Thermo Fisher Scientific

Itziar Olea

Microbiology Division

Field Application Scientist

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Our Mission is our purpose:

To enable our customers to make the world healthier, cleaner and safer

Healthier

We make a positive impact on human health by providing our customers with advanced technologies and expertise to deliver breakthrough medicines and diagnostics that improve lives worldwide. Our customers rely on us to help them achieve the impossible.

Cleaner

We empower our customers with the tools to understand and address climate change, develop greener technologies and to help ensure the quality of air and water that sustains all life. As their partner, we are working with our customers to preserve our planet for future generations.

Safer

From products that detect contamination in food, to instruments that help solve crimes and identify potential threats, we provide the solutions that enable our customers to protect our communities. Together, we are determined to create a safer world.

Expertise you can rely on

$1.3B/YR
Invested in R&D

120,000+
Colleagues

$42B+
In revenue

7,200+
R&D scientists/ engineers

A rich history of microbiology excellence

1924

- Oxoid is born out of LabLemco™
- Specialized in culture media development
- Expand expertise to susceptibility testing

1973

- Regional Media Laboratories
- Specialized in prepared culture media
- Acquired immunodiagnostic capability

2006

A unique heritage in service dedicated to microbiology, providing excellent quality and support to microbiologists worldwide

Why We're A Culture You Can Trust

-30%
waste reduction

Commitment to Sustainability

Our sustainable manufacturing practices prioritize eco-friendly materials, energy-efficient technologies, and environmentally compliant facility expansions, benefiting customers with greener, more responsible products

+40%
increased capacity

Strategic Capacity Expansion

We have significantly invested in state-of-the-art automation technologies and expanded our facilities in the US and UK to support growing customer demand, enhance precision, reduce human error, and increase production speed

230
countries shipped to

Supply Chain Resilience

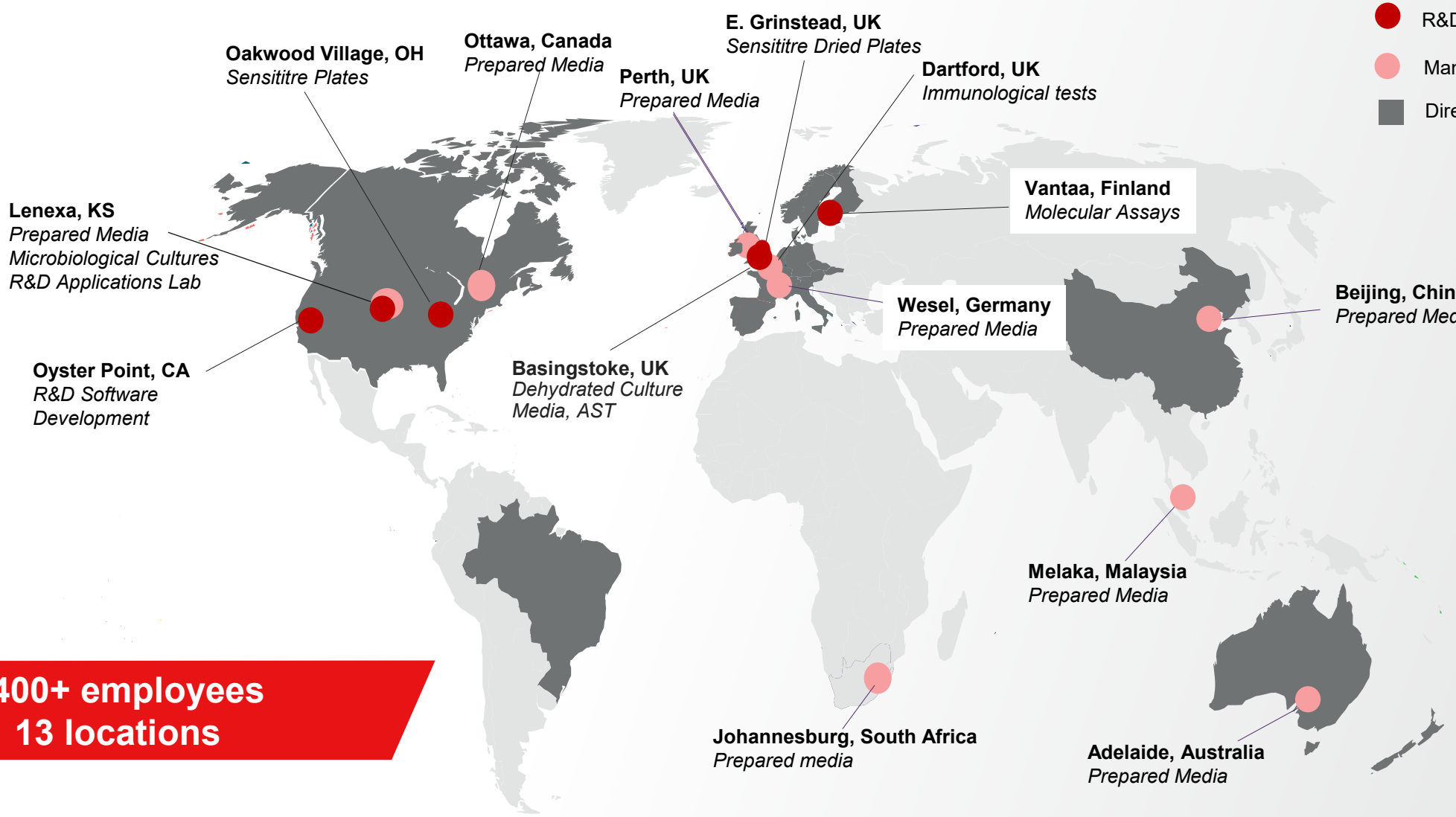
Customers can benefit from consistently high-quality products and reduced impact from market fluctuations with our global distribution network and control over critical supply chain elements, such as peptone production

618K
customers served

Customer Centric Support

With over 100 years of microbiology expertise we can provide you with exceptional technical support, extensive product knowledge and expert advice, across the Clinical, Food & Beverage and Pharmaceutical market segments

Continued investment in network to serve Microbiology customers worldwide



2400+ employees
13 locations

The economic burden of beverage product recalls

Microbial spoilage contamination in the beverage market cost Millions $ in terms of product recalls

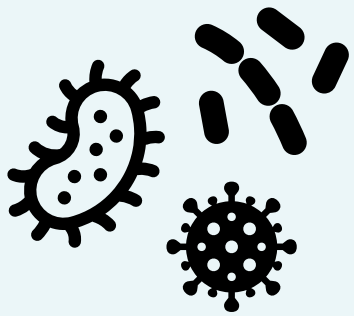
- Microbial spoilage originate from raw materials, air, water, transport, packaging.
- Spoilage organisms can cause off-flavors, cloudiness, gas production, package swelling and spoilage
- Sometimes, they **remain undetected until it is too late.**

- **Testing of environmental factors and finished products is crucial to prevent** product holds, recalls, and brand damage
- **Traditional Methods are culture-based** and can take up to 7 days, which is a **too long time for modern beverage production needs.**

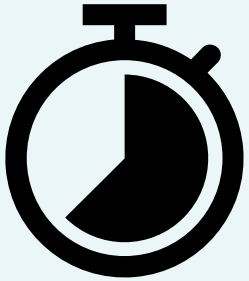
The economic burden of beverage product recalls

Need of a more effective and proactive contamination control strategy

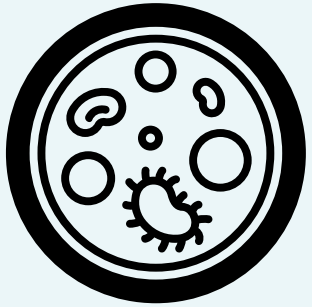
Need to identify and quantify spoilage organisms in beverages



Shorter time to results enable rapid decision-making and effective contamination control



Traditional culture-media methods take too long time to get actionable results

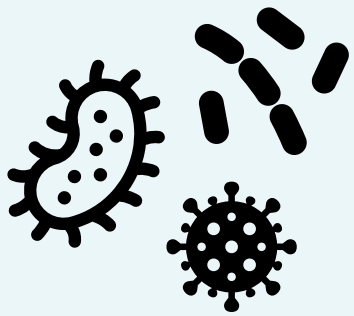


Less product recalls

More safeguard of brand image and reputation

Thermo Fisher support to beverage industries

Need to identify and quantify spoilage organisms in beverages



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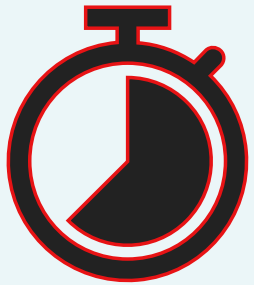

