Combatting Antimicrobial Resistance

How ATCC's AMR Collection Supports the Global Scientific Community

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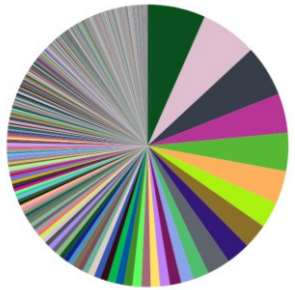
About Us

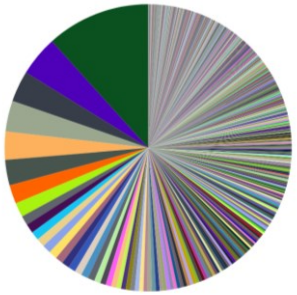
ATCC is a global leader in providing authenticated, high-quality biological resources and standards for industry, academia, and government.

- Founded in 1925, ATCC is a private, nonprofit, global biological resource center and standards organization that provides scientists with the biomaterials and resources they need to conduct critical life science research.
- World's trusted, premier biological materials resource and standards development organization:
  - 4,000+ cell lines
  - 80,000+ microorganisms
  - Genomic and synthetic nucleic acids
  - Media, sera, and reagents
  - Advanced cell models
  - Standards

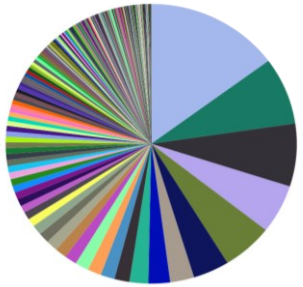
Credible Collections



Bacteriology
1226 genera



Mycology
1864 genera



Virology
200 genera

The most comprehensive, fully authenticated collection:

- 70,000+ bacteria, fungi, viruses, and protozoa
- Over 8,700 microbial type strains
- Over 1,000 derivatives, such as nucleic acid preparations

Brand recognition:

- Organizations and regulatory agencies specify ATCC cultures - USP, ISO, FDA, CLSI, USDA, ASTM, AOAC, etc.
- Over 475 reference strains recommended for use in quality control

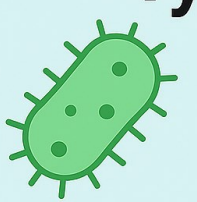
Explore our microbial products

What Is Antimicrobial Resistance?

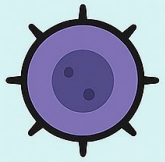
Antimicrobials are drugs or other agents used to treat microbial pathogens by inhibiting growth or killing the microorganism responsible for infection.

Antimicrobial resistance (AMR) is the ability of a microorganism to avoid the effects of antimicrobials.

Types of Antimicrobials

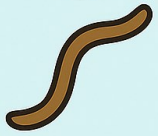


ANTIBIOTICS
drugs that treat bacterial infections



ANTIVIRALS
drugs that treat viral infections

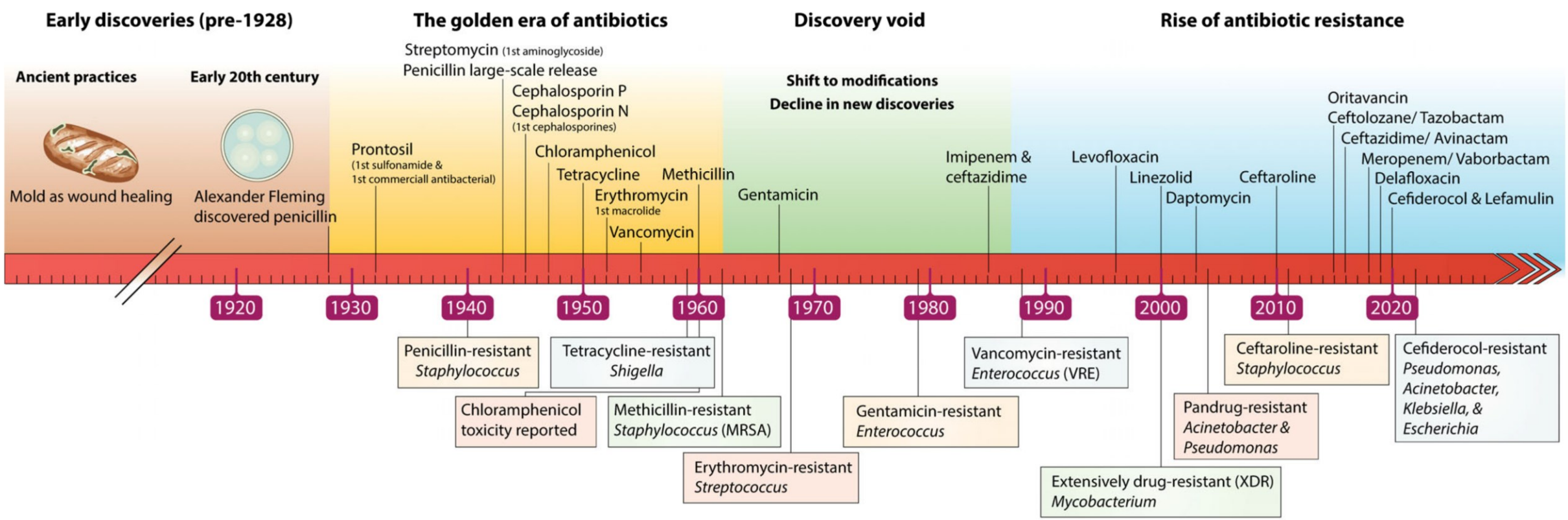
ANTIFUNGALS
drugs that treat fungal infections



ANTIPARASITICS
drugs that treat parasitic infections

The Rise of Resistance

Significant events in antibiotic evolution

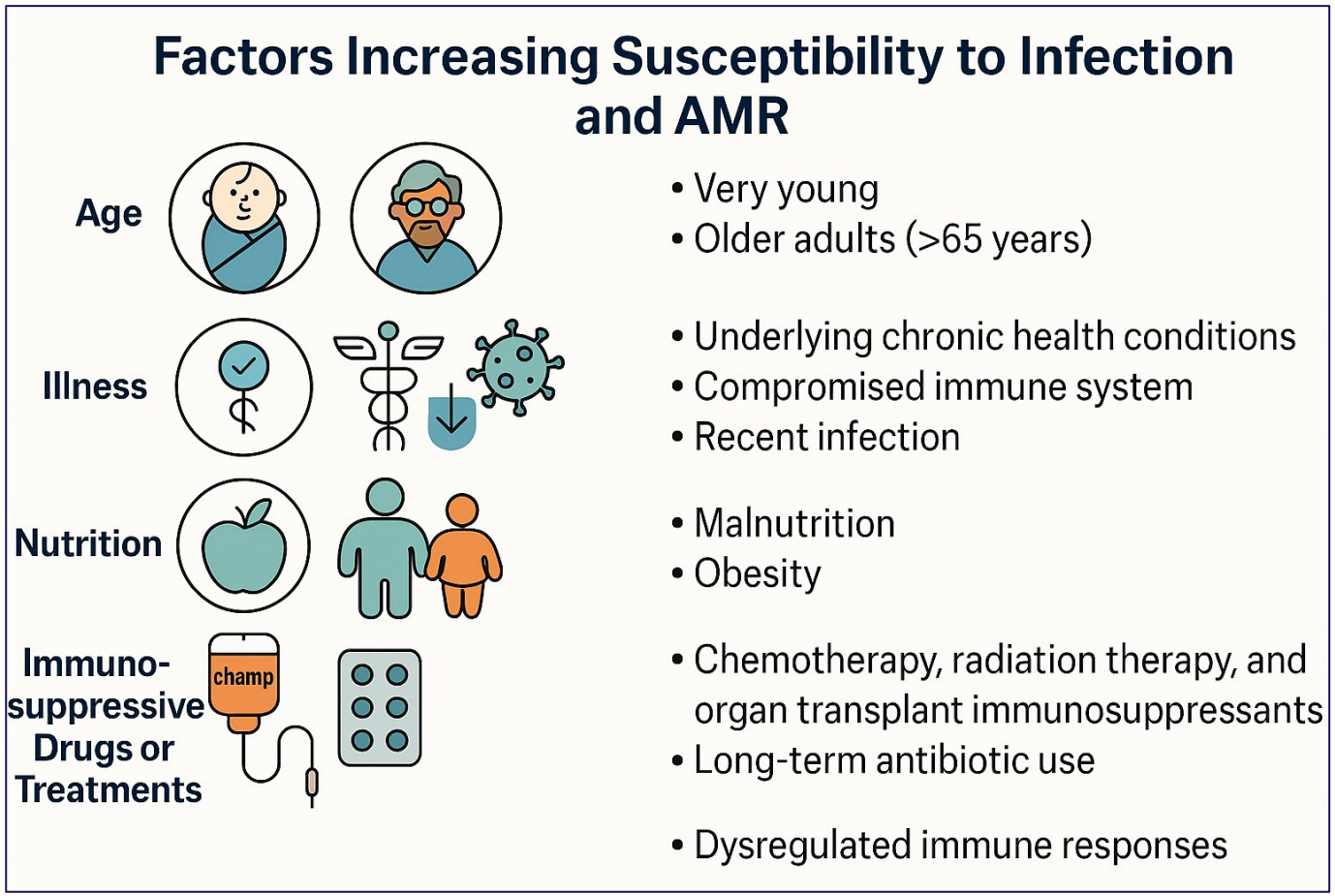


Tahmasebi H, et al. Biomolecules 15(1): 93, 2025. PubMed: 39858487

The Global Burden

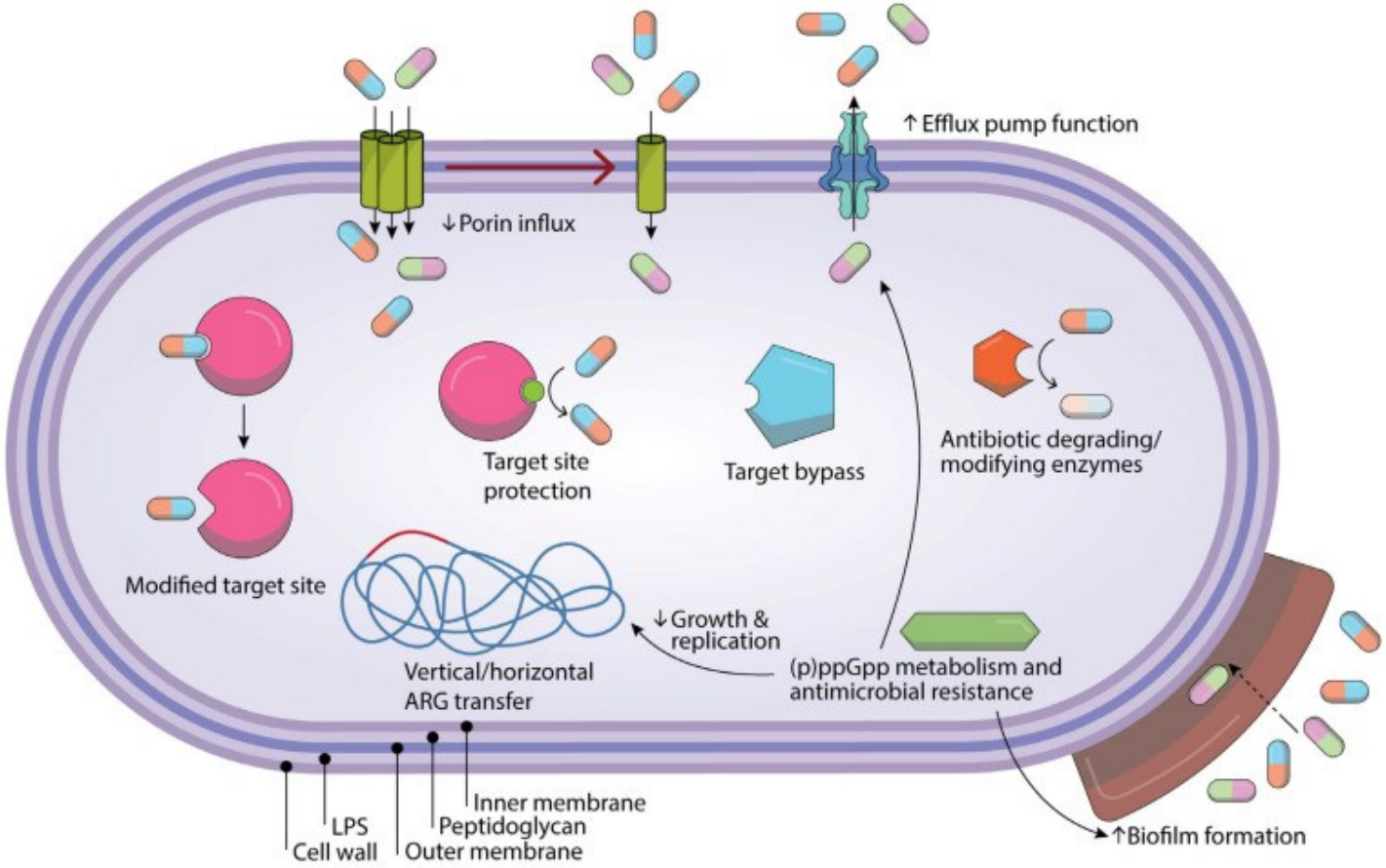
- **Global Impact**: At least **1.27 million deaths** were directly caused by AMR in 2019, with nearly **5 million associated deaths** globally (*Lancet 2024*).
- **U.S. Burden**: Over **2.8 million AMR infections** and **35,000 deaths** annually (*CDC 2019*).
- **Economic Cost**: Treating the six most common AMR infections in U.S. healthcare costs over **$4.6 billion per year** (*Nelson et al 2025 Clin Infect Dis 72: S17-S26*).

