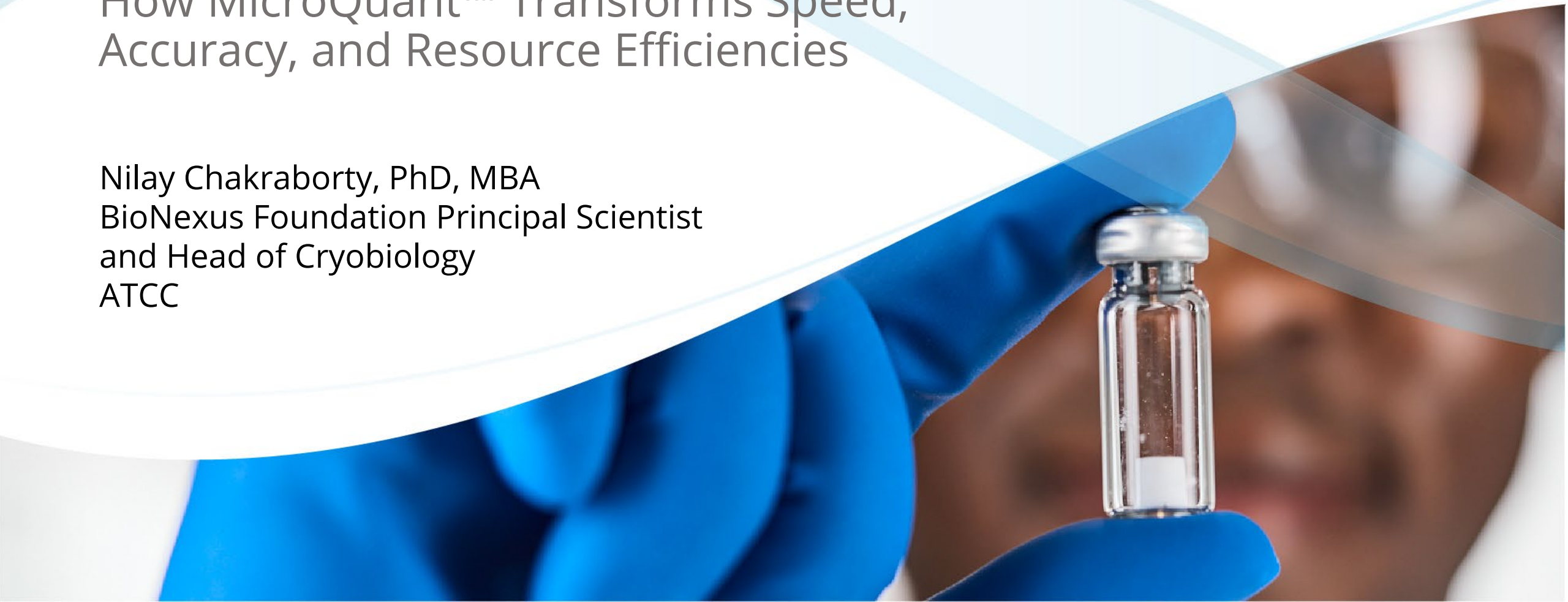
Innovating Microbial QC

How MicroQuant™ Transforms Speed, Accuracy, and Resource Efficiencies

Nilay Chakraborty, PhD, MBA
BioNexus Foundation Principal Scientist
and Head of Cryobiology
ATCC



Introduction to today's speaker

Nilay Chakraborty, PhD, MBA

BioNexus Foundation Principal Scientist and Head of Cryobiology

ATCC

Dr. Chakraborty specializes in biopreservation and innovative product development. With an engineering background and degrees from Indian Institute of Engineering Science and Technology and University of North Carolina, he pioneered biopreservation and cell-based technologies that focus on innovative delivery formats. During his tenure at the Center for Engineering in Medicine at Harvard Medical School, Massachusetts General Hospital, and Shriners Burns Hospital, he continued research in biopreservation, delivery formats, and cell-based technologies. Previously a tenured Associate Professor at the University of Michigan, Dearborn, he now leads ATCC's efforts in preservation sciences and advanced strategic biological product development.

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About ATCC

ATCC is a global leader in providing authenticated, high-quality biological resources and standards for industry, academia, and government.

- Founded in 1925
- Private, nonprofit, global biological resource center and standards organization
- Provides scientists with the biomaterials and resources:
  - 80,000+ microorganisms
  - 4,000+ cell lines
  - Standards & controls
  - Media, sera, and reagents
  - Advanced cell models
  - ATCC Genome Portal
    - 6,500 genomes
    - 3,000 transcriptomes
    - 500 exomes

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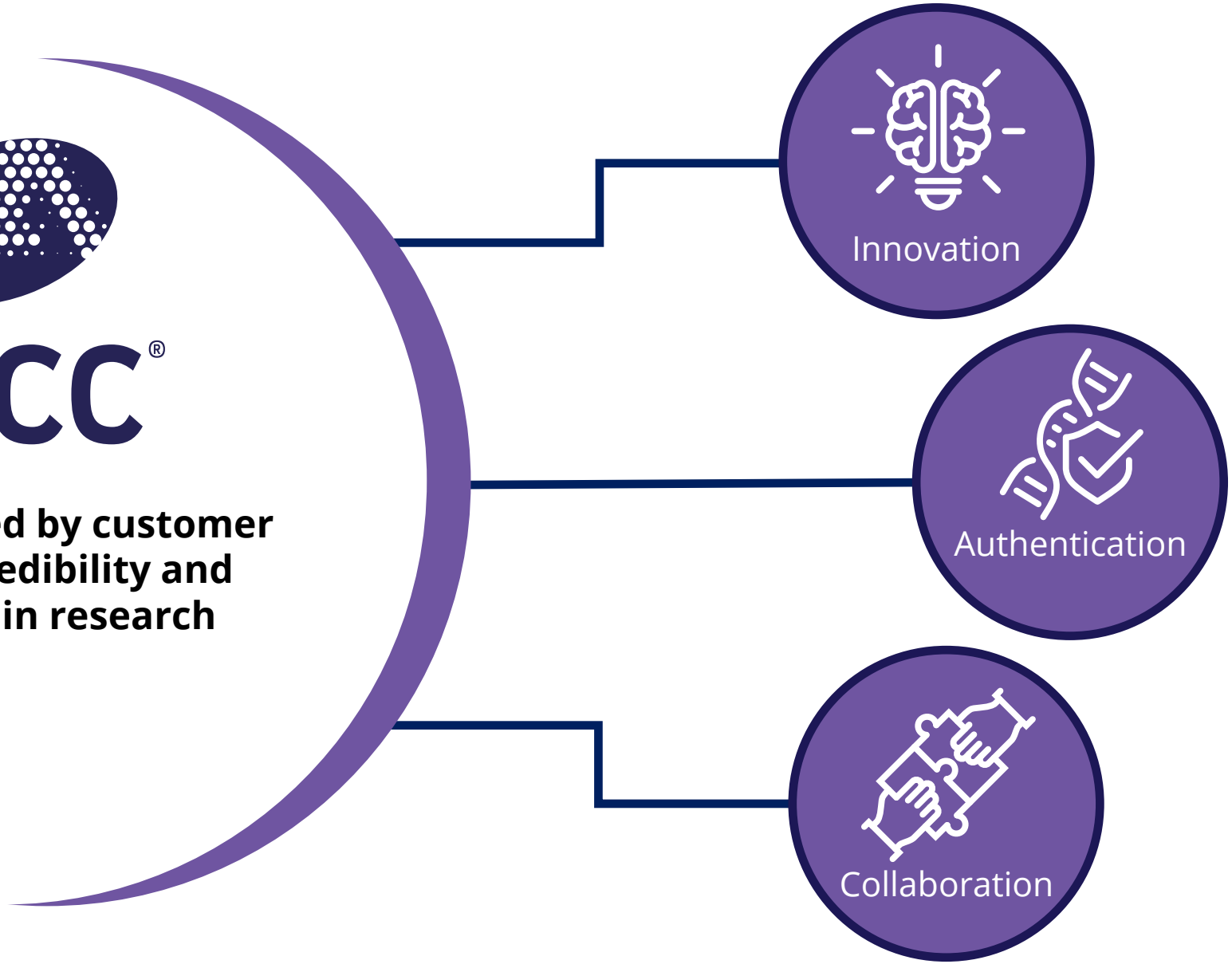
Enabling scientific progress for over 100 years

ATCC®

We are inspired by customer needs for credibility and efficiencies in research



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Innovative products for life science research


Biologics production


Cell & gene therapy development


Vaccine development


Quality & safety testing

Comprehensive collection of advanced cell models and microbial reference materials that support biologics production

- Bioproduction cell lines and cell lines for enhanced virus production
- Analytical reference materials for residual host cell DNA testing
- Viral reference materials for evaluating the dose and potency of gene therapy products
- Purified polysaccharides and infectious disease strains for vaccine development
- Microbial quality control strains specified in standards and guidelines by organizations and regulatory agencies (USP, EP, ISO, FDA, CLSI, USDA, ASTM, AOAC, WHO)