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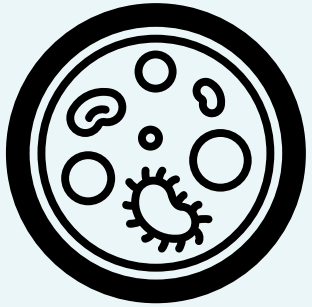


Less product recalls

More safeguard of brand image and reputation

Thermo Scientific™ SureTect™ Beverage assays

1. **Thermo Scientific™ SureTect™**
   Brettanomyces spp. and *S. cerevisiae* Multiplex PCR Assay

2. **Thermo Scientific™ SureTect™**
   Beverage Spoilage Multiplex PCR Assay

Rapid Spoilage Organism Detection

We have partnered with a beverage manufacturer to develop a rapid solution for environmental monitoring of yeast

1 Thermo Scientific™ SureTect™ *Brettanomyces* spp. and *S. cerevisiae* Multiplex PCR Assay

- Single PCR reaction detects and differentiates *Brettanomyces* species and *S. cerevisiae* in environmental and product samples
- *Brettanomyces*. target only includes those strains of concern for beverage spoilage (*B. naardenensis*, *B. anomalus* and *B. bruxellensis*)
- PCR result available after 3 days enrichment
- Rapid results support faster product release/acceptance and quicker response to environmental contamination

Rapid Spoilage Organism Detection

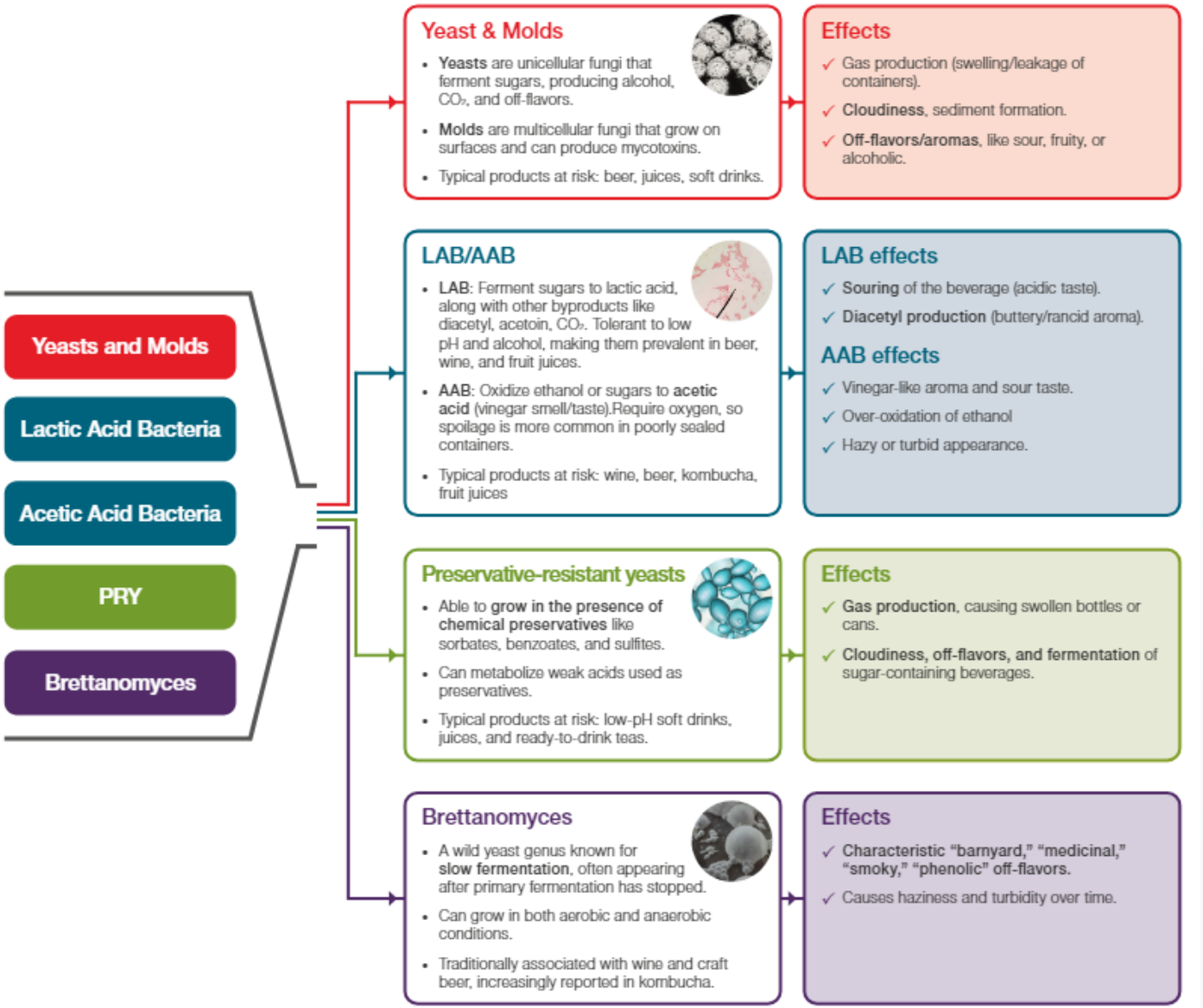
The partnership progressed to develop industry-first, multi-parameter, molecular solution for rapid beverage quality testing in finished products.*

2 Thermo Scientific™ SureTect™ Beverage Spoilage Multiplex PCR Assay

- Actionable results **4 to 6 days earlier** than traditional methods and current PCR solutions
- One PCR reaction – broad range of spoilage microorganisms; more than 100 different strains
- Streamlined risk-based product release decisions
- More sustainable operations with reduced plastics and waste

*Yeast and Molds (Y&M), Lactic Acid Bacteria (LAB) and Acetic Acid Bacteria (AAB), Dekkera spp, and Preservative resistant yeasts (PRY), from filterable and non filterable beverage samples

Key beverage spoilers



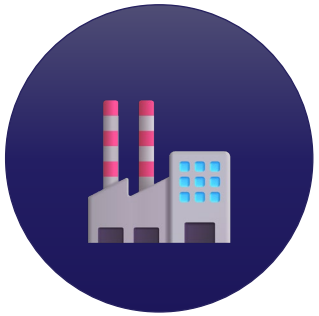
SureTect™ Beverage Spoilage Multiplex PCR Assay

- Large **AAB and LAB species** coverage – more than 40
- Ideal for **mixed bacterial populations** - usually missed by cultures
- **Preservative-resistant yeast identification** - not possible with traditional methods
- Increased **sensitivity and specificity** for risk-based decisions

SureTect Beverage Spoilage Multiplex PCR Assay

Channel	Target name in RFA	Target group	Species and other details
Cy5	Y&M	Yeasts and molds	Broad coverage across hundreds of yeast and mold species
FAM	Brettanomyces spp.	*Brettanomyces* spp.	*B. naardenensis, B. anomalus, B. bruxellensis*
VIC	PR Yeast	Preservative resistant yeasts	*Zygosaccharomyces* species, including *Z. bailii, Z. parabailii, Z. bisphorous, Z. lentus, Z. rouxii, Z. pseudorouxii*
			Saccharomyces cerevisiae
Cy5.5	LAB/AAB	Lactic acid bacteria	*Companilactobacillus mindensis*
			Lacticaseibacillus paracasei
			Lactiplantibacillus plantarum, L. argentoratensis
			Liquorilactobacillus cacaonum, L. hordei, L. satsumensis, L. mali, L. oeni
		Acetic acid bacteria	*Asaia* species, including *A. bogorensis, A. krungthepensis, A. platycodi, A. prunellae, A. lannensis, A. siamensis*
			Acetobacter. aceti, A. oryzifermentas, A. pomorum, A. pasterianus, A. tropicalis, A. ascendens
			Gluconacetobacter liquefaciens, G.dulcium
			Komagataebacter xylinus
ABY	IPC BSM	N/A	N/A

What is a daily routine?



