

## CERTIFICATE OF ANALYSIS

PRODUCT NAME: GLYKO®  $\beta$ (1-4,6)GALACTOSIDASE (Jack Bean)

PRODUCT CODE: GKX-5012

LOT NUMBER: DG33 023a

FORMULATION: Lyophilized from 20 mM sodium citrate phosphate (pH 6.0)

RECONSTITUTION: Dissolve the lyophilizate in 138  $\mu$ l of high purity water to obtain the described formulation. Since the enzyme will be more concentrated than is required for most applications, dilute further with buffer as needed.

SUGGESTIONS FOR USE: Conditions for use vary depending on the application, since the enzyme hydrolyzes  $\beta$ (1-4) and  $\beta$ (1-6) linkages significantly more rapidly than  $\beta$ (1-3) linkages. For example, for non-selective hydrolysis of non-reducing terminal galactose, a final concentration of at least 4 U/ml is recommended whereas a final concentration of <1 U/ml is recommended for selective hydrolysis of  $\beta$ (1-4)- and  $\beta$ (1-6)-linked galactose.

STORAGE: -20°C until redissolved. Store redissolved enzyme at 2-8°C or -20°C but avoid repeated freeze-thaw cycles.

PACK SIZE: 5 Units

EXPIRATION: January 2020

QUALITY CONTROL

1.	Specific activity <sup>1</sup> :	Passed	(Specification: $\geq 70$ U/mg)
2.	Protease assay <sup>2</sup> :	Passed	(Specification: "Not Detectable")
3.	Contaminants <sup>3</sup> : (except as noted below)	Passed	(Specification: $\leq 0.001\%$ )
	$\alpha$ -Galactosidase	0.0061%	
	$\beta$ -Glucosidase	0.0724%	
	$\beta$ -Xylosidase	0.0050%	

---

Authorized Signature

1. One unit of Jack Bean  $\beta$ -Galactosidase is defined as the amount of enzyme required to catalyze the release of one  $\mu$ mole of p-nitrophenol per minute from pNP- $\beta$ -galactopyranoside at pH 3.5 and 37°C.
2. No protease activity was detectable after incubation of the enzyme with 0.2 mg resorufin-labeled casein for ~18 hours at 37°C based on Schickaneder E, Hösel W, von der Eltz H, Geuß U. Casein-resorufin, a new substrate for a highly sensitive protease assay. Fresenius Z. Anal Chem. 1988 330:360.
3. The absence of exoglycosidase contaminants was confirmed by extended incubations with the corresponding pNP-glycosides:  $\alpha$ -fucosidase,  $\alpha$ -mannosidase,  $\beta$ -mannosidase,  $\beta$ -N-acetylhexosaminidase,  $\alpha$ -N-acetylgalactosaminidase,

$\alpha$ -galactosidase,  $\alpha$ -glucosidase,  $\beta$ -glucosidase and  $\beta$ -xylosidase. The absence of contaminating sialidase was confirmed by extended incubation with MU-NANA. **Note: this enzyme has activity on pNP- $\beta$ -D-fucoside (although reduced relative to the standard substrate).**