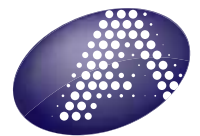
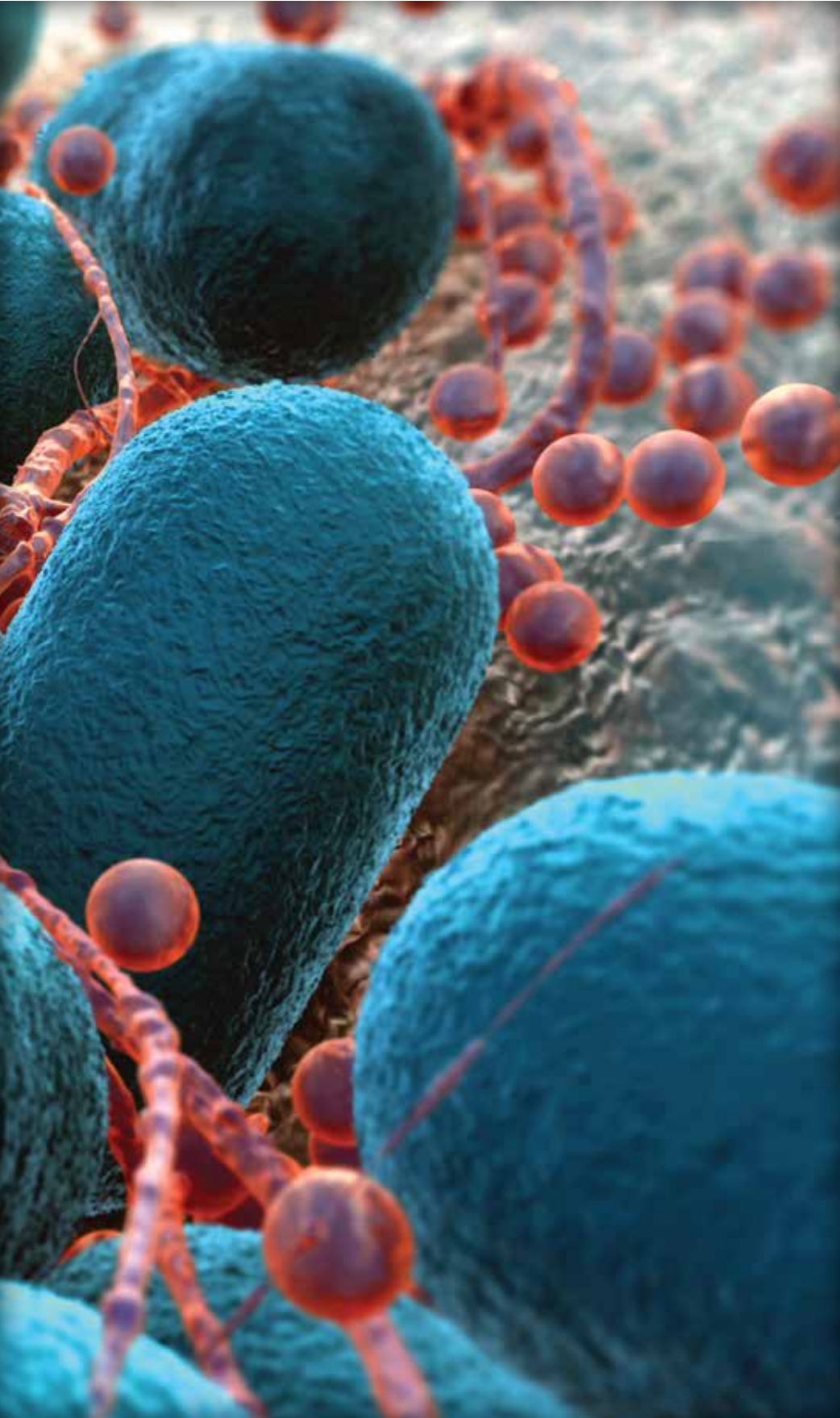


# ATCC® FOOD & WATER TESTING REFERENCE STRAINS GUIDE



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# THE ESSENTIALS OF LIFE SCIENCE RESEARCH GLOBALLY DELIVERED™

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## Introduction

### ATCC Food and Water Testing Reference Strains

#### The importance of ATCC reference strains

The validity of any microbial-based assay is dependent upon minimally passaged, fully characterized control organisms. One of our top priorities at ATCC is to provide high-quality reference strains for use in the routine testing of both food and water. Each ATCC reference strain is backed by meticulous laboratory procedures that ensure viability, identity, and purity, not only for our master seed stocks, but also for every distribution lot that we ship to your lab. ATCC reference strains are an essential component of quality control testing procedures and process validation, and serve as relevant tools in the research and development of new methods for testing food and water.

#### What can you expect to find in this guide?

Let this book be your guide to the diverse array of food and water-related microbial genera and species available from ATCC. We've carefully selected representative strains and nucleic acids from our Bacteriology, Mycology, Virology and Protistology Collections based on the CDC National Surveillance list of enteric pathogens<sup>1</sup> and current guidance for industry. Examples include *Listeria*, *Salmonella*, *Escherichia coli* (including STEC), *Campylobacter*, *Shigella*, and *Vibrio* species. We've also included organisms and nucleic acids that are closely associated with water contamination and food spoilage, such as Norovirus, *Giardia*, *Legionella*, *Enterobacter*, and *Serratia* species.

The guide is divided into sections, starting with bacteria and moving on through viruses, fungi, protozoa, ATCC Certified Reference Materials, nucleic acids, and strains recommended in specific assays. We've annotated each organism with the source from which it was isolated, if known, to provide for easy scanning of materials that are relevant to your research or assay needs. It is important to note that, given the depth and breadth of the ATCC Collections, we could not include a complete listing for every genus and species presented in this guide. Additional strains can be found on our website at [www.atcc.org](http://www.atcc.org).

#### Availability of strains

Some of the strains referenced in this guide are not available for international distribution, including organisms known to produce toxins. Visit us online at [www.atcc.org](http://www.atcc.org) to check the availability of specific strains in certain geographical locations.



#### Quick fact #1:

CDC estimates that *Salmonella* infection causes more hospitalizations and deaths than any other type of contaminant found in food.<sup>2</sup>

## ATCC Bacteria by Genus

Bacteria are ubiquitous in nature, invading every facet of life including the natural environment, the human body, and consumable materials. The variety of species that cause disease in humans are frequently isolated from food, water and clinical sources. We've put together our favorite collection of bacteria associated with food and water contamination, food spoilage, inoculated consumables, and human disease in the tables to follow. Select cultures relevant to your research, or visit us online at [www.atcc.org](http://www.atcc.org) for additional strains.

### **Acinetobacter spp.**

Description	ATCC® No.	Strain	Isolation
<i>Acinetobacter baumannii</i>	19606™	2208	urine
<i>Acinetobacter</i> sp.	15566™	5345 and 2409	bovine
<i>Acinetobacter</i> sp.	15567™	5209 and 1972	chicken
<i>Acinetobacter</i> sp.	23653™	NCIB 8552	milk

### **Bacillus spp.**

Description	ATCC® No.	Strain	Isolation
<i>Bacillus cereus</i>	11778™	FDA strain PCI 213	
<i>Bacillus cereus</i>	33018™	ENSP5	powdered milk-base infant formulae
<i>Bacillus cereus</i>	12826™	Type Strain A, variant IV	
<i>Bacillus cereus</i>	4342™	[NRS 731]	milk
<i>Bacillus cereus</i>	7004™	[NRS 721]	pasteurized milk
<i>Bacillus coagulans</i>	7050™	NRS 609	dairy products
<i>Bacillus fastidiosus</i>	29312™	[1312]	poultry litter
<i>Bacillus licheniformis</i>	9945™	NRS 712	flour
<i>Bacillus licheniformis</i>	12759™	[ATCC 11560, Vitek #200148]	cassava tuber plant
<i>Bacillus licheniformis</i>	9789™	[ATCC 102]	milk
<i>Bacillus megaterium</i>	10778™	NCIB 8508	soil
<i>Bacillus pumilus</i>	31177™		fermenting organic materials
<i>Bacillus racemilacticus</i>	23496™	M-14	rhizosphere of wild lettuce
<i>Bacillus smithii</i>	55404™	ERI-H2	water well
<i>Bacillus</i> sp.	14178™	42315	cranberry bog
<i>Bacillus subtilis</i>	21228™	SC 8548	soybeans
<i>Bacillus subtilis</i>	10774™	BU169	raw lentils
<i>Bacillus subtilis</i>	21556™		grain
<i>Bacillus subtilis</i>	8188™	[ATCC 8450]	dairy products
<i>Bacillus subtilis</i> subsp. <i>spizizenii</i>	6633™	NRS 231	



#### **Quick fact #2:**

*Bacillus cereus* produces toxins associated with two types of illness, one type characterized by diarrhea and the other by nausea and vomiting.<sup>3</sup>



### **Campylobacter spp.**

Description	ATCC® No.	Strain	Isolation
<i>Campylobacter coli</i>	43481™	80-102	turkey feces
<i>Campylobacter coli</i>	33559™	CIP 7080	pig feces
<i>Campylobacter fetus</i> subsp. <i>fetus</i>	27374™	[NCTC 10842]	brain of sheep fetus
<i>Campylobacter hyointestinalis</i> subsp. <i>hyointestinalis</i>	35217™	80-4577-4	intestine of swine with proliferative enteritis
<i>Campylobacter jejuni</i> subsp. <i>jejuni</i>	33560™	CIP 702	bovine feces
<i>Campylobacter jejuni</i> subsp. <i>jejuni</i>	BAA-1062™	RM 1221	chicken carcass
<i>Campylobacter sputorum</i> biovar <i>faecalis</i>	33711™	14479	sheep feces

### **Citrobacter spp.**

Description	ATCC® No.	Strain	Isolation
<i>Citrobacter braakii</i>	29063™		haddock fillet
<i>Citrobacter youngae</i>	29935™	460-61	meat scraps
<i>Citrobacter freundii</i>	43864™	LRA 117.03.76	
<i>Citrobacter gillenii</i>	51639™	CDC 4695-86	food
<i>Citrobacter freundii</i>	6879™	NCTC 4143	milk set for cottage cheese

### **Clostridium spp.**

Description	ATCC® No.	Strain	Isolation
<i>Clostridium algidixylanolyticum</i>	BAA-156™	SPL73	spoiled vacuum-packed raw lamb
<i>Clostridium aminovalericum</i>	13725™		sewage sludge
<i>Clostridium cellulovorans</i>	35296™	743B	woody biomass digester
<i>Clostridium difficile</i>	43598™	1470	feces from asymptomatic human neonate
<i>Clostridium estertheticum</i> subsp. <i>estertheticum</i>	51377™	NCIMB 12511	vacuum-packed beef
<i>Clostridium frigidicarnis</i>	BAA-154™	SPL77A	spoiled vacuum-packed raw beef
<i>Clostridium glycolicum</i>	29797™	22	sewage sludge
<i>Clostridium paraputrificum</i>	17864™	2410	pond mud
<i>Clostridium pasteurianum</i>	7041™	31 (smooth)	butyric swells of canned pineapple
<i>Clostridium perfringens</i>	12916™	NCTC 8238	boiled salt beef
<i>Clostridium perfringens</i>	14810™	NCTC 10240	chicken
<i>Clostridium sporogenes</i>	19404™		gas gangrene
<i>Clostridium subterminale</i>	29748™	SB4	anaerobic sewage sludge
<i>Clostridium thermopalmarium</i>	51427™	DSM 5974	palm wine



*Clostridium difficile* image courtesy of David Goulding

#### **Quick fact #3:**

Botulism is caused by the toxin produced by *Clostridium botulinum*. Studies have shown that there is a 35 to 65 percent chance of death for patients who are not treated immediately and effectively with botulism antitoxin.<sup>4</sup>

### **Enterobacter spp. (including Cronobacter sakazakii)**

Description	ATCC® No.	Strain	Isolation
<i>Cronobacter sakazakii</i>	BAA-894™	10/1/2001	clinical specimen
<i>Enterobacter aerogenes</i>	13048™	NCDC 819-56	
<i>Enterobacter aerogenes</i>	49701™	U.S. EPA 202	water
<i>Enterobacter amnigenus</i>	51816™	C3	milk
<i>Enterobacter cloacae</i>	BAA-2271™	Ecl3	muck-land soil in which onions had grown
<i>Enterobacter cloacae</i>	BAA-2272™	Ecl6	stored onion plant

### Enterobacter spp. (including Cronobacter sakazakii)

Description	ATCC® No.	Strain	Isolation
<i>Enterobacter cloacae</i> subsp. <i>cloacae</i>	39978™	E6	germinating cucumber seeds
<i>Enterobacter cloacae</i> subsp. <i>cloacae</i>	529™		water supply
<i>Enterobacter cloacae</i> subsp. <i>cloacae</i>	700258™	SLD1a-1	seleniferous agricultural drainage water
<i>Enterobacter cloacae</i> subsp. <i>cloacae</i>	700411™	SB 3013	restaurant grease trap
<i>Enterobacter cloacae</i> subsp. <i>cloacae</i>	700644™	MSN 1	soil collected from farms
<i>Enterobacter cloacae</i> subsp. <i>cloacae</i>	7256™		well water
<i>Enterobacter cloacae</i> subsp. <i>dissolvens</i>	23373™	ICPB ED105	maize



*Enterobacter cloacae* image courtesy of CDC.