Manufacturing Plant

Aseptic Products

Non-aseptic Products

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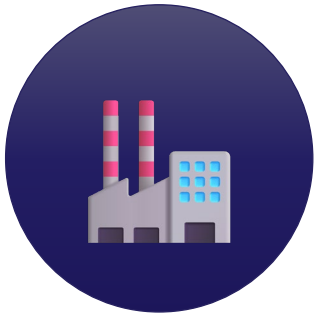

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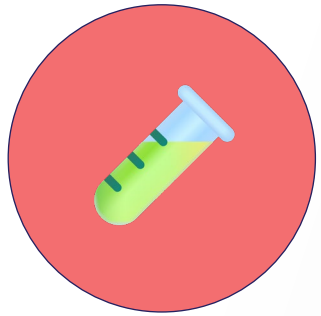

QC Test

Aseptic Products

Non-aseptic Products

4 parameters:

Y&M

Yeasts & Molds

Gas/off-flavors, gushing; finished product focus in aseptic lines.

LAB/AAB

Lactic & Acetic acid bacteria

Acidification, turbidity

Brett

Dekkera spp

A wild yeast genus known for **slow fermentation**, often appearing after primary fermentation has stopped.

PRY

Preservative-resistant Yeasts

Able to **grow in the presence of chemical preservatives** like sorbates, benzoates, and sulfites.

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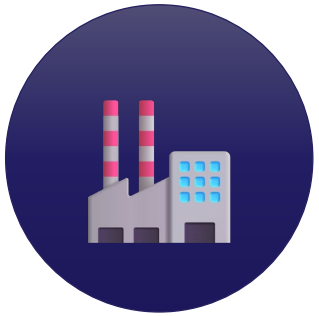

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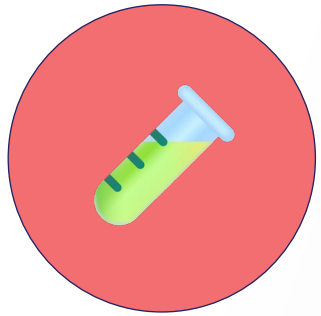

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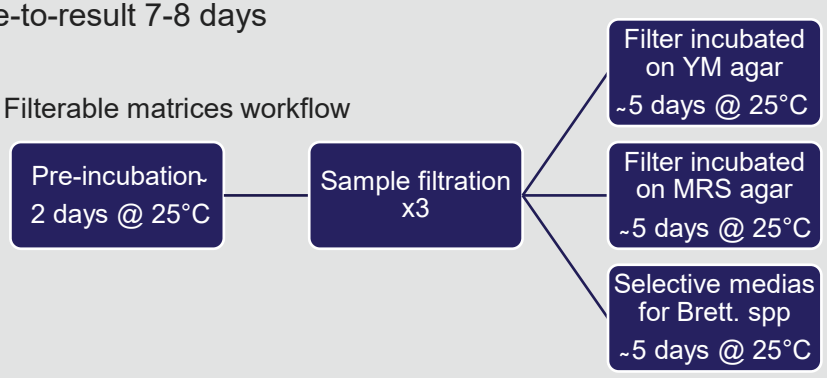
Traditional methods using agar plates

Time-to-result 7-8 days

E.g., Filterable matrices workflow



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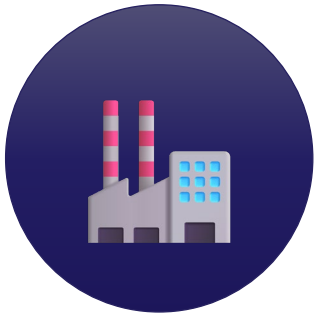

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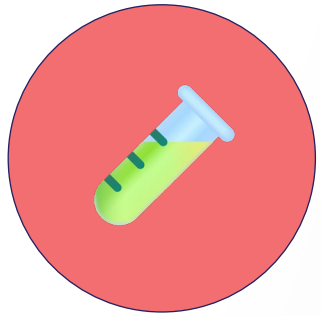

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E.g., Filterable matrices workflow

Pre-incubation ~ 2 days @ 25°C → Sample filtration x3 → Filter incubated on YM agar ~5 days @ 25°C; Filter incubated on MRS agar ~5 days @ 25°C; Selective medias for Brett. spp ~5 days @ 25°C

Molecular methods

Time-to-result 3 days

E.g., Filterable matrices:

Sample filtration → Filter incubated in broth(s) ~3 days @ 25°C → Lysis and qPCR ~ 2-3 hours

Up to 3 molecular assays needed to detect all parameters

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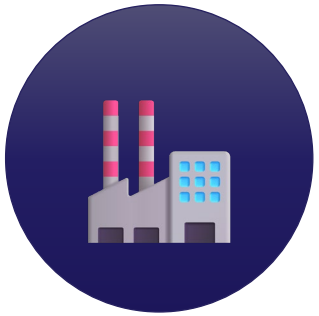

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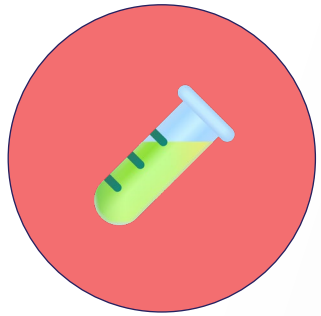

QC Test

Release

Aseptic Products

Non-aseptic Products

4 parameters:

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Gas/off-flavors, gushing; finished product focus in aseptic lines.

LAB/AAB
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Acidification, turbidity

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Dekkera spp
A wild yeast genus known for **slow fermentation**, often appearing after primary fermentation has stopped.

PRY
Preservative-resistant Yeasts
Able to **grow in the presence of chemical preservatives** like sorbates, benzoates, and sulfites.

Negative release
ship before results; block if later positive

Positive release
wait for a negative result before shipping
Net: time-to-result is a drag on ops

Traditional methods using agar plates

Time-to-result 7-8 days

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Up to 3 molecular assays needed to detect all parameters

Beverage Spoilage Assay

Delivers

- Flags the **big four** groups: Y&M, Brettanomyces, preservative-resistant yeasts, LAB & AAB
- **Turnaround time** ~2–3 hours after enrichment
- Works with **filterable & non-filterable samples**
- Enrichment ensures growth for **detection and live/dead differentiation**

Does not deliver

- **No species-level discrimination** within those groups
- **Qualitative** only (Positive/Negative) — shorter cycle time ≈ higher load, but not a count
- Not direct-from-sample (**enrichment required**)

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Is species ID important?

- ***Release gate**:* No → any positive = hold; group-level is enough.
- ***Stop it from happening again**:* Yes → species (and sometimes strain) tells you what to fix (preservatives, oxygen control, thermal steps, sanitation niche).

Complete pathogen detection in a single assay

- One PCR reaction – broad range of spoilage microorganisms ~ more than 100 microbial species
- Actionable results **4 days earlier will lead to Recall prevention**
- **Unique to the market**

