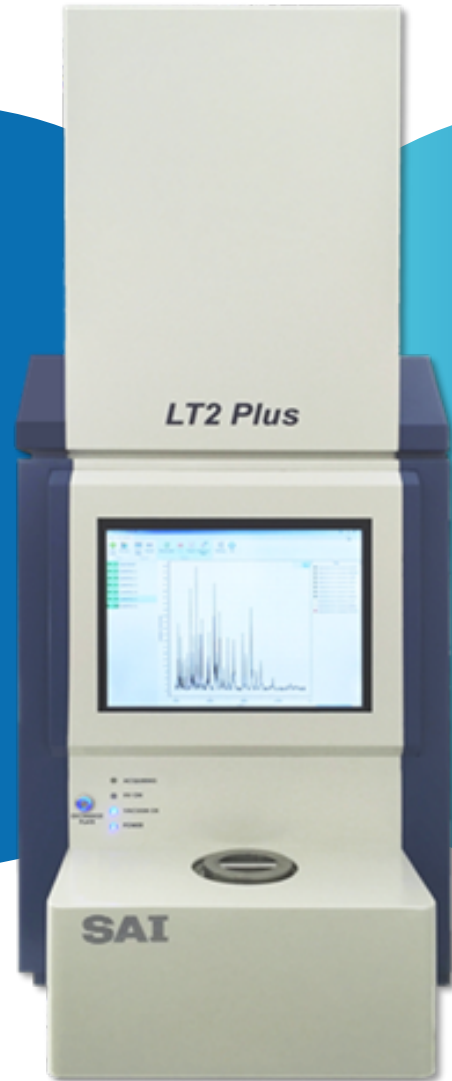# SAI

SCIENTIFIC ANALYSIS INSTRUMENTS

Laser ToF

LT2 PLUS

LT2 Plus

SAI

Microbiology Milestone

Revolutionizing Microbial Diagnostics

The LT2 Plus is a compact, benchtop MALDI-TOF mass spectrometry system engineered to streamline microbial identification in clinical, research, and industrial environments. In combination with the BactoSCREEN-ID software, it delivers fast, cost-effective, and highly accurate identification of Gram-positive and Gram-negative bacteria, yeasts, and molds.
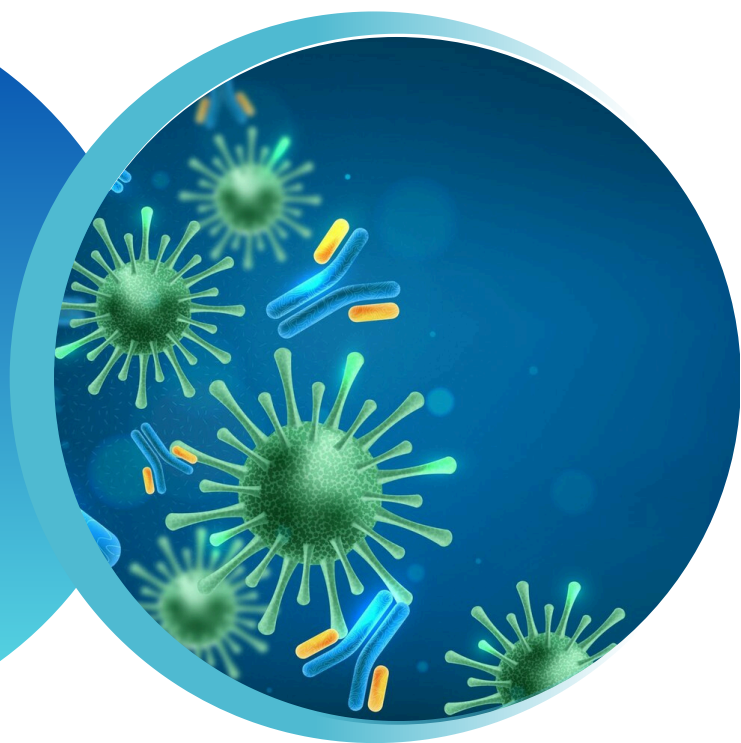
Rapid Identification

Identifies 96 samples in under 15 minutes, which is significantly faster than traditional methods.

Ease of Use

Requires minimal user experience with a simple workflow: spot bacteria, add matrix, and analyze.

High Accuracy

Provides identification accuracy exceeding 98%, ensuring reliable results for various applications.