#### Quick fact #4:

Most cases of *Cronobacter sakazakii* come from powdered infant formula. About 50% of infected infants die from this contaminant, and those who survive may suffer neurological impairment.<sup>5</sup>

### Enterococcus spp.

Description	ATCC® No.	Strain	Isolation
<i>Enterococcus cecorum</i>	43198™	NCDO 2674	chicken caeca
<i>Enterococcus durans</i>	11576™	SD-A	dairy products
<i>Enterococcus durans</i>	49606™	NCDO 593	pasteurized milk
<i>Enterococcus durans</i>	6056™	23C2	human feces
<i>Enterococcus faecalis</i>	27286™	NCTC 8176	dairy products
<i>Enterococcus faecalis</i>	376™	L36	sour milk
<i>Enterococcus faecalis</i>	7080™	110	meat involved in food poisoning
<i>Enterococcus faecalis</i>	19083™	BJ-6	sewage
<i>Enterococcus faecalis</i>	19433™	NCTC 775	
<i>Enterococcus faecalis</i>	29212™	[Portland]	urine
<i>Enterococcus faecalis</i>	35038™	NCTC 11428	intestine of young chickens
<i>Enterococcus faecalis</i>	6055™	In 1	pasteurized milk
<i>Enterococcus faecium</i>	35667™	LRA 55 03 77	
<i>Enterococcus faecium</i>	6057™	24	dairy products
<i>Enterococcus faecium</i>	12952™	2-60	citrus juice
<i>Enterococcus faecium</i>	49624™	16	dairy products
<i>Enterococcus faecium</i>	6569™	PRD	human feces
<i>Enterococcus faecium</i>	8459™	NCTC 2699	dairy products
<i>Enterococcus hirae</i>	10541™	FDA M19	
<i>Enterococcus hirae</i>	35220™	[CDC 976-79]	animal feces
<i>Enterococcus hirae</i>	49611™	NCDO 1648	pig gut
<i>Enterococcus hirae</i>	8043™	R	
<i>Enterococcus malodoratus</i>	43197™	NCDO 846	dairy products
<i>Enterococcus malodoratus</i>	49613™	NCDO 847	dairy products
<i>Enterococcus mundtii</i>	43187™	NCDO 582	milker's hands
<i>Enterococcus mundtii</i>	882™	A	dairy products

## Escherichia coli

Description	ATCC® No.	Strain	Isolation
<i>Escherichia coli</i>	10536™	MacLeod	
<i>Escherichia coli</i>	11775™	NCTC 9001	urine
<i>Escherichia coli</i>	25922™	FDA strain Seattle 1946	clinical isolate
<i>Escherichia coli</i>	29998™	UC 527	clinical isolate
<i>Escherichia coli</i>	31616™	21	intestinal tract of diarrheic calves
<i>Escherichia coli</i>	31705™	H/T-1	human with cholera-like diarrhea
<i>Escherichia coli</i>	33456™	743	water sample
<i>Escherichia coli</i>	35364™	ECOR 45	pig
<i>Escherichia coli</i>	43889™	CDC B1409-C1	feces of patient with HUS
<i>Escherichia coli</i>	43894™	CDC EDL 932	human feces from outbreak of hemorrhagic colitis
<i>Escherichia coli</i>	43895™	CDC EDL 933	raw hamburger meat implicated in hemorrhagic colitis outbreak
<i>Escherichia coli</i>	43896™	CDC TX1	infant diarrheic stool
<i>Escherichia coli</i>	51813™	DG1H9	food
<i>Escherichia coli</i>	55235™	25	cecum of healthy laying hen
<i>Escherichia coli</i>	98222™	364	liver of chicken carcass
<i>Escherichia coli</i>	700599™	EC380-94	salami product
<i>Escherichia coli</i>	BAA-1159™	795	freshwater
<i>Escherichia coli</i>	CRM-11229™	AMC 198	
<i>Escherichia coli</i>	CRM-8739™	Crooks	feces

## Big-Six *Escherichia coli* Strains Panel (ATCC® MP-9™)

Description	ATCC® No.	Strain	Serotype Designation	Presence of Select Virulence Genes
<i>Escherichia coli</i>	BAA-2196™	2003-3014	O26:H11	stx1+/stx2+/eae+
<i>Escherichia coli</i>	BAA-2193™	2000-3039	O45:H2	stx1+/stx2-/eae+
<i>Escherichia coli</i>	BAA-2215™	2006-3008	O103:H11	stx1+/stx2-/eae+
<i>Escherichia coli</i>	BAA-2440™	0111	O111	stx1+/stx2+/eae+
<i>Escherichia coli</i>	BAA-2219™	2002-3211	O121:H19	stx1-/stx2+/eae+
<i>Escherichia coli</i>	BAA-2192™	99-3311	O145:Nonmotile	stx1+/stx2+/eae+

## Helicobacter pylori

Description	ATCC® No.	Strain	Isolation
<i>Helicobacter pylori</i>	43504™	NCTC 11637	human gastric antrum
<i>Helicobacter pylori</i>	43526™	NCTC 11916	human gastric antrum
<i>Helicobacter pylori</i>	43579™	DT 61A	human gastric antrum
<i>Helicobacter pylori</i>	43629™	NCTC 11639	gastric biopsy
<i>Helicobacter pylori</i>	49503™	60190	
<i>Helicobacter pylori</i>	51110™	4	
<i>Helicobacter pylori</i>	51111™	U2-1	
<i>Helicobacter pylori</i>	51652™	MC903	human endoscopic biopsy
<i>Helicobacter pylori</i>	51653™	MC123	human endoscopic biopsy
<i>Helicobacter pylori</i>	51932™	Tx30a	clinical isolate
<i>Helicobacter pylori</i>	700392™	26695	human stomach of patient with gastritis



*Helicobacter (Gloetrichia)* image courtesy of Spike Walker

### Quick fact #5:

*Helicobacter pylori* colonizes the stomach of more than 50% of humans. This bacterium is associated with the formation of peptic ulcers, inflammation, and gastric carcinoma.<sup>6</sup>



## ***Helicobacter pylori***

<b>Description</b>	<b>ATCC® No.</b>	<b>Strain</b>	<b>Isolation</b>
<i>Helicobacter pylori</i>	700684™	UA 1182	gastric biopsy
<i>Helicobacter pylori</i>	700824™	J99	patient with a duodenal ulcer
<i>Helicobacter pylori</i>	BAA-1606™	BCM-300	asymptomatic volunteer with mild superficial gastritis
<i>Helicobacter pylori</i>	BAA-945™	Baylor Challenge Strain 100 (BCS 100)	asymptomatic volunteer with mild superficial gastritis

## ***Klebsiella* spp.**

<b>Description</b>	<b>ATCC® No.</b>	<b>Strain</b>	<b>Isolation</b>
<i>Klebsiella oxytoca</i>	31899™	AST 148-1	
<i>Klebsiella oxytoca</i>	51817™	C4	milk
<i>Klebsiella pneumoniae</i> subsp. <i>pneumoniae</i>	13882™	NCTC 8172	water
<i>Klebsiella pneumoniae</i> subsp. <i>pneumoniae</i>	13883™	NCTC 9633	
<i>Klebsiella pneumoniae</i> subsp. <i>pneumoniae</i>	15574™	[NCDC 414-68]	germinating seedlings of <i>Psychotria bacteriophila</i>
<i>Klebsiella pneumoniae</i> subsp. <i>pneumoniae</i>	21711™		soil
<i>Klebsiella pneumoniae</i> subsp. <i>pneumoniae</i>	31488™	PS-53	soil
<i>Klebsiella pneumoniae</i> subsp. <i>pneumoniae</i>	4352™	[CIP 104216]	dairy products
<i>Klebsiella pneumoniae</i> subsp. <i>pneumoniae</i>	55234™	23	cecum of healthy laying hen
<i>Klebsiella variicola</i>	BAA-830™	F2R9	plant

## ***Lactobacillus* spp.**

<b>Description</b>	<b>ATCC® No.</b>	<b>Strain</b>	<b>Isolation</b>
<i>Lactobacillus acetotolerans</i>	43578™	JCM 3825	spoiled rice vinegar broth
<i>Lactobacillus alimentarius</i>	29643™	DSM 20249	marinated fish product
<i>Lactobacillus brevis</i>	13648™	NCDO 461	rusty spot in cheese
<i>Lactobacillus casei</i>	334™		dairy products
<i>Lactobacillus collinoides</i>	27612™	C13a	fermenting apple juice
<i>Lactobacillus curvatus</i>	51436™	LTH 1174	fermented sausage
<i>Lactobacillus delbrueckii</i> subsp. <i>Bulgaricus</i>	11842™	Lb14	dairy products
<i>Lactobacillus delbrueckii</i> subsp. <i>lactis</i>	12315™	L110	dairy products
<i>Lactobacillus farciminis</i>	29644™	DSM 20184	sausage
<i>Lactobacillus fructivorans</i>	15435™	IAM H1	spoiled sake
<i>Lactobacillus helveticus</i>	10797™	V80	swiss cheese starter
<i>Lactobacillus homohiochii</i>	15434™	IAM H42	spoiled sake
<i>Lactobacillus leichmannii</i>	7830™	313	
<i>Lactobacillus malefermentans</i>	11305™	NCIB 8516	fermented beverages
<i>Lactobacillus mali</i>	27054™	J 123	apple juice from cider press
<i>Lactobacillus paracasei</i> subsp. <i>Tolerans</i>	25599™	[7/74]	milk
<i>Lactobacillus plantarum</i>	10241™	[BUCSAV 248]	sauerkraut
<i>Lactobacillus rhamnosus</i>	7469™	[BUCSAV 227]	