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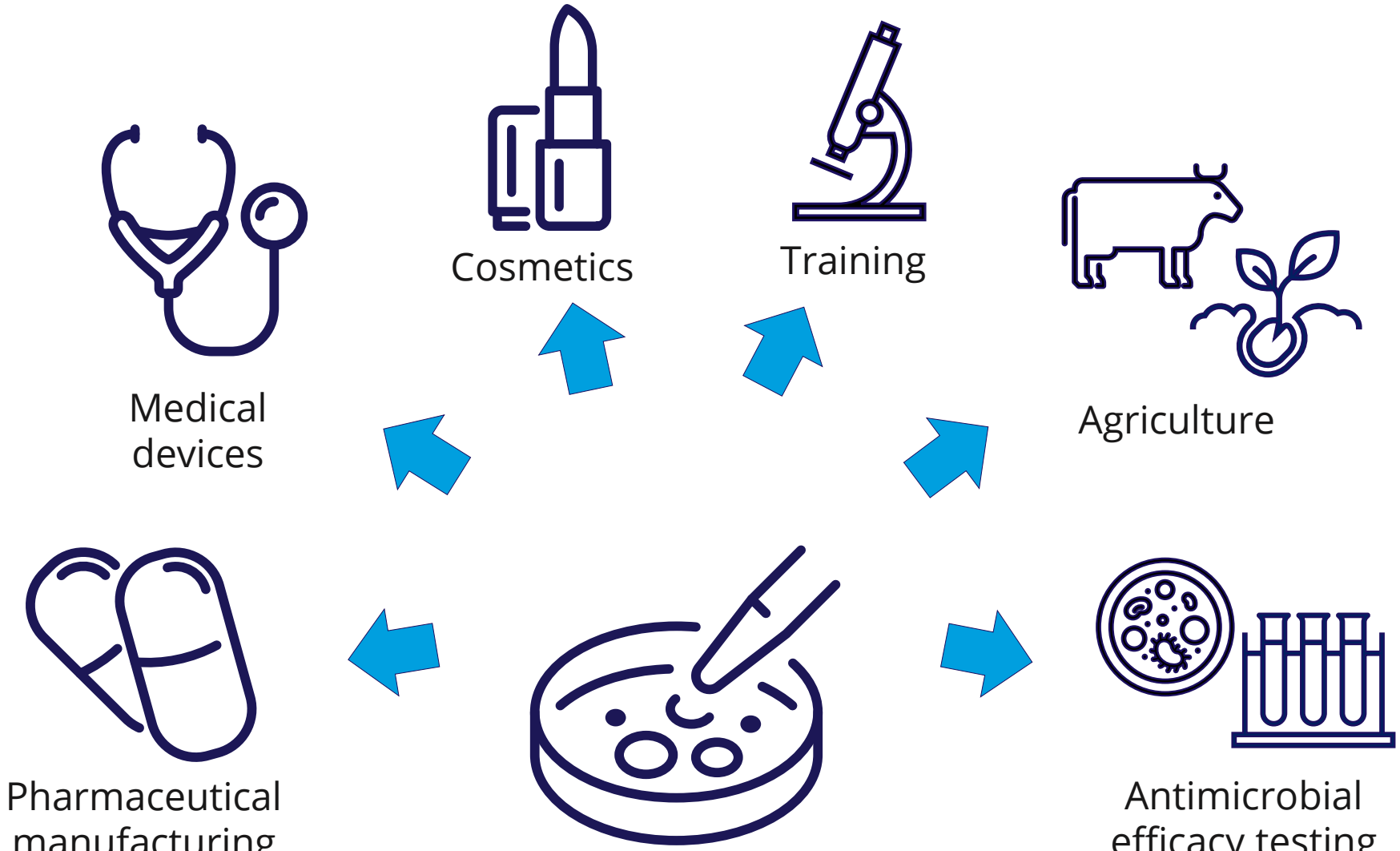
Applications for quantified microbial control strains



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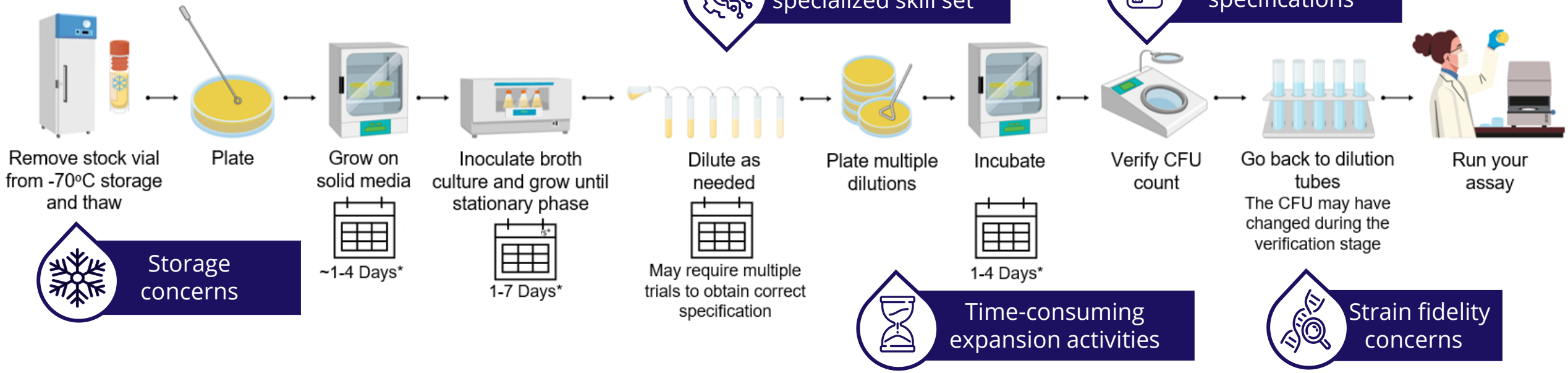
Challenges when using microbial reference strains

The traditional microbe culture workflow



*Different species require varying incubation times

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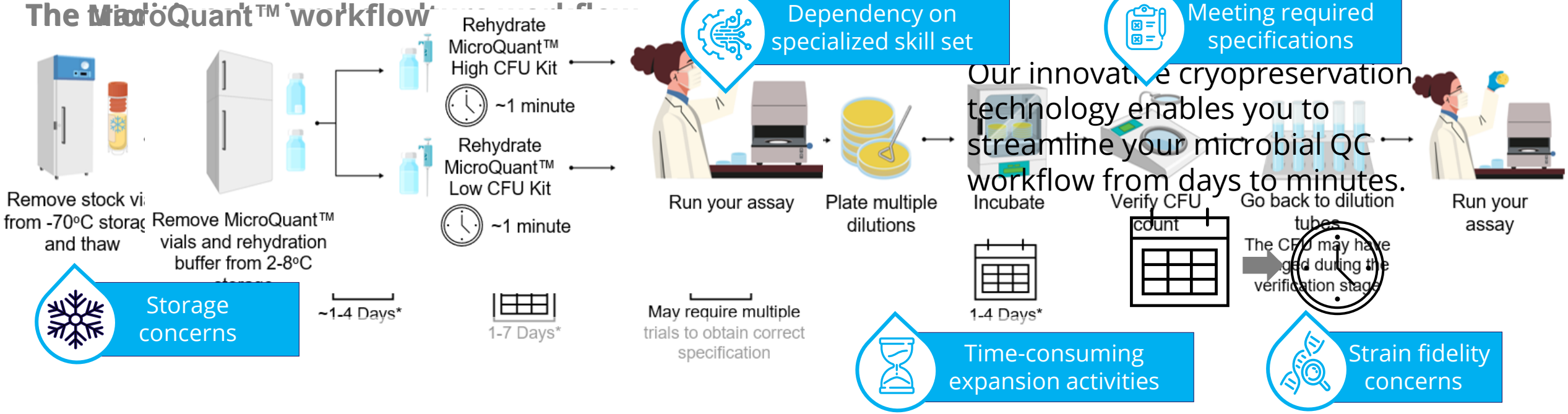
MicroQuant™
by ATCC®

Simplified workflow using MicroQuant™



Our innovative cryopreservation technology enables you to streamline your microbial QC workflow from days to minutes.