Risk Factors…



Types of Resistance Mechanisms

- Decreased influx, accumulation, or uptake
- Active efflux pumps
- Enzymatic inactivation or destruction
- Alternative enzyme
- Target modification or mutation
- Biofilm protection



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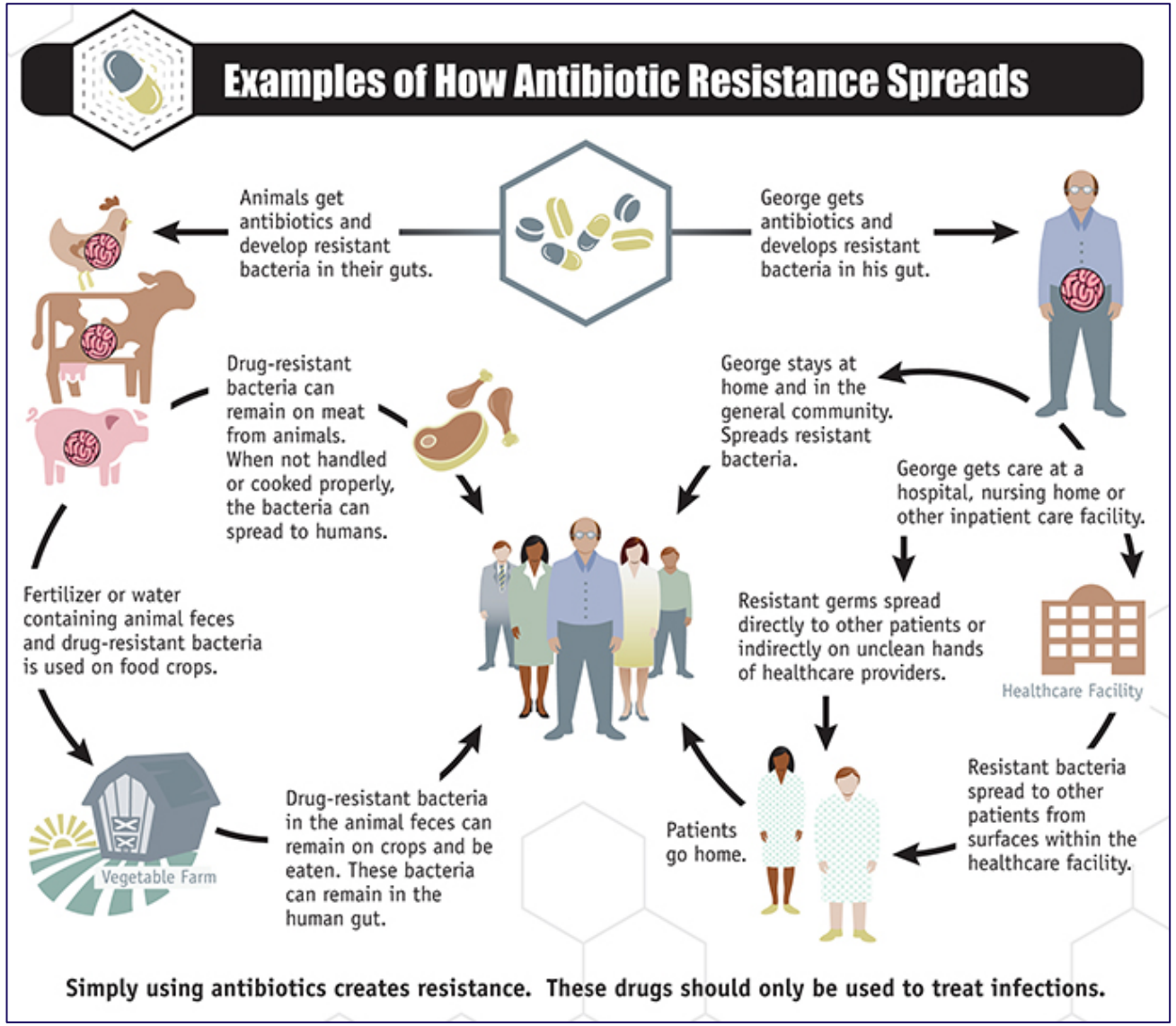
Spread of Resistance

Healthcare-acquired infections (HAIs): infections that occur within 30 days of receiving health care

Community-acquired infections (CAIs): infections that cannot be traced to healthcare

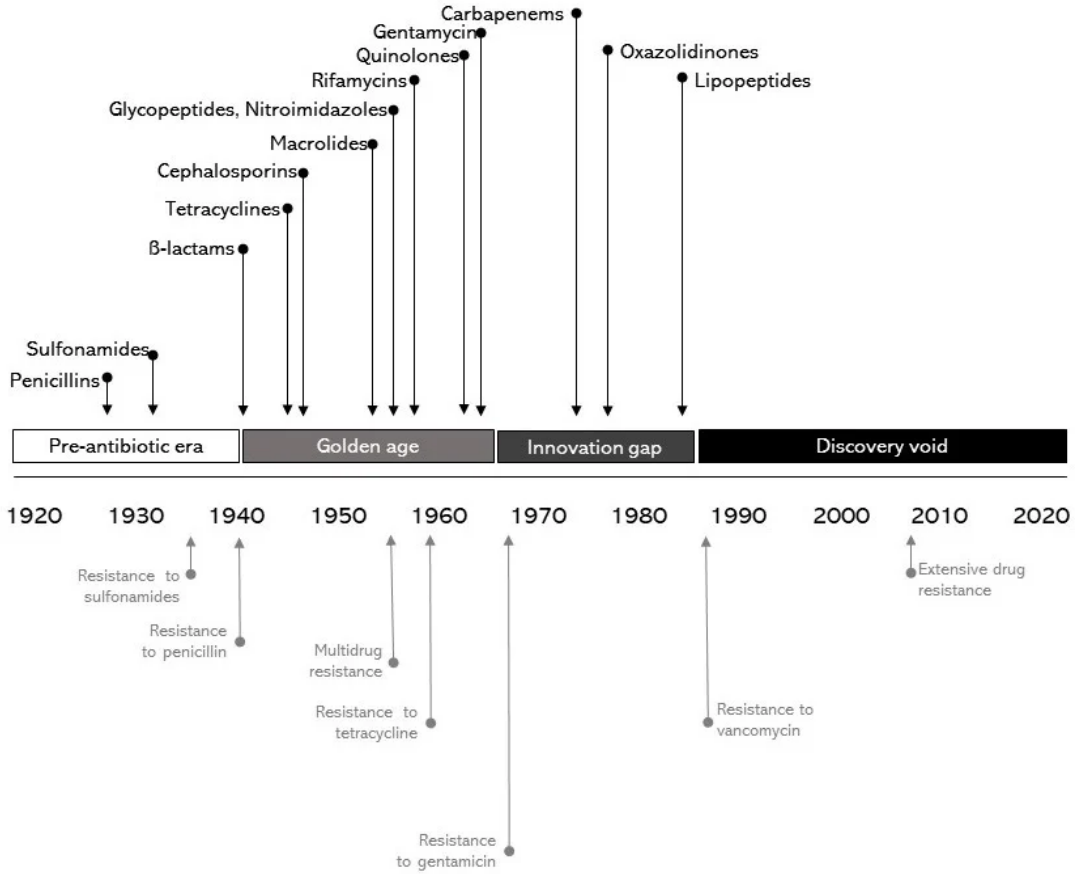
- A recent *Science Advances* study[1] of livestock manure worldwide collected identified:
- > 2,291 known ARGs (resistant to 30 antibiotic classes)
- 3,166 cryptic ARGs
- ARG levels 2–18 times higher than in human feces, sewage, and soil. [1]DOI: 10.1126/sciadv.adt8073



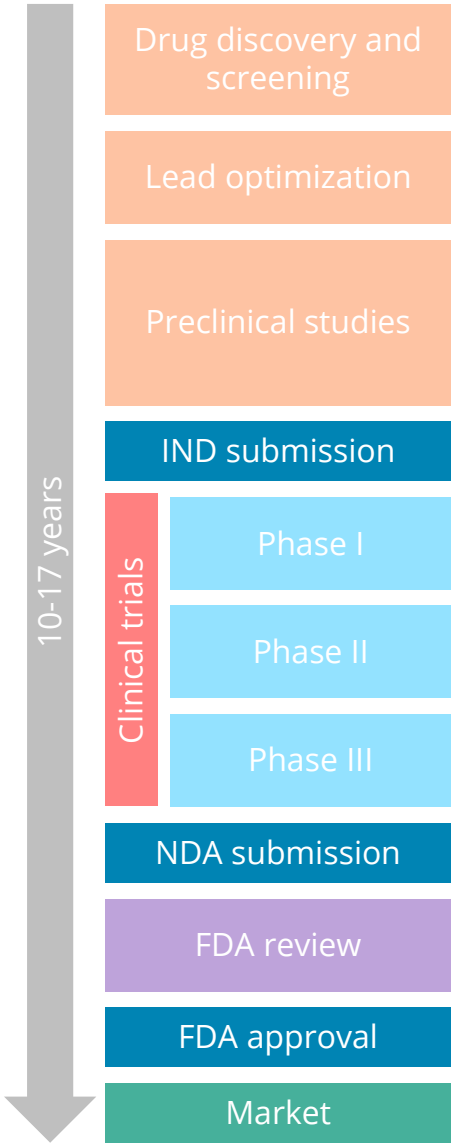
Challenges

Developing new antimicrobials is time intensive with low ROI

- **Discovery:** Basic research
- **Testing:** Preclinical and clinical trials
- **Approval:** FDA (and other) requirements and application
- **Deployment:** Knowledge, adoption
- **Cost:** Cost of drug discovery, development, testing, and approval
- **Return on investment:** Generic drugs are cheap, and new mechanisms are kept as drug of last resort



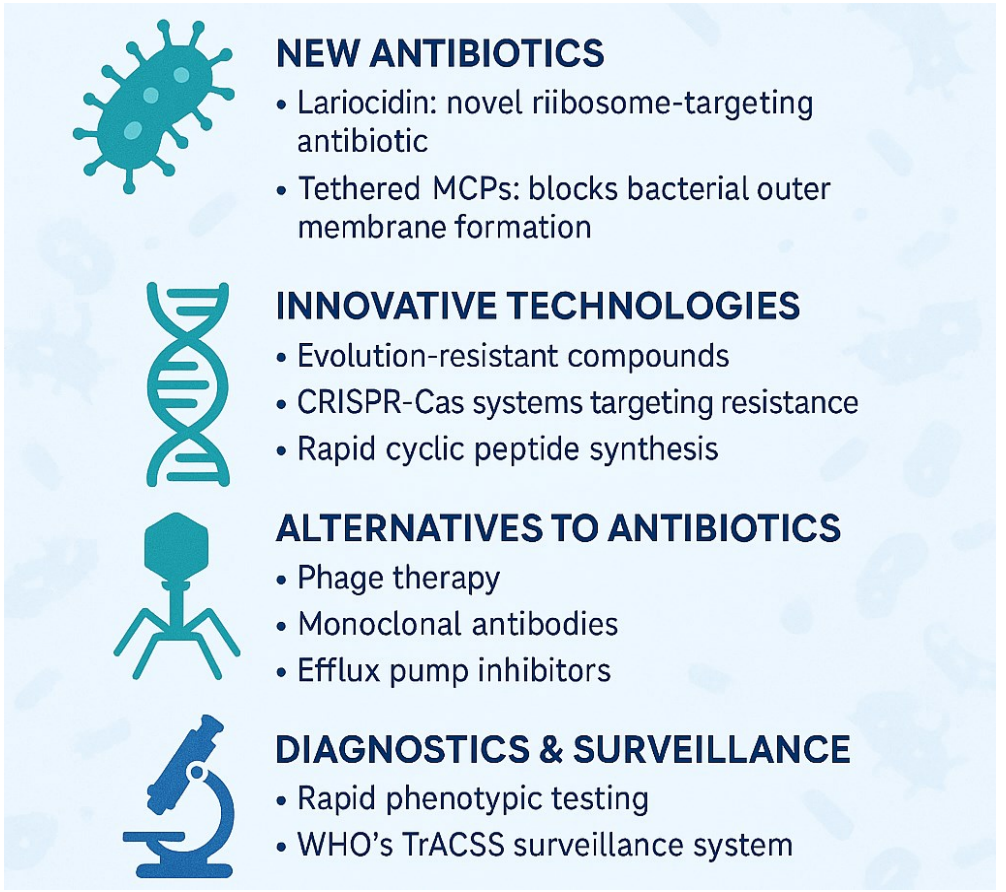
Meagher KM. Ama J Ethics 26(5): E418-428, 2024.