## ***Legionella* spp.**

<b>Description</b>	<b>ATCC® No.</b>	<b>Strain</b>	<b>Isolation</b>
<i>Legionella adelaidensis</i>	49625™	1762-AUS-E	water in cooling tower of air-conditioning system
<i>Legionella anisa</i>	35291™	CH-47-C3	sink faucet
<i>Legionella brunensis</i>	43878™	441-1	cooling tower water
<i>Legionella cherrii</i>	35252™	ORW	thermally altered water
<i>Legionella drozanskii</i>	700990™	LLAP-1	tank of well water
<i>Legionella erythra</i>	35303™	SE-32A-C8	water in cooling tower
<i>Legionella fairfieldensis</i>	49588™	1725-AUS-E	cooling tower water
<i>Legionella fallonii</i>	700992™	LLAP-10	ship air-conditioning system
<i>Legionella geestiana</i>	49504™	1308	hot tap water

## Legionella spp.

Description	ATCC® No.	Strain	Isolation
<i>Legionella gratiana</i>	49413™	Lyon 8420412	thermal spa water
<i>Legionella gresilensis</i>	700509™	Greoux 11D13	water from a shower in a thermal spa
<i>Legionella israelensis</i>	43119™	Bercovier 4	water
<i>Legionella jamestowniensis</i>	35298™	JA-26-G1-E2	wet soil
<i>Legionella londiniensis</i>	49505™	1477	office building cooling tower
<i>Legionella moravica</i>	43877™	316-86	cooling tower water
<i>Legionella nautarum</i>	49506™	1224	hot water tap
<i>Legionella oakridgensis</i>	33761™	Oak Ridge 10	industrial cooling tower
<i>Legionella parisiensis</i>	35299™	PF-209C-C2	water in cooling tower
<i>Legionella pneumophila</i> subsp. <i>fraseri</i>	33216™	Dallas 1E	cooling tower
<i>Legionella pneumophila</i> subsp. <i>pascullei</i>	33737™	U8W	water from shower head
<i>Legionella pneumophila</i> subsp. <i>pneumophila</i>	33155™	Bloomington-2	creek water
<i>Legionella pneumophila</i> subsp. <i>pneumophila</i>	33734™	687	tap water
<i>Legionella quateirensis</i>	49507™	1335	shower in hotel bathroom
<i>Legionella quinlivanii</i>	43830™	1442-AUS-E	water in bus air conditioner
<i>Legionella rowbothamii</i>	700991™	LLAP-6	water and sludge from an industrial liquifier tower
<i>Legionella sainthelensi</i>	35248™	MSH-4	spring water
<i>Legionella shakespearei</i>	49655™	214	cooling tower water
<i>Legionella taurinensis</i>	700508™	Turin I no 1	water from a hospital oxygen bubble humidifier
<i>Legionella worsleiensis</i>	49508™	1347	industrial cooling tower



*Legionella pneumophila* image courtesy of Dr. Margaret Williams, Dr. Claressa Lucas, Tatiana Travis - CDC

### Quick fact #6:

Low water volumes combined with high temperatures and heavy bather loads can result in low disinfectant levels in public hot tubs, allowing for growth of *Pseudomonas* and *Legionella*.<sup>7</sup>

## Listeria spp.

Description	ATCC® No.	Strain	Isolation
<i>Listeria grayi</i>	25400™	V-1	standing corn leaves and stalks
<i>Listeria innocua</i>	33090™	SLCC 3379	cow brain
<i>Listeria ivanovii</i> subsp. <i>ivanovii</i>	19119™	Li 1979	sheep
<i>Listeria monocytogenes</i>	13932™	1071/53	spinal fluid of child with meningitis
<i>Listeria monocytogenes</i>	19111™	Li 20	poultry
<i>Listeria monocytogenes</i>	51772™	IHE/90/1104/62-24	dairy products
<i>Listeria seeligeri</i>	35967™	CIP 100100	soil

## Micrococcus spp.

Description	ATCC® No.	Strain	Isolation
<i>Micrococcus freudenreichii</i>	407™	71	milk
<i>Micrococcus luteus</i>	15801™	ML 53-5	UV-mutant
<i>Micrococcus luteus</i>	383™	S85	milk
<i>Micrococcus luteus</i>	10240™	130.21	air
<i>Micrococcus luteus</i>	11880™	B	freshwater
<i>Micrococcus luteus</i>	7468™	Mercedita	
<i>Micrococcus naucinus</i>	15935™	FK 25	food

### ***Mycobacterium* spp. (including *M. tuberculosis*)**

Description	ATCC® No.	Strain	Isolation
<i>Mycobacterium abscessus</i>	700868™	MC2228 [61103]	metalworking fluids
<i>Mycobacterium avium</i> subsp. <i>avium</i>	15769™	1982 [McKee 1]	spleen of tuberculous hen
<i>Mycobacterium bovis</i>	35733™	TMC 1010 [BCG Danish]	bovine milk
<i>Mycobacterium engbaekii</i>	27354™	V9	dairy products
<i>Mycobacterium marinum</i>	11566™	BIV	swimming pool
<i>Mycobacterium</i> sp.	700553™	T103	biofilm on rocks, drainage ditch
<i>Mycobacterium</i> sp.	15975™	1817 [Dunbar 2B]	lettuce
<i>Mycobacterium tuberculosis</i>	BAA-2236™	X0044:39	human sputum from patient with pulmonary tuberculosis
<i>Mycobacterium tuberculosis</i>	25177™	H37Ra	
<i>Mycobacterium valentiae</i>	29356™	C.M.H.M.I.30	soil, lemon orchard

### ***Pediococcus* spp.**

Description	ATCC® No.	Strain	Isolation
<i>Pediococcus acidilactici</i>	8042™		
<i>Pediococcus acidilactici</i>	8081™	32	fermented milk
<i>Pediococcus claussenii</i>	BAA-344™	[DSM 14800]	fermented beverages
<i>Pediococcus damnosus</i>	29358™	NCDO 1832	lager beer yeast
<i>Pediococcus pentosaceus</i>	43200™	FBB-61	fermenting cucumbers

### ***Proteus* spp.**

Description	ATCC® No.	Strain	Isolation
<i>Proteus hauseri</i>	13315™	NCTC 4175 strain Lehmann	
<i>Proteus mirabilis</i>	29906™	CDC PR 14	
<i>Proteus mirabilis</i>	7002™		urine of patient with kidney stones

### ***Pseudomonas* spp.**

Description	ATCC® No.	Strain	Isolation
<i>Pseudomonas aeruginosa</i>	10145™	[CCEB 481]	
<i>Pseudomonas aeruginosa</i>	27853™	Boston 41501	blood culture
<i>Pseudomonas fluorescens</i>	13525™	NCTC 10038	pre-filter tanks
<i>Pseudomonas fluorescens</i>	17583™	216	well water
<i>Pseudomonas fragi</i>	27362™	PS1	pork sausage
<i>Pseudomonas marginalis</i>	10844™	CIBP	plant-derived foodstuff
<i>Pseudomonas perolens</i> subsp. <i>gdansk</i>	10757™	[NRRL B-1123]	musty eggs
<i>Pseudomonas savastanoi</i>	13527™	PSA	olive
<i>Pseudomonas</i> sp.	29423™	OCU 101	rock salt
<i>Pseudomonas synxantha</i>	796™		milk
<i>Pseudomonas syringae</i>	35023™	PSZ-2	wild rice
<i>Pseudomonas thermocarboxydovorans</i>	35963™	FE	sewage plant final effluent



*Pseudomonas aeruginosa* image courtesy of Janice Haney Carr - CDC

#### **Quick fact #7:**

Many *Pseudomonas* species are considered a significant food spoilage problem in refrigerated meat, fish, shell fish, and dairy products. *Pseudomonas* sp. thrive in water systems and can also be the source of contamination in the beverage industry.<sup>8</sup>

## Salmonella enterica

Description	ATCC® No.	Strain	Isolation
<i>Salmonella enterica</i> subsp. <i>diarizonae</i>	29934™	62	
<i>Salmonella enterica</i> subsp. <i>enterica</i>	13036™	NRRL B-663	egg
<i>Salmonella enterica</i> subsp. <i>enterica</i>	13076™	CDC K-1891	
<i>Salmonella enterica</i> subsp. <i>enterica</i>	13311™	NCTC 74	human feces
<i>Salmonella enterica</i> subsp. <i>enterica</i>	14028™	CDC 6516-60	animal tissue
<i>Salmonella enterica</i> subsp. <i>enterica</i>	55105™	38 PMMa5X	pigs
<i>Salmonella enterica</i> subsp. <i>enterica</i>	10708™	ETS 34	
<i>Salmonella enterica</i> subsp. <i>enterica</i>	23201™	Para 55	liver of turkey poul
<i>Salmonella enterica</i> subsp. <i>enterica</i>	35640™		creek water
<i>Salmonella enterica</i> subsp. <i>enterica</i>	51741™	DUP-103	pasta
<i>Salmonella enterica</i> subsp. <i>enterica</i>	BAA-1045™	LJH 608	plant-derived foodstuff
<i>Salmonella enterica</i> subsp. <i>enterica</i>	BAA-1603™		Pennsylvania tomato outbreak, 2004

## Salmonella enterica Panel (ATCC® MP-15™)

Description	ATCC® No.	Strain	Serotype Designation
<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Choleraesuis</i>	13312™	1348	6,7:c:1,5
<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar Enteritidis	4931™	NCTC 4444	1,9,12:g,m:-
<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar Newport	6962™	NCTC 129	6,8:e,h:1,2
<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar Typhi	6539™	AMC	9,12:d:-
<i>Salmonella enterica</i> subsp. <i>enterica</i> serovars Typhimurium	700720™	LT2	4,5,12:i:1,2

## Serratia spp.

Description	ATCC® No.	Strain	Isolation
<i>Serratia ficaria</i>	33105™	ICPB 4050	calimyrna fig
<i>Serratia fonticola</i>	29844™	CUETM 77-165	spring waters
<i>Serratia liquefaciens</i>	25641™	NCDC 1105-57	dairy products
<i>Serratia marcescens</i>	4180™	233925	milk
<i>Serratia marcescens</i>	43862™	LRA 04.03.73	
<i>Serratia marcescens</i> subsp. <i>marcescens</i>	13880™	BS 303	pond water
<i>Serratia odorifera</i>	33077™	1073	sputum
<i>Serratia plymuthica</i>	183™	K-7	water
<i>Serratia proteamaculans</i> subsp. <i>Quinovora</i>	33765™	4364	mushroom
<i>Serratia rubidaea</i>	29024™	CDC 935-72	river water

## Shigella spp.

Description	ATCC® No.	Strain	Isolation
<i>Shigella boydii</i>	35964™	CDC 2710-54	feces of patient with dysentery
<i>Shigella dysenteriae</i>	49347™	NCTC 11868	feces of patient with dysentery
<i>Shigella flexneri</i>	BAA-2402™	M90T Sm	
<i>Shigella sonnei</i>	25931™	NCDC 1120-66	human feces

## Staphylococcus aureus (including MRSA)\*

Description	ATCC® No.	Strain	Isolation
<i>Staphylococcus aureus</i> subsp. <i>aureus</i>	25923™	Seattle 1945	clinical isolate
<i>Staphylococcus aureus</i> subsp. <i>aureus</i>	6538™	FDA 209	human lesion
<i>Staphylococcus aureus</i> subsp. <i>aureus</i>	9144™	3R7089 strain Oxford	
<i>Staphylococcus aureus</i> subsp. <i>aureus</i>	13565™	FDA 196E	ham involved in food poisoning
<i>Staphylococcus epidermidis</i>	12228™	FDA strain PCI 1200	
<i>Staphylococcus pseudintermedius</i>	49444™		
<i>Staphylococcus xylosum</i>	29971™	KL 162	human skin

\*ATCC offers a wide range of MRSA and MSSA cultures not listed here. Please visit us online at [www.atcc.org](http://www.atcc.org) for more strains.