SureTect Lysis Plate
Pre-filled with Lysis Reagent 1

Lysis Reagent 2
Listeria & S. aureus kits only

Pierceable Seals

Blue Proteinase K Reagent

SureTect PCR Assay Plate

Optical PCR Caps

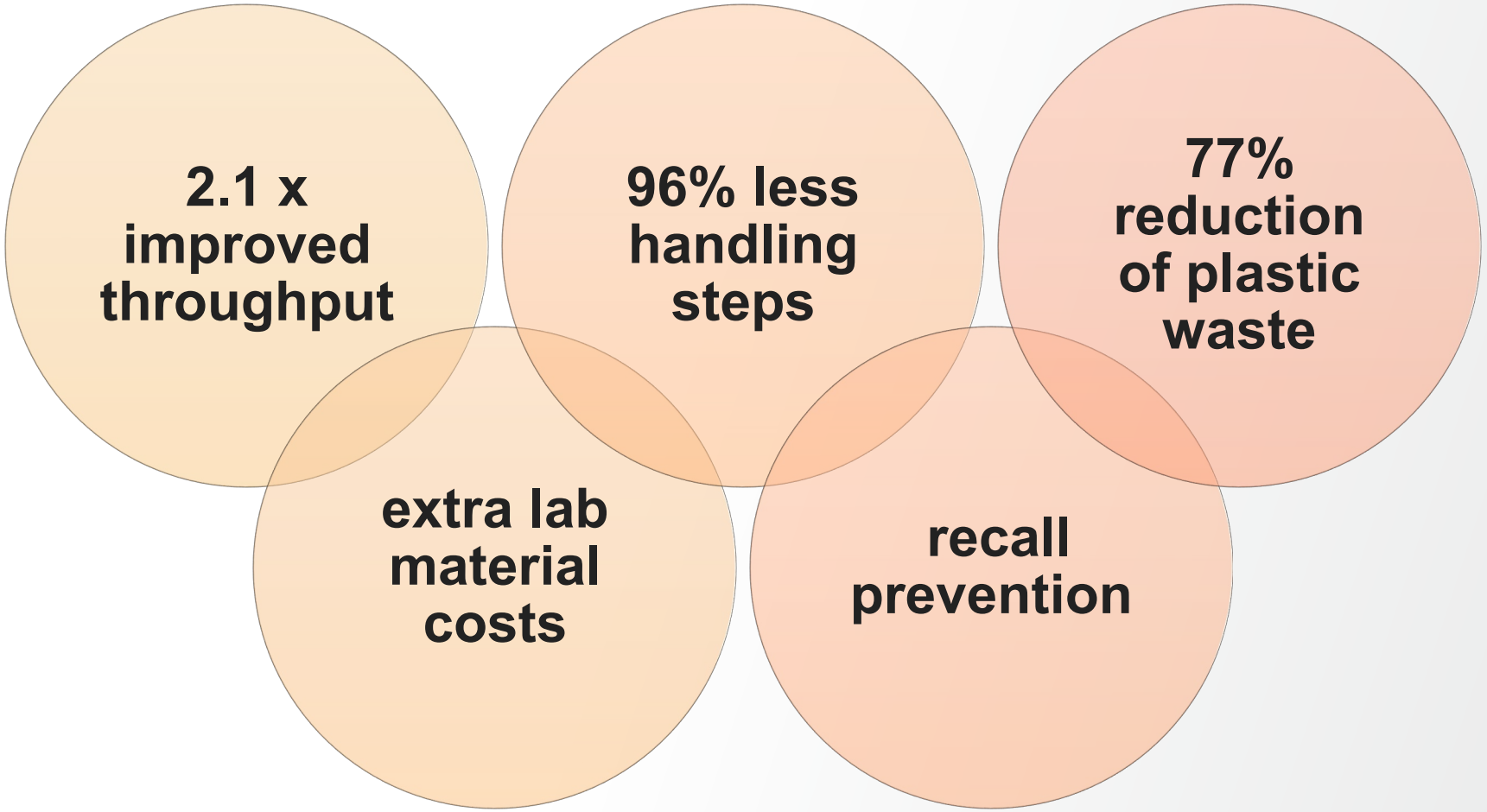
Switching from traditional methods?

Culture media		VS	
Hands- on time per sample	4 min		0.18 min
Handling steps	18 steps		6 steps
Productivity	40 samples/ day		96 samples/ day
Time to result	7 days		3 days
Annual plastic waste	3.8 tn		0.86 tn
Consumables cost per sample	~6 €		~12€

Switching from traditional methods?

Culture media		VS		qPCR
Hands- on time per sample	4 min		0.18 min	**96 % less hands on**
Handling steps	18 steps		6 steps	**1/3 the complexity**
Productivity	40 samples/ day		96 samples/ day	**2,1x increased throughput**
Time to result	7 days		3 days	**4 days earlier**
Annual plastic waste	3.8 tn		0.86 tn	**2.9 t less plastic/year**
Consumables cost per sample	~6 €		~12€	**Double the cost**

The qPCR Advantage: Faster, Greener, and More Profitable



Though qPCR cost/test is higher, overall profitability is significantly increased.

Speed: Results 4 days faster than conventional methods

Efficiency: Reduced hands-on time and improved productivity

Sustainability: Reduce your plastic waste and energy use

Brand Protection: Reduced risk of Recalls and product scraps

Complete Solutions for Beverage Safety and Quality Testing

ThermoFisher SCIENTIFIC

Filtration*

Sample Filtration

Culture media

Dehydrated Culture Media

Prepared Culture Media

Sample lysis and preparation

Sample Dilutors, Peristaltic Pumps, and Homogenizers

Sample Preparation & DNA Extraction Systems

Molecular methods

Open real-time PCR system for detection, quantitation and typing

CyBio™ FeliX for SureTect Automation

Total solution from sample to result

*through our channel partners

Thermo Scientific™ SureTect™ PCR System

Visibly simple food pathogen testing

With our comprehensive portfolio of assays combined with world-class instrumentation, you can confidently perform food safety tests knowing exactly what you are getting – quality combined with simplicity.

Streamlined handling

Ready-to-use reagents and ergonomically designed tools for easy handling

Fail safe

Color-coded plates and reagents to keep you on track

Smart instrumentation

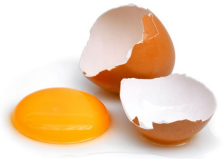
Automated sample preparation, lysis, test set-up and result interpretation

Large number of food matrices evaluated

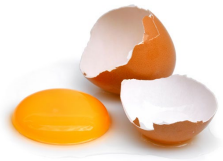
Salmonella spp.







Salmonella multiplex

Listeria spp.



L. monocytogenes


STEC and E. coli O157:H7


Cronobacter spp.

