

ONPG

Catalog No: tcsc3045



Available Sizes

Size: 1g

Size: 5g



Specifications

CAS No:

369-07-3

Formula:

$C_{12}H_{15}NO_8$

Pathway:

Others

Target:

Others

Purity / Grade:

>98%

Solubility:

H₂O : 7.4 mg/mL (24.56 mM; Need ultrasonic)

Alternative Names:

2-Nitrophenyl β-D-galactopyranoside

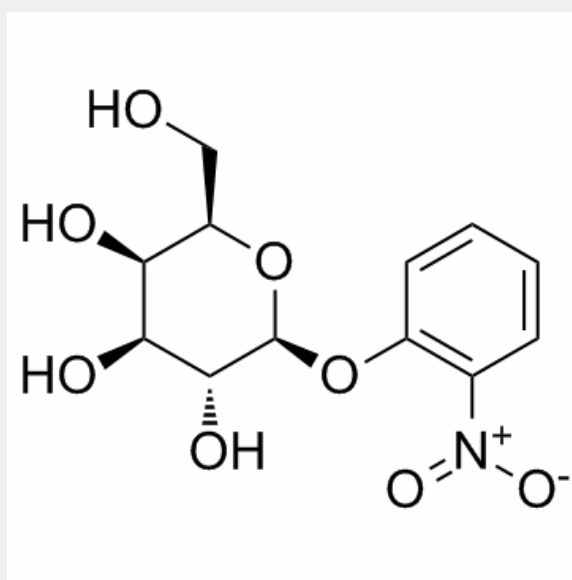
Observed Molecular Weight:

301.25

Product Description

ONPG is a colorimetric and spectrophotometric substrate for detection of β-galactosidase activity.

In Vitro: The enzyme displays high hydrolysis ability for ONPG (100%) and moderate activity for its natural substrate lactose (25.7%). However, the hydrolysis ability of the enzyme towards all other chromogenic nitrophenyl analogues is very weak, indicating that Gal308 is a β -galactosidase with narrow substrate specificity. To investigate the kinetic parameters of recombinant enzyme, the Michaelis-Menten constants (K_m), turnover numbers (k_{cat}), and catalytic efficiencies (k_{cat}/K_m) of Gal308 for ONPG and lactose are determined. The k_{cat} and K_m values are $464.7 \pm 7.8 \text{ s}^{-1}$ and $2.7 \pm 0.3 \text{ mM}$ for ONPG, and $264.2 \pm 2.1 \text{ s}^{-1}$ and $7.1 \pm 0.8 \text{ mM}$ for lactose, respectively. The k_{cat}/K_m value of the enzyme for ONPG ($172.1 \text{ s}^{-1}\text{mM}^{-1}$) is 4.6-fold higher than that for lactose ($37.2 \text{ s}^{-1}\text{mM}^{-1}$), which clearly demonstrated that the catalytic efficiency of Gal308 for ONPG is much higher than that for lactose^[1].



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