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*Different species require varying incubation times

Meeting the challenge through cryobiology

ATCC developed an innovative preservation technique that delivers:

- A stable, pelleted format that rehydrates rapidly and uniformly
- Precise quantitation of biological materials
- Convenient refrigeration storage

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Introducing MicroQuant™ by ATCC®

Precision in every pellet, trust in every test

A ready-to-use solution to help you streamline microbial QC testing

- Precisely quantitated in high-titer and low-titer pelleted formats
- Single-use format using an innovative, proprietary preservation technology
- Rapid, uniform rehydration in less than a minute
- Easy to store and ready to use anytime—no need to thaw
- Passage zero ATCC materials manufactured under ISO 17034

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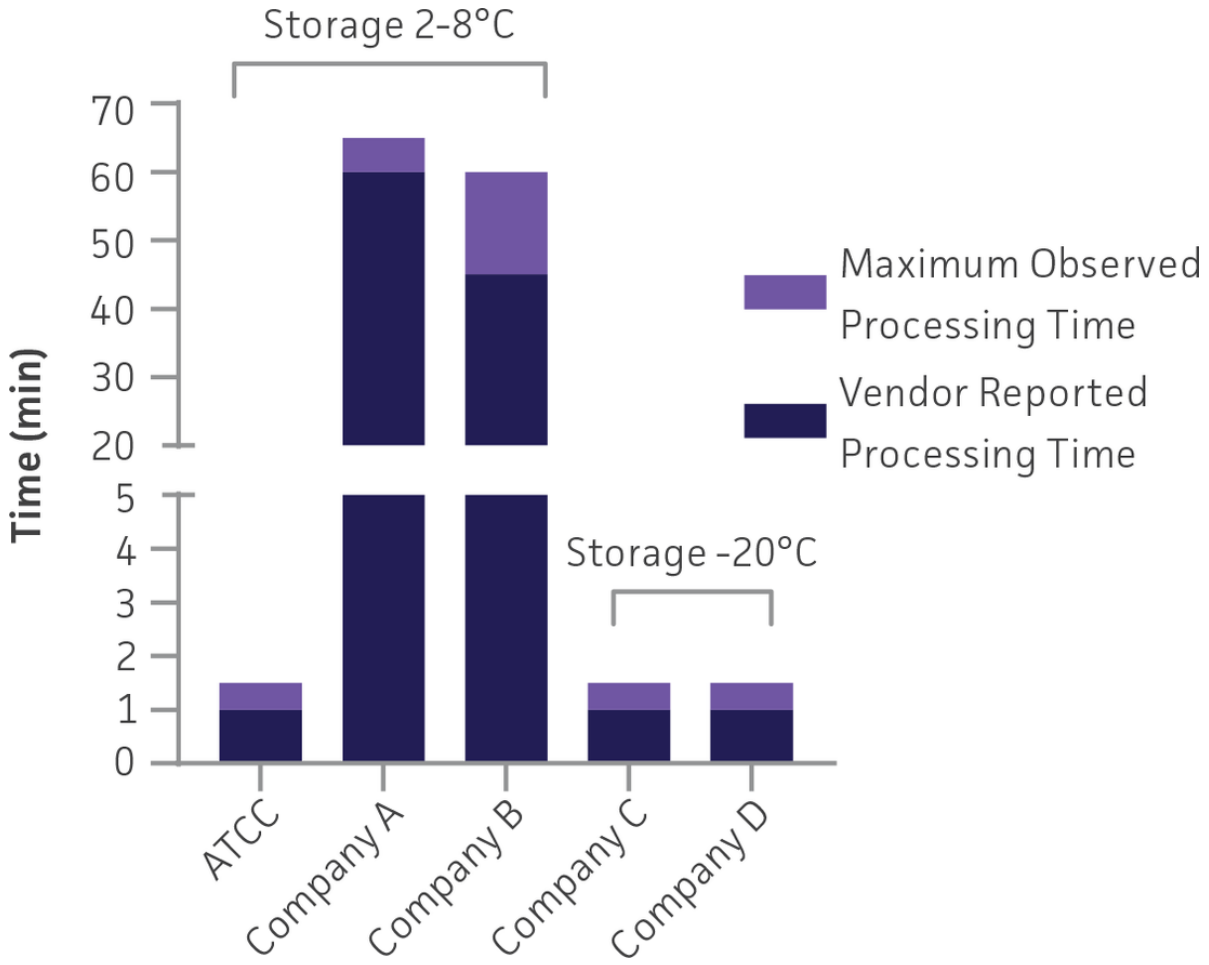
MicroQuant™ solves the ‘limited resources’ problem

An easy-to-use control product with storage at convenient temperatures



MicroQuant™ only requires **refrigerated storage.**

It outperforms competitive products stored by refrigeration and performs at least as well as products stored at -20°C.

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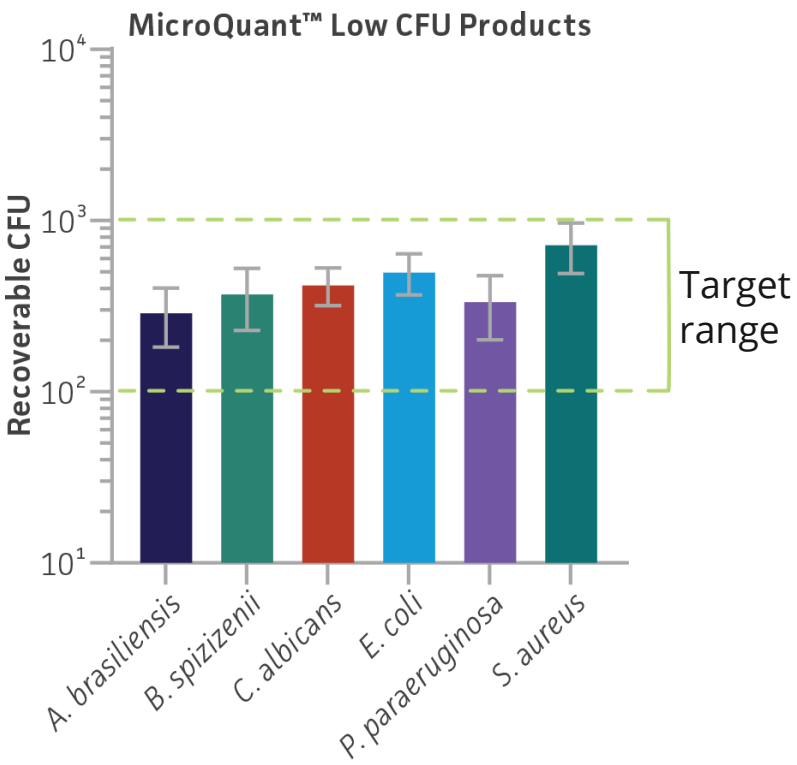
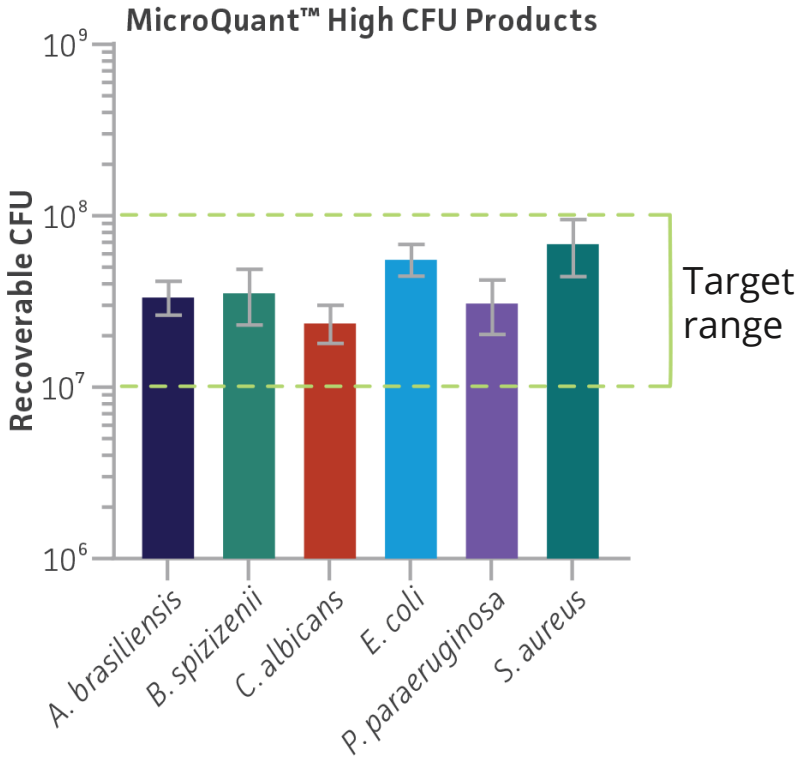
MicroQuant™ solves ‘process complexity’

The value to teams who make internal control banks





What does this mean for you?

- No culture management
- Reduced QC testing
- Reduced inventory management
- Enhanced consistency
- Faster workflows

Each bar represents a minimum of 12 datapoints, error bars show standard deviation.

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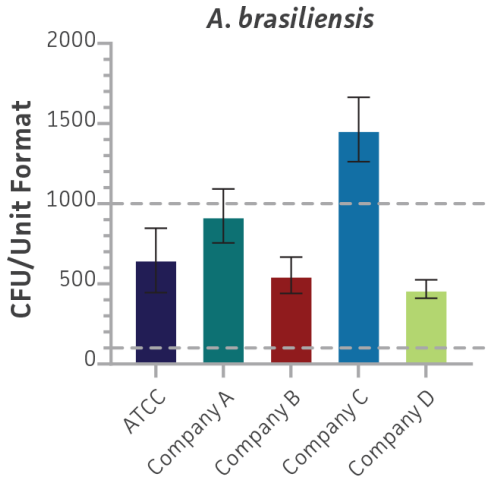
MicroQuant™: Precise and consistent quantitation

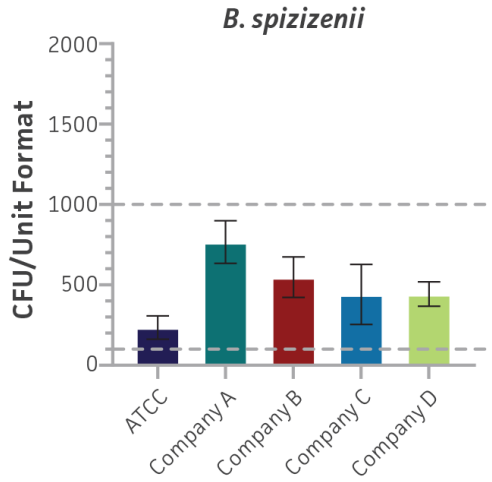
Precise and accurate low CFU pellets for bioburden testing

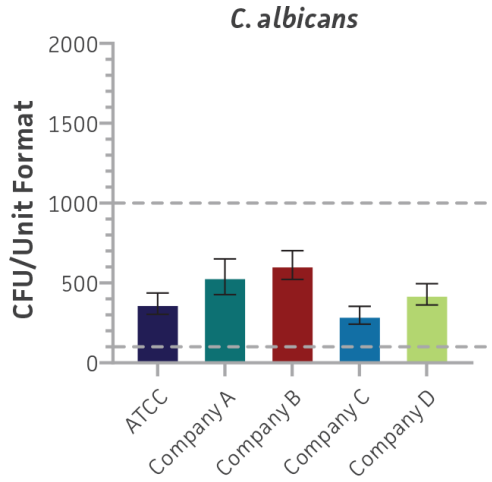
In benchmark tests of comparable low CFU products, MicroQuant™ performs as well as or better than other products on the market.