Cost-Effective

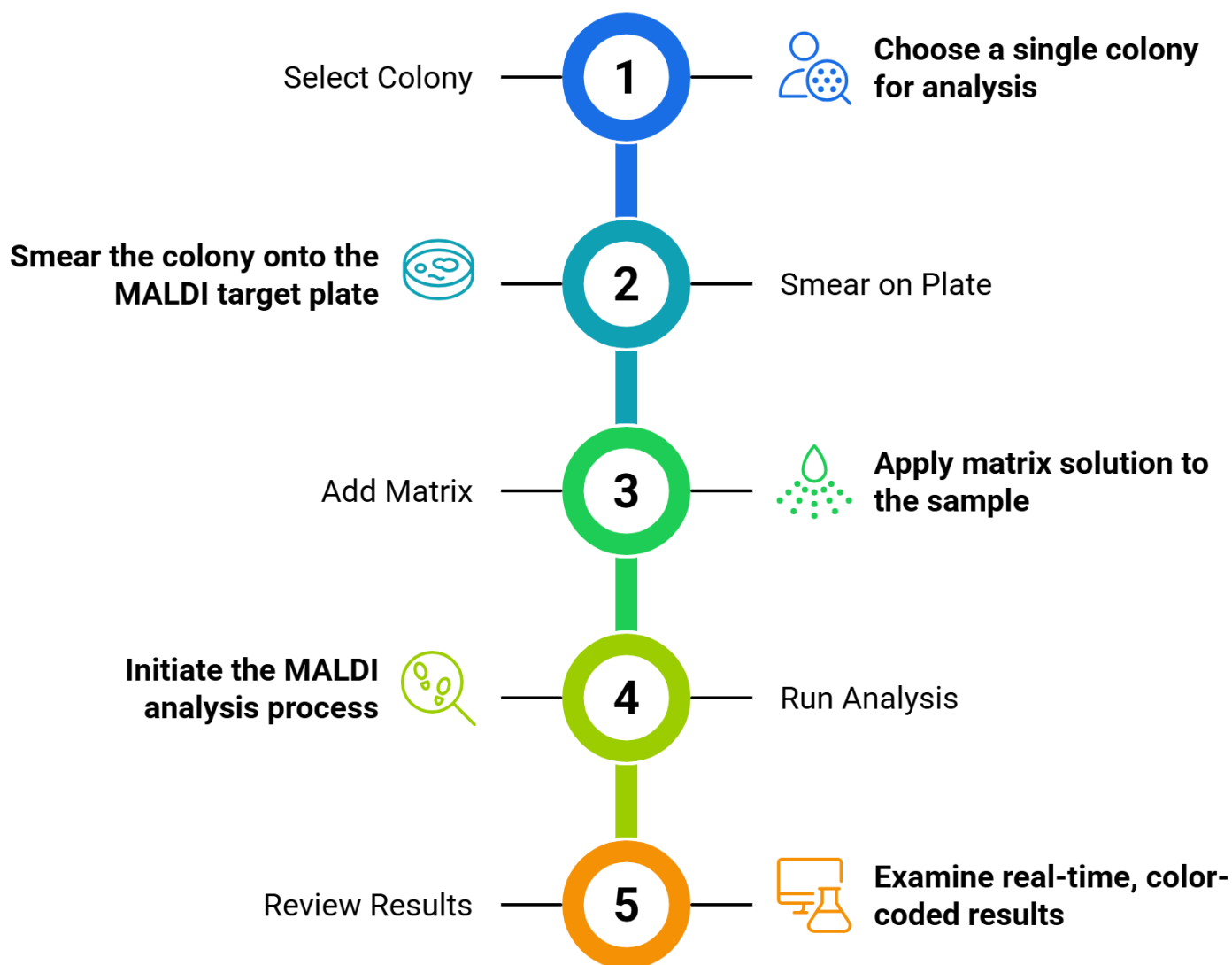Offers low consumable costs compared to traditional identification methods, saving resources.

Excellence in Mass Spectrometry

Simplified Workflow
User-Friendly, Efficient, and Scalable

MALDI Analysis Workflow

1 Select Colony — Choose a single colony for analysis

2 Smear the colony onto the MALDI target plate — Smear on Plate

3 Add Matrix — Apply matrix solution to the sample

4 Initiate the MALDI analysis process — Run Analysis

5 Review Results — Examine real-time, color-coded results

Additional steps are available for yeast & mold identification.
No prior experience is needed to operate the system.

