



USEFUL TERMS FOR ATCC MICROBIOLOGY

Organizations and agencies such as AOAC, ASTM, FDA, CLSI/NCCLS and USP specify ATCC cultures in their standards and specifications, then describe the propagation and growth conditions to be used. As the collection responsible for these cultures, ATCC uses the following working definitions derived from the Bacteriological Code,¹ Brown and Gilbert's Microbiological Quality Assurance² and CLSI/NCCLS M22-A3.³

Authentication - the process of comparing the characteristics of a strain to the description of the species to determine or verify the strain's identity.

Characterization - the process of subjecting a strain to a battery of morphological, physiological, molecular and/or other tests. The data derived can be used to describe the strain and objectively compare it to other strains.

Culture - a population of cells in a given place at a given time, e.g., in a test tube or on an agar plate.

Distribution stock - cultures derived from seed stock and intended for distribution. At least one vial of each batch of distribution stock is checked for purity and viability, then characterized and compared with the data for the seed stock.

Master culture - a culture derived directly from the reference culture (i.e., the vial obtained from ATCC or another recognized culture collection). The master culture can be stored as freeze-dried ampules, low-temperature suspensions, low-temperature suspension on beads, or through suitably validated alternatives. The master culture serves as the in-house reference standard. The master culture is used to prepare stock cultures.

Passage - transfer of an inoculum of cells from an existing culture to fresh growth medium in another vessel. Each transfer (i.e., subculture) is counted as an additional passage. Some organizations have recommended, and ATCC concurs, that strains being used in standard test methods should not be used beyond five passages from the original ATCC vial. ATCC defines the first passage as the first broth or agar culture started from the culture vial supplied by ATCC. Actively growing cultures are subject to genetic drift, accidental loss, contamination at time of subculture, human error in transfer and labeling, and selection of mutant lines.

Pure culture - a culture of only one organism (i.e., not contaminated, not a mixed culture).

Quality control strain - a strain previously determined to meet the performance criteria of a particular test. Seed stocks are maintained at low passage numbers. Each passage is re-authenticated and characterized.

Seed stock - cultures stored under optimal conditions and used to prepare distribution stock. Ideally, seed stock is from very low-passage material. At ATCC, every effort is made to minimize the number of transfers. Contamination and genetic drift are minimized. One vial of seed stock is used to test for viability and purity, as well as to authenticate and characterize the strain.

Stock culture - a culture derived from a master culture or a reference culture and used as a reagent on a regular basis. Official standards and specifications mandate propagation procedures, growth conditions and limits on passage numbers for stock cultures used in individual tests.

Strain - cells descended from a single isolation in pure culture, usually from a single colony, though not necessarily from a single cell (i.e., not necessarily a clone).

Subculture - (see Passage).

Test organism - an organism used in a particular assay or other test.

References

1. International Code of Nomenclature of Bacteria. Washington DC: American Society for Microbiology, 1992.
2. Brown MRW, Gilbert P. Microbiological Quality Assurance: A Guide Towards Relevance and Reproducibility. CRC Press, 1995.
3. Clinical and Laboratory Standards Institute/National Committee for Clinical Laboratory Standards. Quality Control for Commercially Prepared Microbiological Culture Media; Approved Standard. 3rd ed. CLSI/NCCLS; M22-A3, 2004.

**Tech
Bulletin**
No. 1

800.638.6597
703.365.2700

sales@atcc.org
tech@atcc.org
www.atcc.org

TB1-1010-0.1-02

© 2010 American Type Culture Collection. The ATCC trademark and trade name, any and all ATCC catalog numbers and any other trademarks listed in this publication are trademarks of the American Type Culture Collection unless indicated otherwise.

These products are for laboratory use only. Not for human or diagnostic use. ATCC products may not be resold, modified for resale, used to provide commercial services or to manufacture commercial products without prior ATCC written approval.

ATCC® THE ESSENTIALS OF LIFE SCIENCE RESEARCH. GLOBALLY DELIVERED.™ 10801 UNIVERSITY BOULEVARD, MANASSAS, VA 20110