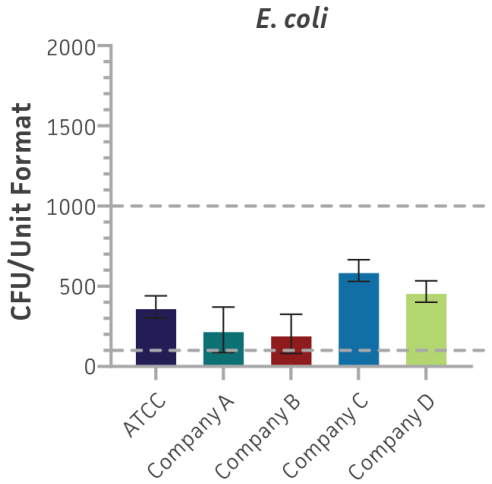
Benchmarking for to 1,000 CFU

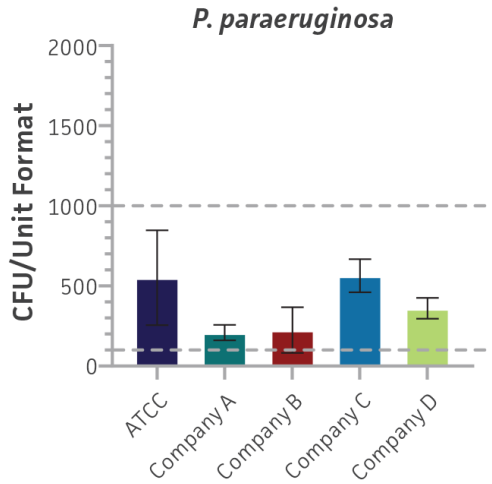
Each bar represents a minimum of 12 data points, error bars show standard deviation.

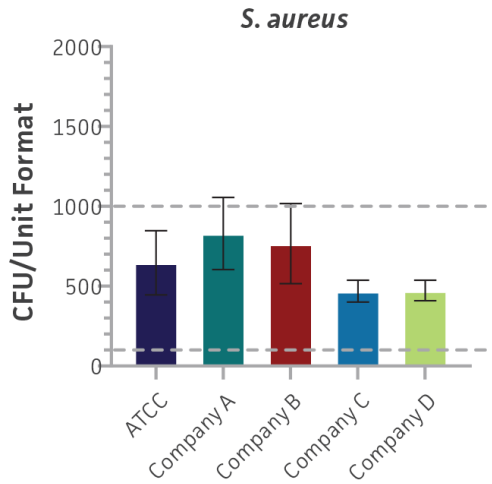












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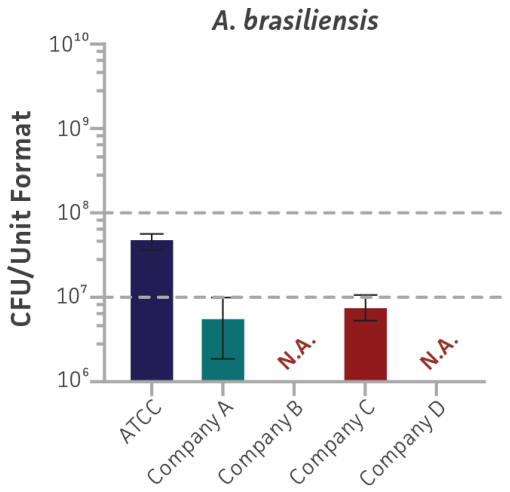
MicroQuant™: Precise and consistent quantitation

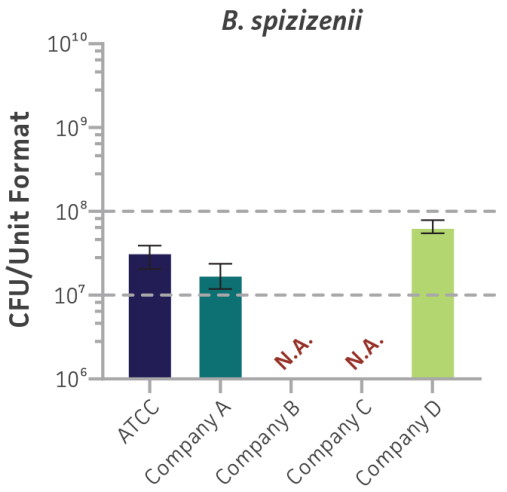
Precise & accurate high CFU pellets for antimicrobial effectiveness testing

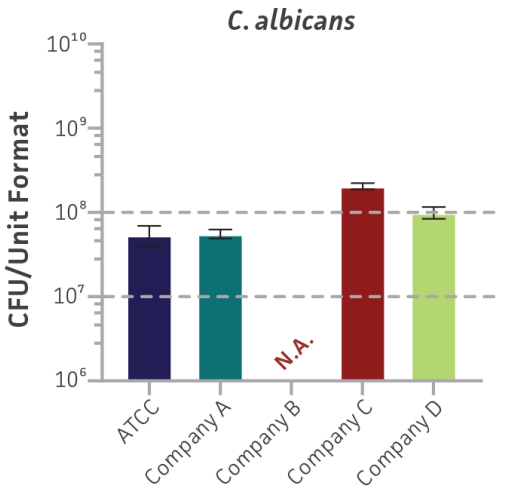
In benchmark tests of comparable high CFU products, MicroQuant™ performs as well as or better than other products on the market.

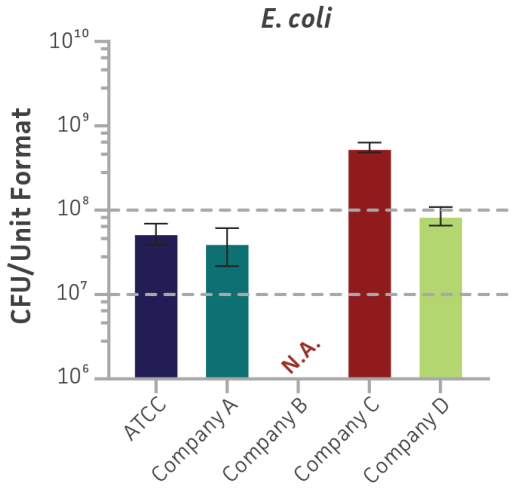
Benchmarking for 10^7 to 10^8 CFU products

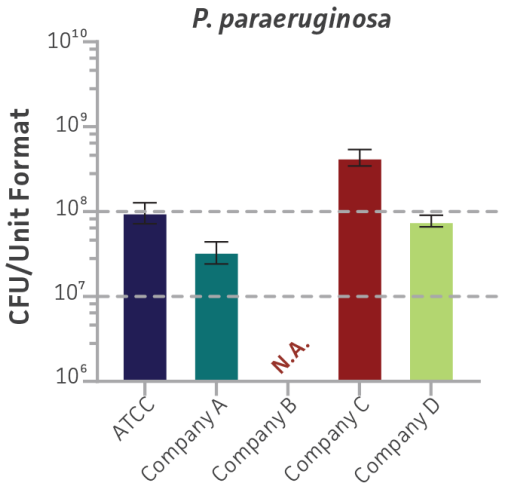
Each bar represents a minimum of 12 data points, error bars show standard deviation. N.A. = Not available at time of testing.