Meeting the Challenge: Global Efforts

- High-Level Political Commitment
- Evidence-Informed Policy Making
- One Health & Multisectoral Collaboration

WHO Global Research Agenda for Antimicrobial Resistance (AMR) in Human Health. 40 Research Priorities: 33 on bacterial and fungal infections. 7 on multidrug-resistant tuberculosis (MDR-TB).



Meeting the Challenge: ATCC Offerings

Microorganisms

- Priority Antimicrobial-Resistant Strains
- Antimicrobial-resistant bacteria, fungi, and protozoa
- Bacteriophages
- Microbial panels
- CLSI reference strains for assay QC

Cell lines

- Primary cells for drug toxicity screening studies
- Media and reagents to support cellular growth

Nucleic acids

- Quantitative genomic nucleic acids
- Nucleic acid extraction service

Meeting the Challenge: ATCC Offerings

Priority Antimicrobial-Resistant Strains

Selection

- Recent, clinically relevant isolates
- Prevalent pathogenic species
- Multidrug-resistant and extensively drug-resistant strains

Analysis

- *De novo* genome sequencing and annotation
- Identification of antimicrobial resistance genes
- Evaluation of antimicrobial resistance and susceptibility

Collection

- Strains authenticated and categorized by ATCC
- Genotypically, phenotypically, and functionally characterized

Species	Strains
Acinetobacter baumannii	13
Klebsiella pneumoniae	15
Pseudomonas aeruginosa	16
Escherichia coli	17
Streptococcus pneumoniae	15
Proteus mirabilis	3
Enterobacter spp.	6
Citrobacter freundii	4
Neisseria gonorrhoeae	5
Staphylococcus aureus	2
Serratia surfactantfaciens	1
Citrobacter braakii	1
Klebsiella quasipneumoniae	2

Meeting the Challenge: ATCC Offerings

Priority Antimicrobial-Resistant Strains

Acinetobacter baumannii Bouvet and Grimont

BAA-3252™

Download Genome

LEARN ABOUT THE ATCC GENOME PORTAL >

This drug-resistant bacterium was isolated in 2014 from the abscess of a 57-year-old male in Spain. This product can be used for all stages of the discovery and development process for novel antimicrobials and therapeutics, molecular-based detection assays, and updated sterility protocols.

Product category	Bacteria
Product type	Drug-resistant bacterium
Strain designation	1074318
Type strain	No
Genome sequenced strain	Yes
Isolation source	Abscess
Geographical isolation	Spain
Applications	Antimicrobial resistance research Bioinformatics Drug development
Product format	Frozen
Storage conditions	-80°C or colder

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Price: **$297.00 ea**

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Quantity [ ] Add to cart

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Documentation

Product sheet | Certificate of analysis | Safety data sheet

Antimicrobial resistance report | Characterization data

Priority AMR Strains Brochure
www.atcc.org/AMR-brochure

Characteristics

Gram stain	Negative
Annotated genes	ADC-2 adeA adeB adeC adeF adeG adeI adeJ adeK adeR adeS APH(3")-Ib APH(6)-Id macA macB mexB mexK OXA-66 tet(A)
Susceptibility profile	**Resistant** Cefazolin Cefepime Cefotaxime Ceftazidime Ceftriaxone Ciprofloxacin Imipenem Levofloxacin Meropenem Piperacillin-tazobactam Tetracycline Trimethoprim-sulfamethoxazole **Susceptible** Ampicillin-Sulbactam Gentamicin Tobramycin

Meeting the Challenge: ATCC Offerings

Priority Antimicrobial-Resistant Strains

Table 1: *Acinetobacter baumannii*

Antibiotic Class	Antibiotic Type	BAA-3252™ *Acinetobacter baumannii*	BAA-3257™ *Acinetobacter baumannii*	BAA-3275™ *Acinetobacter baumannii*	BAA-3276™ *Acinetobacter baumannii*	BAA-3278™ *Acinetobacter baumannii*	BAA-3282™ *Acinetobacter baumannii*	BAA-3283™ *Acinetobacter baumannii*	BAA-3300™ *Acinetobacter baumannii*	BAA-3301™ *Acinetobacter baumannii*	BAA-3302™ *Acinetobacter baumannii*	BAA-3311™ *Acinetobacter baumannii*	BAA-3320™ *Acinetobacter baumannii*	BAA-3338™ *Acinetobacter baumannii*
Aminoglycosides	Gentamicin	S	R	S	S	R	S	S	R	R	I	S	S	R
	Tobramycin	S	R	S	S	R	I	S	R	R	I	S	S	I
Carbapenems	Imipenem	R	I	I	R	I	R	R	I	I	R	S	R	R
	Meropenem	R	S	R	R	R	R	R	R	S	I	S	R	R
Cephalosporins	Cefazolin	R	R	R	R	R	R	R	R	R	R	R	R	R
	Cefepime	R	S	R	R	R	R	R	R	I	R	S	R	R
	Cefotaxime	R	R	R	R	R	R	R	R	R	R	I	R	R
	Ceftazidime	R	I	R	R	R	R	R	R	R	R	S	I	R
	Ceftriaxone	R	R	R	R	R	R	R	R	R	R	I	R	R
Diaminopyrimidines	Trimethoprim-sulfamethoxazole	R	R	R	R	R	R	R	S	R	R	S	S	R
Fluoroquinolones	Ciprofloxacin	R	R	I	R	R	R	R	R	R	R	S	S	R
	Levofloxacin	R	R	S	R	R	R	R	R	R	R	S	S	R
Penicillins	Ampicilin/Sulbactam	S	I	S	S	I	S	I	I	S	R	S	I	R
	Piperacillin/Tazobactam	R	R	R	R	R	R	R	R	R	R	I	R	R
Tetracyclines	Tetracycline	R	S	R	S	S	R	R	S	S	S	S	S	S
Isolation Information	Country	Spain	Spain	France	United States	Honduras	United States	Taiwan	Singapore	Italy	Italy	Korea	Venezuela	United States
	Year of Origin	2014	2004	2006	2014	2006	2004	2006	2004	2006	2015	2006	2006	2004
	Source	Abscess	Blood	Blood	Sputum	Catheters	Wound	Sputum	Trachea	Blood	Blood	Blood	Blood	Blood
	Patient Gender	Male	Female	Male	Male	Female	Female	Female	Male	Female	Male	Female	Male	Female
	Patient Age	57 years	68 years	84 years	75 years	0 years	51 years	80 years	71 years	53 years	41 years	73 years	19 years	64 years

Click on the ATCC catalog number to view the product information and susceptibility profile on the ATCC website.

Click on the ATCC species name to view the complete de novo hybrid genome assembly with annotated antibiotic resistance genes on the ATCC Genome Portal.

Antibiotic susceptibility was obtained using VITEK 2 AST cards (bioMérieux). Minimum inhibitory concentration (MIC) ranges for resistant (R; red), intermediate (I; yellow), and susceptible (S; green) are based on criteria within the Clinical and Laboratory Standards Institute (CLSI) Performance Standards for Antimicrobial Susceptibility Testing, 27th Edition. The susceptibility profile information for this strain is initial characterization data acquired during the ATCC accessioning process and are batch specific.

Priority AMR Strains Brochure
www.atcc.org/AMR-brochure

Meeting the Challenge: ATCC Offerings

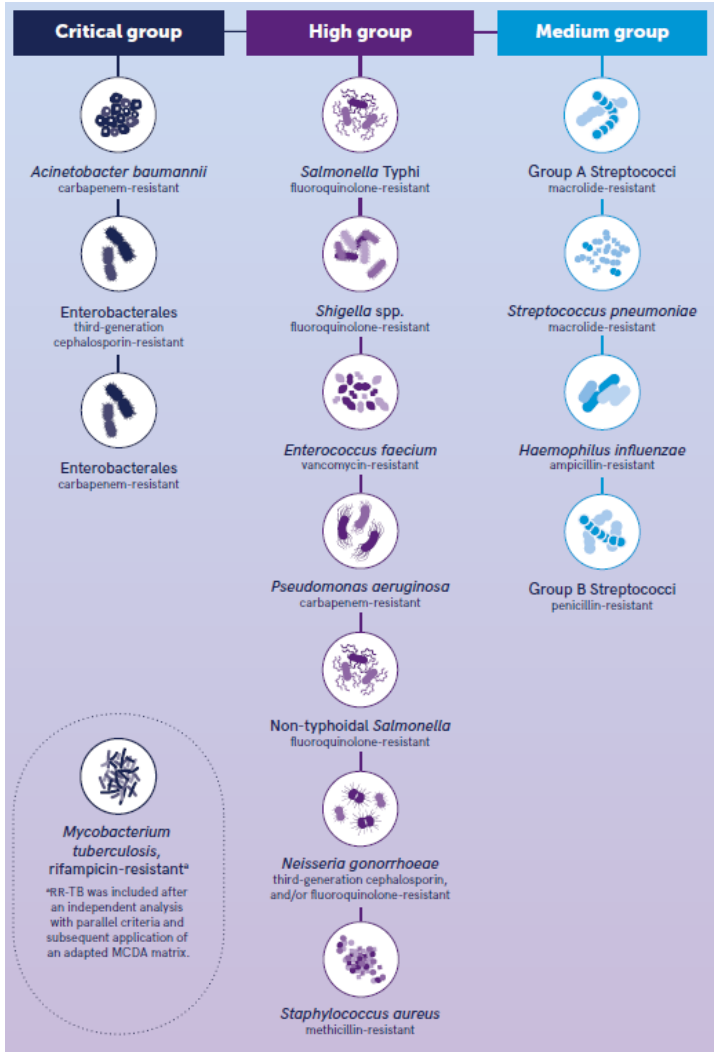
Priority Antimicrobial-Resistant Strains

Table 4: *Escherichia coli*

Antibiotic Class	Antibiotic Type	BAA-3244™ *Escherichia coli*	BAA-3246™ *Escherichia coli*	BAA-3250™ *Escherichia coli*	BAA-3251™ *Escherichia coli*	BAA-3253™ *Escherichia coli*	BAA-3254™ *Escherichia coli*	BAA-3260™ *Escherichia coli*	BAA-3281™ *Escherichia coli*	BAA-3286™ *Escherichia coli*	BAA-3287™ *Escherichia coli*	BAA-3289™ *Escherichia coli*	BAA-3292™ *Escherichia coli*	BAA-3303™ *Escherichia coli*	BAA-3305™ *Escherichia coli*	BAA-3307™ *Escherichia coli*	BAA-3310™ *Escherichia coli*	BAA-3337™ *Escherichia coli*
Aminoglycosides	Amikacin	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Gentamicin	R	R	S	R	R	R	R	S	R	R	R	S	R	R	R	R	S
	Tobramycin	R	R	S	R	I	R	R	S	R	R	I	S	R	R	I	I	R
Carbapenems	Ertapenem	S	R	S	S	S	S	S	R	R	R	S	R	R	S	R	S	S
	Imipenem	S	R	S	S	S	S	S	R	R	S	S	S	S	S	S	S	S
	Meropenem	S	R	S	S	S	S	S	R	R	R	S	R	S	S	S	S	S
Cephalosporins	Cefalotin	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
	Cefazolin	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
	Cefepime	R	S	R	R	R	R	R	S	S	R	R	S	S	R	S	S	R
	Cefotaxime	R	R	R	R	R	R	R	R	R	R	S	R	R	R	R	S	R
	Cefotetan	R	R	S	S	S	I	R	I	R	S	S	S	S	S	R	S	S
	Cefoxitin	R	R	S	S	S	R	R	R	R	S	S	I	I	S	R	R	S
	Cefpodoxime	R	R	R	R	R	R	R	R	R	R	S	R	R	R	R	S	R
	Ceftazidime	R	R	R	R	R	R	R	R	R	R	R	I	I	R	R	S	R
	Ceftazidime/Avibactam	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Ceftriaxone	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	S	R
	Cefuroxime	R	R	R	R	R	R	R	R	R	R	I	R	R	R	R	I	R
	Cefuroxime Axetil	R	R	R	R	R	R	R	R	R	R	I	R	R	R	R	I	R
	Ceftolozane/Tazobactam	S	R	S	S	S	I	R	R	R	R	R	R	R	S	R	S	I
Diaminopyrimidines	Trimethoprim-Sulfamethoxazole	S	R	R	R	R	R	R	S	R	R	R	R	S	S	R	R	R
Fluoroquinolones	Ciprofloxacin	R	R	R	R	R	R	R	R	R	R	R	S	R	R	S	R	S
	Levofloxacin	R	R	R	R	R	R	R	R	R	R	R	S	R	R	S	R	S
	Moxifloxacin	R	R	R	R	R	R	R	R	R	R	R	S	R	R	S	R	S
Glycylcyclines	Tigecycline	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Monobactams	Aztreonam	R	R	R	R	R	R	R	R	R	R	S	R	R	R	R	S	R
Nitrofurans	Nitrofurantoin	I	S	S	S	S	S	R	S	S	S	S	S	S	S	I	S	S
Penicillins	Amoxicillin/Clavulanic Acid	I	R	S	I	I	R	R	R	R	I	I	R	R	I	R	I	I
	Ampicilin/Sulbactam	R	R	S	R	R	R	R	R	R	R	R	R	R	I	R	R	R
	Ampicillin	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
	Piperacillin/Tazobactam	S	R	S	S	I	I	R	R	R	R	I	R	R	S	R	R	S
Quinolones	Nalidixic Acid	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	S
Tetracyclines	Tetracycline	R	R	R	R	R	R	R	R	R	R	R	R	S	R	R	S	S
Isolation Information	Country	Argentina	Israel	Turkey	Nigeria	Czech Republic	Mexico	Nigeria	United States	Israel	Italy	Argentina	Mexico	Russia	Mexico	Thailand	Greece	Argentina
	Year of Origin	2014	2014	2014	2014	2014	2014	2014	2014	2014	2013	2012	2014	2014	2012	2013	2013	2014
	Source	Abscess	Urine	Blood	Urine	Urine	Abscess	Urine	Peritoneal fluid	Urine	Respiratory sputum	Urine	Abscess	Pancreas	Urine	Stomach	Urine	Urine
	Patient Gender	Male	Male	Female	Female	Female	Female	Female	Female	Male	Female	Female	Male	Female	Male	Male	Female	Male
	Patient Age	50 years	83 years	51 years	40 years	78 years	70 years	46 years	40 years	83 years	34 years	38 years	48 years	56 years	42 years	18 years	54 years	2 years

