


MLRS - StatAST® Advantage over Current Popular AST methods

Features		Manual Method – Disk Diffusion & E test	Automated Methods (VITEK method)
1. Sample Preparation and Inoculation	Two-Step Simple Procedure requiring 3-4 min per sample (~20-25 samples per hour)	Laborious requiring minimum 10 min per sample (~8-10 samples per hour)	Automated but sample inoculation requires Instrument & software handling skill
2. Incubation Time	6 - 8hrs	18 - 24hrs	8 - 10hrs
3. Resources Required	Limited: Semi-Skilled Technician, Static Incubator and MLRS-Antibiogram Imager device (Affordable)	Limited: Skilled Technician and Static Incubator	High: Skilled Technician and VITEK Instrument (Expensive)
4. Antibiotic Panel	Tailor-made for user with current in-market antibiotics (Recommended for Colistin and Polymyxin-B)	Customizable (Not recommended for Colistin and Polymyxin-B)	Standard panel which cannot be customized (Not recommended for Colistin and Polymyxin-B)
5. Results Interpretation	Semi-automated: MLRS – StatAST@Imager device & software compatible with hospital and laboratory management software (~2-3 mins per sample)	Manual entry (~5 mins per sample & Error-Prone)	Automated: VITEK Instrument & software compatible with hospital and laboratory management software
6. Results Output	Antibiogram with MIC	No MIC for Disk Diffusion	Antibiogram with MIC
7. Cost Per Sample	~₹200 per sample (~30 Antibiotics)	~₹150 per sample (18 antibiotics)	₹250 - ₹500 per sample (~20 Antibiotics)

References:

1. Radhakrishnan, R., Rajesh, J., Dinesh, N. S., Thangavelu, C. P., & Sankaran, K. (2020). High-throughput method for Antibiotic Susceptibility testing based on fluorescein Quenching by Bacteria: Application to Urinary tract infection. Scientific Reports, 10(1), 1-8.
2. Khurana, S., Malhotra, R., & Mathur, P. (2020). Evaluation of Vitek® 2 performance for colistin susceptibility testing for Gram-negative isolates. JAC-Antimicrobial Resistance, 2(4), dlaa101.
3. Matuschek, E., Ahman, J., Webster, C., & Kahlmeter, G. (2018). Antimicrobial susceptibility testing of colistin—evaluation of seven commercial MIC products against standard broth microdilution for Escherichia coli, Klebsiella pneumoniae, Pseudomonas aeruginosa, and Acinetobacter spp. Clinical Microbiology and Infection, 24(8), 865-870.

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Co-developed with
Anna University - **Fluorescence Quenching Method** (Patented)



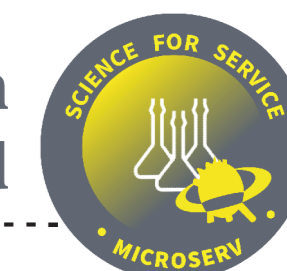
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**Microbiological Laboratory Research
and Services India Private Limited**

 **LL-C** ISO **13485:2016** Certified Company

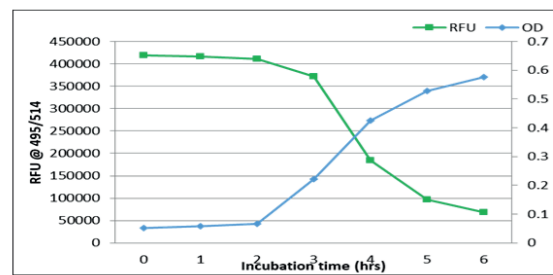


The Product:

1. Novel Easy-to-Perform Broth microdilution based antibiotic sensitivity testing method gives the critical antibiogram with MIC within 6-8 h

2. Method developed based on novel discovery of Fluorescence Quenching during bacterial growth in a customized culture medium (Patent no. 1891/CHE/2010)

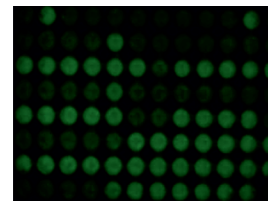
3. The loss of Fluorescence (Green Plot in the graph) is inversely proportional to the bacterial growth (Blue Plot in the graph).



4. A Fluorescence Imager device connected to the laboratory computer captures an Image of different fluorescence signals of the Microtitre plate.



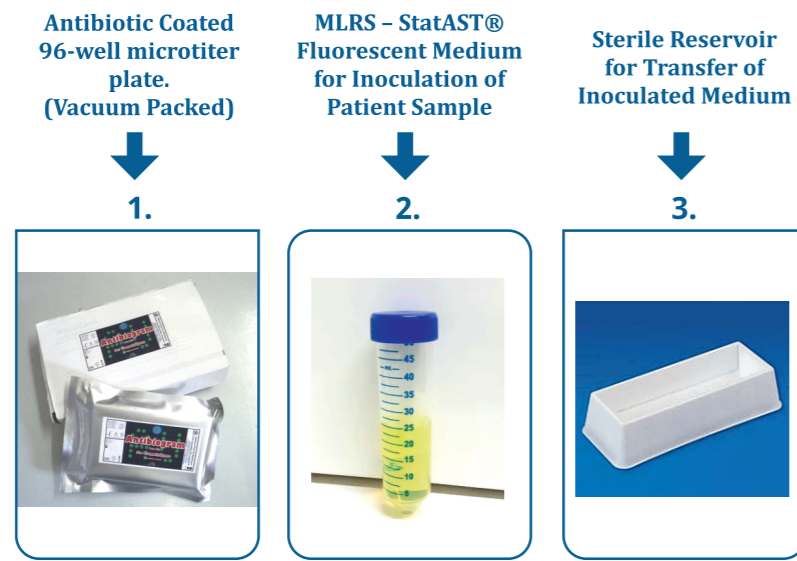
5. The Fluorescent Green Wells indicate No-Growth and Antibiotic Susceptible Wells, and the Quenched Dark Wells indicate Growth and Antibiotic Resistant Wells.