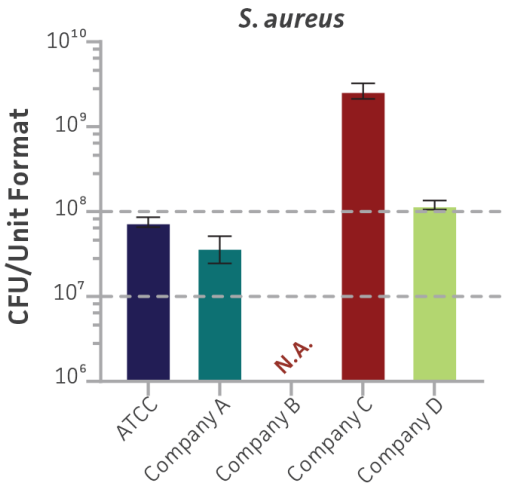












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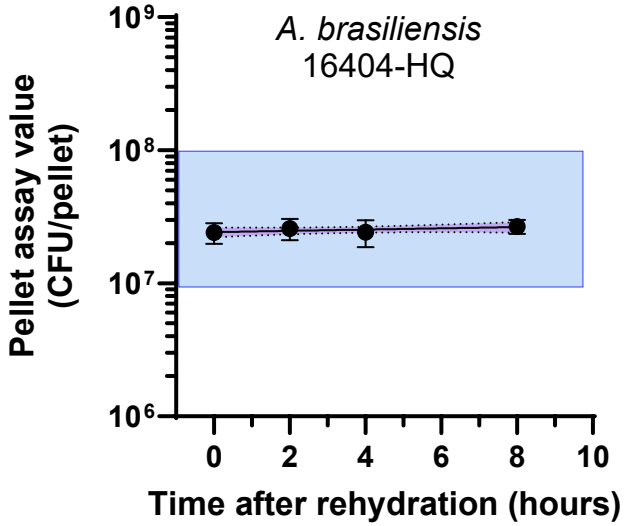
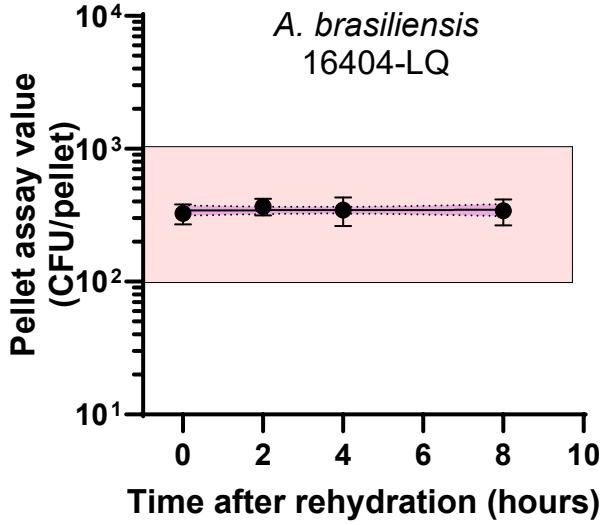
Usability of MicroQuant™ products after rehydration





Organism	ATCC catalog	Usability (hours)	
		4°C	Room temp 22.3 ± 1.5°C
A. brasiliensis	16404-HQ-PACK™	8	8
	16404-LQ-PACK™	8	8
B. spizizenii	6633-HQ-PACK™	8	7
	6633-LQ-PACK™	8	8
C. albicans	10231-HQ-PACK™	8	8
	10231-LQ-PACK™	8	8
E. coli	8739-HQ-PACK™	8	8
	8739-LQ-PACK™	8	8
P. paraeruginosa	9027-HQ-PACK™	8	7
	9027-LQ-PACK™	8	8
S. aureus	6538-HQ-PACK™	8	8
	6538-LQ-PACK™	8	8
C. sporogenes	19404-HQ-PACK™	8	8
	19404-LQ-PACK™	8	8
C. acnes	11827-HQ-PACK™	8	8
	11827-LQ-PACK™	8	8

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Recovery of low CFU MicroQuant with selective media

Based on USP<62> guidelines for bioburden testing on selective media

Selective Medium for USP<62>	Test Strains / Target Organism	Recovery compared to TSA (%)
Violet Red Bile Glucose Agar	*E. coli* (ATCC® 8739-LQ-PACK™)	**71 ± 19**
	P. paraeruginosa (ATCC® 9027-LQ-PACK™)	**68 ± 18**
MacConkey Agar	*E. coli* (ATCC® 8739-LQ-PACK™)	**88 ± 16**
Xylose Lysine Deoxycholate Agar	*S. enterica* (ATCC® 14028-LQ-PACK™)	**70 ± 14**
Cetrimide Agar	*P. paraeruginosa* (ATCC® 9027-LQ-PACK™)	**82 ± 11**
	E. coli (ATCC® 8739-LQ-PACK™)	Negative Control
Mannitol Salt Agar	*S. aureus* (ATCC® 6538-LQ-PACK™)	**83 ± 11**
	E. coli (ATCC® 8739-LQ-PACK™)	Negative Control
Reinforced Medium for Clostridia	*C. sporogenes* (ATCC® 11437-LQ-PACK™)	**100 ± 14**
	C. sporogenes (ATCC® 19404-LQ-PACK™)	**114 ± 13**
Sabouraud Dextrose Agar	*C. albicans* (ATCC® 10231-LQ-PACK™)	**107 ± 29**

TSA-Tryptic soy agar

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How MicroQuant™ compares to similar products

Features	MicroQuant™ by ATCC®	Company A	Company B	Company C	Company D
Processing time ~1 minute	✓			✓	✓
2-8°C refrigeration storage	✓	✓	✓		
Manufactured under ISO 17034	✓	✓	✓	✓	✓
Includes all strains for USP <51> (High CFU format)	✓	✓*		✓*	✓*
Includes all strains for USP <61> (Low CFU format)	✓	✓	✓	✓	✓
Product kit includes rehydration buffer	✓	✓	✓	✓	
Sourced from ATCC®	✓	✓	✓		

*Some strains were not available for purchase at the time of testing

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MicroQuant™ saves time and cost

Versus preparing internal controls

Based on USP<62> guidelines for bioburden testing on selective media

86%

of labor time is saved when using MicroQuant™ versus preparing internal controls manually

83%

cost reduction is achieved using MicroQuant™ versus using internally prepared controls

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Pharmacopeias supported by MicroQuant™

For microbial quality control testing

- Antimicrobial Effectiveness Testing (USP <51>, EP 5.1.3, JP 4.05 I)
- Test for *Burkholderia cepacia* Complex (USP <60>)
- Microbial Enumeration Tests (USP <61>, EP 2.6.12, JP 4.05 I)
- Tests for Specified Microorganisms (USP <62>, EP 2.6.13, JP 4.05 II)
- Sterility Test (USP <71>, EP 2.6.1, JP 4.06)
- Respiration-Based Microbiological Methos for Short-Life Products (USP <72>)
- Disinfectants and Antiseptics (USP <1072>)

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Summary for MicroQuant™

- Streamline microbial quality control testing
- Precisely quantitated
  - High-titer (HQ; 10^7 to 10^8 CFU per vial)
  - Low-titer (LQ; 100 to 1,000 CFU per vial)
- Single-use format for fast assay setup & minimal handling.
- Developed from traceable, original source materials provided at Passage zero
- Immediate rehydration at room temperature with an 8-hour usability window
- Stable storage at 2-8°C
- Manufactured under an ISO 17034–accredited process

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What MicroQuant™ products are available?

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Explore the MicroQuant™ portfolio

Low CFU = 100 to 1,000 CFU/vial

ATCC® No.	Description
10231-LQ-PACK™	MicroQuant™ Candida albicans, low CFU
9027-LQ-PACK™	MicroQuant™ Pseudomonas paraeruginosa, low CFU
6538-LQ-PACK™	MicroQuant™ Staphylococcus aureus subsp. aureus, low CFU
16404-LQ-PACK™	MicroQuant™ Aspergillus brasiliensis, low CFU
8739-LQ-PACK™	MicroQuant™ Escherichia coli, low CFU
6633-LQ-PACK™	MicroQuant™ Bacillus spizizenii, low CFU
25416-LQ-PACK™	MicroQuant™ *Burkholderia cepacia*, Low CFU, Pack of 5
BAA-245-LQ-PACK™	MicroQuant™ *Burkholderia cenocepacia*, Low CFU, Pack of 5
BAA-247-LQ-PACK™	MicroQuant™ *Burkholderia multivorans*, Low CFU, Pack of 5
14028-LQ-PACK™	MicroQuant™ *Salmonella enterica*, Low CFU, Pack of 5
19404-LQ-PACK™	MicroQuant™ *Clostridium sporogenes*, Low CFU, Pack of 5
11437-LQ-PACK™	MicroQuant™ *Clostridium sporogenes*, Low CFU, Pack of 5
11827-LQ-PACK™	MicroQuant™ *Cutibacterium acnes*, Low CFU, Pack of 5
10106-LQ-PACK™	MicroQuant™ *Penicillium chrysogenum*, Low CFU, Pack of 5
11229-LQ-PACK	MicroQuant™ *Escherichia coli*, low CFU (Pack of 5)
15442-LQ-PACK	MicroQuant™ *Pseudomonas aeruginosa*, low CFU (Pack of 5)
19659-LQ-PACK	MicroQuant™ *Bacillus subtilis*, low CFU (Pack of 5)
11709-LQ-PACK	MicroQuant™ *Penicillium chrysogenum*, low CFU (Pack of 5)

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Explore the MicroQuant™ portfolio

