# CERTIFICATE OF ANALYSIS

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| PRODUCT NAME: | GLYKO® β(1-4,6)GALACTOSIDASE (Jack Bean) |
| PRODUCT CODE: | GKX-5012 |
| LOT NUMBER: | DG33 021a |
| FORMULATION: | Lyophilized from 20 m*M* sodium citrate phosphate (pH 6.0) |
| RECONSTITUTION: | Dissolve the lyophilizate in 148 µl 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 β(1-4) and β(1-6) linkages significantly more rapidly than β(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 β(1-4)- and β(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: | August 2018 |

QUALITY CONTROL

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| 1. | Specific activity[1]: | Passed | (Specification: ≥70 U/mg) |
| 2. | Protease assay[2]: | Passed | (Specification: "Not Detectable") |
| 3. | Contaminants[3]: (except as noted below) | Passed | (Specification: ≤0.001%) |
| | α-Galactosidase | 0.008% | |
| | β-Glucosidase | 0.039% | |
| | β-Xylosidase | 0.005% | |

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Authorized Signature

1. One unit of Jack Bean β-Galactosidase is defined as the amount of enzyme required to catalyze the release of one µmole of p-nitrophenol per minute from pNP-β-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: α-fucosidase, α-mannosidase, β-mannosidase, β-N-acetylhexosaminidase, α-N-acetylgalactosaminidase,

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