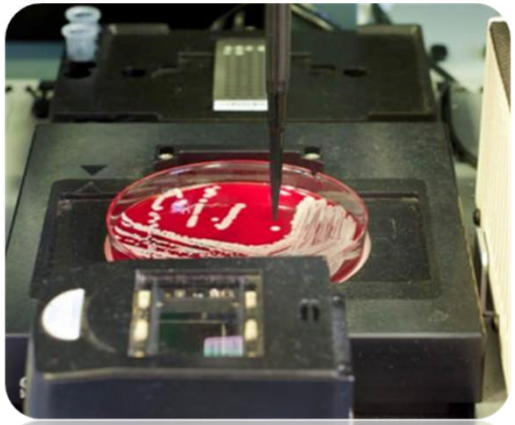
TECAN.

SCIROBOTICS



Tecan based solutions for clinical microbiology labs

ID/AST Workflow Automation

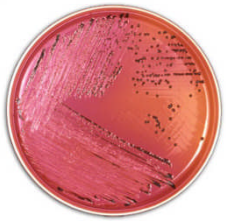
Main workflow in clinical microbiology lab

Human samples.
e.g. Urine Blood
e-swabs

Streaking

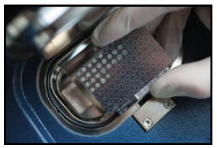
Incubation

Colonies



ID

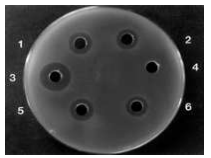
AST



Maldi-TOF

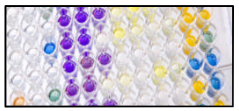
Biom. Vitek

Rapid test



Agar difusion
(Kirby Bauer)

Biom. Vitek



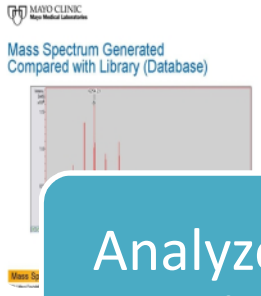
Micro dilution

MALDI-TOF has revolutionized Microbial ID

Pick a colony

Smear on MALDI target

Apply matrix solution

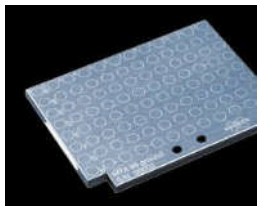


Analyze and identify

Leading method

Fast

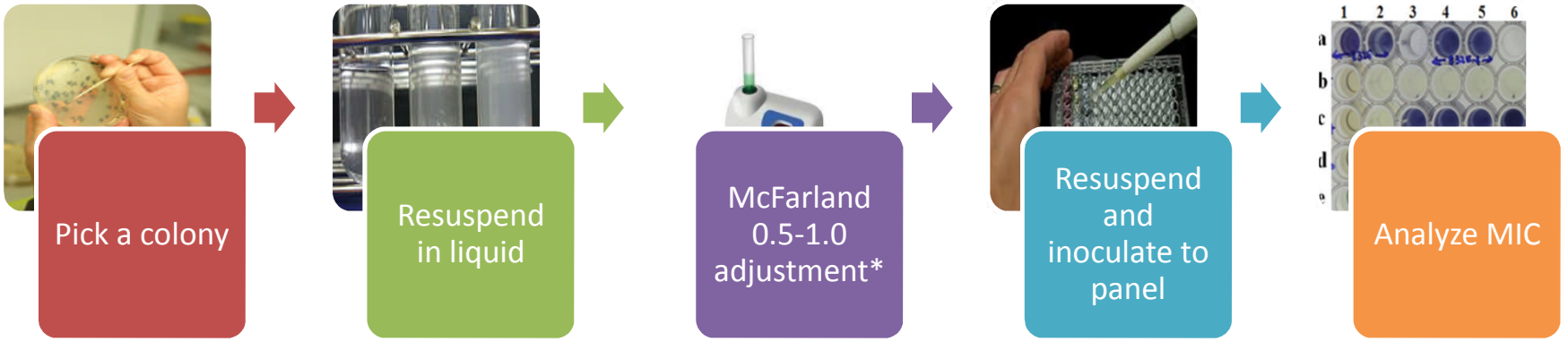
Precise



Bruker-BioTyper

Biomerieux-VitekMS

Workflow for quant. AST micro dilution



Most modern

Precise MIC
- Minimal inhibitory conc.

