

1. Centers for Disease Control and Prevention. Antibiotic use in the United States, 2018 update: progress and opportunities. Available at: <https://www.cdc.gov/antibiotic-use/stewardship-report/pdf/stewardship-report.pdf>

2. Magill SS, O’Leary E, Ray SM, et al. Assessment of the Appropriateness of Antimicrobial Use in US Hospitals. JAMA Netw Open. 2021;4(3):e212007. doi:10.1001/jamanetworkopen.2021.2007

3. Magill SS, O’Leary E, Ray SM, et al. Assessment of the Appropriateness of Antimicrobial Use in US Hospitals. JAMA Netw Open. 2021;4(3):e212007. doi:10.1001/jamanetworkopen.2021.2007

Tackling the Antimicrobial Resistance crisis

In support of WHO's One Health approach, our solutions for clinical microbiology help to fight against AMR, and support optimized treatment for critically ill patients, enhanced patient outcomes, and robust stewardship initiatives.



Supporting optimized antimicrobial therapy

- Right result, first time: accurate antimicrobial susceptibility testing (AST) is paramount
- Definitive minimum inhibitory concentration (MIC) to guide optimal antimicrobial therapy
- Supporting better patient outcomes



Antimicrobial stewardship efforts

- Promoting appropriate use of antimicrobials; finding a balance in using broad-spectrum antibiotics vs targeted
- MIC data enabling efficient surveillance of antimicrobial resistance patterns within the local patient population



Innovation in diagnostics

- Access to novel antimicrobials
- Last resort treatment options available in AST testing
- Variety of testing solutions for laboratory use
- Customization for efficiency in testing requirements



Thermo Scientific Sensititre AST System – Definitive MIC

For the most common and complex organisms

Range of antimicrobials

Availability of applications

Standard portfolio

Customization

The Thermo Scientific Sensititre AST System for a gold standard equivalent¹ MIC accuracy.



Accuracy of results

- ✓ Broth microdilution methodology
- ✓ Definitive MIC with endpoint detection
- ✓ Wide dilution ranges



Breadth of portfolio

- ✓ Latest antimicrobials
- ✓ Wide range of applications from gram negative & positive organisms to yeast, mycobacteria and anaerobes

Designed to meet your needs

Room temperature storage for up to 24 months

Individually wrapped for long shelf life and secure from light sensitivity*



Wide dilution ranges

96-wells for maximum antimicrobial options

Barcode for traceability



Confidence in results

Accuracy of definitive MIC for antimicrobial therapy optimization and AMR surveillance



Meet your formulary requirements

Availability of comprehensive standard and custom plates



Broad selection of applications

Consolidate your antimicrobial susceptibility testing on one platform

Thermo Scientific Sensititre AST System - Automation

For the most common and complex organisms

ThermoFisher
SCIENTIFIC

Scalable and flexible

Data connectivity

Result interpretation

Epidemiology module

The Thermo Scientific Sensititre AST System for a gold standard equivalent¹ MIC accuracy



Scalable and flexible solutions

- ✓ From manual to semi-automated to fully automated instrument options
- ✓ Flexibility to meet the needs of laboratories of all sizes



Convenience

- ✓ No daily maintenance needed – no reagents on-board
- ✓ Ease of use

Workflow with Sensititre

Inoculum
preparation

Inoculate
plate

Incubate

Result read

Result
interpretation
and reporting

Various levels of automation available to support your workflow



Get the full picture

No 'black box' testing – no extrapolation; definitive MIC with full traceability of results and image storing on Vizion read



Confidence in results

Broth microdilution automated



Scalable capacity

Options to meet the needs of different sized laboratories

¹ Gram negative anaerobe susceptibility testing in clinical isolates using Sensititre and Etest methods. C. Hughes, C. Ashhurst-Smith, J.K. Ferguson. Pathology Volume 50, Issue 4, June 2018.