Vibrio

Campylobacter

S. aureus

Thermo Scientific™ SureTect™ PCR System

SureTect™ PCR **Manual solution**

SureTect™ PCR **Automated solution**

SureTect PCR Workflow

Simplified for productivity

8-24 hours

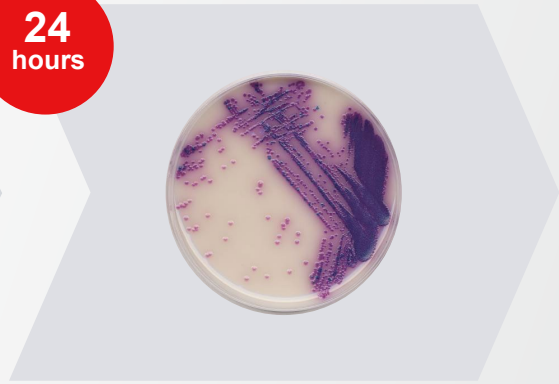
Single enrichment step

Sample preparation and lysis

~ 80 minutes

Run, read and report PCR-negative results

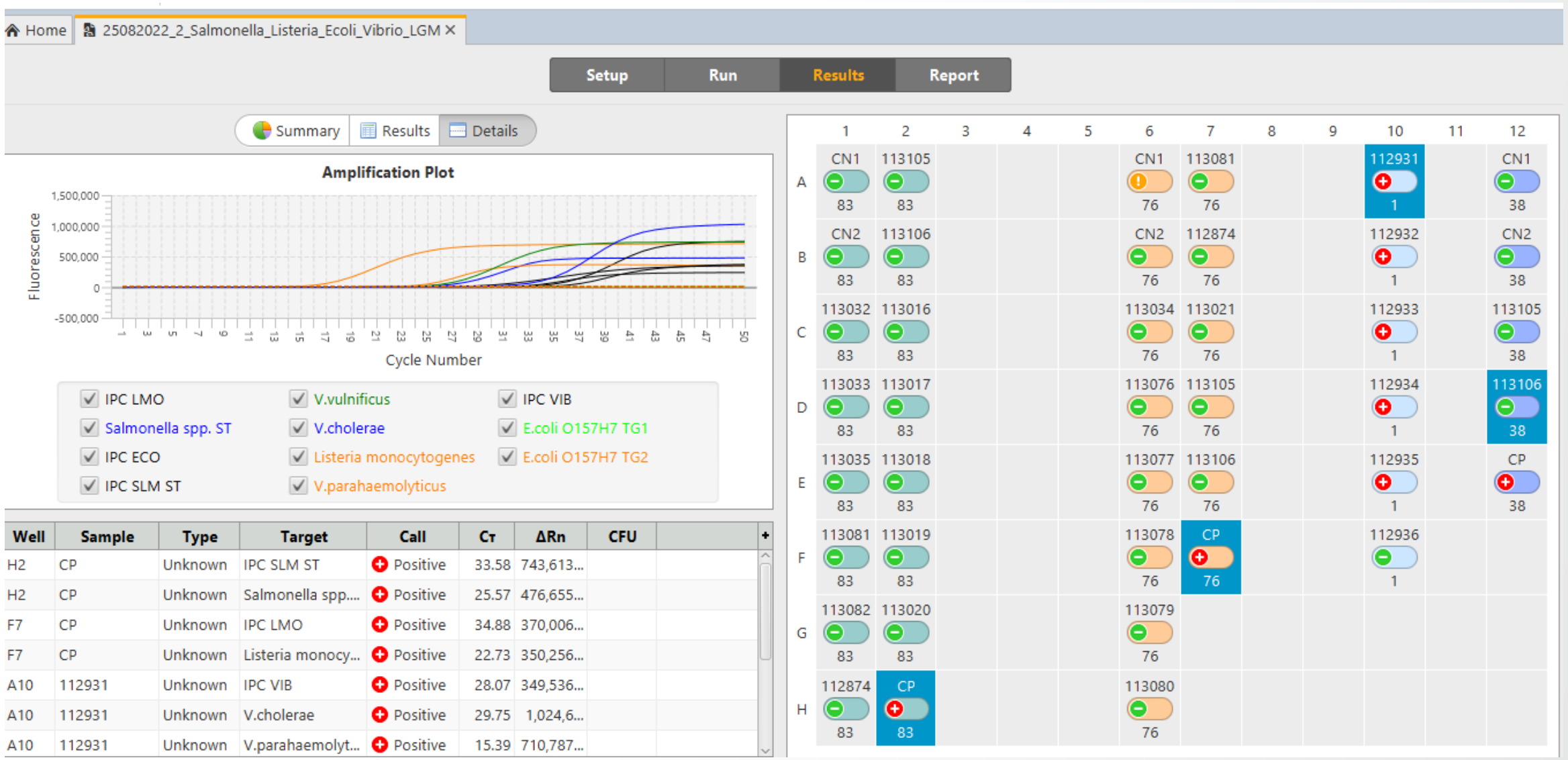
24 hours



Report/confirm PCR-positive results

One workflow for all pathogen targets	Ready-to-use and pre-dispensed reagents	Test multiple pathogens simultaneously
Flexibility for 1 to 96 tests in each run	Report negatives within 1 day	Simple, rapid confirmation tests for PCR-positives

RFA software



Thermo Scientific™ SureTect™ PCR System

SureTect™ PCR **Manual solution**

SureTect™ PCR **Automated solution**

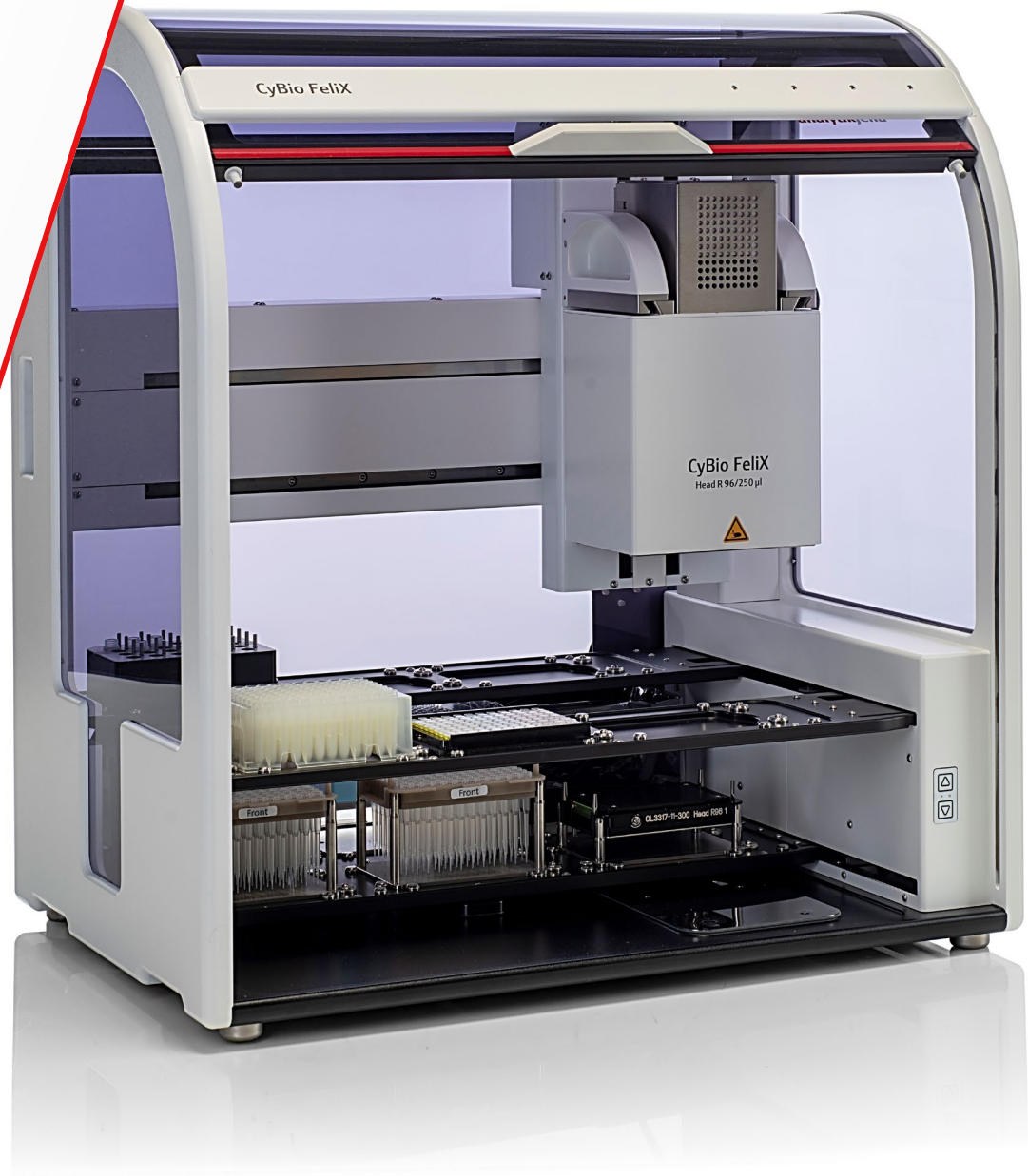
SureTect Automation

Reduce hands-on time, whilst increasing the accuracy and reproducibility of your results, with fully automated lysis and PCR preparation

Time Saving
Rapid set-up and walk-away automation minimizes hands-on time in your workflow.

Accurate
Precise pipetting reduces the risk of human error, improving the reproducibility of results.

Flexible
Up to 6 assays/96 samples per run, with the choice to automate lysis, PCR setup or the complete workflow.



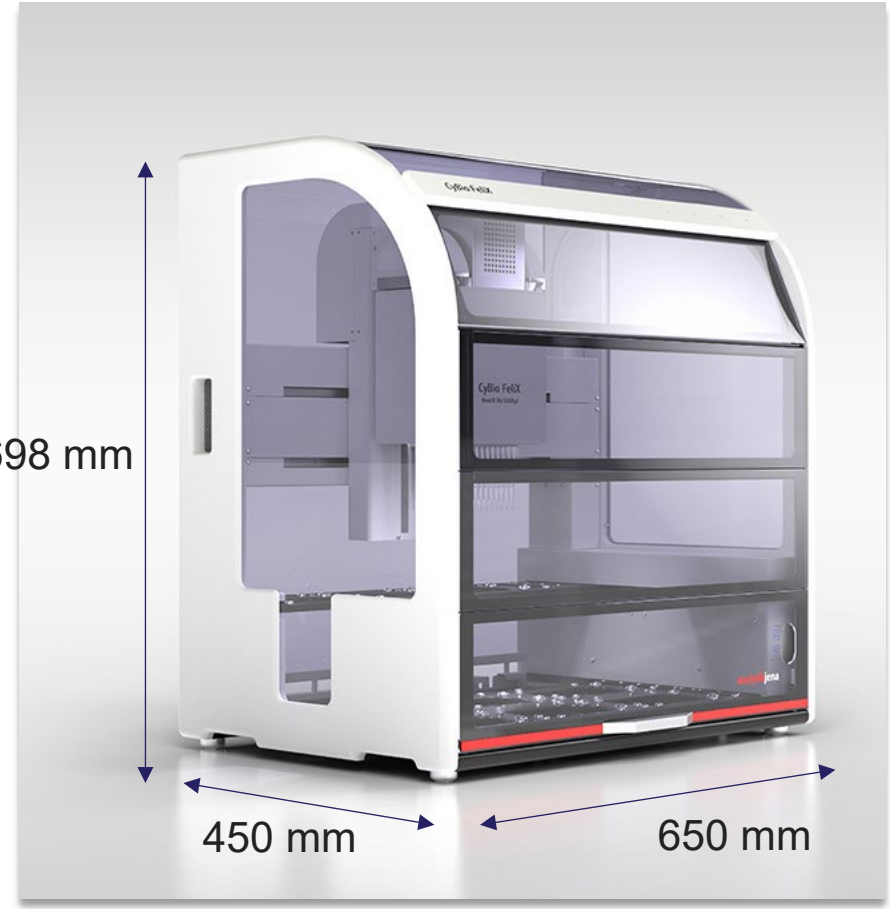
Your laboratory workflow challenges

Why choose automation?