Synergy tests

96 well format

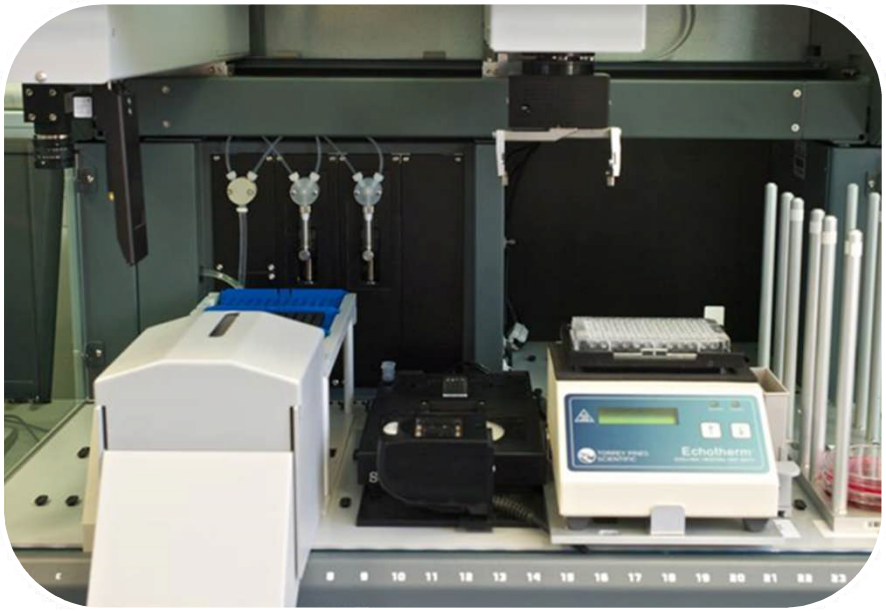
Analysis by expert software

MERLIN Gesellschaft für mikrobiologische Diagnostika mbH

*

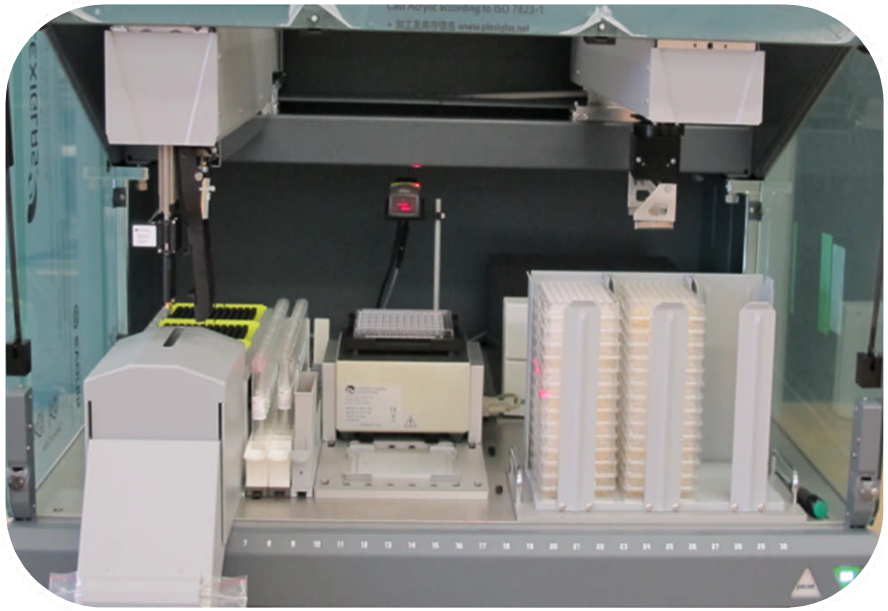
McFarland Standard	Approximate Cell Count Density (x10^8 cells)
0.5	1.5
1.0	3.0
2.0	6.0
3.0	9.0
4.0	12.0

Automated ID and AST workflows



Workstation 1: Colony Picking

- Picking for Bacterial ID
- MALDI target spotting
- Matrix solution application
- Picking for AST (into 96 well plate)
- Petri dish imaging and documentation
- Evo 75 with 2 channels
- Capacity of 30 plates per run
- 1.25 hours per run

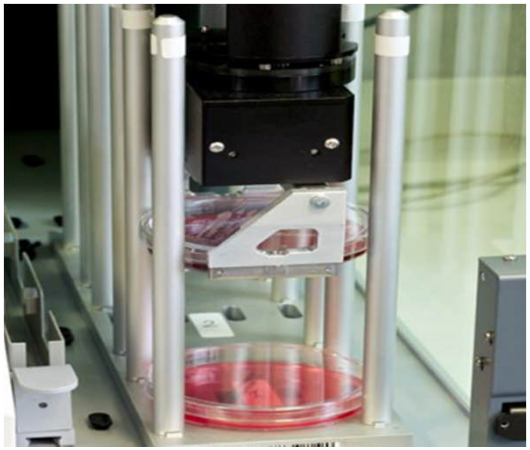


Workstation 2: AST Processing

- McFarland 0.5 normalization (Sunrise Abs. Reader)
- Inoculation of suspension medium
- Inoculation of AST 96 well plates
- Reading AST plates results for analysis
- AST plate imaging for documentation
- Evo 100 with 4 channels,
- capacity for 30 AST plates per run
- 2.25 hours per run

