SS AGAR

- For in vitro use only - Catalogue No. PS66

Our SS (Salmonella-Shigella) Agar is a selective medium used for the isolation and differentiation of *Salmonella* and some *Shigella* species from clinical and non-clinical samples.

SS Agar is a modification of deoxycholate-citrate agar devised by Leifson. Rose and Kolodny reported the superiority of SS Agar in the isolation of *Salmonella* and *Shigella* when compared to other media. SS Agar is highly selective for *Salmonella* species, but is inhibitory to some strains of *Shigella*. Therefore SS Agar should not be used for the primary isolation of *Shigella*, instead an alternate product such as Hektoen Enteric Agar (Dalynn PH45) or XLD Agar (Dalynn PX75) should be used.

The selectivity of the medium is due to the presence of brilliant green and bile salts, which act complementary in the inhibition of gram-positive bacteria and most coliform bacteria. *Salmonella* spp. and some *Shigella* spp. are not affected by these inhibitors and can grow uninhibited. Differentiation of enteric organisms is achieved by the incorporation of lactose and the indicator phenol red. Organisms that ferment lactose produce acid resulting in the formation of red colonies in the presence of the indicator, neutral red, while lactose non-fermenters, such as *Salmonella* and *Shigella* form colorless colonies. The medium also contains ferric nitrate, an iron-containing compound useful in the detection of hydrogen sulfide (H_2S) production by bacteria; H_2S-positive organisms such as *Salmonella* produce colonies with black centers.

Formula per Litre of Medium

Meat Peptone	2.5 g
Casein Peptone	2.5 g
Beef Extract	5.0 g
Lactose	10.0 g
Bile Salts No. 3	8.5 g
Sodium Citrate	8.5 g
Sodium Thiosulfate	8.5 g
Ferric Citrate	1.0 g
Agar	13.5 g
Neutral Red	25.0 mg
Brilliant Green	0.33 mg

pH 7.0 ± 0.2

Recommended Procedure

1. Allow medium to reach room temperature.
2. Using a heavy inoculum, perform a four-quadrant streak to obtain well-isolated colonies.
3. Incubate aerobically at 35°C.
4. Examine after 18-24 hours. Re-incubate plates an additional 24 hours to detect late lactose fermenters.

Interpretation of Results

Shigella species are lactose non-fermenters that form colorless, transparent colonies with the medium changing from reddish-orange to yellow.

Salmonella species are also lactose non-fermenters and from colorless, transparent colonies with or without black centers. As indicated earlier, black centers are due to H_2S production by *Salmonella*.

Coliforms are partially inhibited on SS Agar but may overcome the inhibitory effects after prolonged incubation. When growing, *E. coli* produces pink to red colonies, *Enterobacter aerogenes* produces cream to pink colonies, while *Citrobacter* and *Proteus* species produce colonies with gray or black centers.

Biochemical and/or serological tests should be performed on isolated colonies in order to complete identification.

- *SS Agar may inhibit some Shigella species such as S. sonnei and S. dysenteriae*
- *Late lactose fermenters may require 48 hours of incubation to grow and produce a color reaction on SS Agar*

Quality Control

After checking for correct pH, colour, depth, and sterility, the following organisms are used to determine the growth performance of the completed medium.

Organism	Expected Result
Salmonella typhimurium ATCC 14028	Growth, colorless colonies with or w/o black centers
Shigella flexneri ATCC 12022	Growth, colorless colonies
Escherichia coli ATCC 25922	Partial inhibition (Red colonies if growth)
Enterococcus faecalis ATCC 29212	Inhibition

Storage and Shelf Life

Our SS Agar should be stored away from direct light at 4°C to 8°C with the medium side uppermost to prevent excessive accumulation of moisture on the agar surface. Under these conditions this medium has a shelf life of 7 weeks from the date of manufacture.

Ordering Information

Cat#	Description	Format
PS66	SS Agar [Standard 15x100-mm plate]	10/pkg

References

1. Leifson E. New culture media based on sodium desoxycholate for the isolation of intestinal pathogens and for the enumeration of colon bacilli in milk and water. J Pathol 1935; 40:581.
2. Rose HM, Kolodny MH. The use of SS agar for the isolation of flexner dysentery bacilli from feces. J Lab Clin Med 1942; 27:1081-3.
3. Taylor WI, Harris B. Isolation of shigellae. II. Comparison of plating media and enrichment broths. Am J Clin Pathol 1965; 44:476.
4. MacFaddin JF. Media for isolation-cultivation-identification-maintenance of medical bacteria, Vol I. Baltimore, MD: Williams & Wilkins, 1985.
5. Isenberg HD, Ed. Clinical microbiology procedures handbook, Vol 1. Washington, DC: ASM, 1992.
6. Difco Manual. 11th edition. Difco Laboratories: Maryland 1998.
7. Forbes BA, Sahm DF, Weissfeld AS. Bailey and Scott's diagnostic microbiology. 10th ed. St Louis: Mosby, 1998.
8. NCCLS. Quality assurance for commercially prepared microbiological media. 3rd ed. Approved standard, M22-A3. Wayne, PA: NCCLS, 2004.

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