

ONPG Disc

Intended Use

For detection of Beta-Galactosidase activity.

Summary & Principle

Lactose fermentation is a classical identification test for many microorganisms. It is normally demonstrated by acid production after the disaccharide has been cleaved into galactose and glucose by the enzyme beta-galactosidase. Lactose utilization depends upon two enzymes: β -galactoside permease, which catalyzes transport of lactose into the cell, and β -galactosidase, which breaks down lactose into galactose and glucose. However, some organisms lack permease and consequently appear as late or non-lactose-fermenters. The ONPG test is valuable for the detection of beta-galactosidase activity in late lactose-fermenting organism like *Shigella sonnei* and some strains of *Escherichia coli*. The ONPG test detects the enzyme beta-galactosidase with greater speed and sensitivity than lactose-fermentation tests.

ONPG Disks are used to detect the presence of β -galactosidase, an enzyme found in lactose-fermenting organisms. ONPG (Ortho-nitrophenyl β -D-galactopyranoside) is a synthetic colourless compound (galactoside) structurally similar to lactose. ONPG is able to enter the bacterial cell more easily than lactose as it is not dependent on the presence of the permease enzyme. If the organism possesses beta-galactosidase, the enzyme will split the beta-galactoside bond, releasing o-nitrophenol, which is a yellow-colored compound. The activity of the galactosidase enzyme is increased in the presence of sodium ions.

Directions

1. Place one disc into a sterile tube.
2. Add 0.1 ml of sterile 0.85% sodium chloride solution (physiological saline).
3. Pick the colony under test with a sterile loop and emulsify it in the tube containing the disc and physiological saline.
4. Incubate at 35°C-37°C.
5. Examine at hourly intervals for up to 6 hours to detect active lactose fermenters.
6. Organisms that are negative after 6 hours should be incubated for up to 24 hours to detect the late lactose fermenters.

Quality Control

Appearance: Filter paper discs of 6mm diameter with printed 'ON' on each side of the disc.

Cultural Response: ONPG reaction observed in 0.85% sodium chloride solution, for following cultures containing ONPG disc after an incubation of upto 6 hours at 35°C-37°C.

Organism (ATCC)

Citrobacter freundii (8090)
Klebsiella aerogenes (13048)
Escherichia coli (25922)
Proteus hauseri (13315)
Salmonella enterica subsp. *enterica*
serovar *Typhimurium* (14028)

ONPG reaction

Positive reaction: yellow colour
Positive reaction: yellow colour
Positive reaction: yellow colour
Negative reaction: no colour change
Negative reaction: no colour change

Storage and Stability

Discs in routine use should be stored at 2°C– 8°C. Longer term storage should be at -20°C.

Performance and Evaluation

Performance of the product is dependent on following parameters as per product label claim:

1. Directions
2. Storage
3. Expiry

Warranty

This product is designed to perform as described on the label and package insert. The manufacturer disclaims any implied warranty of use and sale for any other purpose.

References

1. Data on file: Microxpress®, A Division of Tulip Diagnostics (P) Ltd.

Product Presentation:

Cat No.	Product description	Pack Size
206150140050	Differentiation Discs	Single Vial (1x 50 Disc)

Disclaimer

Information provided is based on our inhouse technical data on file, it is recommended that user should validate at his end for suitable use of the product.