User Friendly Software

The BactoSCREEN-ID software is specifically created to quickly determine the taxonomic classification of a micro-organism being studied at the species level. This is achieved by comparing its mass spectrometry profile to the profiles of known strains of micro-organisms present in the corresponding database.
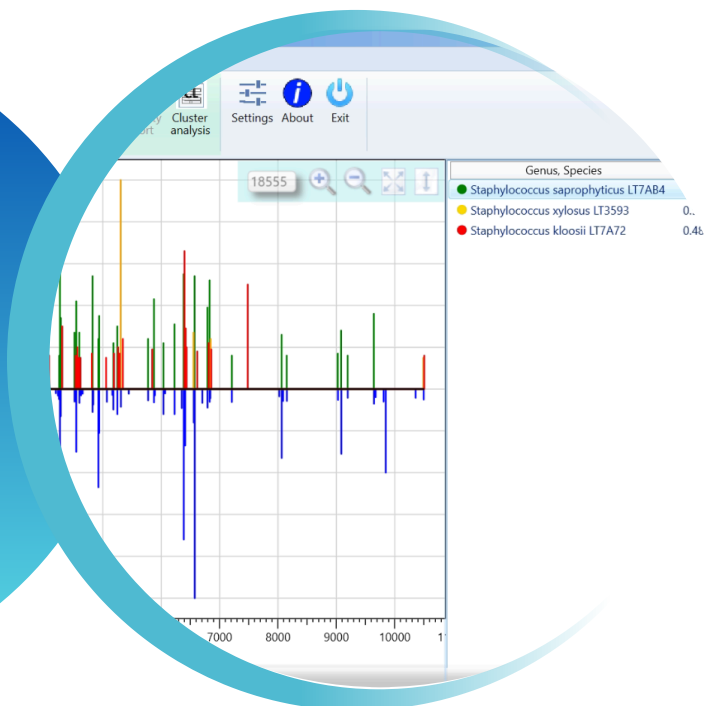
The results are presented in a clear manner that allows users to identify the species level along with its corresponding score value. Additionally, the color codes are assigned based on the score value to further enhance clarity.

Organism (Genius , Species)	Score Result
🟢 Staphylococcus Saprophyticus LT7AB4	0.91
🟡 Staphylococcus xylosus LT3593	0.57
🔴 Staphylococcus kloosii 7A72	0.48

Score Value Meaning

High Confidence Species

Range from 0.79 to 1.0 indicates high confidence identification for species. This is represented by the color green.

Range from 0.49 to 0.79 indicates high confidence genus identification. Species identification has low confidence and is represented by yellow.
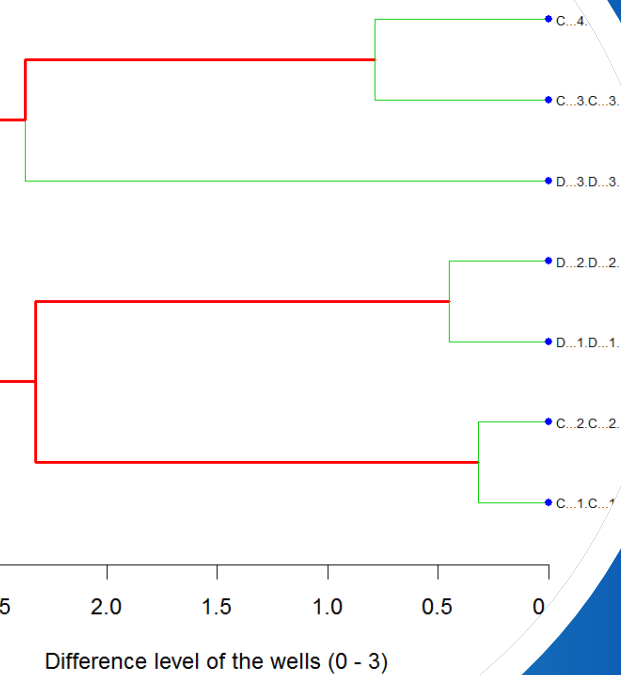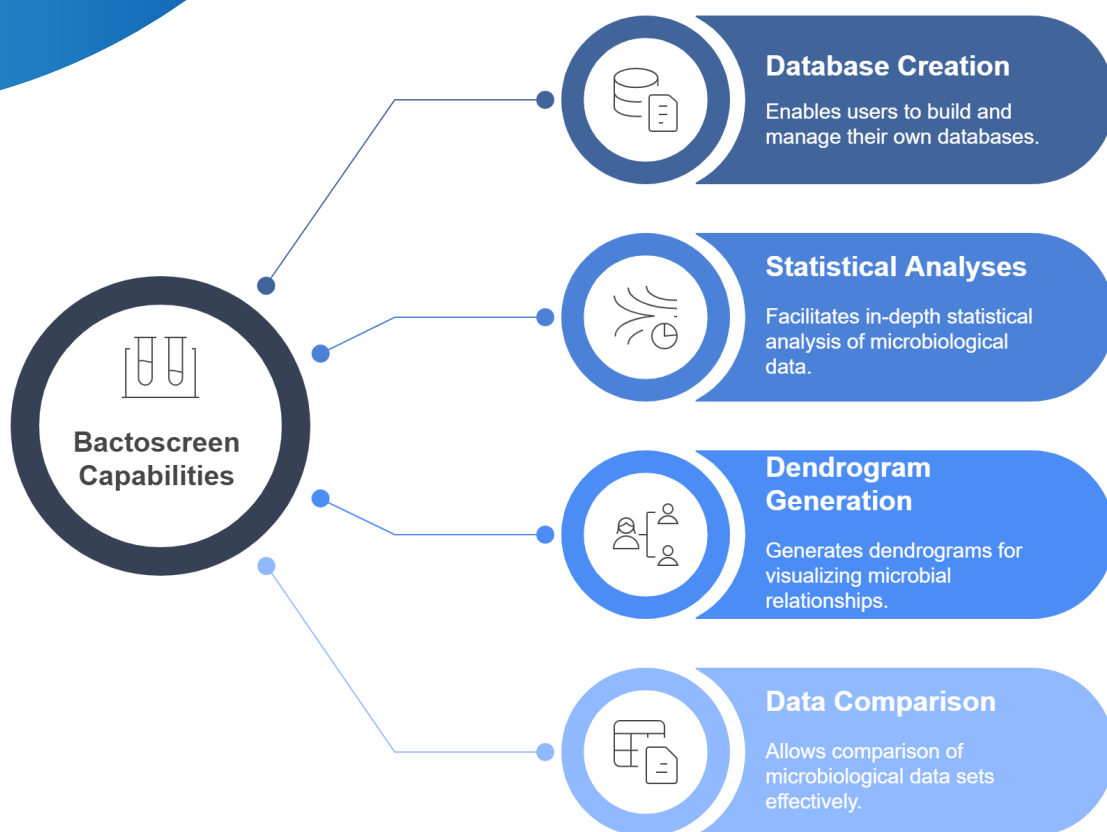
High Confidence Genus