## Streptococcus spp.

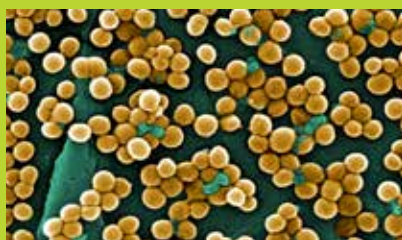
Description	ATCC® No.	Strain	Isolation
<i>Streptococcus equi</i> subsp. <i>equi</i>	9528™	2/1/2023	submaxillary abscess of foal with strangles
<i>Streptococcus gallolyticus</i>	9809™	38	
<i>Streptococcus mitis</i>	6249™		human blood
<i>Streptococcus pneumoniae</i>	27336™	R36a rough phase	
<i>Streptococcus pyogenes</i>	19615™	Bruno	pharynx of child following episode of sore throat

## Vibrio spp.

Description	ATCC® No.	Strain	Isolation
<i>Vibrio cholerae</i>	14033™	NCTC 8457	pilgrims in El Tor quarantine camp
<i>Vibrio diazotrophicus</i>	33466™	NS	sea urchin gastrointestinal tract
<i>Vibrio parahaemolyticus</i>	17802™	EB 101	Shirasu food poisoning
<i>Vibrio parahaemolyticus</i>	43996™	70/116655	cockles causing fatal food poisoning
<i>Vibrio tubiashii</i>	19109™	Milford 74	juvenile hard clams
<i>Vibrio vulnificus</i>	27562™	324	human blood

## Yersinia spp.

Description	ATCC® No.	Strain	Isolation
<i>Yersinia aldovae</i>	7p6	CNCTC Y 59/88	swimming pool
<i>Yersinia enterocolitica</i>	9610™	33114	human tissue
<i>Yersinia enterocolitica</i> subsp. <i>enterocolitica</i>	23715™	Billups-1803-68	human blood
<i>Yersinia kristensenii</i>	29911™	CDC YE1474	water
<i>Yersinia pseudotuberculosis</i>	29833™	NCTC 10275	turkey



MRSA image courtesy of Janice Haney Carr - CDC

### Quick fact #8:

ATCC offers a broad assortment of methicillin-resistant (MRSA) and methicillin sensitive *Staphylococcus aureus* (MSSA) strains for use in assay development and quality control.

# ATCC Viruses by Agent

Viruses present in food and water can cause a wide range of clinical symptoms ranging from mild gastrointestinal illness to meningitis. Some of the most common contaminants have been provided in the tables below. For additional strains, visit ATCC online at [www.atcc.org](http://www.atcc.org).

## Adenovirus

Description	ATCC® No.	Strain	Isolation
Human adenovirus 41	VR-930™	Tak [73-3544]	human feces (14-month-old with gastroenteritis)
Human adenovirus 40	VR-931™	Dugan [79-18025]	human feces (infantile gastroenteritis)



Adenovirus image courtesy of Dr. G. William Gary, Jr. - CDC

### Quick fact #9:

Adenovirus types 40 and 41, Norovirus, and Rotavirus all cause viral gastroenteritis that can be passed from person to person.

## Coxsackievirus

Description	ATCC® No.	Strain	Isolation
Human Coxsackievirus A 9 deposited as Coxsackievirus A9 CV-A9	VR-1311™	Griggs	
Human Coxsackievirus A 9 deposited as Coxsackievirus A9 CV-A9	VR-186™	P.B. (Bozek)	stool from 6-year-old child
Human Coxsackievirus B 3 deposited as Coxsackievirus B3 CV-B3	VR-30™	Nancy	stool from febrile patient with minor illness
Human Coxsackievirus B 3 deposited as Coxsackievirus B3 CV-B3	VR-688™	HA antigen 201933	man

## Echovirus

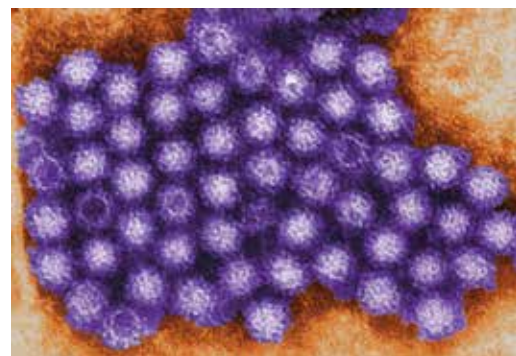
Description	ATCC® No.	Strain	Isolation
Human echovirus 6 deposited as Echovirus 6' Echovirus-6; EV-6	VR-240™	Burgess	child with aseptic meningitis
Human echovirus 6 deposited as Echovirus 6' Echovirus-6; EV-6	VR-241™	D-1 (Cox)	rectal swab from infant with diarrhea
Human echovirus 6 deposited as Echovirus 6 Echovirus-6; EV-6	VR-36™	D'Amori	fecal specimen from a case of aseptic meningitis

## Hepatitis A

Description	ATCC® No.	Strain	Isolation
Hepatitis A virus	VR-1357™	PA21	liver tissue of a naturally infected owl monkey
Hepatitis A virus	VR-1402™	HM175/18f [HM175 cytopathic clone B]	human feces passaged through marmosets
Hepatitis A virus	VR-2093™	HM 175 (uncloned)	human stool specimens from outbreak of virus
Hepatitis A virus	VR-2266™	LSH/S	well documented case of Hepatitis A
Hepatitis A virus	VR-2281™	HAS-15	human feces

## Norovirus

Synthetic Norovirus G1 (I) RNA (ATCC® VR-3199SD™) and synthetic Norovirus G2 (II) RNA (ATCC® VR-3200SD™) contain single stranded RNA genetic material designed and synthetically created for use as genetic surrogates for Norovirus G1 (I) and G2 (II), respectively, known as molecular standards. These products are appropriate for use as positive control materials in molecular applications, such as PCR.



Norovirus image courtesy of Charles D. Humphrey - CDC



## Rotavirus

Description	ATCC® No.	Strain	Isolation
Human rotavirus	VR-2104™	Hu/Australia/102510/77/L	stool sample of a human neonate
Human rotavirus	VR-2550™	DS-1	human infant
Human rotavirus	VR-2417™	WISC2	human infant
Human rotavirus	VR-2551™	WI61	human infant
Rotavirus	VR-1546™	Hu/Australia/1-9-12/77/S	feces from a child with gastroenteritis
Rotavirus reassortant	VR-2325™	HCR3a	stool from a human infant 3 days after oral administration of bovine rotavirus vaccine WC3

## Bacteriophage used in water testing

Description	ATCC® No.	Strain	Host
<i>Escherichia coli</i> bacteriophage	13706-B1™	phi X174	13706™
<i>Escherichia coli</i> bacteriophage	15597-B1™	MS2	15597™
<i>Bacteriodes fragilis</i> bacteriophage	700786-B1™	B56-3	700786™



### Quick fact #10:

The MS2 bacteriophage is an EPA recommended control used to test water for organisms after purification. It is very resistant to UV radiation, is non-pathogenic to humans, is easily propagated, and yields results comparable to other viral and bacterial contaminants.

## ATCC Fungi by Genus

Many fungal species are responsible for food spoilage or contamination frequently resulting in human disease. Representative strains for some of the most common contaminants have been provided in the tables below, along with some strains used in food production. For additional strains, visit ATCC online at [www.atcc.org](http://www.atcc.org).

### ***Aspergillus* spp.**

Description	ATCC® No.	Strain	Isolation
<i>Aspergillus brasiliensis</i>	CRM-16404™	WLRI 034(120)	blueberry
<i>Aspergillus brasiliensis</i>	MYA-4553™	CBS 101740	soil
<i>Aspergillus chevalieri</i>	16443™	WB 78	coffee beans
<i>Aspergillus chevalieri</i>	60784™	NM-16	barley
<i>Aspergillus clavatus</i>	36116™	MIT-M16	glutinous rice
<i>Aspergillus clavatus</i>	66445™	WB 4097	toxic feed pellets
<i>Aspergillus flavus</i>	11500™	NRRL 453	Brazil nuts
<i>Aspergillus flavus</i>	26771™	PDCS-4	Dry cracower sausage
<i>Aspergillus flavus</i>	28542™	N-322	commercial chicken minced meat
<i>Aspergillus flavus</i>	32591™	P-70-41b	peanut
<i>Aspergillus flavus</i> var. <i>columnaris</i>	16870™	WB 4818	butter
<i>Aspergillus flavus</i> var. <i>columnaris</i>	18168™	66-20	Instant chocolate milk
<i>Aspergillus flavus</i> var. <i>columnaris</i>	44564™	TC 276	dead honeybee larvae
<i>Aspergillus flavus</i> var. <i>flavus</i>	28539™	P-105	buckwheat flour
<i>Aspergillus flavus</i> var. <i>flavus</i>	28543™	N-376	commercial beef minced meat
<i>Aspergillus fumigatus</i>	1022™	NRRL 163	lung of chicken
<i>Aspergillus fumigatus</i>	26906™	HUT 2337	soil
<i>Aspergillus fumigatus</i>	42824™	T-1	humus
<i>Aspergillus fumigatus</i>	42826™	T-4	dead cherry leaf
<i>Aspergillus fumigatus</i>	58129™	TUB F-87	sunflower seed hull compost
<i>Aspergillus fumigatus</i>	6285™		pulmonary lesion of chicken
<i>Aspergillus fumigatus</i>	MYA-2637™		equipment
<i>Aspergillus niger</i>	16620™	AM5-33	acidic pond water
<i>Aspergillus niger</i>	60570™	58	tomato fruit
<i>Aspergillus niger</i>	24126™		chicken and turkey feed causing symptoms in chickens similar to field ricketts
<i>Aspergillus niger</i>	90831™	A-12	commercial dried Shiitake mushroom
<i>Aspergillus niger</i>	204447™	A42	dry fig
<i>Aspergillus niger</i>	66295™	M79	Jerusalem artichoke tuber
<i>Aspergillus niger</i>	58133™	TUB F-71	moldy bread
<i>Aspergillus niger</i>	58132™	TUB F-51	moldy horse chestnut
<i>Aspergillus niger</i>	36533™	AN-1	rice

### ***Candida* spp.**

Description	ATCC® No.	Strain	Isolation
<i>Candida albicans</i>	10231™	3147	man with bronchomycosis
<i>Candida cacaoi</i>	18736™	IGC 3422	fermenting cacao
<i>Candida diddensiae</i>	15541™	CBS 2214	shrimp
<i>Candida etchellsii</i>	11504™	207	concentrated lemon juice
<i>Candida glabrata</i>	201069™	IMUFRJ 50.079	polluted estuarine water
<i>Candida holmii</i>	22034™	CBS 135	buttermilk
<i>Candida krusei</i>	200917™	94-85	human oral cavity
<i>Candida magnoliae</i>	13782™	NRRL YB-4226	honey
<i>Candida melinii</i>	10568™	NRRL Y-1514	ground wood pulp
<i>Candida mesenterica</i>	10569™	NRRL Y-1494	beer conduit pipe

## **Candida spp.**

<b>Description</b>	<b>ATCC® No.</b>	<b>Strain</b>	<b>Isolation</b>
<i>Candida parapsilosis</i>	201076™	IMUFRJ 50.194	human milk
<i>Candida santamariae</i>	16047™	Az 1	sugar
<i>Candida smagusa</i>	MYA-4755™	EN4M03	fruiting body of unidentified mushroom
<i>Candida solani</i>	14440™	CBS 1908	potato-flour mill
<i>Candida tropicalis</i>	10610™	NRRL Y-1552	rotten pineapples

## **Fusarium spp.**

<b>Description</b>	<b>ATCC® No.</b>	<b>Strain</b>	<b>Isolation</b>
<i>Fusarium acuminatum</i>	200462™	FRR 2737	soybean
<i>Fusarium compactum</i>	15618™	2762	peanut root and collar rot
<i>Fusarium equiseti</i>	15622™	5149	cereals
<i>Fusarium equiseti</i>	200472™	FRR 3004	wheat
<i>Fusarium heterosporum</i>	15625™	3396	raspberry
<i>Fusarium lateritium</i>	62727™	84-156	sunflower seed
<i>Fusarium merismoides</i>	15634™	4399	asparagus
<i>Fusarium nivale</i> f. sp. <i>graminicola</i>	42308™	F-11	rice plant
<i>Fusarium nygamai</i>	201460™	B3534	blood of Egyptian man with lymphoblastic non-Hodgkin's lymphoma
<i>Fusarium oxysporum</i> f. sp. <i>batatas</i>	10911™		sweet potato
<i>Fusarium oxysporum</i> f. sp. <i>cucumerinum</i>	42352™	F 1-4-1	cucumber
<i>Fusarium oxysporum</i> f. sp. <i>dianthi</i>	15648™	3505	peas
<i>Fusarium poae</i>	15654™	5422	barley seed
<i>Fusarium solani</i>	11712™	SC 16	squash
<i>Fusarium sporotrichioides</i>	MYA-3951™	921/17	rye
<i>Fusarium stilboides</i>	16554™	IMI 115198	coffee berries



*Fusarium verticillioides* image courtesy of Dr. Libero Ajello - CDC

### **Quick fact #11:**

*Fusarium* spp. are common plant pathogens that cause damage to consumable crops, such as tomatoes and soybeans. Some species are known to produce mycotoxins in maize or grains, which may be carcinogenic.