Workstation 1: Evo75-Colony picking & MALDI spotting

Take sample Petridish



Scan plate barcode

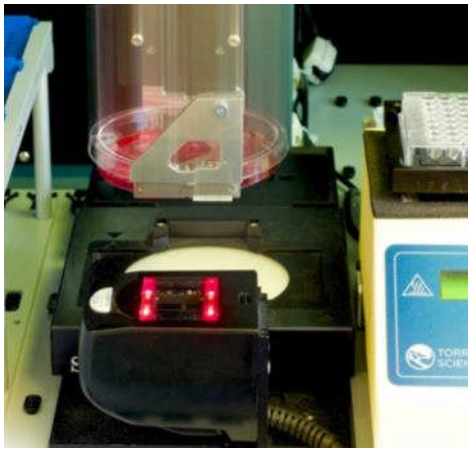
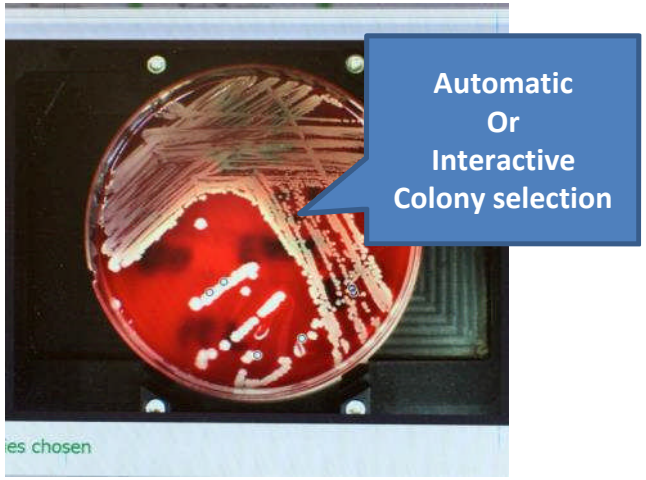
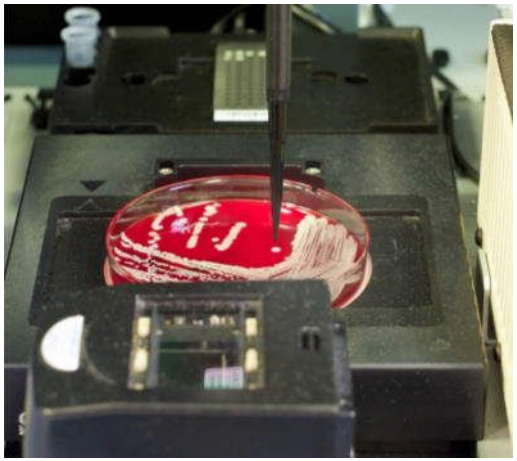


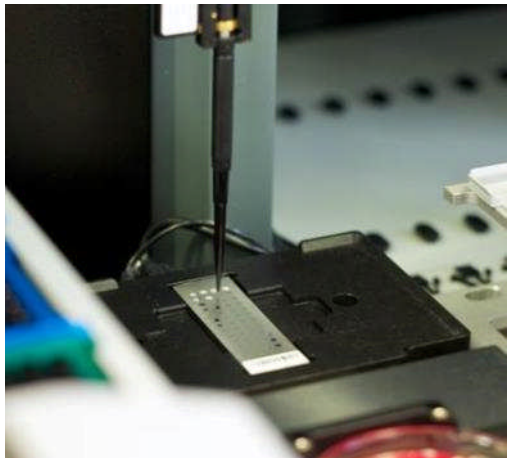
Image analysis



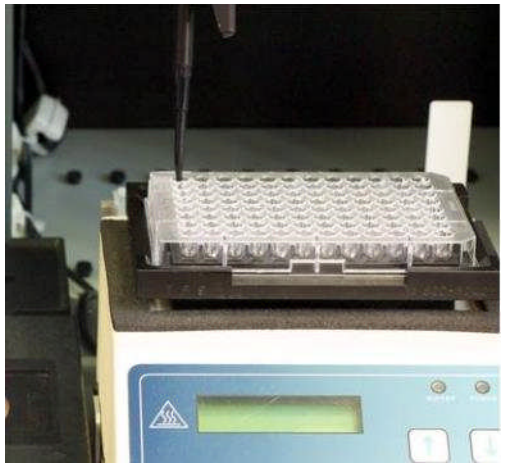
Colony-picking



MALDI spotting and matrix dispense



Colonies inoculation for AST



Workstation 2: EVO 100-automatic AST processing

McFarland 0.5 normalization

- Read plate OD
- Normalize
- Validate conc.

