

Maintenance of Quality Control Strains

With proper maintenance, many microorganisms produced by Microbiologics can be used in quality control tests for up to a month after reconstitution. In this technical bulletin, Microbiologics provides two plans for maintaining quality control microorganisms. In the first plan there are fewer passages for the microorganism. In the second plan, the working stock culture is prepared weekly instead of monthly. When choosing a plan, take into consideration regulatory guidelines and test manufacturer's directions for maintaining microorganisms.

Tips for maintaining microorganisms can be found in the boxes below.

Getting Started

- A KWIK-STIK™ or a LYFO DISK® should be started on a non-selective agar such as Tryptic Soy Agar or Sheep Blood Agar. Do not use broth.
- A working QC stock culture cannot be frozen to assume reference culture status.

Tips For Best Performance

- Do not test the original pellet plate. This is the plate on which the lyophilized pellet was started. The organisms growing on this plate are not fully resuscitated.
- Always use fresh microorganisms for testing. Many tests require that the microorganisms are not more than 24 hours old.
- Select isolated colonies for the test.
- It may be necessary to start microorganisms used for quality control of antibiotic susceptibility tests every two weeks because some microorganisms lose resistance over time. Examples are: *P. aeruginosa* ATCC® 27853™* (Catalog # 0353), *E. faecalis* ATCC® 51299™* (Catalog # 0959), and *S. pneumoniae* ATCC® 49619™* (Catalog # 0947).
- Do not test colonies from a contaminated plate.

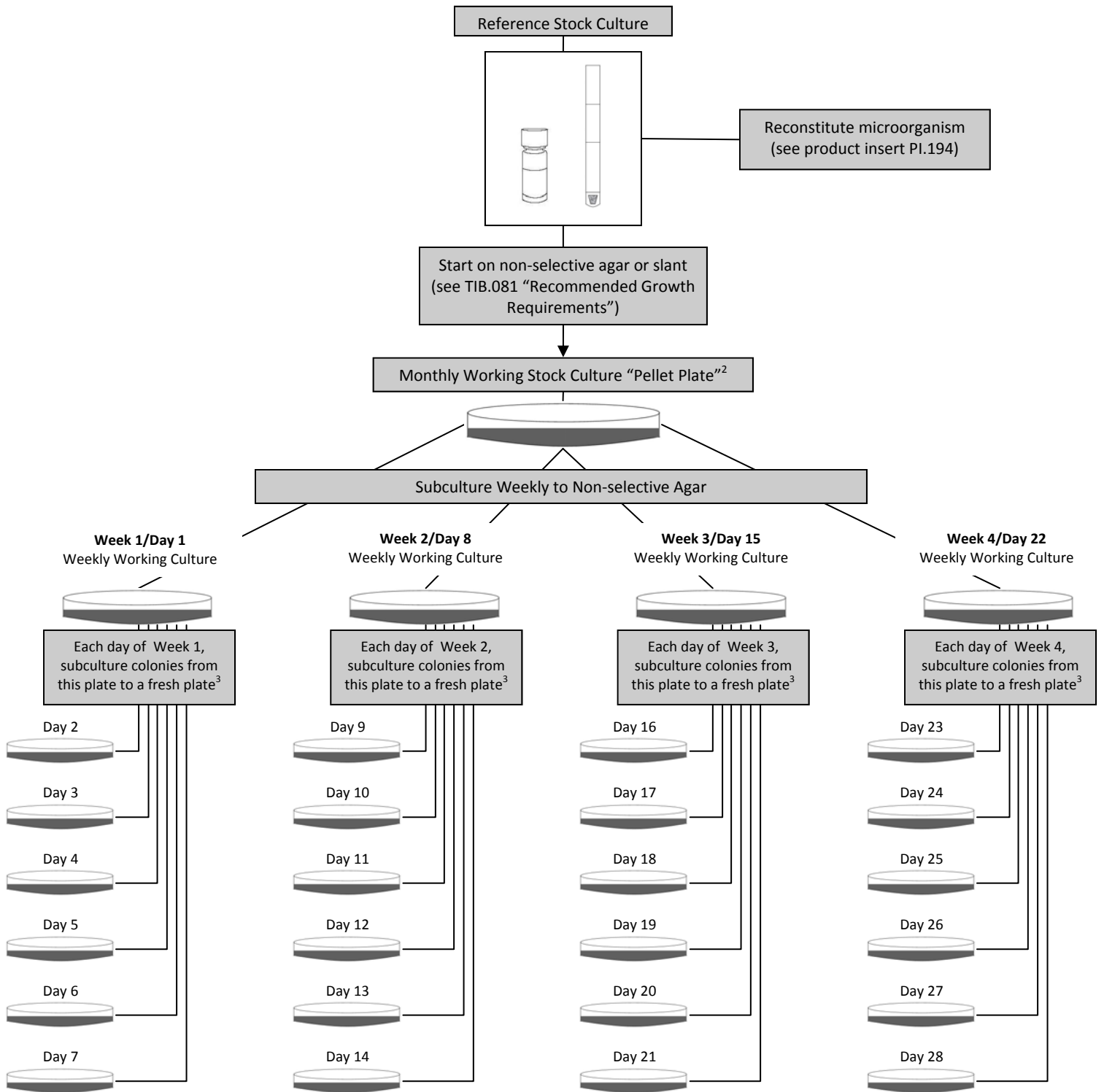
Storage of Microorganisms

- Fastidious microorganisms have shorter survival periods than aerobic bacteria. They will need to be subcultured every few days. For example, *Streptococcus pneumoniae* and *Neisseria gonorrhoeae* need to be subcultured every third day.
- Store aerobic bacteria at 2-8°C. Exceptions are a few species of *Bacillus* which remain viable for a longer period when stored at room temperature. Store microorganisms which require CO₂ at room temperature in a candle jar or a container with a CO₂ packet. Store yeast and fungus at room temperature. Store anaerobes in anaerobic conditions at 2-8°C. Store *Campylobacter* at 35°C in microaerophilic conditions.