High CFU = 10^7 to 10^8 CFU/vial

ATCC® No.	Description
10231-HQ-PACK™	MicroQuant™ Candida albicans, high CFU
9027-HQ-PACK™	MicroQuant™ Pseudomonas paraeruginosa, high CFU
6538-HQ-PACK™	MicroQuant™ Staphylococcus aureus subsp. aureus, high CFU
16404-HQ-PACK™	MicroQuant™ Aspergillus brasiliensis, high CFU
8739-HQ-PACK™	MicroQuant™ Escherichia coli, high CFU
6633-HQ-PACK™	MicroQuant™ Bacillus spizizenii, high CFU
25416-HQ-PACK™	MicroQuant™ *Burkholderia cepacia*, High CFU, Pack of 5
BAA-245-HQ-PACK™	MicroQuant™ *Burkholderia cenocepacia*, High CFU, Pack of 5
BAA-247-HQ-PACK™	MicroQuant™ *Burkholderia multivorans*, High CFU, Pack of 5
14028-HQ-PACK™	MicroQuant™ *Salmonella enterica*, High CFU, Pack of 5
19404-HQ-PACK™	MicroQuant™ *Clostridium sporogenes*, High CFU, Pack of 5
10106-HQ-PACK™	MicroQuant™ *Penicillium chrysogenum*, High CFU, Pack of 5
11229-HQ-PACK	MicroQuant™ *Escherichia coli*, high CFU (Pack of 5)
15442-HQ-PACK	MicroQuant™ *Pseudomonas aeruginosa*, high CFU (Pack of 5)
19659-HQ-PACK	MicroQuant™ *Bacillus subtilis*, high CFU (Pack of 5)
11709-HQ-PACK	MicroQuant™ *Penicillium chrysogenum*, high CFU (Pack of 5)

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Explore the MicroQuant™ portfolio

- For U.S., 20% discount pricing built into the panels below
- For non-U.S., check with your ATCC Distributor
  - www.atcc.org/support/determine-your-distributor

Find the "Find Distributor" link in the webinar console

ATCC® No.	Product Name	Description
MQ-51™	MicroQuant™ Antimicrobial Effectiveness Panel	A panel comprising the five boxes of microbial challenge organisms cited in USP <51>.
MQ-61™	MicroQuant™ Microbial Examination of Nonsterile Products Panel	A panel comprising the five boxes of microbial challenge organisms cited in USP <61>.
MQ-60™	MicroQuant™ Microbial Examination of Nonsterile Products: Tests for Burkholderia Cepacia Complex Panel	A panel comprising the five boxes microbial challenge organisms cited in USP <60>.
MQ-62™	MicroQuant™ Microbial Examination of Nonsterile Products: Tests for Specified Microorganisms	A panel comprising the seven boxes of microbial challenge organisms cited in USP <62>.
MQ-71™	MicroQuant™ Sterility Tests Panel	A panel comprising the six boxes of microbial challenge organisms cited in USP <71>.

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More information about MicroQuant™

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Access more information

App. Note & ASM Microbe Conference poster sharing results shown within this webinar

APPLICATION NOTE

DEVELOPMENT AND PERFORMANCE EVALUATION OF MICROQUANT™ – QUANTITATIVE, RAPIDLY REHYDRATING REFERENCE MATERIALS FOR STREAMLINED MICROBIAL QUALITY CONTROL TESTING

Quinn Osgood, BSE; Jyoti K Jha, PhD; Rahul Tevatia, PhD; Cara Wilder, PhD; Nilay Chakraborty, PhD, MBA
ATCC, Manassas VA

ABSTRACT

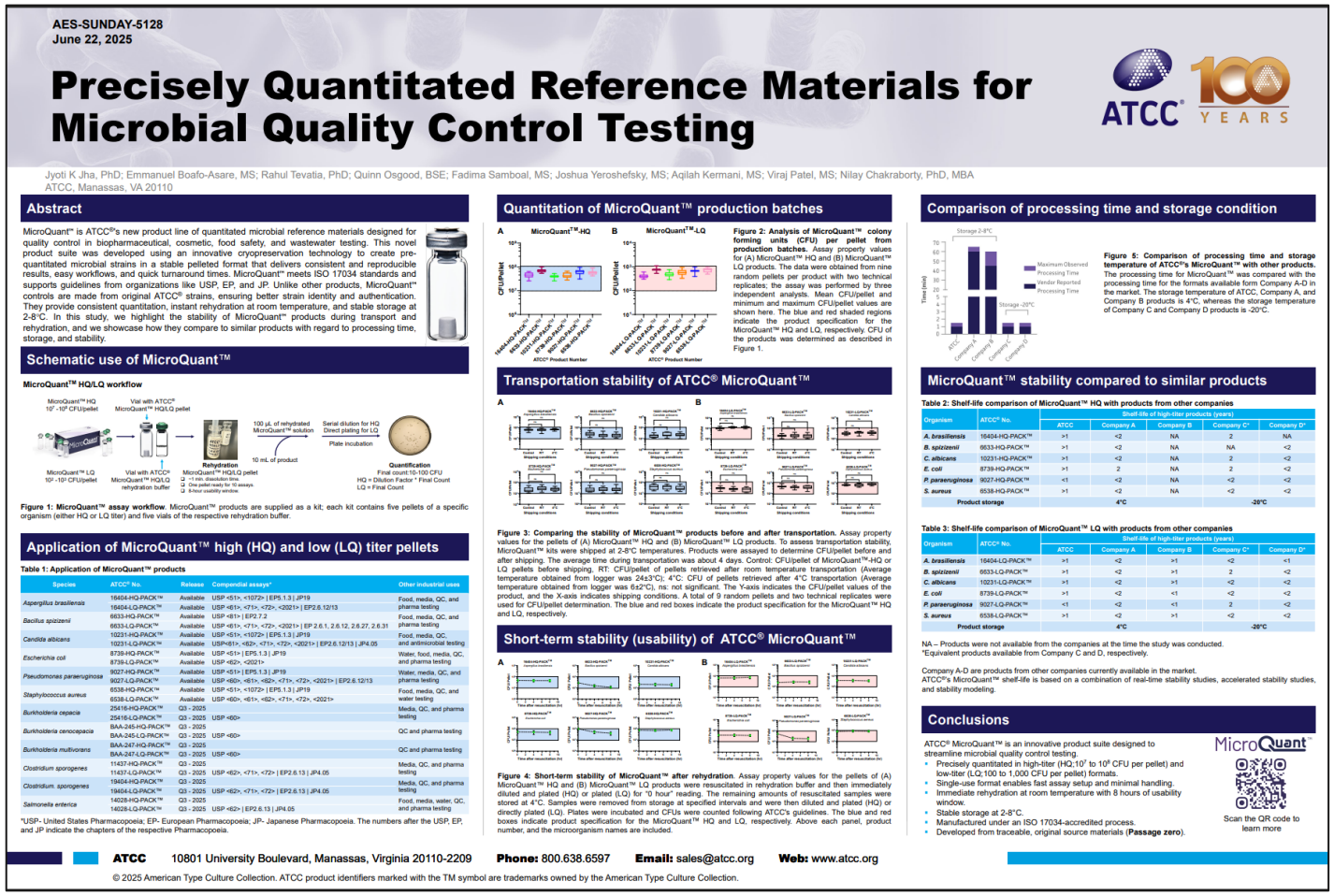
Microbial quality control testing is a cornerstone of pharmaceutical product development and essential for the safety, efficacy, and purity of biological products. To ensure the accuracy of these tests, pharmaceutical manufacturers need full confidence that their microbial controls are authenticated, low passage, and precisely quantitated. Leveraging innovative preservation technologies, ATCC has developed our best-in-class microbial quality control strains in a rapidly rehydrating pelleted format that delivers consistent quantitation. In this study, we demonstrate the performance of this novel suite of products in streamlining microbial quality control testing.

INTRODUCTION

Microbial contamination of pharmaceutical products is one of the leading causes of product recalls in the pharmaceutical industry.[1,2] These recalls can lead to extensive financial losses, regulatory consequences, brand erosion, and reputational damage.[1,2] More importantly, microbial contamination can significantly affect patient health and safety, potentially resulting in permanent disabilities or life-threatening conditions. To ensure product safety and integrity, pharmaceutical manufacturers are required by their respective government agencies to perform robust quality control procedures that, when properly followed, can help identify microbial contamination prior to product release.

Pharmaceutical manufacturers in the United States perform tests such as antimicrobial effectiveness testing, environmental monitoring, growth promotion testing, bioburden testing, sterility testing, and suitability testing as recommended by the United States Pharmacopeia (USP).[3-7] To ensure the accuracy of these tests, the regulatory guidance recommends the use of test strains that are maintained by reputable culture collections like ATCC. While ATCC has consistently met the needs for microbial quality control testing by providing authenticated reference materials, the laboratories performing microbial quality control testing often face infrastructure and resource limitation challenges when preparing control strains for testing.

For instance, many testing laboratories choose to develop and maintain their own internal control banks of reference materials. Creation and maintenance of the control banks requires complex expansion protocols and extensive laboratory space and equipment. These processes can be error prone. Precise quantitation of the reference materials is also a challenge. Several quality control tests require reference materials to be prepared in either a low-titer or high-titer format. Meeting these specifications is traditionally obtained by preparing a culture of the required strain, which can require a significant investment in time and resources. Additionally, accurate quantification and passage of the microbial strains require highly skilled microbiologists to be involved. All these factors can make the process of microbial quality control testing a costly, time-intensive, and often inconvenient affair.