Meeting the Challenge: ATCC Offerings

WHO bacterial priority pathogens list, 2024



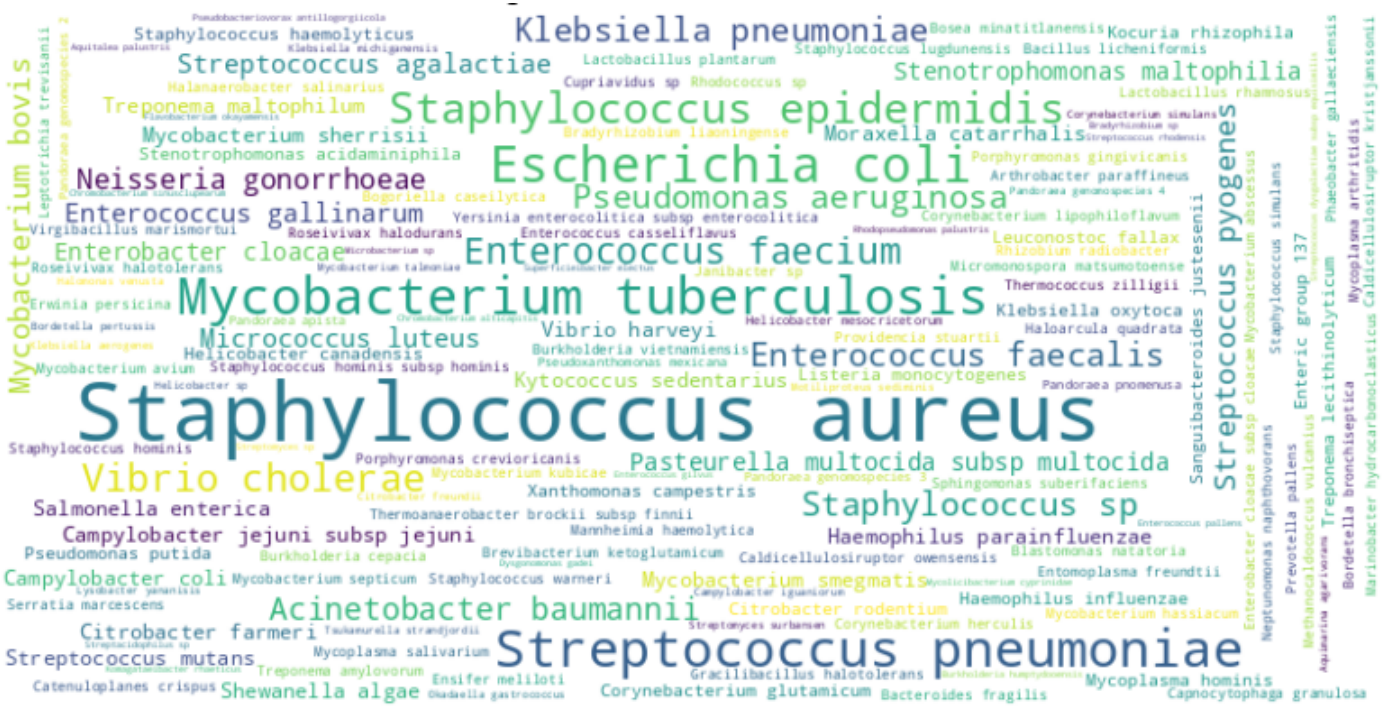
https://www.who.int/publications/i/item/9789240093461

ATCC's WHO BPPL-2024 Portfolio

WHO Priority	Species	AMR	No of ATCC® strains
Critical	*Klebsiella pneumoniae*	Carbapenem resistant	18
Critical	*Escherichia coli*	Third-generation cephalosporin resistant	13
Critical	*Acinetobacter baumannii*	Carbapenem resistant	17
Critical	*Mycobacterium tuberculosis*	Rifampicin resistant	3
Critical	*Escherichia coli*	Carbapenem resistant	9
Critical	*Klebsiella pneumoniae*	Third-generation cephalosporin resistant	21
High	*Enterococcus faecium*	Vancomycin resistant	4
High	*Pseudomonas aeruginosa*	Carbapenem resistant	15
High	*Enterobacter* spp.	Carbapenem resistant	7
High	*Neisseria gonorrhoeae*	Fluoroquinolone resistant	5
High	*Staphylococcus aureus*	Methicillin resistant	70
High	*Enterobacter* spp.	Third-generation cephalosporin resistant	4
High	*Citrobacter* spp.	Third-generation cephalosporin resistant	5
High	*Proteus* spp.	Third-generation cephalosporin resistant	3
High	*Serratia* spp.	Third-generation cephalosporin resistant	1
Medium	Group A streptococci	Macrolide resistant	5
Medium	*Streptococcus pneumoniae*	Macrolide resistant	28
Medium	*Haemophilus influenzae*	Ampicillin resistant	2

Meeting the Challenge: ATCC Offerings

AMR data available for 615 strains across 157 bacterial species in ATCC's collection



Antimicrobial-Resistant Strains
www.atcc.org/superbugs

Meeting the Challenge: ATCC Offerings

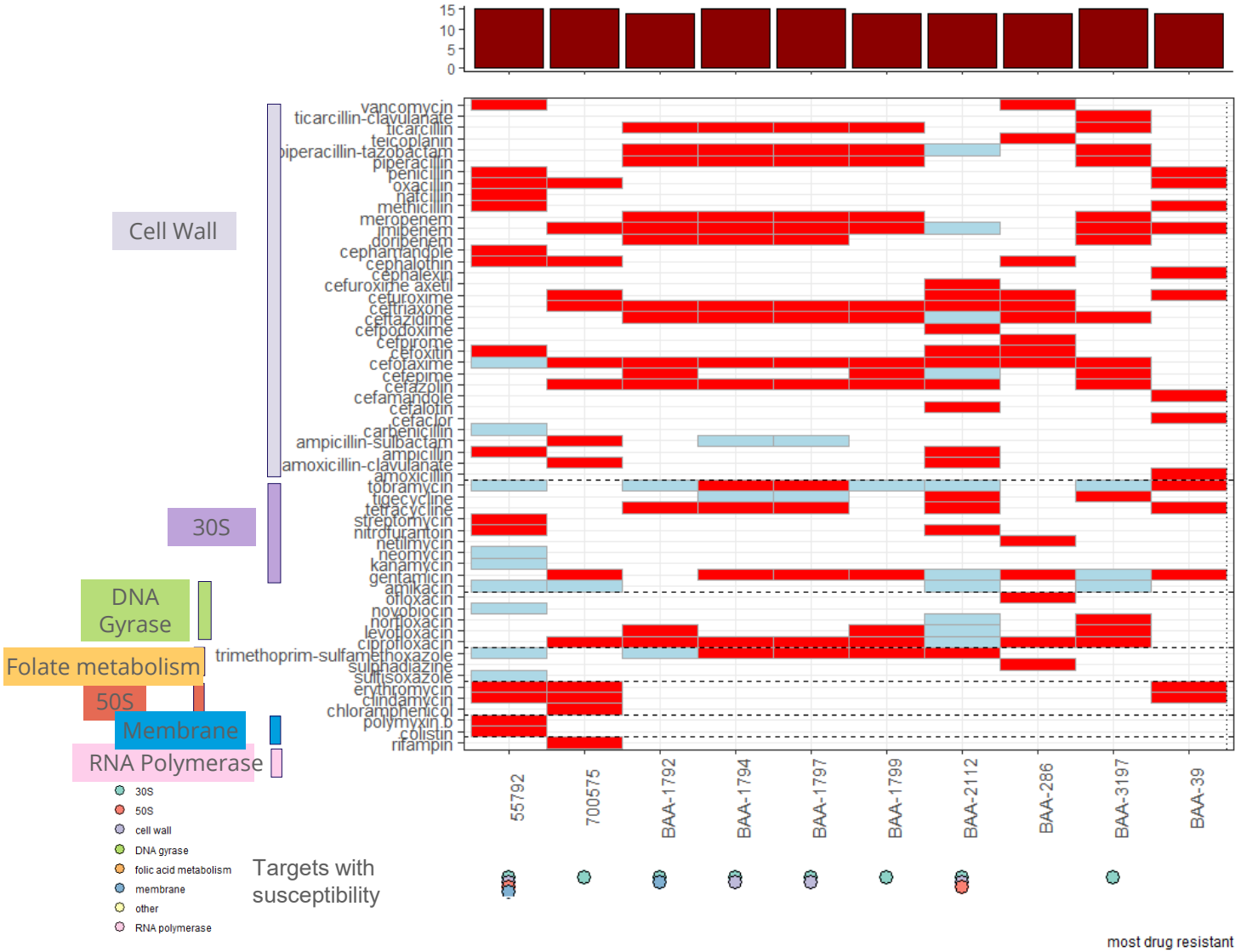
AMR data available for 615 strains across 157 bacterial species in ATCC's collection

Some of the most drug resistance strains

ATCC® No.	Species
55792™	*Burkholderia vietnamiensis*
700575™	*Staphylococcus* spp.
BAA-1794™	*Acinetobacter baumannii*
BAA-1797™	*Acinetobacter baumannii*
BAA-3197™	*Pseudomonas aeruginosa*
BAA-1792™	*Acinetobacter baumannii*
BAA-1799™	*Acinetobacter baumannii*
BAA-2112™	*Pseudomonas aeruginosa*
BAA-286™	*Dysgonomonas gadei*
BAA-39™	*Staphylococcus aureus*

Some strains in the collection known to be resistant to 14-15 antibiotics.