Wrapping Up

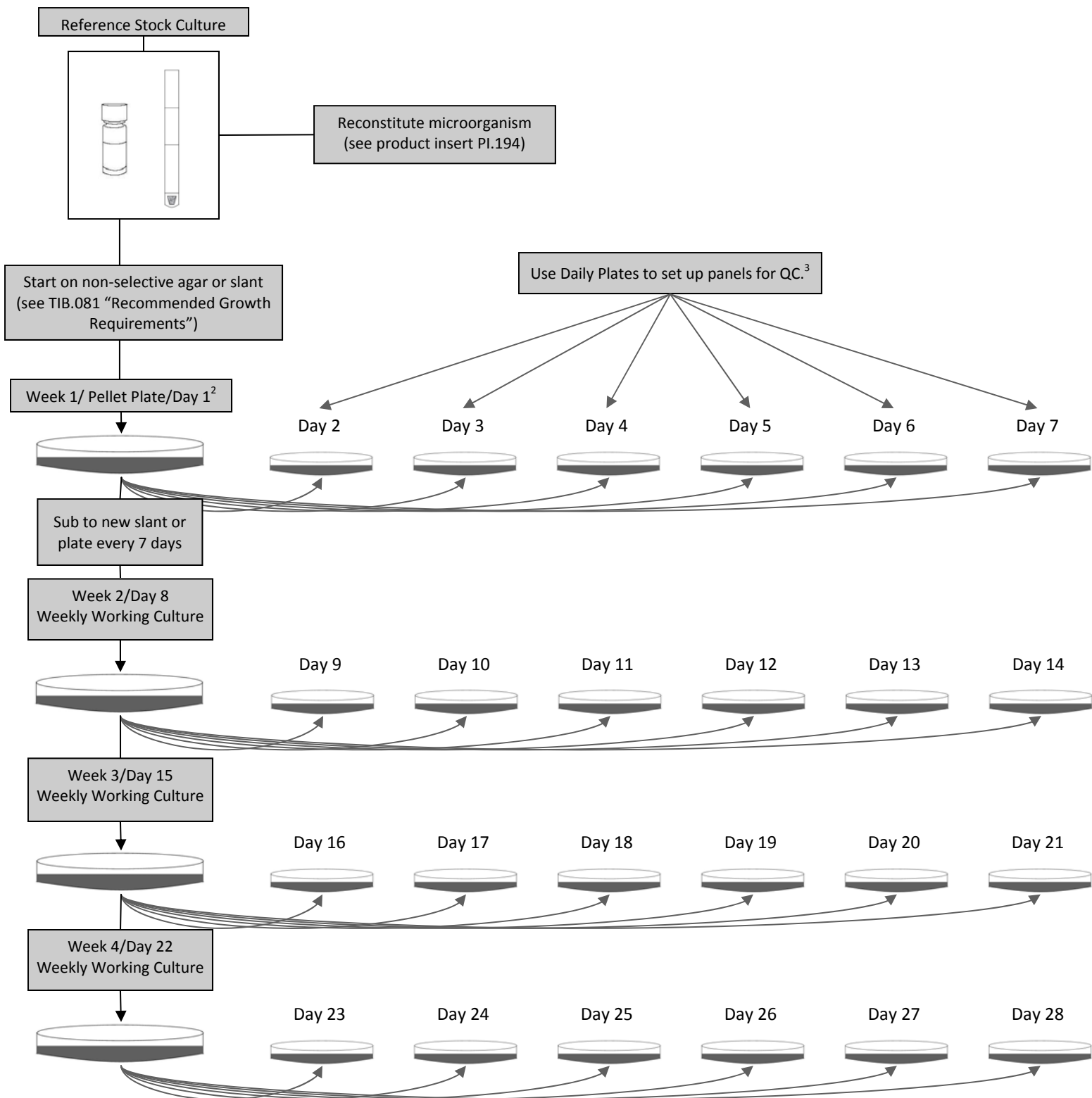
- After the fourth week, dispose of plates and start the process over with a new lyophilized pellet.
- A microorganism may be used beyond expiry date if (one) the lyophilized pellet is grown before expiry date and (two) the microorganism is not used beyond week 4 of the maintenance program.

Microorganism Maintenance Plan A¹



1. Reference: CLSI M22-A3 Vol. 24 No.19, Quality Control for Commercially Prepared Microbiological Culture Media: Approved Standard - Seventh Edition, April 2004.
2. Do not test colonies from the pellet plate. If it is necessary to test the microorganism on Day 1, start the reference stock culture one day earlier and subculture it for the first day of testing.
3. Alternatively, subculture the day before testing.

Microorganism Maintenance Plan B¹



1. CLSI M07-A8 Vol. 29 No. 2, Methods for Dilution Antimicrobial Susceptibility Tests for Bacteria that Grow Aerobically: Approved Standard-Eighth Edition, January 2009. CLSI M02-A10 Vol. 29 No. 1, Performance Standard for Antimicrobial Disk Susceptibility Tests; Approved Standard-Tenth Edition, January 2009.
2. Do not test colonies from the pellet plate. If it is necessary to test the microorganism on Day 1, start the reference stock culture one day earlier and subculture it for the first day of testing.
3. Alternatively, subculture the day before testing.