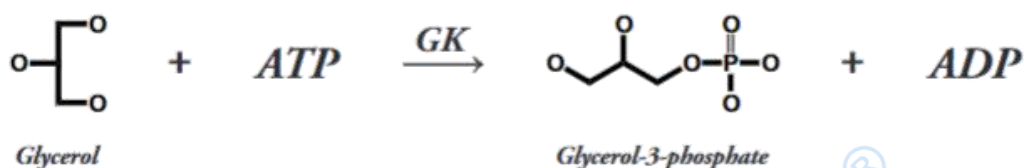


## Glycerol Kinase (GK)

### G774069

Glycerol Kinase (GK, EC 2.7.1.30) is a key member of the kinase family, catalyzing the initial reaction in glycerol metabolism. In the presence of ATP, this enzyme can specifically catalyze the phosphorylation of glycerol, generating glycerol-3-phosphate (G-3-P) and ADP.

#### Reaction



#### Storage Conditions

Store at 4°C short term (15 days). Store at -20°C long term (5 years). Upon delivery aliquot. Avoid freeze/thaw cycle. Store in the dark. Desiccated.

#### Product description

Appearance:	Yellowish amorphous powder
Source:	Microorganism
Enzyme Commission Number:	EC 2.7.1.30
CAS Number:	9030-66-4
Specific activity:	≥ 180U/mg protein ≥ 80U/mg protein
Unit definition:	One unit will convert one micromole of glycerol to glycerol-3-phosphate per min at pH 7.9 at 37°C/25°C.

#### Properties

Molecular weight:	55kDa (SDS-PAGE)	
Isoelectric point:	5.1	
Michaelis constant:	2.8×10 <sup>-5</sup> M (Glycerol)	
Optimum pH:	8.0	{Fig. 1}
Optimum temperature:	70°C~80°C	{Fig. 3}
pH Stability:	4.0~10.0 (30°C, 20hr)	{Fig. 2}
Thermal stability:	< 65°C (pH 7.5, 30min)	{Fig. 4}
Inhibitors:	Fe <sup>3+</sup> , Proclin, SDS	
Effect of various chemicals:		{Table 1}

**Table 1**

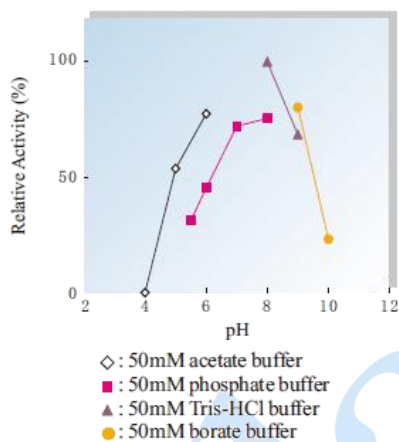
Effect of Various Chemicals on GK

[The enzyme dissolved in 100mM Gly-Gly buffer, pH 8.0 (10U/ml) was incubated with each chemical at 37°C for 2hr.]

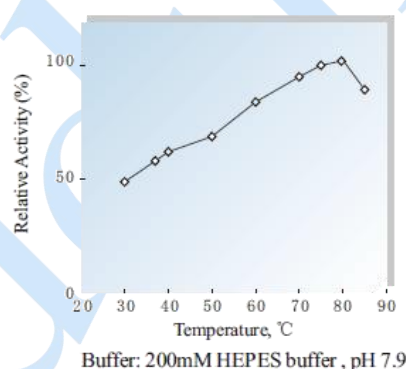
Chemical	Concn.(mM)	Residual activity
None	-	100%
CaCl <sub>2</sub>	2.0	96%
CoCl <sub>2</sub>	2.0	98%
CuSO <sub>4</sub>	2.0	94%
FeCl <sub>3</sub>	2.0	56%
MgSO <sub>4</sub>	2.0	83%
MnSO <sub>4</sub>	2.0	97%
NiCl <sub>2</sub>	2.0	105%
ZnSO <sub>4</sub>	2.0	98%
BME	2.0	94%

Chemical	Concn.(mM)	Residual activity
NEM	2.0	86%
EDTA	5.0	97%
NaN <sub>3</sub>	20.0	101%
Proclin	0.045%	2%
Boric Acid-Borax	2.0	98%
Na-cholate	0.10%	102%
SDS	0.05%	1%
Triton X-100	0.10%	111%
Tween 20	0.10%	92%

**Fig. 1 pH Activity**

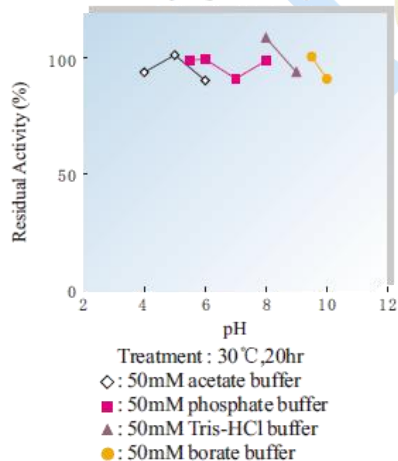


**Fig. 3 Temperature activity**



Buffer: 200mM HEPES buffer, pH 7.9

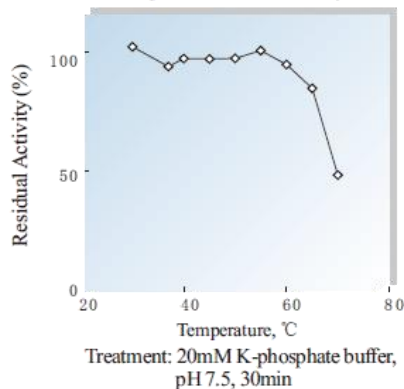
**Fig. 2 pH Stability**



Treatment : 30 °C, 20hr

- ◇ : 50mM acetate buffer
- : 50mM phosphate buffer
- ▲ : 50mM Tris-HCl buffer
- : 50mM borate buffer

**Fig. 4 Thermal stability**



Treatment: 20mM K-phosphate buffer, pH 7.5, 30min