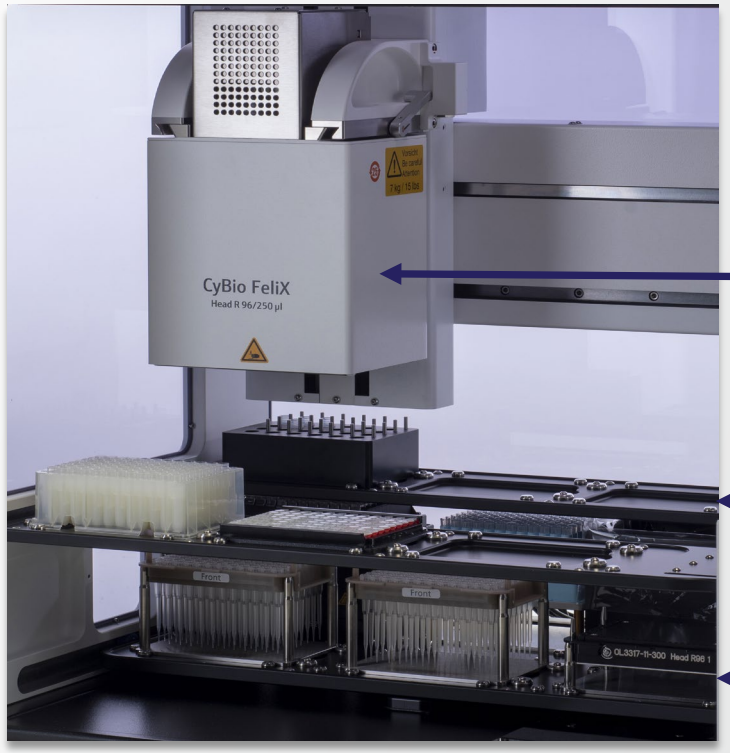
User insight

1. Reduce hands-on time & increase efficiency
2. Increase accuracy and reproducibility
3. Cost and resource savings
4. Simplify usability of the workflow
5. Reduce cross-contamination risk
6. Shortage of skilled technicians available

CyBio FeliX Instrument



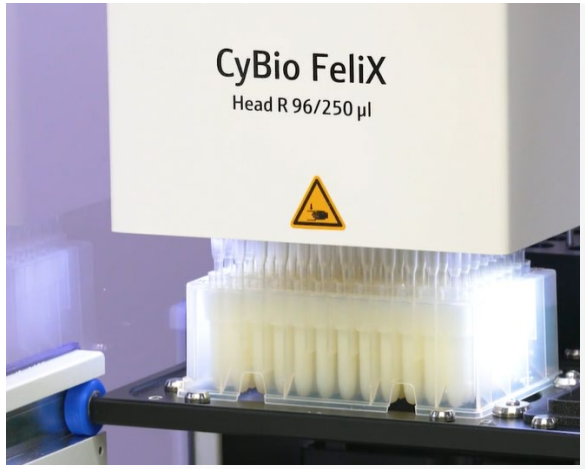
- ✓ Compact design with unique 2-level deck design suitable for any laboratory
- ✓ Factory calibrated
- ✓ Installation of Software, Plug and Play
- ✓ Easy to use instrument
- ✓ Weight = 58 Kg



Innovative 2-deck levels to reduce space

SureTect Automation Workflow head options

Flexible head options to suit every lab



Head R 96

- Up to 96 sample pipetting
- Shorter run time (around 40 minutes)
- Just 4-5 minutes hands-on time
- Full walk-away solution

CHOICE™ Head

- Simultaneous up to 8 sample pipetting
- Slightly longer run time (53 minutes)
- Just 4-5 minutes hands-on time

- ✓ **Preventive Maintenance**
- ✓ **High priority service contract option**
- ✓ **Head Exchange Program option**

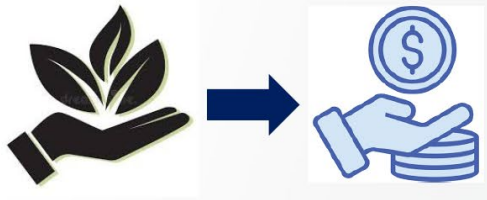
SureTect Automation Flex Package

To make Felix more Flexible ….

- Flex Package configuration
- How does it work?
- Advantages

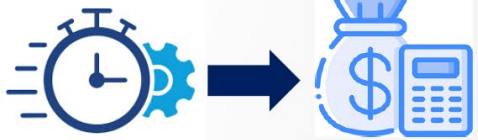
Flex package

To ensure maximum control with SureTect Automation Workflow



- Reduce consumables waste mainly Filter Tips offering a sustainable workflow
- Reduce consumables cost per point

- Offer modular run time based on customer needs and urgency to get results



- Reduce the Piston movement of the Pipetting head, when needed.
- Reduce time to service pipetting Head
- Reduce significantly service cost

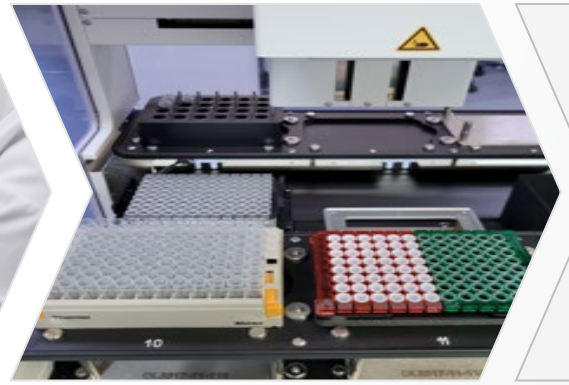
- Continue to offer Full walk away workflow, when needed, with an easy-to-use instrument and friendly software guidance

The perfect balance between cost saving and rapid Time To Results

SureTect Automation Workflow steps

Enrichment

Add sample enrichment to sample tube



Load sample tubes, pipette tips, and reagents

Automated sample lysis & lysis and PCR setup - 40 min for 96 samples

Remove PCR tubes, seal and vortex for 10 seconds and flick to remove droplets

Run PCR ~ 80 mins for 96 samples

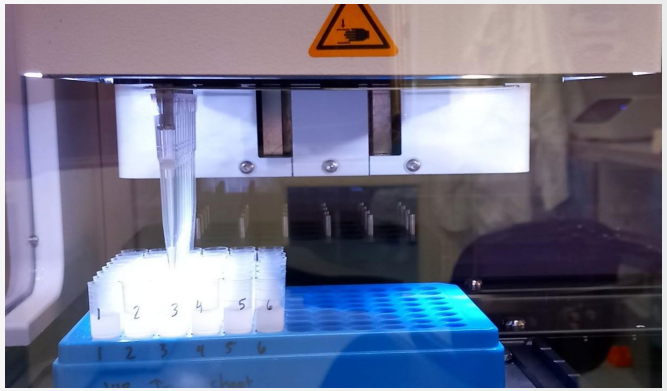
Only 5 minutes hands-on time (27 minutes for manual workflow) to process 96 samples