No Identification Possible

Range from 0 to 0.49 indicates that no identification is possible. This is represented by the color red.

Dendrogram of the selected wells

C...4.
C...3.C...3.
D...3.D...3.
D...2.D...2.
D...1.D...1.
C...2.C...2.
C...1.C...1

| 5 | 2.0 | 1.5 | 1.0 | 0.5 | 0 |

Difference level of the wells (0 - 3)

With Bactoscreen, users can create their own database, conduct statistical analyses, generate dendrograms, and compare data.

Bactoscreen Capabilities

Database Creation
Enables users to build and manage their own databases.

Statistical Analyses
Facilitates in-depth statistical analysis of microbiological data.

Dendrogram Generation
Generates dendrograms for visualizing microbial relationships.

Data Comparison
Allows comparison of microbiological data sets effectively.

Excellence in Mass Spectrometry

Rapid Blood Culture Workflow

Make a Critical Difference for Your Sepsis Patients

The Rapid Workflow is designed to meet the urgent need for fast and reliable identification from Positive Blood Cultures (PBC).

This solution empowers clinical microbiologists to deliver results that can significantly impact patient care, particularly in time-sensitive cases like sepsis.

Following identification, the system allows for spectral analysis to detect potential resistance markers—offering early alerts about antimicrobial resistance without requiring additional procedures.

Benefits of a Blood culture workflow

Rapid Identification

Quick species-level identification after PBC alert.

Faster Decisions

Physicians gain early, actionable results promptly.