AES-SUNDAY-5128
June 22, 2025

Precisely Quantitated Reference Materials for Microbial Quality Control Testing

Jyoti K Jha, PhD; Emmanuel Boafo-Asare, MS; Rahul Tevatia, PhD; Quinn Osgood, BSE; Fadima Samboal, MS; Joshua Yeroshefsky, MS; Aqilah Kermani, MS; Viraj Patel, MS; Nilay Chakraborty, PhD, MBA
ATCC, Manassas, VA 20110

Abstract

MicroQuant™ is ATCC®'s new product line of quantitated microbial reference materials designed for quality control in biopharmaceutical, cosmetic, food safety, and wastewater testing. This novel product suite was developed using an innovative cryopreservation technology to create pre-quantitated microbial strains in a stable pelleted format that delivers consistent and reproducible results, easy workflows, and quick turnaround times. MicroQuant™ meets ISO 17034 standards and supports guidelines from organizations like USP, EP, and JP. Unlike other products, MicroQuant™ controls are made from original ATCC® strains, ensuring better strain identity and authentication. They provide consistent quantitation, instant rehydration at room temperature, and stable storage at 2-8°C. In this study, we highlight the stability of MicroQuant™ products during transport and rehydration, and we showcase how they compare to similar products with regard to processing time, storage, and stability.

Schematic use of MicroQuant™

MicroQuant™ HQ/LQ workflow

Application of MicroQuant™ high (HQ) and low (LQ) titer pellets

Table 1: Application of MicroQuant™ products

Species	ATCC® No.	Release	Compendial assays*	Other industrial uses
Aspergillus brasiliensis	16404-HQ-PACK™	Available	USP <51>, <1072> | EP5.1.3 | JP19	Food, media, QC, and pharma testing
	16404-LQ-PACK™	Available	USP <61>, <71>, <72>, <2021> | EP2.6.12/13	
Bacillus spizizenii	6633-HQ-PACK™	Available	USP <81> | EP2.7.2	Food, media, QC, and pharma testing
	6633-LQ-PACK™	Available	USP <61>, <71>, <72>, <2021> | EP 2.6.1, 2.6.12, 2.6.27, 2.6.31	
Candida albicans	10231-HQ-PACK™	Available	USP <51>, <1072> | EP5.1.3 | JP19	Food, media, QC, and antimicrobial testing
	10231-LQ-PACK™	Available	USP<61>, <62>, <71>, <72>, <2021> | EP2.6.12/13 | JP4.05	
Escherichia coli	8739-HQ-PACK™	Available	USP <51> | EP5.1.3 | JP19	Water, food, media, QC, and pharma testing
	8739-LQ-PACK™	Available	USP <62>, <2021>	
Pseudomonas paraeruginosa	9027-HQ-PACK™	Available	USP <51> | EP5.1.3 | JP19	Water, media, QC, and pharma testing
	9027-LQ-PACK™	Available	USP <60>, <61>, <62>, <71>, <72>, <2021> | EP2.6.12/13	
Staphylococcus aureus	6538-HQ-PACK™	Available	USP <51>, <1072> | EP5.1.3 | JP19	Food, media, QC, and water testing
	6538-LQ-PACK™	Available	USP <60>, <61>, <62>, <71>, <72>, <2021>	
Burkholderia cepacia	25416-HQ-PACK™	Q3 - 2025		Media, QC, and pharma testing
	25416-LQ-PACK™	Q3 - 2025	USP <60>	
Burkholderia cenocepacia	BAA-245-HQ-PACK™	Q3 - 2025		QC and pharma testing
	BAA-245-LQ-PACK™	Q3 - 2025	USP <60>	
Burkholderia multivorans	BAA-247-HQ-PACK™	Q3 - 2025		QC and pharma testing
	BAA-247-LQ-PACK™	Q3 - 2025	USP <60>	
Clostridium sporogenes	11437-HQ-PACK™	Q3 - 2025		Media, QC, and pharma testing
	11437-LQ-PACK™	Q3 - 2025	USP <62>, <71>, <72> | EP2.6.13 | JP4.05	
Clostridium. sporogenes	19404-HQ-PACK™	Q3 - 2025		Media, QC, and pharma testing
	19404-LQ-PACK™	Q3 - 2025	USP <62>, <71>, <72> | EP2.6.13 | JP4.05	
Salmonella enterica	14028-HQ-PACK™	Q3 - 2025		Food, media, water, QC, and pharma testing
	14028-LQ-PACK™	Q3 - 2025	USP <62> | EP2.6.13 | JP4.05	

*USP- United States Pharmacopoeia; EP- European Pharmacopoeia; JP- Japanese Pharmacopoeia. The numbers after the USP, EP, and JP indicate the chapters of the respective Pharmacopoeia.

Quantitation of MicroQuant™ production batches

Figure 2: Analysis of MicroQuant™ colony forming units (CFU) per pellet from production batches. Assay property values for (A) MicroQuant™ HQ and (B) MicroQuant™ LQ products. The data were obtained from nine random pellets per product with two technical replicates; the assay was performed by three independent analysts. Mean CFU/pellet and minimum and maximum CFU/pellet values are shown here. The blue and red shaded regions indicate the product specification for the MicroQuant™ HQ and LQ, respectively. CFU of the products was determined as described in Figure 1.

Transportation stability of ATCC® MicroQuant™

Figure 3: Comparing the stability of MicroQuant™ products before and after transportation. Assay property values for the pellets of (A) MicroQuant™ HQ and (B) MicroQuant™ LQ products. To assess transportation stability, MicroQuant™ kits were shipped at 2-8°C temperatures. Products were assayed to determine CFU/pellet before and after shipping. The average time during transportation was about 4 days. Control: CFU/pellet of MicroQuant™-HQ or LQ pellets before shipping, RT: CFU/pellet of pellets retrieved after room temperature transportation (Average temperature obtained from logger was 24±3°C); 4°C: CFU of pellets retrieved after 4°C transportation (Average temperature obtained from logger was 6±2°C), ns: not significant. The Y-axis indicates the CFU/pellet values of the product, and the X-axis indicates shipping conditions. A total of 9 random pellets and two technical replicates were used for CFU/pellet determination. The blue and red boxes indicate the product specification for the MicroQuant™ HQ and LQ, respectively.

Short-term stability (usability) of ATCC® MicroQuant™

Figure 4: Short-term stability of MicroQuant™ after rehydration. Assay property values for the pellets of (A) MicroQuant™ HQ and (B) MicroQuant™ LQ products were resuscitated in rehydration buffer and then immediately diluted and plated (HQ) or plated (LQ) for "0 hour" reading. The remaining amounts of resuscitated samples were stored at 4°C. Samples were removed from storage at specified intervals and were then diluted and plated (HQ) or directly plated (LQ). Plates were incubated and CFUs were counted following ATCC's guidelines. The blue and red boxes indicate product specification for the MicroQuant™ HQ and LQ, respectively. Above each panel, product number, and the microorganism names are included.

Comparison of processing time and storage condition

Figure 5: Comparison of processing time and storage temperature of ATCC®'s MicroQuant™ with other products. The processing time for MicroQuant™ was compared with the processing time for the formats available form Company A-D in the market. The storage temperature of ATCC, Company A, and Company B products is 4°C, whereas the storage temperature of Company C and Company D products is -20°C.

MicroQuant™ stability compared to similar products

Table 2: Shelf-life comparison of MicroQuant™ HQ with products from other companies

Organism	ATCC® No.	Shelf-life of high-titer products (years)				
		ATCC	Company A	Company B	Company C*	Company D*
A. brasiliensis	16404-HQ-PACK™	>1	<2	NA	2	NA
B. spizizenii	6633-HQ-PACK™	>1	<2	NA	NA	<2
C. albicans	10231-HQ-PACK™	>1	<2	NA	2	<2
E. coli	8739-HQ-PACK™	>1	2	NA	2	<2
P. pareruginosa	9027-HQ-PACK™	<1	<2	NA	<2	<2
S. aureus	6538-HQ-PACK™	>1	<2	NA	<2	<2
Product storage		4°C			-20°C	

Table 3: Shelf-life comparison of MicroQuant™ LQ with products from other companies

Organism	ATCC® No.	Shelf-life of high-titer products (years)				
		ATCC	Company A	Company B	Company C*	Company D*
A. brasiliensis	16404-LQ-PACK™	>1	<2	>1	<2	<1
B. spizizenii	6633-LQ-PACK™	>1	<2	>1	2	<2
C. albicans	10231-LQ-PACK™	>1	<2	>1	<2	<2
E. coli	8739-LQ-PACK™	>1	<2	<1	<2	<2
P. pareruginosa	9027-LQ-PACK™	<1	<2	<1	2	<2
S. aureus	6538-LQ-PACK™	>1	<2	>1	<2	<2
Product storage		4°C			-20°C	

NA – Products were not available from the companies at the time the study was conducted.
*Equivalent products available from Company C and D, respectively.

Company A-D are products from other companies currently available in the market.
ATCC®'s MicroQuant™ shelf-life is based on a combination of real-time stability studies, accelerated stability studies, and stability modeling.

Conclusions

ATCC® MicroQuant™ is an innovative product suite designed to streamline microbial quality control testing.

- Precisely quantitated in high-titer (HQ:10^7 to 10^8 CFU per pellet) and low-titer (LQ:100 to 1,000 CFU per pellet) formats.
- Single-use format enables fast assay setup and minimal handling.
- Immediate rehydration at room temperature with 8 hours of usability window.
- Stable storage at 2-8°C.
- Manufactured under an ISO 17034-accredited process.
- Developed from traceable, original source materials (**Passage zero**).