Just 1 manual pipetting step across the automation workflow

Test up to 96 samples or 6 assays in a single run

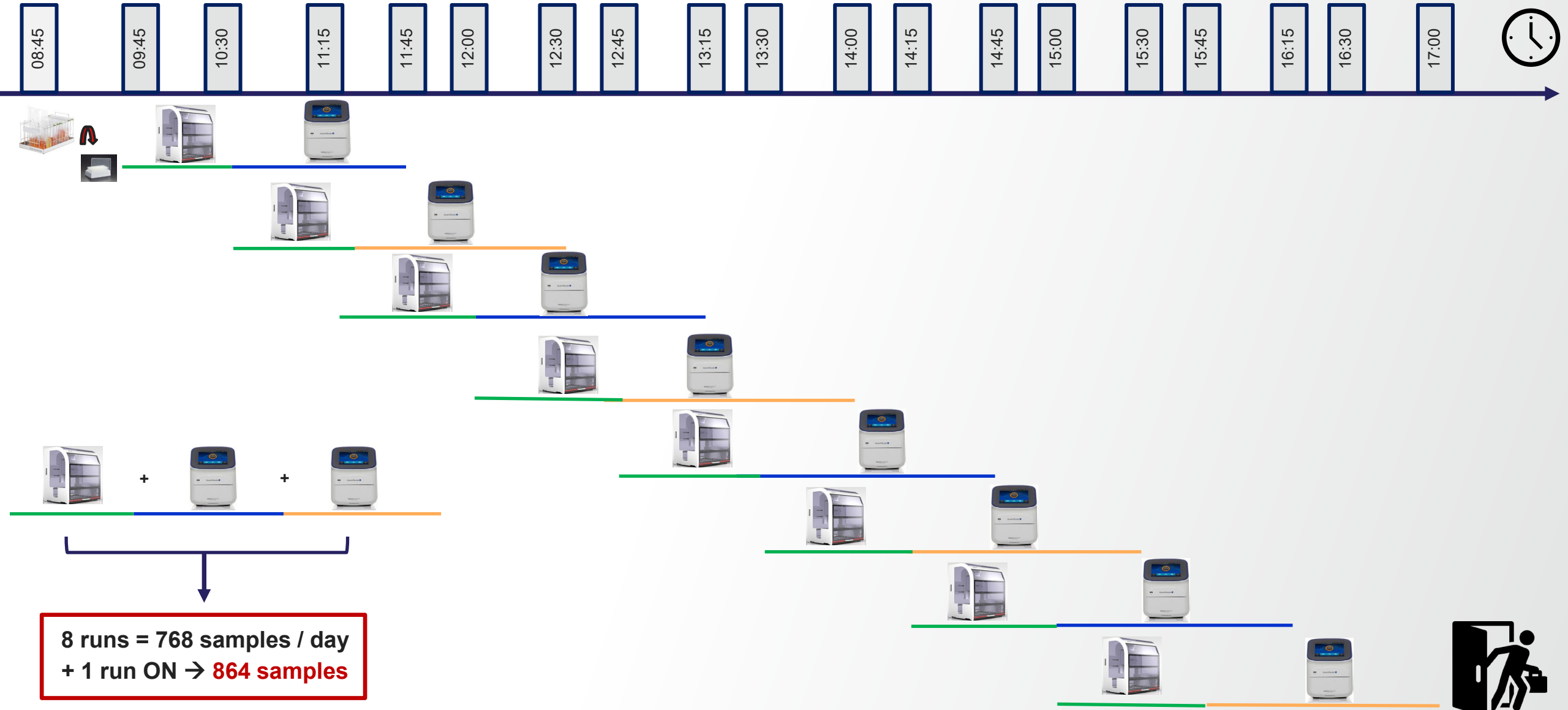
Pre-programmed runs for quick setup

Estimated Run time for 96 samples



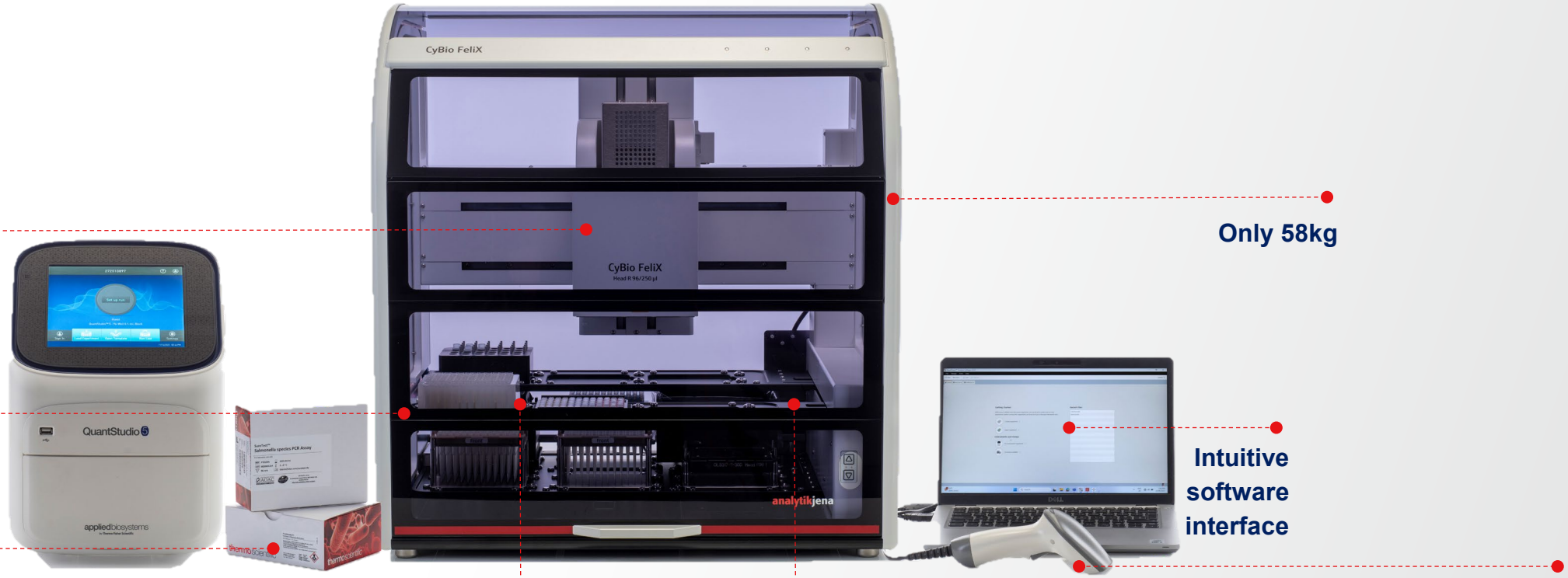
	Manual workflow	Automated Head R 96 workflow	Automated CHOICE head workflow
Run time	42 min	39 min	53 min
Hands-On time	27 min	4-5 min	4-5 min

My day with Felix and 2 x QS5 …



8 runs = 768 samples / day
+ 1 run ON → 864 samples

World class instrumentation for comprehensive portfolio of food safety and quality assays



Choice of pipetting head options

Integrated heating and cooling block

SureTect-specific protocols

Capacity for up to 96 samples/6 assays per run

Innovative, space-saving dual-deck design

Only 58kg

Intuitive software interface

Barcoded sample entry for full traceability and LIMS compatibility

Thermo Fisher Scientific PCR Assays

Ambient shipping conditions
More cost-effective

Pre-dispensed lysis & PCR reagents
Reduces handling steps and risk of operational error

Color-coded lysis & PCR plates with orientation identification
Easy target identification & reduction in human error

Color indicated reagents
Allows for simple tracking while pipetting

Internal Amplification Control (IAC) in every well
Confidence with every result

Compact kit size
Easy storage and organization

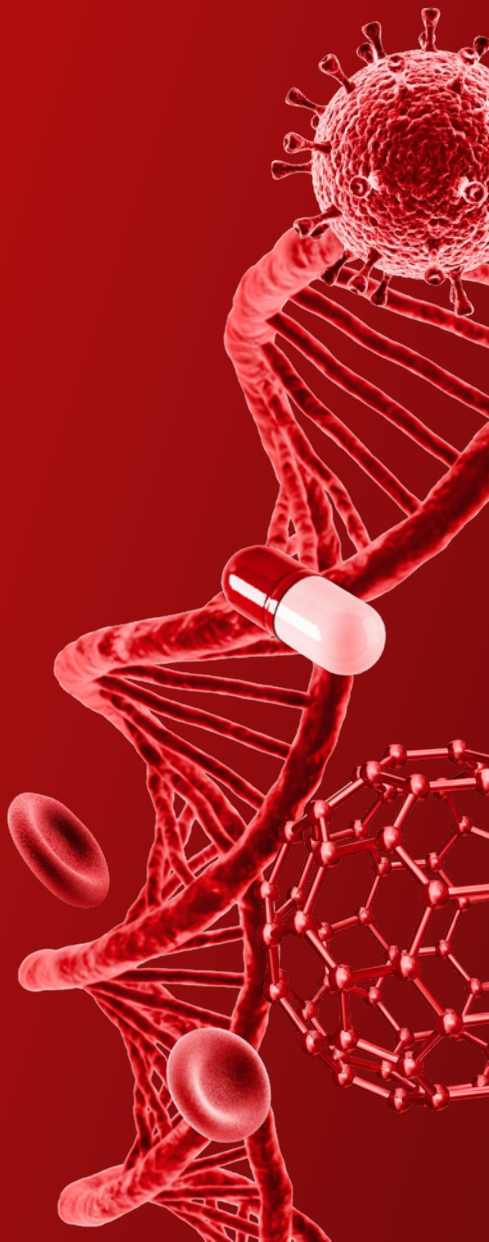
✓ Simple ✓ Smart ✓Fast

Better. Together.