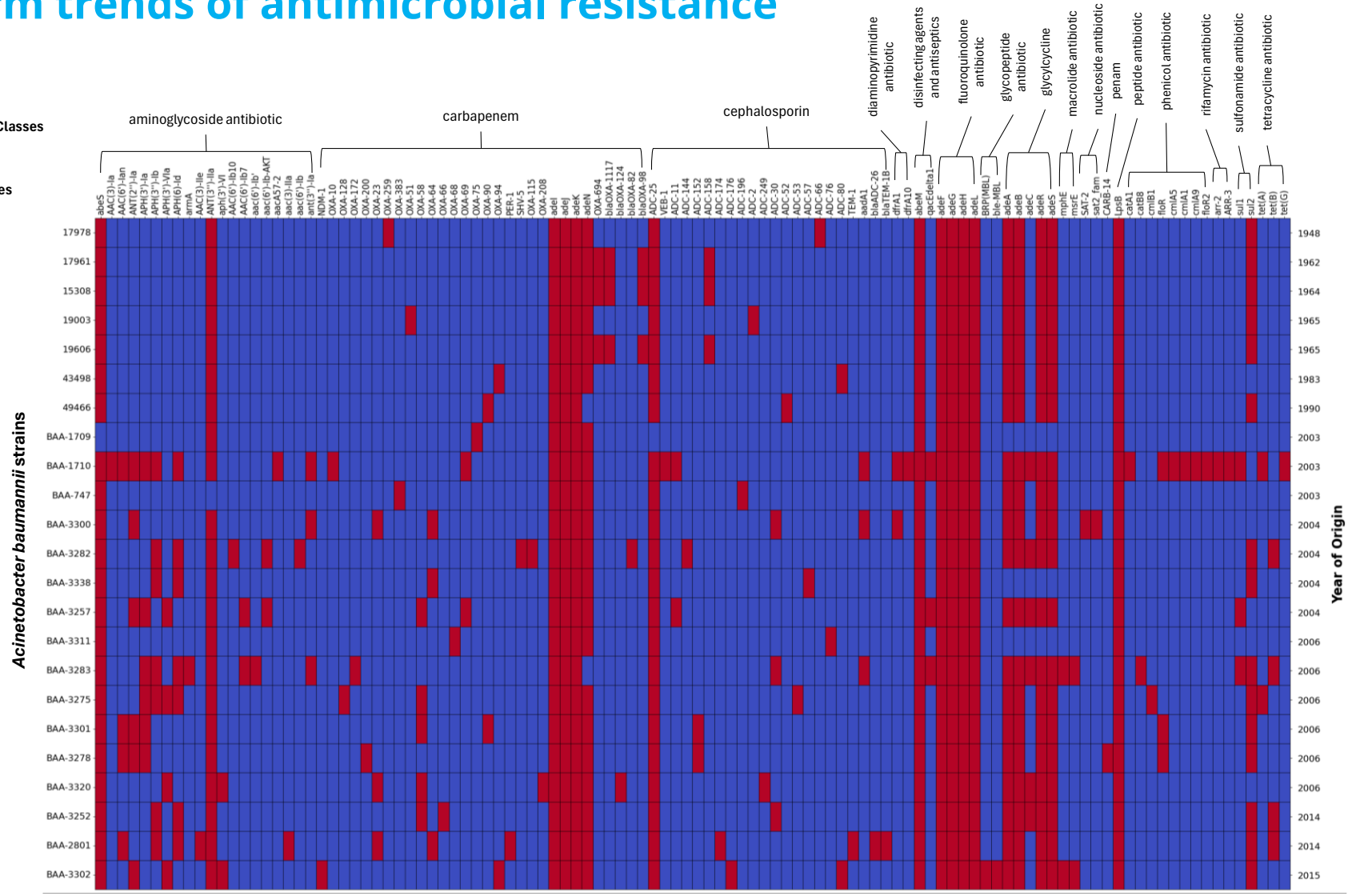
Even among these strains, some are known to be susceptible to mechanistically diverse antibiotics.



Meeting the Challenge: ATCC Offerings

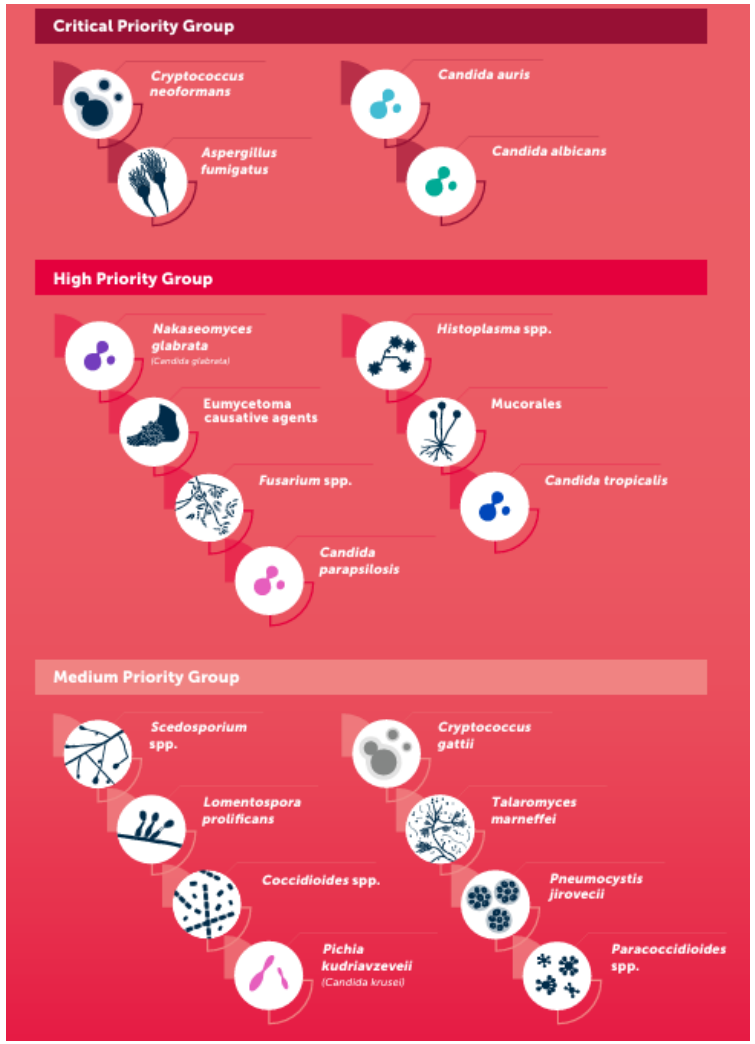
ATCC's historic isolates can provide critical insights into the origins, evolution, and long-term trends of antimicrobial resistance

Acinetobacter baumannii:
Recent Vs Historic strains



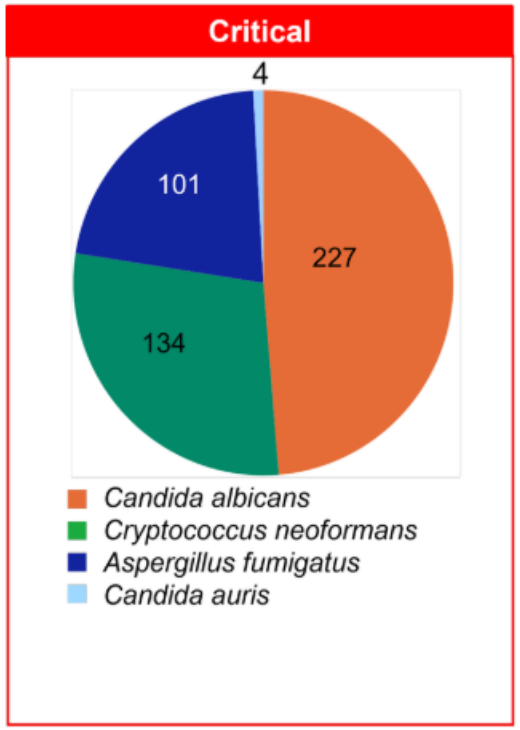
Meeting the Challenge: ATCC Offerings

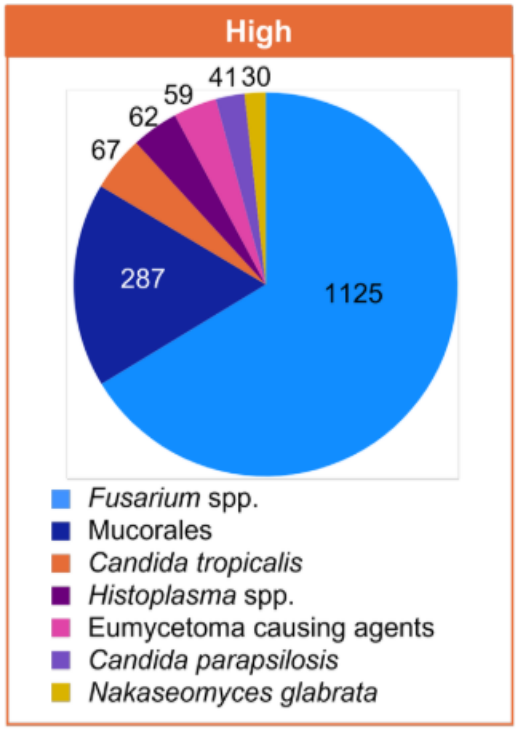
WHO fungal priority pathogens 2022 list to guide research, development, and public health action

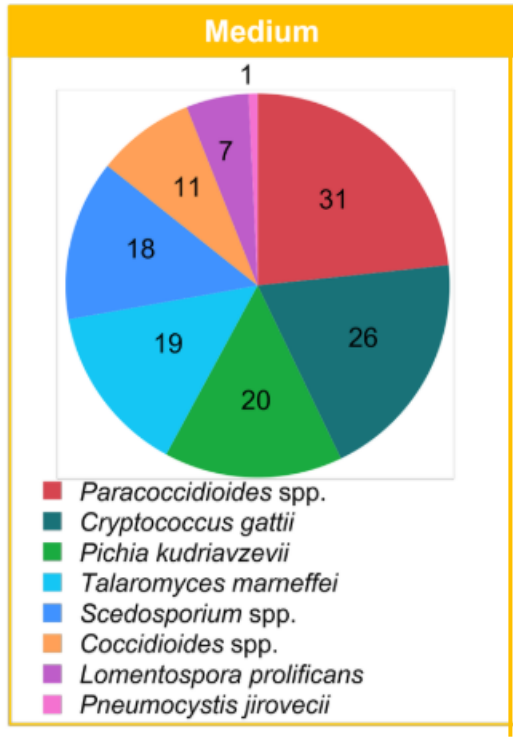


https://www.who.int/publications/i/item/9789240060241

Number of ATCC strains on the WHO fungal priority pathogens list







Pneumocystis jirovecii is provided as synthetic DNA (unculturable)

https://www.atcc.org/blogs/2022/who-releases-priority-fungal-pathogens-list

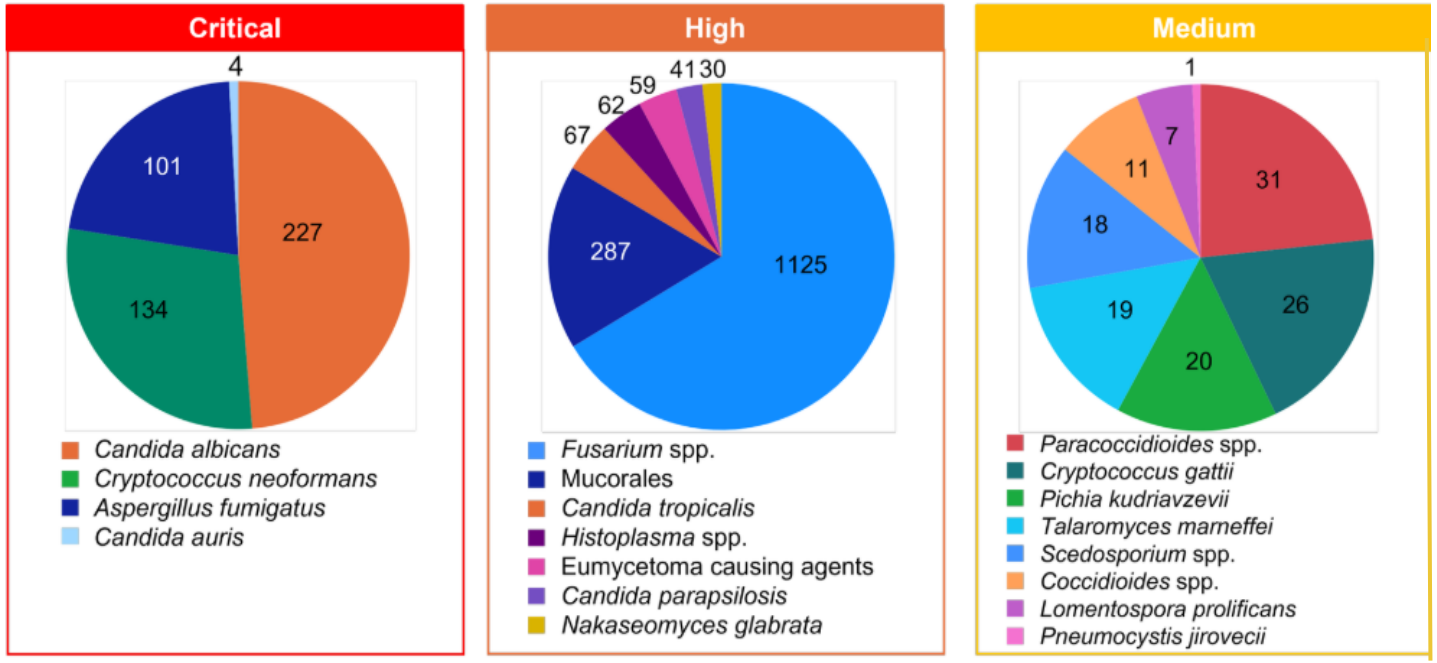
Meeting the Challenge: ATCC Offerings

WHO fungal priority pathogens 2022 list to guide research, development, and public health action