6. A Microsoft Windows compatible software installed in the laboratory computer translates the fluorescent signal into Antibigram based on CLSI breakpoints along with the MIC.

7. Report compatible for transfer via Laboratory Management Software

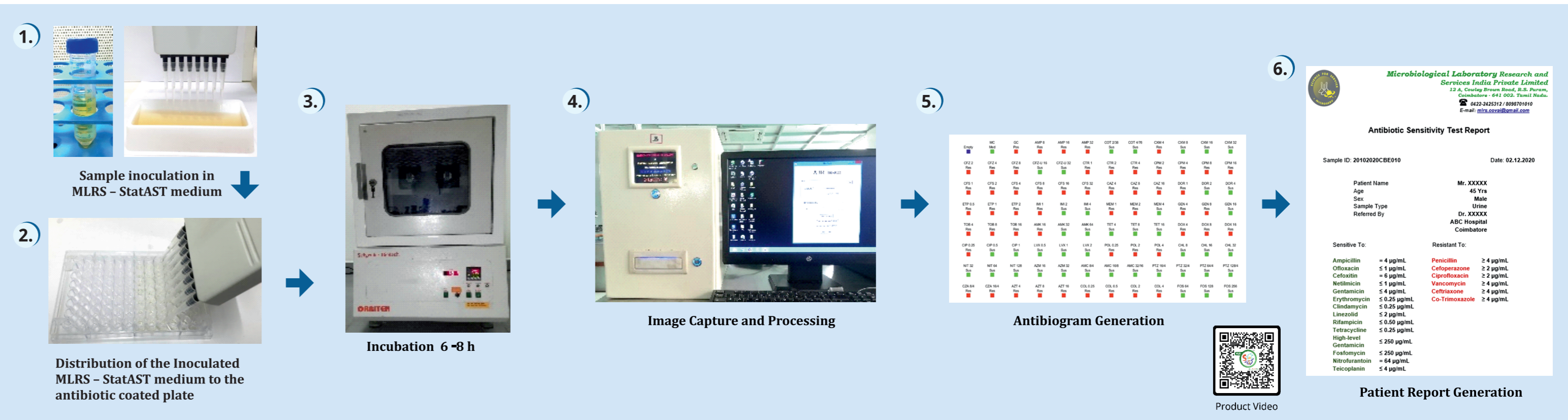
Kit Contents:



Antibiotic Coverage

Gram Negative Bacilli	Gram Positive cocci
Ampicillin	Ampicillin
Co-Trimoxazole	Penicillin
Cefuroxime	Linezolid
Cefazolin	Oxacillin
Ceftriaxone	Cefoxitin
Cefepime	Tecoplanin
Cefoperazone + Sulbactam	Fosfomycin
Ceftazidime	Vancomycin
Doripenem	Gentamycin
Ertapenem	Erythromycin
Imipenem	Tetracycline
Meropenem	Ciprofloxacin
Gentamicin	Ofloxacin
Amikacin	Trimethoprim
Tetracycline	Sulfamethoxazole
Doxycycline	Nitrofurantoin
Ciprofloxacin	Rifampin
Levofloxacin	Chloramphenicol
Norfloxacin	Clindamycin
Chloramphenicol	Cefotaxime
Nitrofurantoin	Streptomycin
Azithromycin	
Amoxicillin+ Clavulanate	
Piperacillin + Tazobactam	
Ceftazidime+ Avibactam	
Aztreonam	
Colistin	
Polymixin- B	
Fosfomycin	

A Simple & Rapid workflow



MLRS - StatAST® totally indigenous technology is first of its kind in India

and is a step towards a development of better patient care management systems.

- Minimum and Effortless Sample preparation procedure
- MLRS - StatAST® has Standard and Tailor-made formats for Antibiotic Panels.
- Based on recommended Broth Microdilution method.
- Compatible for testing the current in-market Antibiotics.
- Only Recommended method for testing Colistin and Polymyxin-B.
- High performance and compatible for testing high- or low-volume of samples
- Quick and reliable antibiogram within 6-8 h of sample inoculation.
- Automated System for Signal measurement and Antibigram generation.
- Software compatible with Hospital and Laboratory Management Software for customized reporting and managing results.
- MLRS - StatAST® has been evaluated for its performance at Christian Medical College - Vellore, Microbiological Laboratory - Coimbatore and Microbiological Laboratory of KAPV Government Medical College, Trichy.
- Greater Sensitivity compared to the current Manual and Automated Methods
- Highly Reproducible results. Bill-of-material as low as manual methods.