End TB – World TB Day

Optimizing TB drug susceptibility testing; Committing to develop solutions to help microbiology laboratories, researchers and clinicians in understanding TB drug susceptibility

How we support fight against TB:

- Collaboration with global TB organizations to ensure we respond and deliver access to TB susceptibility testing
- Standardized broth microdilution method delivering accurate MIC results on standard Sensititre plates
- Supporting TB drug susceptibility surveillance and research in understanding most effective treatment pathways



Improved workflow – qPCR + AST

1

Urine Sample



Sample Collection & Transport

- Greater flexibility with sample collection, storage and processing times

2

qPCR Pathogen & Resistance Markers ID



Molecular Screen

- Increased Sensitivity and Specificity, screens negatives out
- 5 hours to answer
- Initiate more appropriate primary therapy based on resistance markers

3

Purity Plates on Positive Samples



Culture

- More effectively manage complicated samples/cases
- Isolates to run accurate and appropriate confirmatory sensitivity testing on

4

Inoculated into Sensititre Panels



Susceptibility Testing

- Manage positive cultures
- Determine the best treatment options
- Identify the accurate therapeutic concentration

5

MIC Result To Guide Therapy



Reporting & Treatment

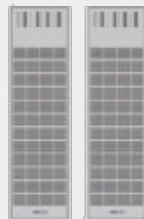
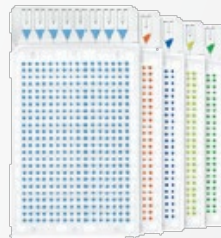
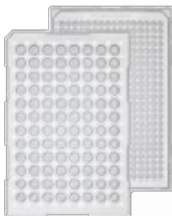
- More rapid and accurate screening leads to effective stewardship, cost reduction, appropriate secondary testing and better patient outcomes

Total Test Time – ~48 hours or less

Scaling your laboratory capacity on qPCR instruments



Our platform supports multiple format options to help laboratories operate efficiently through fluctuating seasonal monthly and weekly sample volume needs



	Single tube assays	Plates	Cards	OpenArray™ Plates
Format	Individual tubes or assay tube sets in a variety of reaction sizes	96-and 384-well plates with assays pre-spotted into the wells	384-well microfluidic cards with assays pre-spotted	3,000 through-holes with assays pre-spotted
Assay Type	Singleplex or Spectral Multiplex	Singleplex or Spectral Multiplex	Singleplex	Spatial-Multiplex
Typical # of Targets	1 to 5	4 to 24	24 or 48	18 or 56
Use Case	For smaller panels in any volume (1 to 1000s)	For mid-size panels in mid-throughput (10-50)	For large panels in low-throughput (10s)	For mid to large panels in high throughput (48-1000s)
Your advantage	High flexibility for various throughput	Supports automation for medium throughput	Convenience, no robotics needed	Higher throughput for routine applications or large projects

Qualified qPCR assays targeting ABR genes

Choose from a large collection of assays targeting the most common resistance genes.

Antimicrobial classes	Resistance mechanisms	Target genes/ Enzymes	PCR target
Penicillins	Antibiotic hydrolyzation	class A β -lactamase	TEM, SHV
Cephalosporins (3th and 4th generation)	Antibiotic hydrolyzation	class A β -lactamase	CTX-M, TEM-ESBL, SHV-ESBL, PER, VEB, GES
		plasmid mediated AmpC β -lactamase	CMY, DHA, FOX, MOX, ACT, MIR, LAT
Carbapenems	Antibiotic hydrolyzation	class A β -lactamase	KPC
		class B β -lactamase	NDM, IMP, VIM
		class D β -lactamase	OXA-48
Quinolones	Antibiotic target protection	qnr	qnrS, qnrB, qnrA
	Antibiotic modification	acetyltransferase	aac(6')-Ib-cr
Macrolides	Antibiotic modification	phosphotransferase	mphA
	Antibiotic target modification	rRNA methylase	ermA, ermB, ermC
Aminoglycosides	Antibiotic modification	acetyltransferase	aacC1, aacC2, aacC4, aac(6')-Ib
		phosphotransferase	aphA1
		nucleotidyltransferase	aadA, aadB
Polymyxins	Antibiotic target modification	phosphoethanolamine transferase	mcr-1, mcr-2, mcr-3
Folate partway inhibitors	Acquisition of drug-resistant target enzymes	dihydropteroate synthase	sul1, sul2, sul3
		dihydrofolate reductase	dfrA1, dfrA5, dfrA12, dfrA14, dfrA17
Tetracyclines	Efflux pumps	tetA, tetB	tetA, tetB, tetM, tetS

Thank you