## **Penicillium spp.**

<b>Description</b>	<b>ATCC® No.</b>	<b>Strain</b>	<b>Isolation</b>
<i>Penicillium aurantiogriseum</i>	16025™	IMI 19759	hyacinthus sp. bulb
<i>Penicillium aurantiogriseum</i>	46451™		salami
<i>Penicillium aurantiogriseum</i>	8732™	NRRL 1889	zea mays
<i>Penicillium griseofulvum</i>	46037™	NRRL 5256	
<i>Penicillium hirsutum</i>	58622™	IB U1008	barley
<i>Penicillium islandicum</i>	10127™	NRRL 1036	
<i>Penicillium marneffeii</i>	58950™		human skin abscess
<i>Penicillium mediolanensis</i>	44220™		salami
<i>Penicillium purpurogenum</i>	44257™	NADC Turkey 2	turkey lung
<i>Penicillium roqueforti</i> var. <i>carneum</i>	58627™	IB W1015	moldy rye bread
<i>Penicillium rugulosum</i>	26304™	JT1A	peanut
<i>Penicillium sublateritium</i>	48737™	FRR 86	wheat flour
<i>Penicillium thomii</i>	18333™	IMI 68615	butter
<i>Penicillium thomii</i>	48214™	FRR 679	river

## *Saccharomyces cerevisiae*

Description	ATCC® No.	Strain	Isolation
<i>Saccharomyces cerevisiae</i>	4126™	BI CZAS 321/7	amlyo process yeast
<i>Saccharomyces cerevisiae</i>	9080™	4228	
<i>Saccharomyces cerevisiae</i>	CRM-9763™		distillery yeast
<i>Saccharomyces cerevisiae</i>	60233™	2198	food

## *Stachybotrys spp.*

Description	ATCC® No.	Strain	Isolation
<i>Stachybotrys chartarum</i>	201858™	JS5105 [51-05]	home of an infant with idiopathic pulmonary hemorrhage
<i>Stachybotrys chartarum</i>	26384™	682	barley
<i>Stachybotrys chartarum</i>	18842™	CBS 222.46	raw flax fiber
<i>Stachybotrys chartarum</i>	26385™	7011a II-12	wheat
<i>Stachybotrys chartarum</i>	34915™	Jaszapati	oats
<i>Stachybotrys chartarum</i>	MYA-2106™	SC-SB1	root of soybean
<i>Stachybotrys theobromae</i>	18905™	IMI 105321	Theobroma cacao



*Penicillium marneffei* Image courtesy of Dr. Libero Ajello - CDC

### Quick fact #12:

*Penicillium spp.* is a common food spoilage organism. Though some species are harmful and may produce mycotoxins, many are beneficial and acceptable in food, such as blue cheese (*P. roqueforti*), and in the production of antibiotics (*P. chrysogenum*).

## ATCC Protozoa by Genus

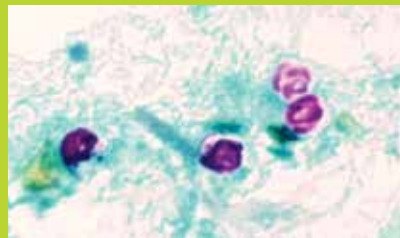
*Giardia*, *Cryptosporidium*, and *Toxoplasma* spp. are common contaminants of water, animal waste, or food. *Toxoplasma* spp. in particular are considered to be a leading cause of death attributed to food borne illness in the U.S. Representative strains for some of the most common contaminants have been provided in the tables below. For additional strains, visit ATCC online at [www.atcc.org](http://www.atcc.org).

### *Giardia* spp.

Description	ATCC® No.	Strain	Isolation
<i>Giardia intestinalis</i>	203332™	NF	drinking water
<i>Giardia intestinalis</i>	203333™	S2	lamb
<i>Giardia intestinalis</i>	30888™	Portland-1	human female
<i>Giardia intestinalis</i>	30957™	WB	human duodenal aspirate
<i>Giardia intestinalis</i>	PRA-46™	TH-1	clinical specimen
<i>Giardia lamblia</i>	PRA-242™	CM	
<i>Giardia lamblia</i>	PRA-254™	NIC	

### *Toxoplasma gondii*

Description	ATCC® No.	Strain	Isolation
<i>Toxoplasma gondii</i>	50853™	GT1 F3	skeletal muscle of a goat
<i>Toxoplasma gondii</i>	50859™	M7741	sheep
<i>Toxoplasma gondii</i>	50951™	C56	chicken with chronic infection
<i>Toxoplasma gondii</i>	50956™	P38	pig
<i>Toxoplasma gondii</i>	PRA-340™	RUB	bronchoalveolar lavage from human with toxoplasmosis
<i>Toxoplasma gondii</i>	PRA-341™	TgCatBr9	domestic cat
<i>Toxoplasma gondii</i>	PRA-344™	VAND	blood from human with disseminated toxoplasmosis



*Cryptosporidium parvum* oocysts image courtesy of DPDx - CDC

#### Quick fact #13:

*Cryptosporidium parvum* is difficult to grow *in vitro*. DNA from *C. parvum* strains are available from ATCC, and are listed in the nucleic acids section of this guide.

# Certified Reference Materials

The inherent variability of biological materials brings unique challenges to establishing standards for *in vitro* model systems and to setting up ISO-compliant processes to produce them. Biological reference materials produced under an ISO Guide 34:2009 accredited process offer confirmed identity, well-defined characteristics, and an established chain of custody; each of which are qualities essential to their effectiveness as biological standards in research and development.

ATCC Certified Reference Materials are traceable to the original seed lot and verified using polyphasic (genotypic and phenotypic) testing to confirm identity. Each vial is accompanied by a certificate stating property values, expiration date, and proper use; confirming that the necessary procedures have been carried out to ensure their validity and traceability

## Bacteria

Description	ATCC® No.	Strain
<i>Bacillus subtilis</i> subsp. <i>spizizenii</i>	CRM-6633™	NRS 231
<i>Clostridium sporogenes</i>	CRM-11437™	L.S. McClung 2006
<i>Escherichia coli</i>	CRM-8739™	Crooks
<i>Escherichia coli</i>	CRM-11229™	AMC 198
<i>Kocuria rhizophila</i>	CRM-9341™	FDA strain PCI 1001
<i>Pseudomonas aeruginosa</i>	CRM-9027™	R. Hugh 813
<i>Pseudomonas aeruginosa</i>	CRM-27853™	Boston 41501
<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar Typhimurium	CRM-14028™	CDC 6516-60
<i>Staphylococcus aureus</i>	CRM-6538™	FDA 209
<i>Staphylococcus epidermidis</i>	CRM-12228™	FDA strain PCI 1200

## Fungi and Yeast

Description	ATCC® No.	Strain
<i>Aspergillus brasiliensis</i>	CRM-16404™	WLRI 034 (120)
<i>Candida albicans</i>	CRM-10231™	3147
<i>Saccharomyces cerevisiae</i>	CRM-9763™	NRRL Y-567

## Antimicrobial Effectiveness Testing Panel (ATCC® MP-16™)

Description	ATCC® No.	Strain
<i>Staphylococcus aureus</i>	CRM-6538™	FDA 209
<i>Escherichia coli</i>	CRM-8739™	Crooks
<i>Pseudomonas aeruginosa</i>	CRM-9027™	R Hugh 813
<i>Candida albicans</i>	CRM-10231™	3147
<i>Aspergillus brasiliensis</i>	CRM-16404™	WLRI 034 (120)

## Microbial Enumeration Testing Panel (ATCC® MP-17™)

Description	ATCC® No.	Strain
<i>Staphylococcus aureus</i>	CRM-6538™	FDA 209
<i>Bacillus subtilis</i> subsp. <i>Spizizenii</i>	CRM-6633™	NRS 231
<i>Pseudomonas aeruginosa</i>	CRM-9027™	R Hugh 813
<i>Candida albicans</i>	CRM-10231™	3147
<i>Aspergillus brasiliensis</i>	CRM-16404™	WLRI 034 (120)



# Nucleic Acids from ATCC® Genuine Cultures®

Description	ATCC® No.	Strain
<i>Acinetobacter baumannii</i>	19606D-5™	Genomic DNA from strain 2208
Adenovirus 40	VR-931D™	Nucleic acids from Human adenovirus 40 strain Dugan [79-18025]
Adenovirus 41	VR-930D™	Nucleic acids from Human adenovirus 41 strain Tak [73-3544]
<i>Aeromonas hydrophila</i>	7966D-5™	Genomic DNA from strain RH250, Type Strain
<i>Aspergillus brasiliensis</i>	16404D-2™	Genomic DNA from strain WLRI 034(120)
<i>Aspergillus clavatus</i>	1007D-2™	Genomic DNA from strain Kral (ATCC 1007)
<i>Aspergillus fumigatus</i>	1022D-2™	Genomic DNA from strain 118 (ATCC 1022)
<i>Bacillus subtilis</i> subsp. <i>spizizenii</i>	6633D-5™	Genomic DNA from strain NRS 231
<i>Candida albicans</i>	10231D-5™	Genomic DNA from strain 3147
<i>Clostridium perfringens</i>	13124D-5™	Genomic DNA from the Type Strain
<i>Cronobacter sakazakii</i>	BAA-894D-5™	Genomic DNA from strain 2001-10-01
<i>Cryptosporidium parvum</i>	PRA-67D™	Genomic DNA from strain Iowa
<i>Escherichia coli</i>	11229D-5™	Genomic DNA from strain AMC 198
<i>Escherichia coli</i>	25922D-5™	Genomic DNA from strain FDA strain Seattle 1946
<i>Escherichia coli</i>	35401D-5™	Genomic DNA from strain H10407
<i>Escherichia coli</i>	8739D-5™	Genomic DNA from strain Crooks
<i>Giardia intestinalis</i>	30888D™	Genomic DNA from <i>Giardia intestinalis</i> strain Portland-1
<i>Giardia intestinalis</i>	30957D™	Genomic DNA from <i>Giardia intestinalis</i> strain WB
<i>Helicobacter pylori</i>	700392D-5™	Genomic DNA from strain 26695
<i>Helicobacter pylori</i>	700824D-5™	Genomic DNA from strain J99
<i>Helicobacter pylori</i>	43504D-5™	Genomic DNA from strain NCTC 11637
<i>Kocuria rhizophila</i>	9341D-5™	Genomic DNA from strain FDA strain PCI 1001
<i>Lactobacillus delbrueckii</i> subsp. <i>lactis</i>	7830D-5™	Genomic DNA from strain 313
<i>Listeria seeligeri</i>	35967D-5™	Genomic DNA from strain CIP 100100 (Type Strain)
<i>Micrococcus luteus</i>	10240D-5™	Genomic DNA from strain 130.21
<i>Mycobacterium tuberculosis</i>	25177D-5™	Genomic DNA from strain H37Ra (ATCC 25177)
Norovirus G1 (I)	VR-3199SD™	Synthetic Norovirus G1 (I) RNA
Norovirus G2 (II)	VR-3200SD™	Synthetic Norovirus G2 (II) RNA
<i>Pediococcus pentosaceus</i>	25745D-5™	Genomic DNA from strain 183-1w [ATCC 25745]
<i>Pseudomonas aeruginosa</i>	15442D-5™	Genomic DNA from strain PRD-10
<i>Pseudomonas aeruginosa</i>	27853D-5™	Genomic DNA from strain Boston 41501
<i>Saccharomyces cerevisiae</i>	9080D-5™	Genomic DNA from strain 4228
<i>Saccharomyces cerevisiae</i>	9763D-5™	Genomic DNA
<i>Staphylococcus aureus</i> subsp. <i>aureus</i>	25923D-5™	Genomic DNA from strain Seattle 1945
<i>Staphylococcus aureus</i> subsp. <i>aureus</i>	6538D-5™	Genomic DNA from strain FDA 209
<i>Staphylococcus epidermidis</i>	12228D-5™	Genomic DNA from strain FDA strain PCI 1200
<i>Streptococcus gallolyticus</i>	9809D™	Genomic DNA from strain 38
<i>Streptococcus pyogenes</i>	19615D-5™	Genomic DNA from strain Bruno
<i>Toxoplasma gondii</i>	50174D™	Genomic DNA from <i>Toxoplasma gondii</i> strain RH
<i>Trichophyton mentagrophytes</i>	9533D-2™	Genomic DNA from strain 640