Subculturing Bypass

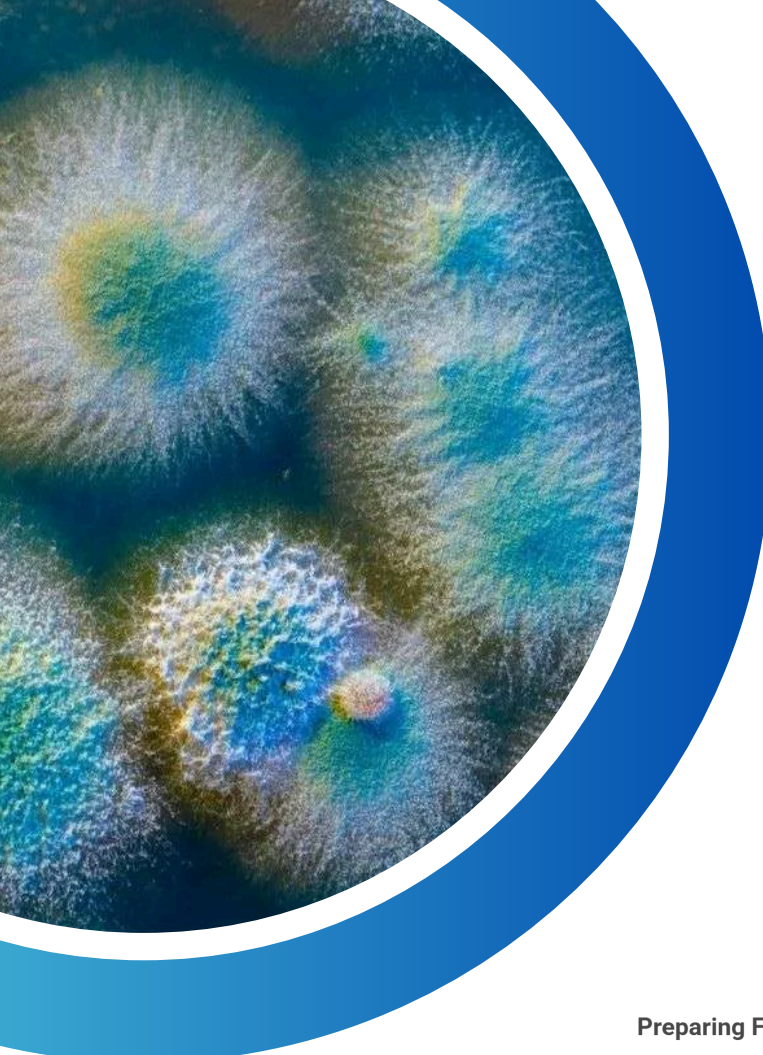Eliminates subculturing, saving diagnostic process time.

Efficient Preparation

PBC samples prepared quickly and efficiently.

Resistance Detection

Early detection of resistance for timely intervention.

Accurate Identification of Molds and Multicellular Fungi

Overcoming a Longstanding Challenge

Identifying filamentous fungi and molds has traditionally been a complex task in microbiology.

Even advanced MALDI-TOF systems face limitations, as fungal growth conditions can significantly impact spectral results, leading to inconsistent mass spectra. Through dedicated research and development, we have successfully generated reproducible reference spectra, enabling reliable and consistent identification of these challenging organisms.

Preparing Fungi for Identification

6

Final Air Dry
Air dry the overlaid sample for another minute to prepare for identification.

5

Overlay with HCCA
Overlay the dried sandwich with 1µL of HCCA matrix solution.

4

Air Dry Sandwich
Air dry the formic acid-mycelia sandwich for 1 minute.

3

Smear Mycelium
Smear the collected mycelium in the formic acid droplet on the target.

2

Collect Mycelium
Dip a toothpick into formic acid to collect fungi's front mycelium.

1

Apply Formic Acid
Apply 1µL of 70% formic acid onto the MALDI Plate.

LT2 Plus Specifications

Power in a Compact Design

Mass Resolution
Resolution greater than 2,500 m/Δm (FWHM).

Mass Range
Mass range extends up to 500,000 Da.

Accuracy
Accuracy is less than 100 ppm (internal).

Sensitivity
Sensitivity reaches below 1 fmol detection limit.

Laser
Pulsed UV laser operating at 337 nm.

Vacuum
Air-cooled TMP with oil-free diaphragm pump.

Stage
Motorized stage designed for 96-well plates.

Software
Software provides full MS control and database support.

Dimensions
Physical dimensions are 52×83×130 cm.

Power
Power consumption is less than 1 kVA.

ACCESSORIES & CONSUMABLES

HCCA MALDI MATRIX KIT

High Purity Matrix Substance enables easy and convenient preparation of MALDI matrix solution for MALDI-TOF- MS measurement of peptides and proteins.
Each Kit contains : 4 vials for 1000 samples.

MALDI AUTOMATIC SPOTTER

is designed for an automated fast and accurate sample preparation for microbial identification .The spotter can process up to two MALDI targets simultaneously, requiring only one second per sample spot. For higher throughput, the instrument has an automatic target drying function that provides a fast and efficient sample preparation.

BACTERIA STANDARD KIT

The Bacteria Standard consists of E. coli DH5 proteins that have been spiked with two additional proteins in the upper mass range, allowing for calibration over a mass range of 3 to 18 kDa.
Each Kit contains : 4 vials for 200 Calibration .

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