Critical group	High group	Medium group
Cryptococcus neoformans	*Nakaseomyces glabrata (Candida glabrata)*	*Scedosporium* spp.
Candida auris	*Histoplasma* spp.	*Lomentospora prolificans*
Aspergillus fumigatus	Eumycetoma causative agents	*Coccidioides* spp.
Candida albicans	Mucorales	*Pichia kudriavzeveii (Candida krusei)*
	Fusarium spp.	*Cryptococcus gattii*
	Candida tropicalis	*Talaromyces marneffei*
	Candida parapsilosis	*Pneumocystis jirovecii*
		Paracoccidioides spp.

https://www.who.int/publications/i/item/9789240060241

Number of ATCC strains on the WHO fungal priority pathogens list



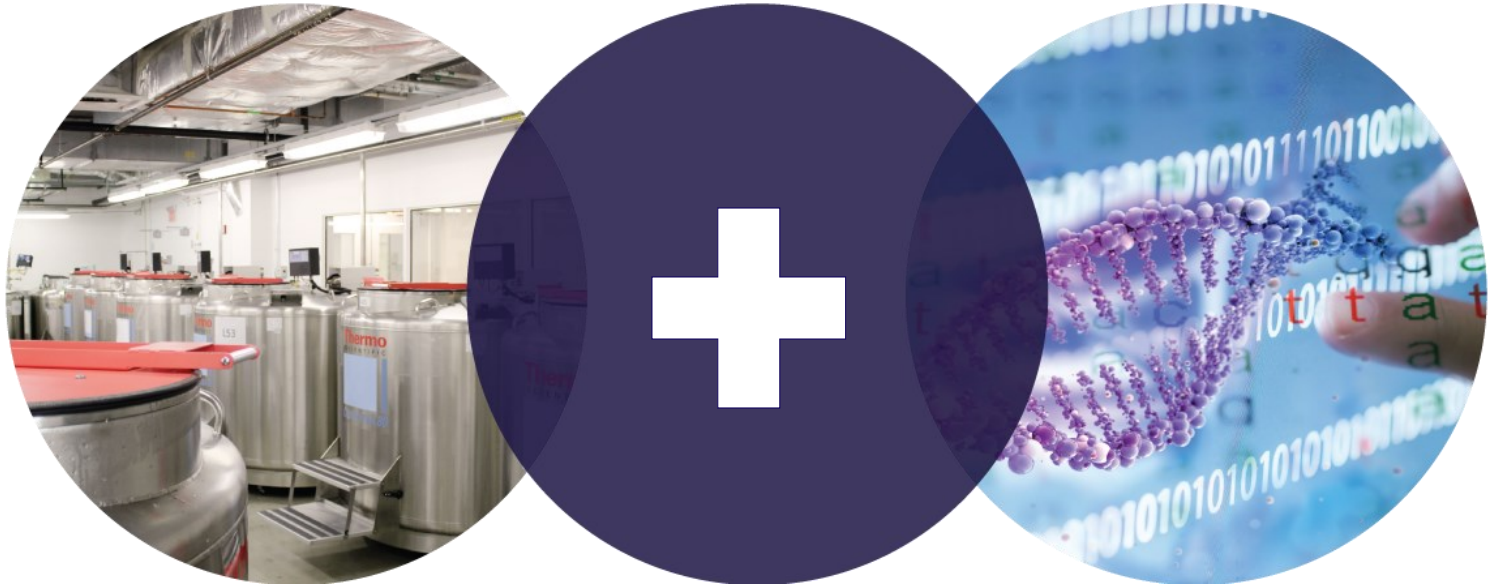
**Pneumocystis jirovecii* is provided as synthetic DNA (unculturable)

https://www.atcc.org/blogs/2022/who-releases-priority-fungal-pathogens-list

Vial to File

Physical Repository

- Strains
- Derivatives
- Standards
- Reference materials



Authenticated Reference Data

- Sequencing data
- Assembled genomes
- Annotated genes

Drive scientific advancement by provide the scientific community with high quality, annotated whole genome sequence (WGS) information to complement ATCC's biological materials.

ATCC Genome Portal

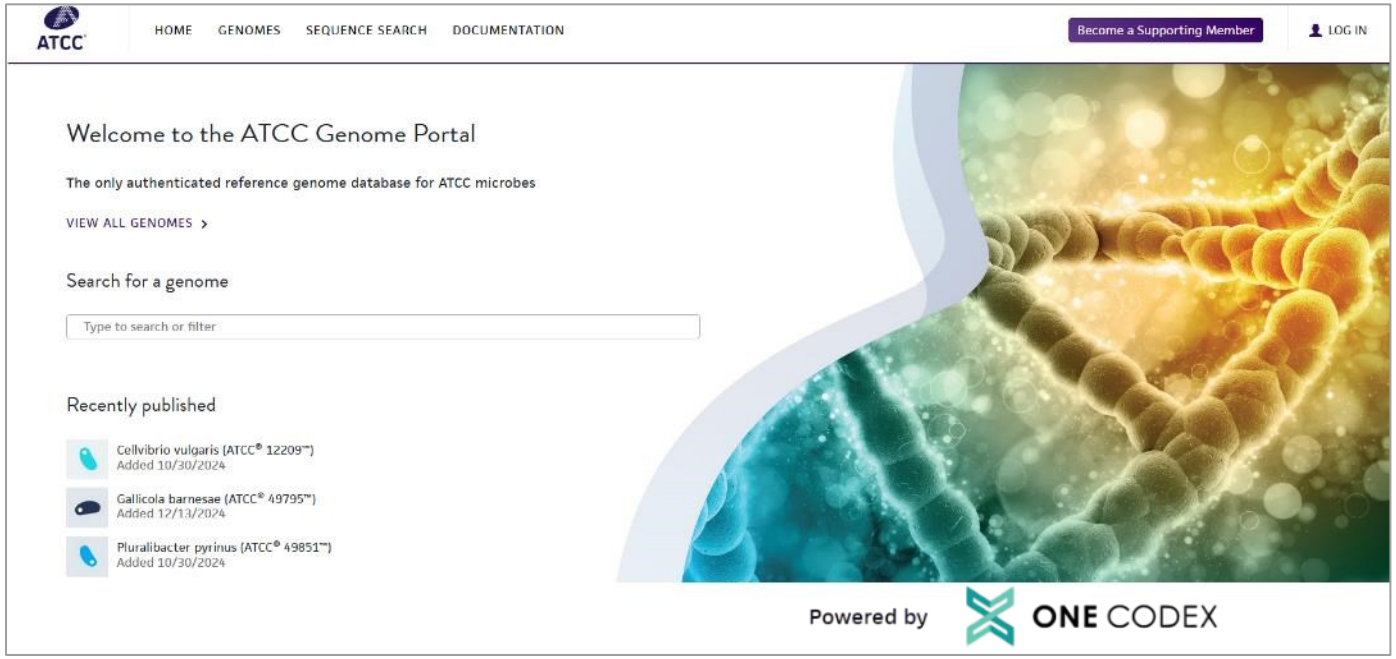
The only authenticated reference genome database for ATCC microbes

The ATCC Genome Portal (AGP) is a rapidly growing ISO 9001–compliant database of high-quality reference genomes from authenticated microbial strains in the ATCC collection. Customers can easily access and download meticulously curated whole-genome assemblies for purchased strains and S*upporting Members* have full access to the AGP.

5,750+

Available reference genomes
as of Aug 2025

- Download genome assemblies for ATCC microbes.
- Search for nucleotide sequences or genes within published genomes.
- Search for genomes by taxonomic name, taxonomic level, isolation source, ATCC catalog number, type strain status, and biosafety level.
- View genome assembly statistics and quality metrics.
- Identify the relatedness of published genomes by total genome alignment.

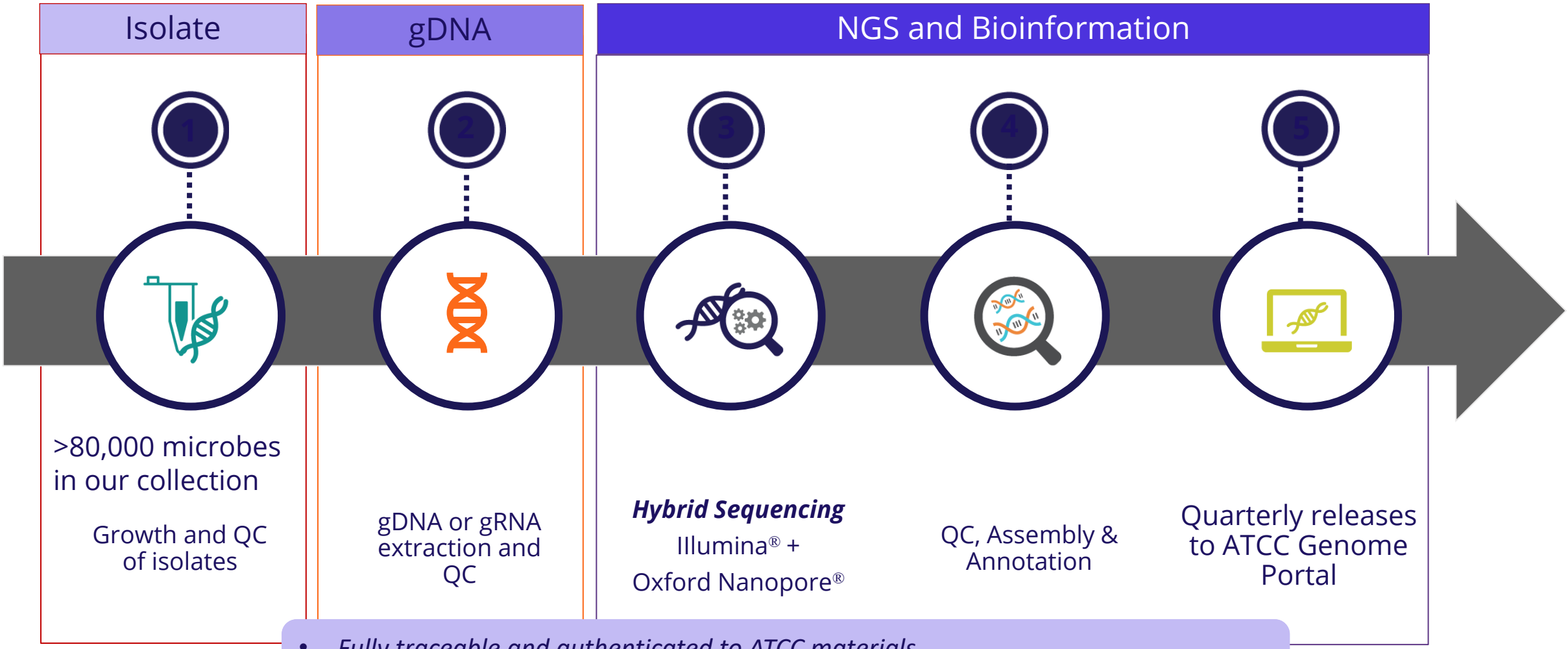


Learn more:

Visit the AGP:

New genomes are released at the end of every quarter.