Dilute to fresh suspension medium

- mix

Distribute to AST plate

- 96 well pre-configured with antibiotics
- Merlin MICRONAUT kits

Read results

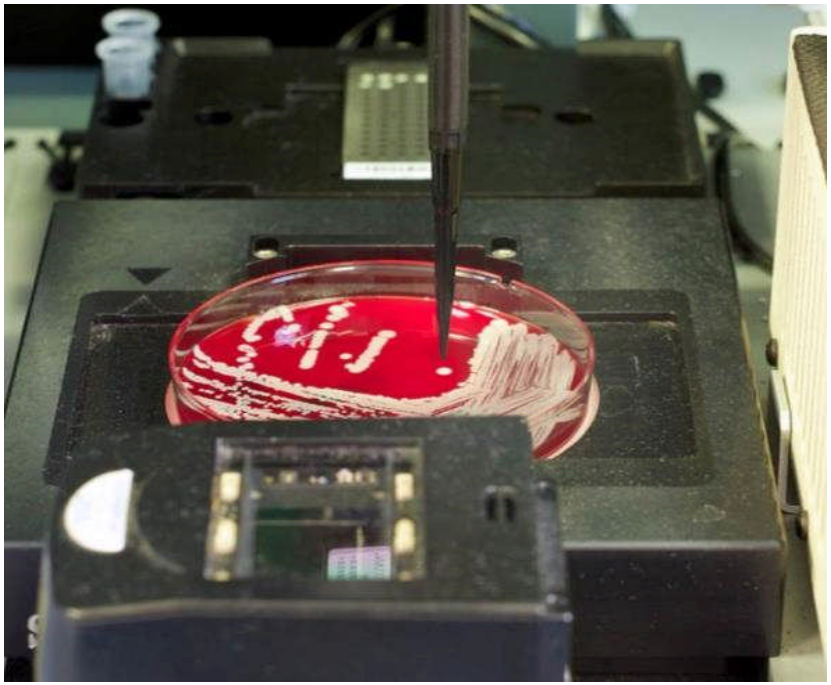
- Read OD
- Image plate
- Analysis by Merlin expert software

30 AST plates can be prepared within 2.25 hours fully automated

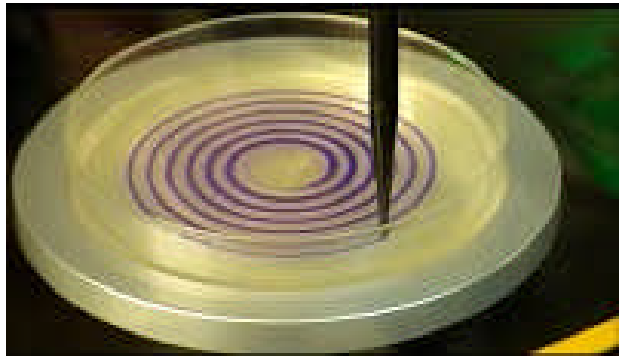
AST Kits implemented at Treviso hospital: Merlin Micronaut.
Merlin Diagnostika GmbH, Germany

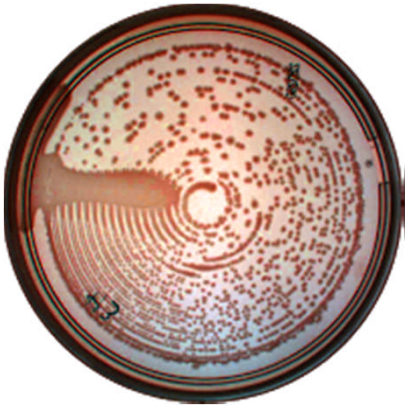
Key benefits of microbiology automation on Tecan

- Reduce staff costs for routine
- Reduce human error
- Performance stability
- Documentation, images and review of past results
- Sample tracking and worklist generation



Automated Spiral plating & streaking





Spiral streaking is used for achieving colony isolation from high-concentration microbial cultures. Sample is spread on the petridish radius in streaked in a spiral pattern to achieve isolation. The metod uses standard robot disposable tips. No need for expensive applicators. Liquid samples can be taken from any type of container tubes or plates. Excelent for automatic streaking of blood, urine samples and many other types of samples.

Thank you for your attention

Tecan – Who we are

Tecan (www.tecan.com) is a leading global provider of laboratory instruments and solutions in biopharmaceuticals, forensics and clinical diagnostics. The company specializes in the development, production and distribution of automated workflow solutions for laboratories in the life sciences sector. Its clients include pharmaceutical and biotechnology companies, university research departments, forensic and diagnostic laboratories. As an original equipment manufacturer (OEM), Tecan is also a leader in developing and manufacturing OEM instruments and components that are then distributed by partner companies. Founded in Switzerland in 1980, the company has manufacturing, research and development sites in both Europe and North America and maintains a sales and service network in 52 countries.

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