

GLUCOSE-6-PHOSPHATE DEHYDROGENASE

D-Glucose-6-phosphate:NAD(P)⁺ 1-oxidoreductase

REACTION:



PRODUCT DESCRIPTION

Catalog No.:	SDZ500131
Appearance:	White amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 1.1.1.49
CAS Number:	9001-40-5
Storage temperature:	-20°C
Specific activity:	≥ 500U/mg protein
Unit definition:	One unit will oxidate one micromole of D-glucose 6-phosphate per min at pH 7.8 at 30°C.

PROPERTIES

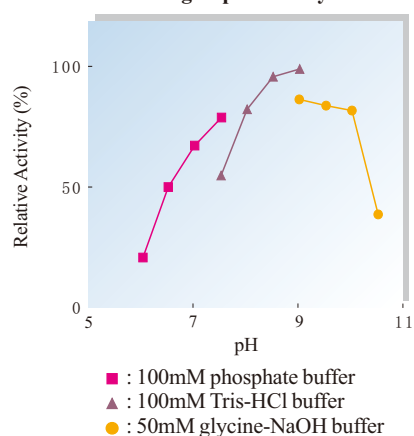
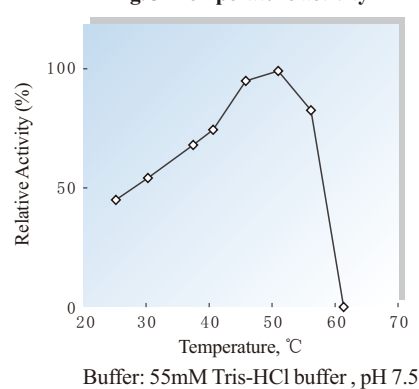
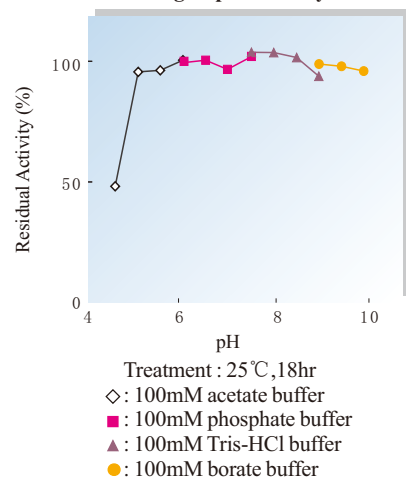
Molecular weight:	57 kDa (SDS-PAGE)
Isoelectric point:	4.8
Michaelis constant:	$3.7 \times 10^{-4}\text{M}$ (NAD ⁺), $1.9 \times 10^{-4}\text{M}$ (G-6-P)
Optimum pH:	9.0 {Fig. 1}
Optimum temperature:	50°C {Fig. 3}
pH Stability:	5.0~10.0 (25°C, 18hr) {Fig. 2}
Thermal stability:	< 40°C (pH 7.5, 30min) {Fig. 4}
Inhibitors:	Ca ²⁺ , Co ²⁺ , Cu ²⁺ , Fe ³⁺ , Ni ²⁺ , Zn ²⁺ , NaN ₃ , Proclin, SDS, Tween-20
Effect of various chemicals:	{Table 1}

Table 1.**Effect of Various Chemicals on G6PD**

[The enzyme dissolved in 55mM Tris-HCl buffer, pH 7.8(20U/ml) was incubated with each chemical at 37°C for 2hr.]

Chemical	Concn. (mM)	Residual activity
None	-	100%
CaCl ₂	2.0	51%
CoCl ₂	2.0	2%
CuSO ₄	2.0	0%
FeCl ₃	2.0	2%
MgSO ₄	2.0	124%
MnSO ₄	2.0	103%
NiCl ₂	2.0	43%
ZnSO ₄	2.0	1%
BME	2.0	94%

Chemical	Concn. (mM)	Residual activity
NEM	2.0	93%
EDTA	5.0	93%
NaN ₃	20.0	71%
Proclin	0.045%	0%
Na-cholate	0.10%	98%
SDS	0.05%	3%
Triton X-100	0.10%	91%
Tween 20	0.10%	68%
Boric Acid-Borax	50.0	105%

Fig. 1 pH Activity**Fig. 3 Temperature activity****Fig. 2 pH Stability****Fig. 4 Thermal stability**