### Big-Six *Escherichia coli* Genomic DNA Panel (ATCC® MP-10™)

Description	ATCC® No.	Strain	Serotype Designation	Presence of Select Virulence Genes
<i>Escherichia coli</i>	BAA-2196D-5™	2003-3014	O26:H11	stx1+/stx2+/eae+
<i>Escherichia coli</i>	BAA-2193D-5™	2000-3039	O45:H2	stx1+/stx2-/eae+
<i>Escherichia coli</i>	BAA-2215D-5™	2006-3008	O103:H11	stx1+/stx2-/eae+
<i>Escherichia coli</i>	BAA-2440D-5™	0111	O111	stx1+/stx2+/eae+
<i>Escherichia coli</i>	BAA-2219D-5™	2002-3211	O121:H19	stx1-/stx2+/eae+
<i>Escherichia coli</i>	BAA-2192D-5™	99-3311	O145:Nonmotile	stx1+/stx2+/eae+

### Enteric Protozoa DNA Panel (ATCC® MP-14™)

Description	ATCC® No.	Strain
Genomic DNA from <i>Giardia intestinalis</i>	50803D™	WB Clone C6
Genomic DNA from <i>Cryptosporidium parvum</i>	PRA-67D™	Iowa
Genomic DNA from <i>Blastocystis hominis</i>	50608D™	BT1
Genomic DNA from <i>Entamoeba histolytica</i>	30459D™	HM-1:IMSS



#### Quick fact #14:

The *Enterococcus faecalis* Quantitative DNA Standard (ATCC® 29212Q-FZ™) is recommended for use with EPA Method 1611: Enterococci in Water by TaqMan® Quantitative Polymerase Chain Reaction (qPCR) Assay.

### *Enterococcus faecalis* Quantitative DNA Standard (ATCC® 29212Q-FZ™)

Description	ATCC® No.	Strain
<i>Enterococcus faecalis</i> Dilution 1	888-001™	Genomic DNA from strain Portland
<i>Enterococcus faecalis</i> Dilution 2	888-002™	Genomic DNA from strain Portland
<i>Enterococcus faecalis</i> Dilution 3	888-003™	Genomic DNA from strain Portland

### *Mycobacterium tuberculosis* DNA

Description	ATCC® No.	Strain
<i>Mycobacterium tuberculosis</i>	27294D-2™	Genomic DNA from strain TMC 102
<i>Mycobacterium tuberculosis</i>	35727D-2™	Genomic DNA from strain TMC 602
<i>Mycobacterium tuberculosis</i>	35822D-2™	Genomic DNA from strain TMC 303
<i>Mycobacterium tuberculosis</i>	35838D-2™	Genomic DNA from strain TMC 331
<i>Mycobacterium tuberculosis</i>	BAA-2235D-2™	Genomic DNA from strain X005282
<i>Mycobacterium tuberculosis</i>	BAA-2236D-2™	Genomic DNA from strain X004439
<i>Mycobacterium tuberculosis</i>	BAA-2237D-2™	Genomic DNA from strain X003899

# ATCC® Strains Listed by Assay

## AOAC International

Method	ATCC® No.
<b>AOAC 955.11 - TESTING DISINFECTANTS AGAINST <i>SALMONELLA TYPHI</i>, PHENOL COEFFICIENT METHOD.</b>	
<i>Salmonella enterica</i> subsp. <i>enterica</i> AMC	6539™
<b>AOAC 955.12 - TESTING DISINFECTANTS AGAINST <i>STAPHYLOCOCCUS AUREUS</i>, PHENOL COEFFICIENT METHOD.</b>	
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> FDA 209	6538™
<b>AOAC 955.13 - TESTING DISINFECTANTS AGAINST <i>PSEUDOMONAS AERUGINOSA</i>, PHENOL COEFFICIENT METHOD.</b>	
<i>Pseudomonas aeruginosa</i> PRD-10	15442™
<b>AOAC 955.14 - TESTING DISINFECTANTS AGAINST <i>SALMONELLA CHOLERAESUIS</i>, USE-DILUTION METHODS</b>	
<i>Salmonella enterica</i> subsp. <i>enterica</i> ETS 34	10708™
<b>AOAC 955.15 - TESTING DISINFECTANTS AGAINST <i>STAPHYLOCOCCUS AUREUS</i>, USE-DILUTION METHODS.</b>	
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> FDA 209	6538™
<b>AOAC 955.16 - CHLORINE (AVAILABLE) IN DISINFECTANTS, GERMICIDAL EQUIVALENT CONCENTRATION.</b>	
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> FDA 209	6538™
<i>Salmonella enterica</i> subsp. <i>enterica</i> AMC	6539™
<b>AOAC 955.17 - FUNGICIDAL ACTIVITY OF DISINFECTANTS.</b>	
<i>Trichophyton mentagrophytes</i> 640	9533™
<b>AOAC 957.23 - ANTIBIOTICS IN FEEDS, MICROBIOLOGICAL METHODS.</b>	
<i>Bacillus cereus</i> FDA strain PCI 213	11778™
<i>Bacillus subtilis</i> subsp. <i>spizizenii</i> NRS 231	6633™
<i>Escherichia coli</i> UC 527	29998™
<i>Kocuria rhizophila</i> FDA strain PCI 1001	9341™
<i>Micrococcus luteus</i> Mercedita	7468™
<i>Micrococcus luteus</i> 130.21	10240™
<i>Saccharomyces cerevisiae</i>	9763™
<i>Staphylococcus epidermidis</i> FDA strain PCI 1200	12228™
<b>AOAC 960.09 - GERMICIDAL AND DETERGENT SANITIZING ACTION OF DISINFECTANTS.</b>	
<i>Escherichia coli</i> AMC 198	11229™
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> FDA 209	6538™
<b>AOAC 960.46 - VITAMIN ASSAYS, MICROBIOLOGICAL METHOD.</b>	
<i>Lactobacillus delbrueckii</i> subsp. <i>lactis</i> 313	7830™
<i>Lactobacillus rhamnosus</i>	7469™
<b>AOAC 960.47 - AMINO ACIDS IN VITAMIN PREPARATIONS.</b>	
<i>Enterococcus hirae</i> R	9790™
<i>Lactobacillus plantarum</i> 17-5	8014™
<i>Pediococcus acidilactici</i>	8042™
<b>AOAC 960.67 - HYGROMYCIN B IN FEEDS, MICROBIOLOGICAL METHOD.</b>	
<i>Bacillus subtilis</i> subsp. <i>spizizenii</i> NRS 231	6633™
<b>AOAC 961.02 - GERMICIDAL SPRAY PRODUCTS AS DISINFECTANTS.</b>	
<i>Pseudomonas aeruginosa</i> PRD-10	15442™
<i>Salmonella enterica</i> subsp. <i>enterica</i> ETS 34	10708™
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> FDA 209	6538™
<i>Trichophyton mentagrophytes</i> 640	9533™
<b>AOAC 961.15 - VITAMIN B6 (PYRIDOXINE, PYRIDOXAL, PYRIDOXAMINE) IN FOOD EXTRACTS, MICROBIOLOGICAL METHOD.</b>	
<i>Bacillus subtilis</i> subsp. <i>spizizenii</i> NRS 231	6633™
<b>AOAC 962.14 - BETA-LACTAM ANTIBIOTICS IN MILK, QUALITATIVE FIELD DISK ASSAY.</b>	
<i>Saccharomyces cerevisiae</i> 4228	9080™
<b>AOAC 964.02 - TESTING DISINFECTANTS AGAINST <i>PSEUDOMONAS AERUGINOSA</i>, USE-DILUTION METHOD.</b>	
<i>Pseudomonas aeruginosa</i> PRD-10	15442™