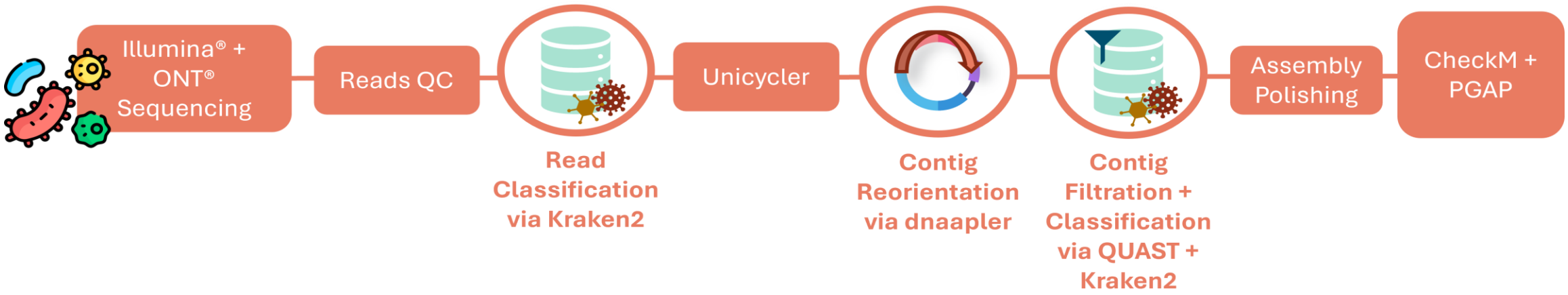
Authenticated physical material coupled with reference-quality genome sequences



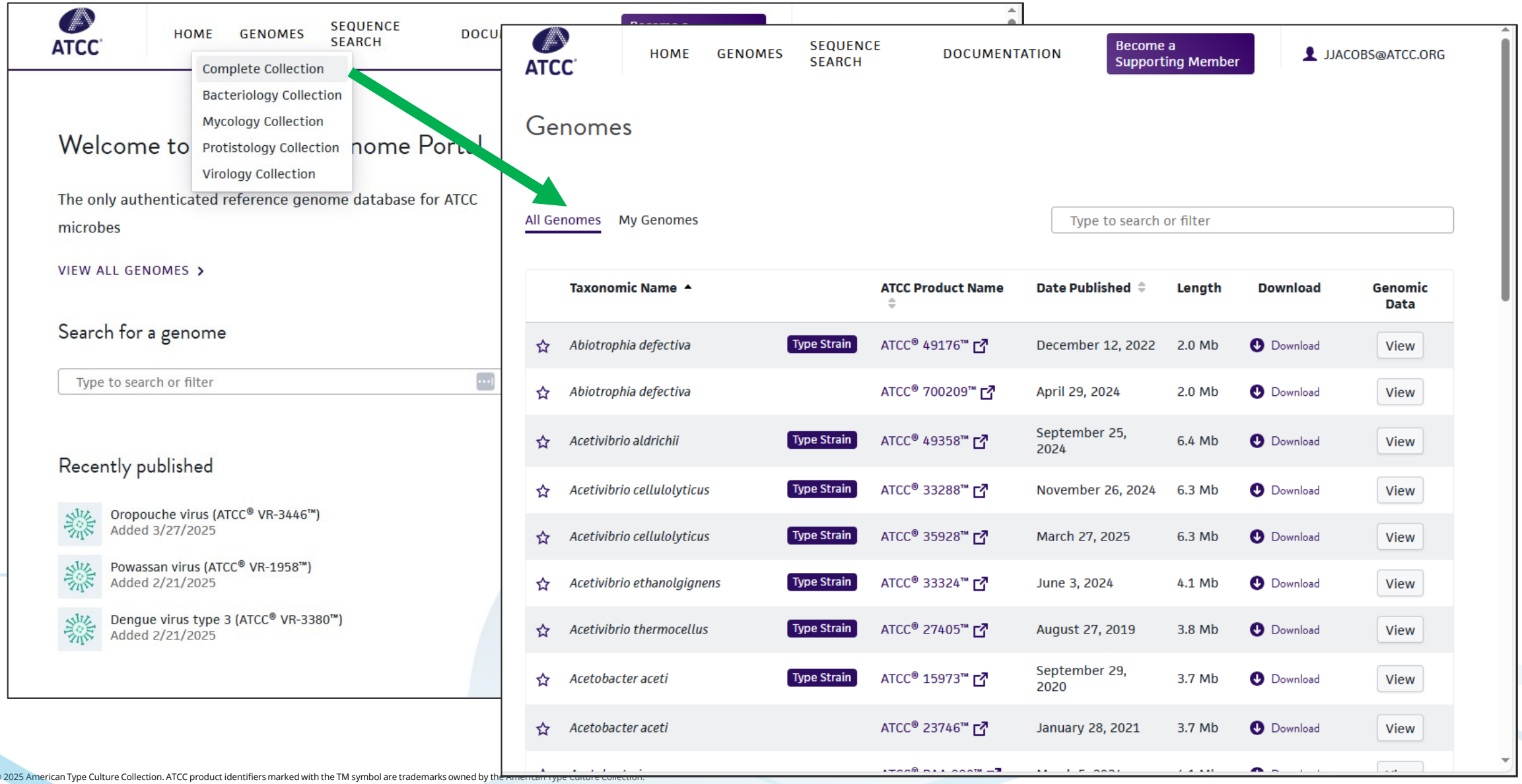
- *Fully traceable and authenticated to ATCC materials.*
- *All genome assemblies produced in-house at ATCC in an ISO certified laboratory.*

Bacterial Genome Assembly

- All bacterial strains are sequenced on both sequencing platforms.
- NGS reads are trimmed and filtered, assembled using a pipeline built around *Unicycler*, and finally polished
- Assembly QC is based on CheckM
- Annotation is based on NCBI's PGAP pipeline
  - Q4, 2025 bacterial strains will also have additional annotations using ResFinder, AMRFinder and CARD.



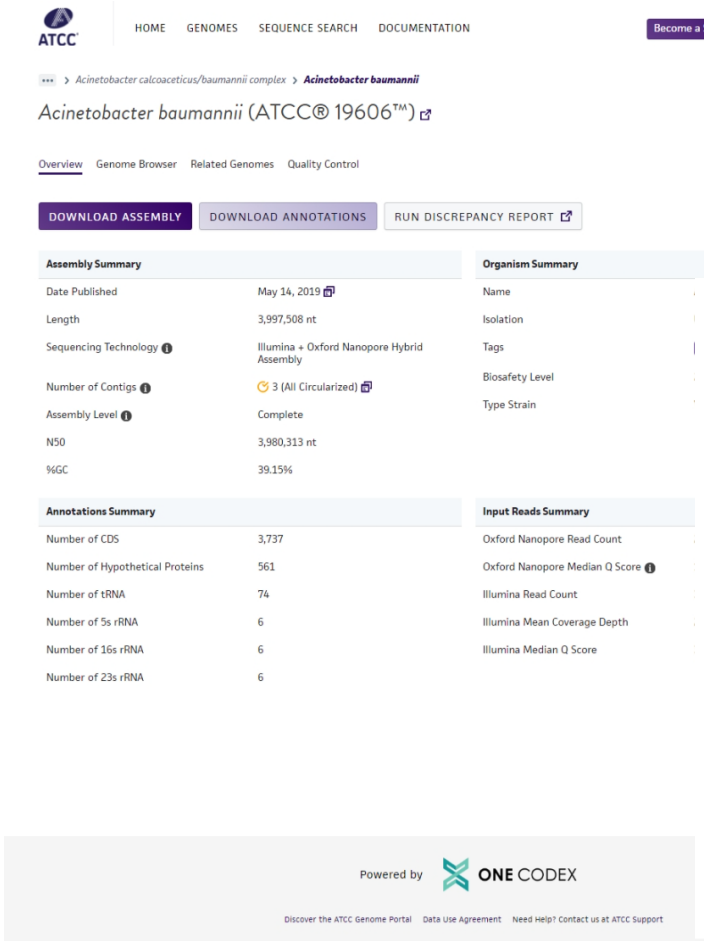
Browse for data



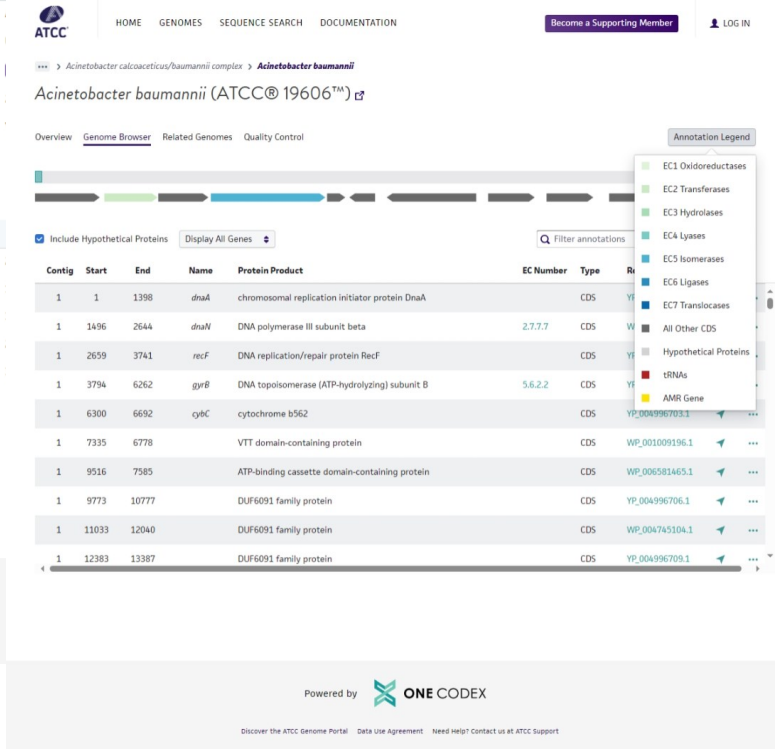
ATCC Genome Portal: Reference Genome Details