MicroQuant™

Scan the QR code to learn more

ATCC 10801 University Boulevard, Manassas, Virginia 20110-2209 **Phone:** 800.638.6597 **Email:** sales@atcc.org **Web:** www.atcc.org

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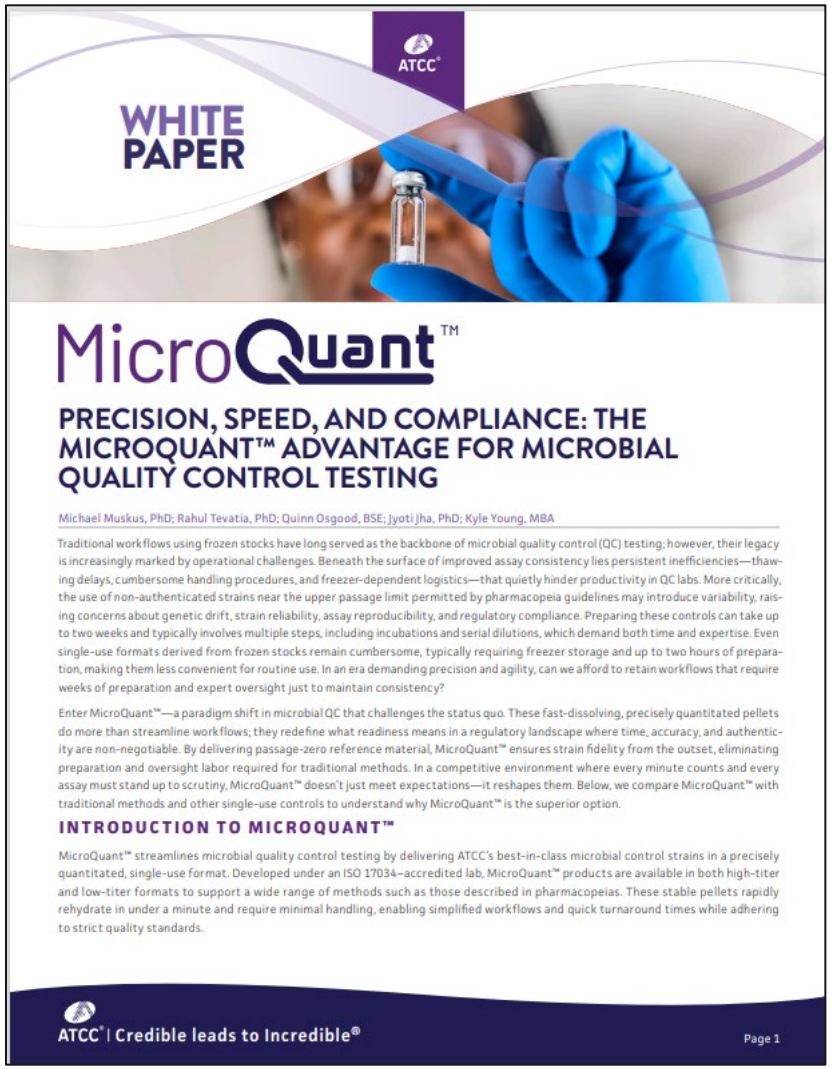
Access more information

Whitepaper with end-user feedback



WHITE PAPER

MicroQuant™

PRECISION, SPEED, AND COMPLIANCE: THE MICROQUANT™ ADVANTAGE FOR MICROBIAL QUALITY CONTROL TESTING

Michael Muskus, PhD; Rahul Tevatia, PhD; Quinn Osgood, BSE; Jyoti Jha, PhD; Kyle Young, MBA

Traditional workflows using frozen stocks have long served as the backbone of microbial quality control (QC) testing; however, their legacy is increasingly marked by operational challenges. Beneath the surface of improved assay consistency lies persistent inefficiencies—thawing delays, cumbersome handling procedures, and freezer-dependent logistics—that quietly hinder productivity in QC labs. More critically, the use of non-authenticated strains near the upper passage limit permitted by pharmacopeia guidelines may introduce variability, raising concerns about genetic drift, strain reliability, assay reproducibility, and regulatory compliance. Preparing these controls can take up to two weeks and typically involves multiple steps, including incubations and serial dilutions, which demand both time and expertise. Even single-use formats derived from frozen stocks remain cumbersome, typically requiring freezer storage and up to two hours of preparation, making them less convenient for routine use. In an era demanding precision and agility, can we afford to retain workflows that require weeks of preparation and expert oversight just to maintain consistency?

Enter MicroQuant™—a paradigm shift in microbial QC that challenges the status quo. These fast-dissolving, precisely quantitated pellets do more than streamline workflows; they redefine what readiness means in a regulatory landscape where time, accuracy, and authenticity are non-negotiable. By delivering passage-zero reference material, MicroQuant™ ensures strain fidelity from the outset, eliminating preparation and oversight labor required for traditional methods. In a competitive environment where every minute counts and every assay must stand up to scrutiny, MicroQuant™ doesn't just meet expectations—it reshapes them. Below, we compare MicroQuant™ with traditional methods and other single-use controls to understand why MicroQuant™ is the superior option.

INTRODUCTION TO MICROQUANT™

MicroQuant™ streamlines microbial quality control testing by delivering ATCC's best-in-class microbial control strains in a precisely quantitated, single-use format. Developed under an ISO 17034–accredited lab, MicroQuant™ products are available in both high-titer and low-titer formats to support a wide range of methods such as those described in pharmacopeias. These stable pellets rapidly rehydrate in under a minute and require minimal handling, enabling simplified workflows and quick turnaround times while adhering to strict quality standards.

ATCC® | Credible leads to Incredible®

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YouTube videos

MicroQuant: A Framework of Innovation

330K views • 9 months ago

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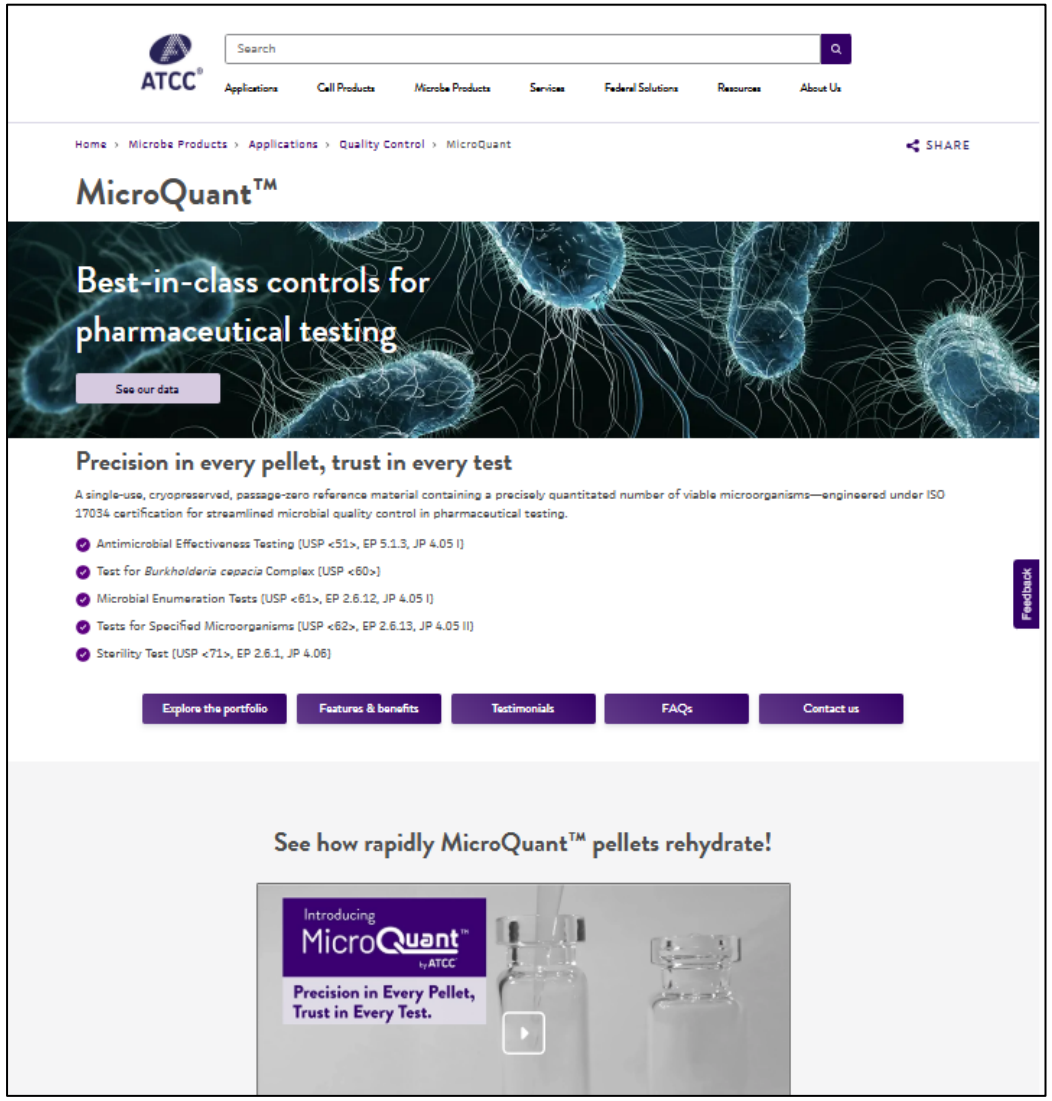
Access more information about MicroQuant™



Visit www.atcc.org/microquant

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