## AOAC International

Method	ATCC® No.
<b>AOAC 972.56 - MONENSIN IN FEEDS, MICROBIOLOGICAL METHOD.</b>	
<i>Bacillus subtilis</i> subsp. <i>spizizenii</i> NRS 231	6633™
<b>AOAC 976.37 - MONENSIN IN FEEDS, TURBIDIMETRIC METHOD.</b>	
<i>Enterococcus hirae</i> R	8043™
<b>AOAC 977.37 - CHLORTETRACYCLINE HCL IN FEEDS, TURBIDIMETRIC METHOD.</b>	
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> 3R7089 strain Oxford	9144™
<b>AOAC 979.14 - BETA-LACTAM ANTIBIOTICS, QUALITATIVE DISC METHOD I.</b>	
<i>Geobacillus stearothermophilus</i> NRS T15	10149™
<b>AOAC 982.16 - BETA-LACTAM ANTIBIOTICS IN MILK, QUANTITATIVE DISC METHOD.</b>	
<i>Geobacillus stearothermophilus</i> NRS T15	10149™
<b>AOAC 982.17 - BETA-LACTAM ANTIBIOTICS IN MILK, QUALITATIVE DISC METHOD II.</b>	
<i>Geobacillus stearothermophilus</i> NRS T15	10149™
<b>AOAC 982.43 - BACITRACIN IN PREMIX FEEDS.</b>	
<i>Micrococcus luteus</i> 130.21	10240™
<b>AOAC 984.34 - DETECTION OF <i>ESCHERICHIA COLI</i> PRODUCING HEAT-LABILE ENTEROTOXIN, DNA COLONY HYBRIDIZATION METHOD.</b>	
<i>Escherichia coli</i> H10407	35401™
<i>Escherichia coli</i> pBR313	37018™
<b>AOAC 985.32 - VITAMIN B6 IN READY-TO-FEED MILK-BASED INFANT FORMULA, MICROBIOLOGICAL METHOD.</b>	
<i>Saccharomyces cerevisiae</i> 4228	9080™
<b>AOAC 986.23 - VITAMIN B12 ACTIVITY IN MILK-BASED INFANT FORMULA, TURBIDIMETRIC METHOD.</b>	
<i>Lactobacillus delbrueckii</i> subsp. <i>lactis</i> 313	7830™
<i>Weissella confusa</i> 548-D	10881™
<b>AOAC 991.38 - SALMONELLA IN FOODS.</b>	
<i>Escherichia coli</i> FDA strain Seattle 1946	25922™
<b>AOAC 991.47 - TESTING DISINFECTANTS AGAINST <i>SALMONELLA CHOLERAESUIS</i>, HARD SURFACE CARRIER TEST METHOD.</b>	
<i>Salmonella enterica</i> subsp. <i>enterica</i> ETS 34	10708™
<b>AOAC 991.48 - TESTING DISINFECTANTS AGAINST <i>STAPHYLOCOCCUS AUREUS</i>, HARD SURFACE CARRIER TEST METHOD.</b>	
<i>Saccharomyces cerevisiae</i>	9763™
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> FDA 209	6538™
<b>AOAC 991.49 - TESTING DISINFECTANTS AGAINST <i>PSEUDOMONAS AERUGINOSA</i>, HARD SURFACE CARRIER TEST METHOD.</b>	
<i>Pseudomonas aeruginosa</i> PRD-10	15442™
<b>AOAC 992.05 - FOLIC ACID (PTEROYLGLUTAMIC ACID) IN INFANT FORMULA, MICROBIOLOGICAL METHODS.</b>	
<i>Lactobacillus rhamnosus</i>	7469™
<b>AOAC 992.18 - LISTERIA SPECIES - BIOCHEMICAL IDENTIFICATION METHOD (MICRO-ID) <i>LISTERIA</i>.</b>	
<i>Lactococcus lactis</i> subsp. <i>cremoris</i> NCDO 607	19257™
<i>Listeria grayi</i> V-1	25400™
<i>Listeria monocytogenes</i> Li 20	19111™
<i>Listeria seeligeri</i> CIP 100100	35967™
<i>Streptococcus mitis</i>	6249™
<b>AOAC 992.19 - LISTERIA SPECIES - BIOCHEMICAL IDENTIFICATION METHOD (VITEK® GPI AND GNI+).</b>	
<i>Acinetobacter baumannii</i> 2208	19606™
<i>Bordetella bronchiseptica</i> 03127	10580™
<i>Enterococcus durans</i> 23C2	6056™
<i>Enterococcus faecalis</i> Portland	29212™
<i>Klebsiella pneumoniae</i> subsp. <i>Pneumonia</i>	13883™
<i>Proteus mirabilis</i>	7002™
<i>Pseudomonas aeruginosa</i> Boston 41501	27853™
<i>Serratia odorifera</i> 1073	33077™
<i>Shigella sonnei</i>	25931™
<i>Staphylococcus xylosum</i> KL 162	29971™

## AOAC International

Method	ATCC® No.
<i>Streptococcus equi</i> subsp. <i>equi</i> 2-1-23	9528™
<i>Streptococcus gallolyticus</i> 38	9809™
<i>Streptococcus pneumoniae</i> R36a rough phase	27336™
<i>Streptococcus pyogenes</i> Bruno	19615™
<b>AOAC 993.29 - BACITRACIN-MD (BMD) IN COMPLETE FEED, MICROBIOLOGICAL PLATE ASSAY METHOD.</b>	
<i>Micrococcus luteus</i> 130.21	10240™
<b>AOAC 997.17 - MICROBIAL RANKING OF POROUS PACKAGING MATERIALS (EXPOSURE CHAMBER METHOD).</b>	
<i>Bacillus atrophaeus</i> NRS 1221A	9372™
<b>AOAC 998.02 - NEOMYCIN IN FEEDS - STAHL MICROBIOLOGICAL AGAR DIFFUSION ASSAY.</b>	
<i>Staphylococcus epidermidis</i> FDA strain PCI 1200	12228™
<b>AOAC 2004.04 - IDENTIFICATION OF PRESUMPTIVE ISOLATES OF <i>BACILLUS ANTHRACIS</i>.</b>	
<i>Bacillus cereus</i>	14579™
<b>AOAC 2004.05 - TOTAL FOLATES IN CEREALS AND CEREAL FOODS.</b>	
<i>Lactobacillus rhamnosus</i>	7469™
<b>AOAC 2004.11 - IDENTIFICATION OF <i>BACILLUS ANTHRACIS</i> FROM CULTURE - GAS CHROMATOGRAPHIC ANALYSIS OF FATTY ACID METHYL ESTERS (FAMES).</b>	
<i>Bacillus cereus</i>	14579™

## Australian Standards

Method	ATCC® No.
<b>AS 1766.5-1994 - FOOD MICROBIOLOGY. METHOD 5: PREPARATION OF CULTURE MEDIA, DILUENTS AND REAGENTS.</b>	
<i>Listeria innocua</i> SLCC 3379	33090™
<i>Listeria ivanovii</i> subsp. <i>ivanovii</i> Li 1979	19119™
<i>Rhodococcus equi</i>	6939™
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> Seattle 1945	25923™
<b>AS 5013.12.3:2004 – FOOD MICROBIOLOGY. METHOD 12.3: MICROBIOLOGY OF FOOD AND ANIMAL FEEDING STUFFS – HORIZONTAL METHODS FOR THE ENUMERATION OF COAGULASE-POSITIVE STAPHYLOCOCCI (<i>STAPHYLOCOCCUS AUREUS</i> AND OTHER SPECIES) – DETECTION AND MPN TECHNIQUE FOR LOW NUMBERS.</b>	
<i>Escherichia coli</i> FDA strain Seattle 1946	25922™
<i>Escherichia coli</i> Crooks	8739™
<i>Penicillium aurantiogriseum</i> H45	8732™
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> Seattle 1945	25923™
<b>AS/NZS 1766.2.12:2002 - FOOD MICROBIOLOGY. METHODS 2.12: EXAMINATION FOR SPECIFIC ORGANISMS - <i>ESCHERICHIA COLI</i> IN BIVALVE MOLLUSCS- RAPID METHOD.</b>	
<i>Enterobacter aerogenes</i> NCDC 819-56	13048™
<i>Escherichia coli</i> U 5/41	11775™
<b>AS/NZS 1766.2.15:1998 - FOOD MICROBIOLOGY. METHOD 2.15: EXAMINATION FOR SPECIFIC ORGANISMS - <i>LISTERIA MONOCYTOGENES</i> IN DAIRY PRODUCTS.</b>	
<i>Listeria innocua</i> SLCC 3379	33090™
<i>Listeria ivanovii</i> subsp. <i>ivanovii</i> Li 1979	19119™
<i>Rhodococcus equi</i>	6939™
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> Seattle 1945	25923™
<b>AS/NZS 1766.2.16.1:1998 - FOOD MICROBIOLOGY. METHOD 2.16.1: EXAMINATION FOR SPECIFIC ORGANISMS - FOOD AND ANIMAL FEEDING STUFFS-- HORIZONTAL METHOD FOR THE DETECTION AND ENUMERATION OF <i>LISTERIA MONOCYTOGENES</i> - DETECTION METHOD.</b>	
<i>Listeria innocua</i> SLCC 3379	33090™
<i>Listeria ivanovii</i> subsp. <i>ivanovii</i> Li 1979	19119™
<i>Rhodococcus equi</i>	6939™
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> Seattle 1945	25923™
<b>AS/NZS 1766.2.9:1997 - FOOD MICROBIOLOGY. METHOD 2.9: EXAMINATION FOR SPECIFIC ORGANISMS - <i>VIBRIO PARAHAEMOLYTICUS</i>.</b>	
<i>Vibrio parahaemolyticus</i> 70/116655	43996™

## U.S. Food and Drug Administration (BAM)

Method	ATCC® No.
<b>BAM 10.F - DETECTION AND ENUMERATION OF <i>LISTERIA MONOCYTOGENES</i> IN FOODS, THE CAMP TEST.</b>	
<i>Rhodococcus equi</i>	6939™
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> Seattle 1945	25923™
<i>Staphylococcus pseudintermedius</i>	49444™
<b>BAM 13B - ELECTROPHORETIC AND IMMUNOBLOT ANALYSIS OF STAPHYLOCOCCAL ENTEROTOXINS IN FOOD.</b>	
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> FDA 196E	13565™
<b>BAM 20A - INHIBITORY SUBSTANCES IN MILK.</b>	
<i>Geobacillus stearothermophilus</i> NRS T15	10149™
<i>Kocuria rhizophila</i> FDA strain PCI 1001	9341™
<b>BAM 24 - IDENTIFICATION OF FOODBORNE BACTERIAL PATHOGENS BY GENE PROBES: ENTEROTOXIGENIC <i>ESCHERICHIA COLI</i>: HEAT-STABLE ENTEROTOXIN (HUMAN), HEAT-STABLE ENTEROTOXIN (PORCINE), AND HEAT-LABILE ENTEROTOXIN.</b>	
<i>Escherichia coli</i> FDA strain Seattle 1946	25922™
<b>BAM 24 - IDENTIFICATION OF FOODBORNE BACTERIAL PATHOGENS BY GENE PROBES, <i>LISTERIA MONOCYTOGENES</i>: COMBINATION OF INVASION-ASSOCIATED PROTEIN (IAP) AND HEMOLYSIN (HLY) GENE PROBES - AD713.</b>	
<i>Listeria innocua</i> SLCC 3379	33090™
BAM 24 - Identification of Foodborne Bacterial Pathogens by Gene Probes, <i>Vibrio cholerae</i> ctxA11.	
<i>Vibrio cholerae</i>	14033™
BAM 24 - Identification of Foodborne Bacterial Pathogens by Gene Probes, <i>Vibrio vulnificus</i> VV6.	
<i>Vibrio cholerae</i>	14033™
<i>Vibrio vulnificus</i> 324	27562™
BAM 24 - Identification of Foodborne Bacterial Pathogens by Gene Probes, <i>Vibrio parahaemolyticus</i> tdh3.	
<i>Vibrio parahaemolyticus</i> EB 101	17802™
<b>BAM 4.II.3 - ENUMERATION OF <i>ESCHERICHIA COLI</i> AND THE COLIFORM BACTERIA: LST-MUG METHOD FOR DETECTING <i>ESCHERICHIA COLI</i> IN CHILLED OR FROZEN FOODS EXCLUSIVE OF BIVALVE MOLLUSCAN SHELLFISH.</b>	
<i>Enterobacter aerogenes</i> NCDC 819-56	13048™
<i>Escherichia coli</i> FDA strain Seattle 1946	25922™
BAM 5.D.7 - Salmonella: Isolation of Salmonella	
<i>Salmonella enterica</i> subsp. <i>diarizonae</i> 62	29934™