- Example: Acinetobacter baumannii ATCC 19606

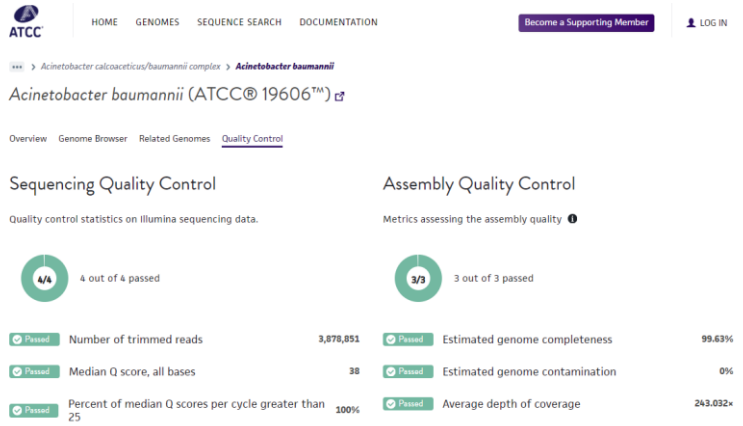
Overview page



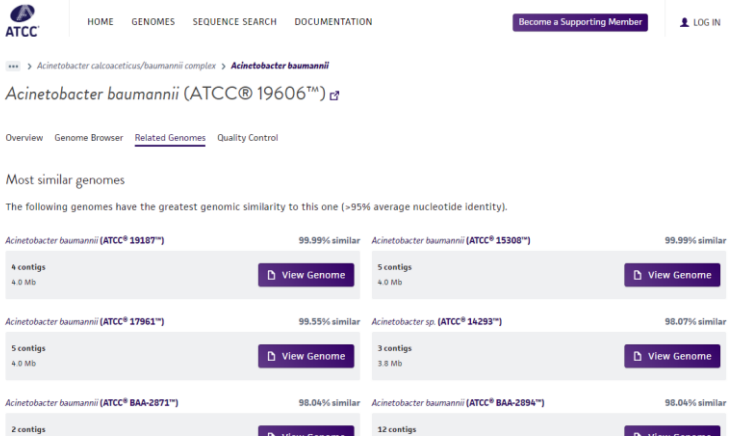
Genome Browser



View Quality Control Data

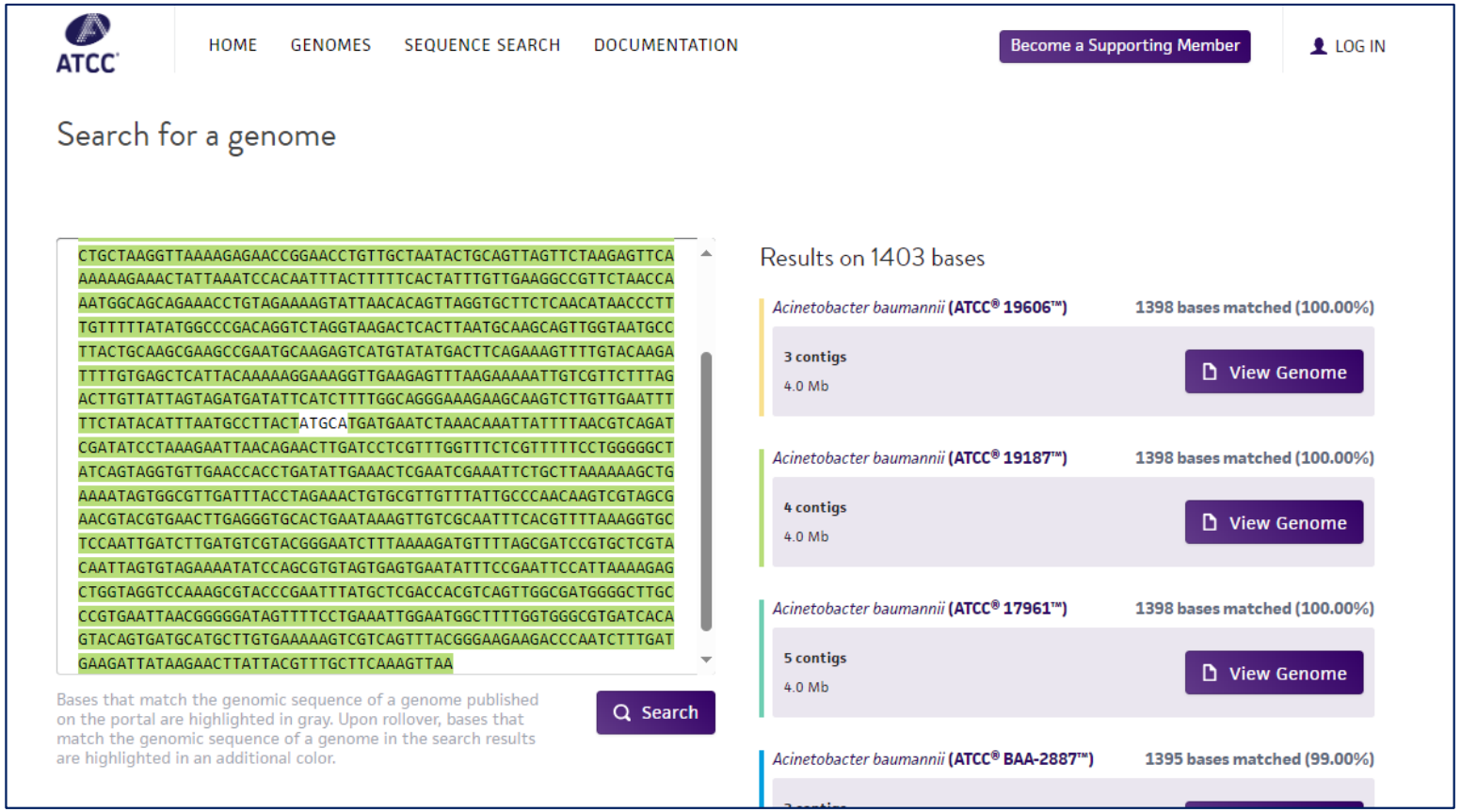


Find Related Genomes



Fast Sequencing Search

https://genomes.atcc.org/sequence-search

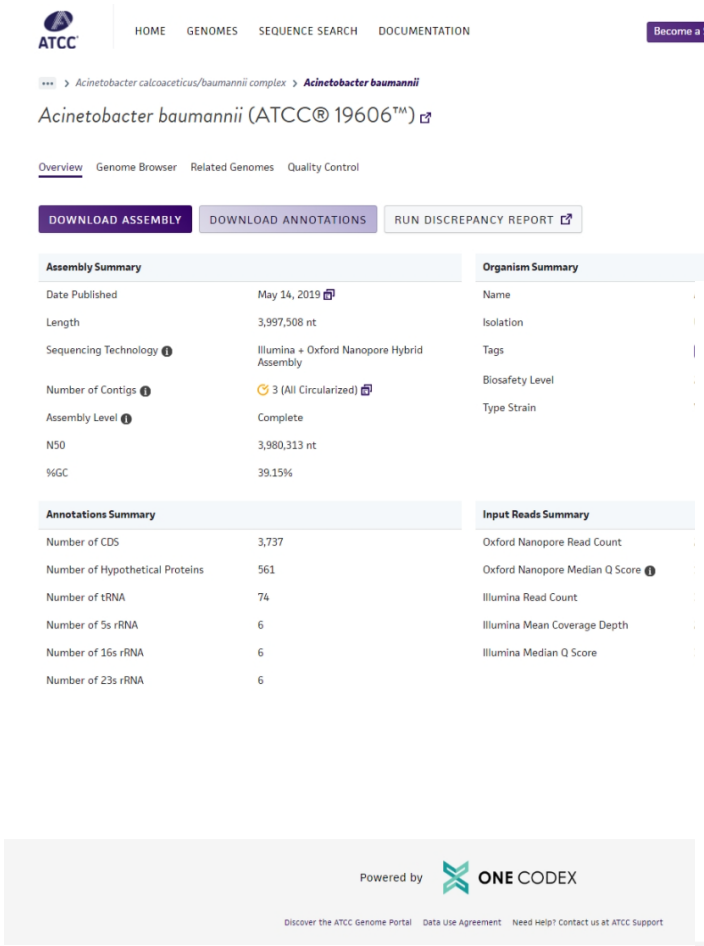


Search results are almost instantaneous!

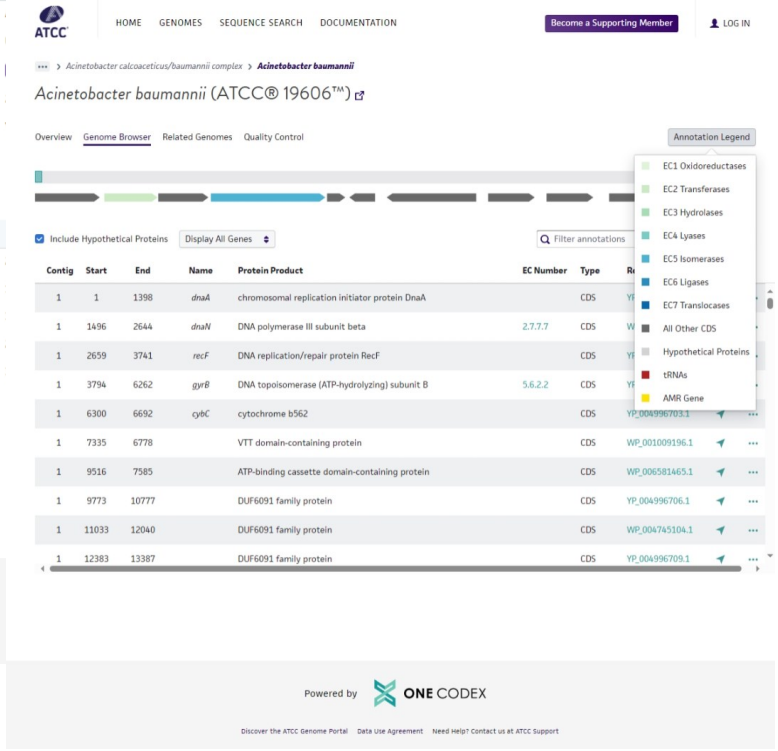
ATCC Genome Portal: Reference Genome Details

- Example: Acinetobacter baumannii ATCC 19606

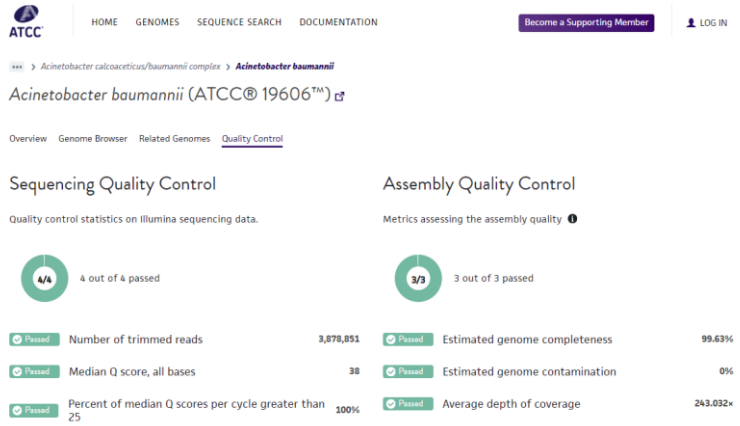
Overview page



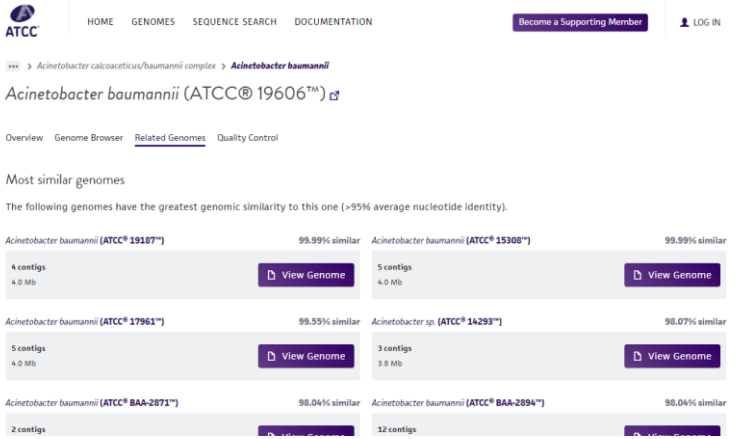
Genome Browser



View Quality Control Data

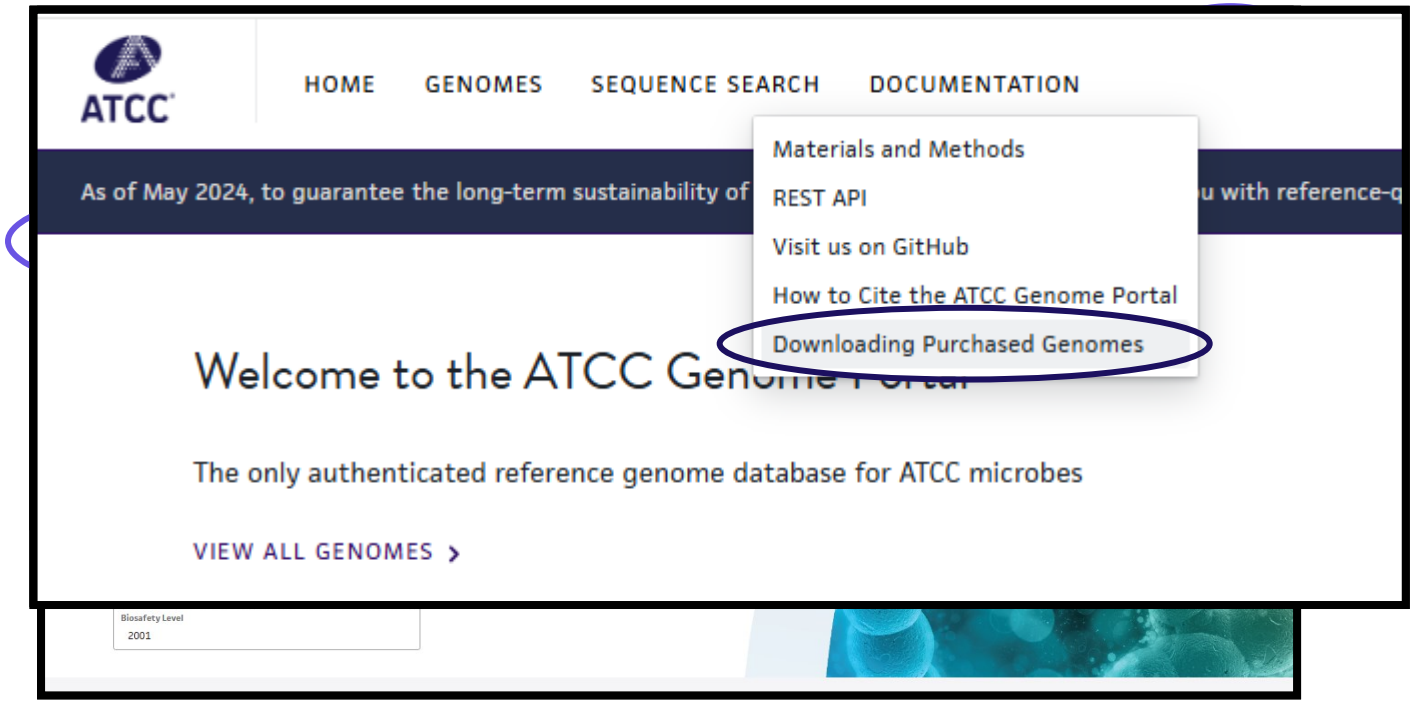


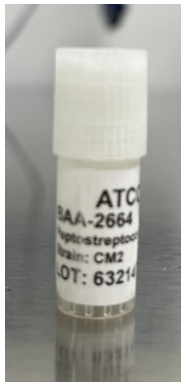
Find Related Genomes



If customers have purchased the physical product…

Download genome(s) with the Lot number





Directions here

Access to the entire database…
…..purchase a *Supporting Membership*

Explore our annual Supporting Membership opportunities

	Free	Individual	Research Group	Institution
View organism and genome metadata, assemblies, and annotations	✓	✓	✓	✓
Search for genomes of interest	✓	✓	✓	✓
Purchase the corresponding authenticated ATCC source materials	✓	✓	✓	✓
Download genome assemblies and annotations	Only for purchased products	All products	All products	All products
Access our secure REST-API	Not available	✓	✓	✓
Analyze isolates with Discrepancy Reports	Fee for each report	12 free reports per year	60 free reports per year	Inquire
Members with full access	0	1	5	Unlimited
		$600/$1,800	$2,400/$7,200	Inquire

ATCC AMR Resources

Antimicrobial-Resistant Strains
www.atcc.org/superbugs

Priority AMR Strains Brochure
www.atcc.org/AMR-brochure

Quantitative Nucleic Acids
www.atcc.org/molecularstandards

ATCC Genome Portal
https://genomes.atcc.org/

ATCC Culture Guides
www.atcc.org/guides

ATCC®

CREDIBLE LEADS TO INCREDIBLE

Thank You