Together we can advance safety & quality

- Flexible solutions for simple & accurate testing
- Consultative technical & application support network
- Global supply chain to support all your testing requirements
- Continued investment in R&D innovation

Thank you

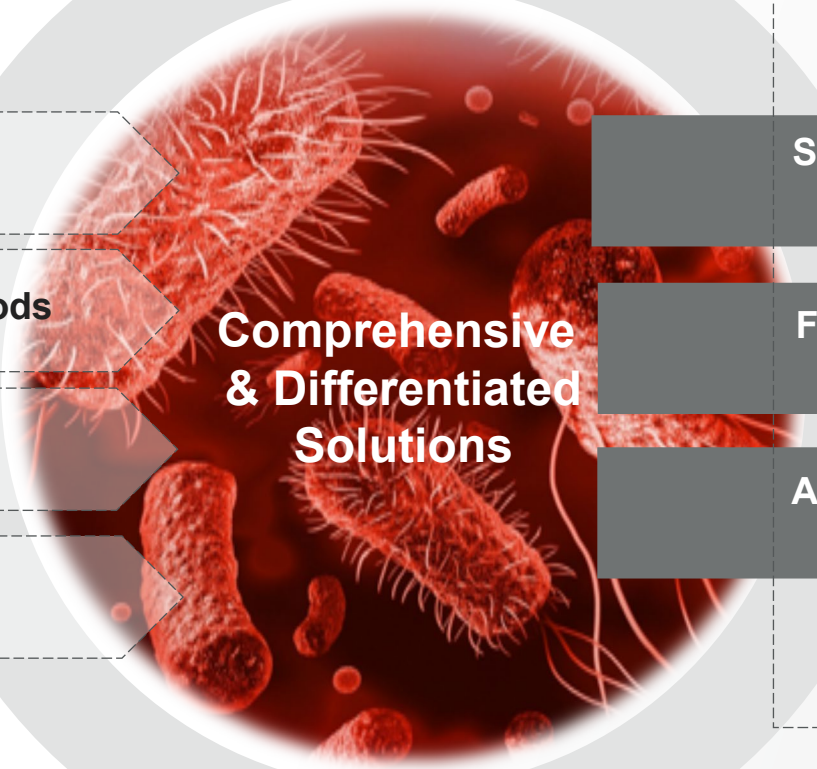


Our solution to food testing

Helping our customers solve their greatest testing challenges

Challenges

- Time to result
- Labor intensive methods
- Handling errors
- Matrix diversity



Food Testing Workflows

- **Simple:** Streamlined for ease of use and efficiency
- **Flexible:** Multiple formats for customizable workflows
- **Accurate:** Third party certified methods and high-quality standards

Results you can count on

We offer simple, flexible and accurate solutions to address the unique testing needs of food customers

Complete pathogen detection in a single assay

SureTect Lysis Plate
Pre-filled with Lysis Reagent 1

Lysis Reagent 2
Listeria & S. aureus kits only

Pierceable Seals

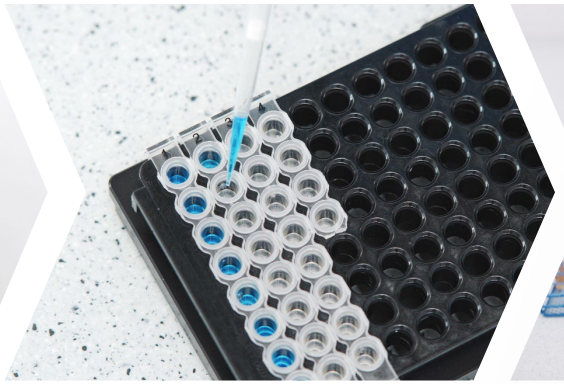
Blue Proteinase K Reagent

SureTect PCR Assay Plate

Optical PCR Caps

SureTect PCR Assay manual workflow

Enrichment



Using stepper pipette, add 10 µL of Proteinase K Reagent to Lysis Tubes

Add 10 µL of sample enrichment

10 minutes at 37°C then 5 minutes at 95°C

Multi-channel pipette

Transfer 20 µL of DNA lysate to PCR tube

Vortex for 10 seconds
Flick to remove droplets

Run PCR

SureTect Food Safety PCR System Software

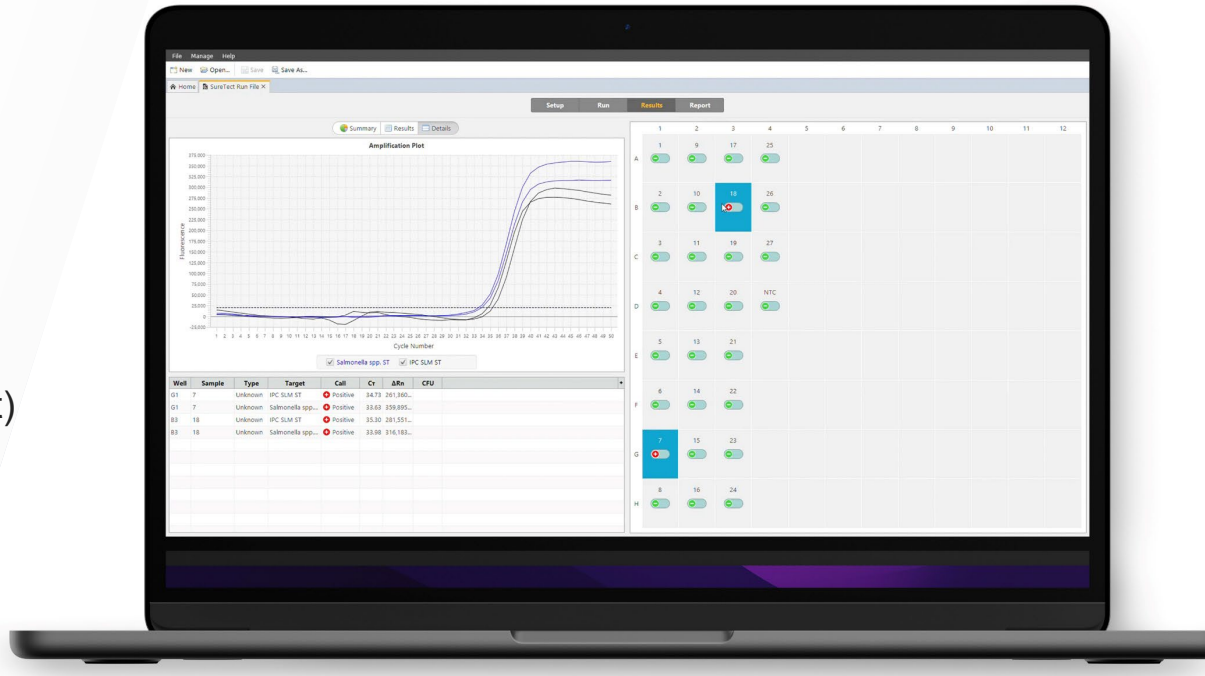
Thermo Scientific™ RapidFinder™ Analysis Software v3.0

Simple set-up

- Intuitive sample set-up
- Flexible plate layout
- Pre-set, optimized thermal cycling conditions per target
- Interrogation of results for the whole plate, grouped by sample, or for individual PCR tubes

Automatic data interpretation

- Automatically generates results (presence or absence of the target)
- Quick interpretation of data with flags, notifications, and prompts
- Detailed report generation for printing or export
- Interoperability with LIMS or similar data management tool for importing plate set-up and exporting assay results



Ease of use from kit files and ease of data interpretation –red or green light