## British Standards Institution

Method	ATCC® No.
<b>BS EN 1104:2005 - PAPER AND BOARD INTENDED TO COME INTO CONTACT WITH FOODSTUFFS - DETERMINATION OF THE TRANSFER OF ANTIMICROBIAL CONSTITUENTS.</b>	
<i>Aspergillus niger</i> 4247	6275™
<b>BS EN 13697:2001 - CHEMICAL DISINFECTANTS AND ANTISEPTICS - QUANTITATIVE NON-POROUS SURFACE TEST FOR THE EVALUATION OF BACTERICIDAL AND/OR FUNGICIDAL ACTIVITY OF CHEMICAL DISINFECTANTS USED IN FOOD, INDUSTRIAL, DOMESTIC AND INSTITUTIONAL AREAS - TEST METHOD AND REQUIREMENTS WITHOUT MECHANICAL ACTION (PHASE 2/STEP 2).</b>	
<i>Aspergillus brasiliensis</i> WLR1 034(120)	16404™
<i>Candida albicans</i> 3147	10231™
<i>Enterococcus hirae</i> FDA M19	10541™
<i>Escherichia coli</i> MacLeod	10536™
<i>Pseudomonas aeruginosa</i> PRD-10	15442™
<i>Saccharomyces cerevisiae</i>	9763™
<i>Salmonella enterica</i> subsp. <i>Enterica</i>	13311™
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> FDA 209	6538™
<b>BS EN 13704:2002 - CHEMICAL DISINFECTANTS - QUANTITATIVE SUSPENSION TEST FOR THE EVALUATION OF SPORICIDAL ACTIVITY OF CHEMICAL DISINFECTANTS USED IN FOOD, INDUSTRIAL, DOMESTIC AND INSTITUTIONAL AREAS - TEST METHOD AND REQUIREMENTS (PHASE 2, STEP 1).</b>	
<i>Bacillus cereus</i> Type Strain A, variant IV	12826™
<i>Bacillus subtilis</i> subsp. <i>spizizenii</i> NRS 231	6633™
BS EN 14131:2003 - Foodstuffs - Determination of folate by microbiological assay.	
<i>Lactobacillus rhamnosus</i>	7469™



## British Standards Institution

Method	ATCC® No.
<b>BS EN 1650:1998 - CHEMICAL DISINFECTANTS AND ANTISEPTICS - QUANTITATIVE SUSPENSION TEST FOR THE EVALUATION OF FUNGICIDAL ACTIVITY OF CHEMICAL DISINFECTANTS AND ANTISEPTICS USED IN FOOD, INDUSTRIAL, DOMESTIC AND INSTITUTIONAL AREAS - TEST METHOD AND REQUIREMENTS (PHASE 2, STEP 1).</b>	
<i>Aspergillus brasiliensis</i> WLRI 034(120)	16404™
<i>Candida albicans</i> 3147	10231™
<i>Saccharomyces cerevisiae</i>	9763™
<b>BS EN ISO 11290-1:1997 - MICROBIOLOGY OF FOOD AND ANIMAL FEEDING STUFFS - HORIZONTAL METHOD FOR THE DETECTION AND ENUMERATION OF <i>LISTERIA MONOCYTOGENES</i> - PART 1: DETECTION METHOD, ANNEX B.</b>	
<i>Enterococcus faecalis</i> Portland	29212™
<i>Escherichia coli</i> FDA strain Seattle 1946	25922™
<i>Listeria innocua</i> SLCC 3379	33090™
<i>Listeria monocytogenes</i> 1071/53	13932™
<i>Listeria monocytogenes</i> Li20	19111™
<i>Rhodococcus equi</i>	6939™
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> Seattle 1945	25923™
<b>BS EN ISO 11290-2:1998 - MICROBIOLOGY OF FOOD AND ANIMAL FEEDING STUFFS - HORIZONTAL METHOD FOR THE DETECTION AND ENUMERATION OF <i>LISTERIA MONOCYTOGENES</i> - PART 2: ENUMERATION METHOD, ANNEX B.</b>	
<i>Rhodococcus equi</i>	6939™
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> Seattle 1945	25923™
<b>BS EN ISO 21871:2006 - Microbiology of food and animal feeding stuffs.</b>	
<i>Bacillus cereus</i> FDA strain PCI 213	11778™
<i>Escherichia coli</i> FDA strain Seattle 1946	25922™
<i>Escherichia coli</i> Crooks	8739™
<b>BS EN ISO 6888-3:2003 - MICROBIOLOGY OF FOOD AND ANIMAL FEEDING STUFFS - HORIZONTAL METHOD FOR THE ENUMERATION OF COAGULASE-POSITIVE STAPHYLOCOCCI (<i>STAPHYLOCOCCUS AUREUS</i> AND OTHER SPECIES) - PART3: DETECTION AND MPN TECHNIQUE FOR LOW NUMBERS.</b>	
<i>Penicillium aurantiogriseum</i>	8732™
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> FDA 209	6538™
DD ENV 14166:2001 - Foodstuffs --- Determination of vitamin B6 by microbiological assay.	
<i>Saccharomyces cerevisiae</i> 4228	9080™

## International Organization for Standardization (ISO)

Method	ATCC® No.
<b>ISO 6888-3:2003 - MICROBIOLOGY OF FOOD AND ANIMAL FEEDING STUFFS - HORIZONTAL METHOD FOR THE ENUMERATION OF COAGULASE-POSITIVE STAPHYLOCOCCI (<i>STAPHYLOCOCCUS AUREUS</i> AND OTHER SPECIES) - PART3: DETECTION AND MPN TECHNIQUE FOR LOW NUMBERS.</b>	
<i>Escherichia coli</i> FDA strain Seattle 1946	25922™
<i>Escherichia coli</i> Crooks	8739™
<i>Penicillium aurantiogriseum</i> H45	8732™
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> FDA 209	6538™
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> Seattle 1945	25923™
<b>ISO 11290-2:1998 - MICROBIOLOGY OF FOOD AND ANIMAL FEEDING STUFFS - HORIZONTAL METHOD FOR THE DETECTION AND ENUMERATION OF <i>LISTERIA MONOCYTOGENES</i> - PART 2: ENUMERATION METHOD.</b>	
<i>Rhodococcus equi</i>	6939™
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> Seattle 1945	25923™
<b>ISO 11133-2:2003 - MICROBIOLOGY OF FOOD AND ANIMAL FEEDING STUFFS - GUIDELINES ON PREPARATION AND PRODUCTION OF CULTURE MEDIA - PART 2: PRACTICAL GUIDELINES ON PERFORMANCE TESTING OF CULTURE MEDIA.</b>	
<i>Aspergillus brasiliensis</i> WLRI 034(120)	16404™
<i>Bacillus cereus</i> FDA strain PCI 213	11778™
<i>Bacillus subtilis</i> subsp. <i>spizizenii</i> NRS 231	6633™
<i>Candida albicans</i> 3147	10231™
<i>Citrobacter freundii</i> LRA 117.03.76	43864™
<i>Clostridium perfringens</i> 281/50	12916™
<i>Clostridium perfringens</i> CN 1491	13124™
<i>Enterococcus faecalis</i>	19433™

## International Organization for Standardization (ISO)

Method	ATCC® No.
<i>Enterococcus faecalis</i> Portland	29212™
<i>Escherichia coli</i> FDA strain Seattle 1946	25922™
<i>Escherichia coli</i> Crooks	8739™
<i>Escherichia coli</i>	11775™
<i>Escherichia coli</i> CDC EDL 932	43894™
<i>Escherichia coli</i> CDC EDL 933	43895™
<i>Lactobacillus sakei</i> subsp. <i>sakei</i> T.S.	15521™
<i>Lactococcus lactis</i> subsp. <i>lactis</i> OJ	19435™
<i>Listeria monocytogenes</i> Li 20	19111™
<i>Listeria monocytogenes</i> 1071/53	13932™
<i>Pediococcus damnosus</i> Be.1	29358™
<i>Penicillium aurantiogriseum</i> IMI 19759	16025™
<i>Proteus mirabilis</i> CDC PR 14	29906™
<i>Pseudomonas aeruginosa</i> Boston 41501	27853™
<i>Saccharomyces cerevisiae</i>	9763™
<i>Salmonella enterica</i> subsp. <i>enterica</i> CDC K-1891	13076™
<i>Salmonella enterica</i> subsp. <i>enterica</i> CDC 6516-60	14028™
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> FDA 209	6538™
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> Seattle 1945	25923™
<i>Staphylococcus epidermidis</i> FDA strain PCI 1200	12228™
<i>Yersinia enterocolitica</i> 33114	9610™
<i>Yersinia enterocolitica</i> subsp. <i>enterocolitica</i> Billups-1803-68	23715™

## Japanese Industrial Standards (JIS)

Method	ATCC® No.
<b>JIS K 3703-1:2004 HORIZONTAL METHOD FOR THE ENUMERATION OF COAGULASE-POSITIVE STAPHYLOCOCCI (STAPHYLOCOCCUS AUREUS AND OTHER SPECIES)-PART 1: TECHNIQUE USING THE BAIRD-PARKER AGAR MEDIUM</b>	
<i>Staphylococcus aureus</i> subsp. <i>aureus</i>	6538P™
<i>Staphylococcus epidermidis</i>	14990™
<b>JIS K 3703-3:2008 HORIZONTAL METHOD FOR THE ENUMERATION OF COAGULASE-POSTIVE STAPHYLOCOCCI (STAPHYLOCOCCUS AUREUS AND OTHER SPECIES)-PART 3: DETECTION AND MPN TECHNIQUE FOR LOW NUMBERS</b>	
<i>Staphylococcus aureus</i> subsp. <i>aureus</i>	CRM-6538™
<i>Escherichia coli</i>	25922™
<i>Staphylococcus epidermidis</i>	12228™
<b>JIS K 3705:2008 TEST METHODS FOR CULTURE MEDIA-CULTURE MEDIUM FOR SALMONELLA SPP.-DETECTION OF SALMONELLA SPP.</b>	
<i>Escherichia coli</i>	25922™
<i>Enterococcus faecalis</i>	29212™
<b>JIS K 3706-1:2008 TEST METHODS FOR CULTURE MEDIA-CULTURE MEDIUM FOR LISTERIA MONOCYTOGENES-PART 1: DETECTION OF LISTERIA MONOCYTOGENES</b>	
<i>Staphylococcus aureus</i>	25923™
<i>Escherichia coli</i>	25922™
<i>Enterococcus faecalis</i>	29212™
<b>JIS K 3706-2:2008 TEST METHODS FOR CULTURE MEDIA-CULTURE MEDIUM FOR LISTERIA MONOCYTOGENES-PART 1: ENUMERATION OF LISTERIA MONOCYTOGENES</b>	
<i>Staphylococcus aureus</i>	25923™
<i>Rhodococcus equi</i>	6939™

## Japanese Pharmacopeia (JP)

Method	ATCC® No.
<b>JP 16 G8: QUALITY CONTROL OF WATER FOR PHARMACEUTICAL USE</b>	
<i>Escherichia coli</i>	8739™
<i>Pseudomonas aeruginosa</i>	9027™

## Japanese Pharmacopeia (JP)

Method	ATCC® No.
<i>Staphylococcus aureus</i>	6538™
<i>Pseudomonas fluorescens</i>	17386™
<i>Methylobacterium extorquens</i>	BAA-2500™

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## Quick Reference for Featured Products

Description	ATCC® No.
Big-Six <i>Escherichia coli</i> Strains Panel	MP-9™
Big-Six <i>Escherichia coli</i> Genomic DNA Panel	MP-10™
<i>Cronobacter sakazakii</i>	BAA-894™
<i>Enterococcus faecalis</i> Quantitative DNA Standard	29212Q-FZ™
Enteric Protozoa DNA Panel	MP-14™
<i>Mycobacterium tuberculosis</i>	35727D-2™
<i>Mycobacterium tuberculosis</i>	35822D-2™
<i>Mycobacterium tuberculosis</i>	35838D-2™
<i>Mycobacterium tuberculosis</i>	BAA-2235D-2™
<i>Mycobacterium tuberculosis</i>	BAA-2236D-2™
<i>Mycobacterium tuberculosis</i>	BAA-2237D-2™
<i>Salmonella enterica</i> Panel	MP-15™
Synthetic Norovirus G1 (I) RNA	VR-3199SD™
Synthetic Norovirus G2 (II) RNA	VR-3200SD™

### ATCC Resources for Microbiology

Description	Location
ATCC Bacteriology Culture Guide	Available at <a href="http://www.atcc.org">www.atcc.org</a>
ATCC Mycology Culture Guide	Available at <a href="http://www.atcc.org">www.atcc.org</a>
ATCC Virology Culture Guide	Available at <a href="http://www.atcc.org">www.atcc.org</a>



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BA-0413-01

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