

## Native Microorganism Glucose-6-phosphate Dehydrogenase

### Product Information

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Cat#</b>                     | DIA-145                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Abbr</b>                     | G6PDH (Microorganism)                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Alias</b>                    | G6PDH; GPD; G6PD1; G6PD                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Similar</b>                  | Glucose-6-phosphate dehydrogenase                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Source</b>                   | Microorganism                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Description</b>              | Glucose-6-phosphate dehydrogenase (G6PD or G6PDH) (EC 1.1.1.49) is a cytosolic enzyme that catalyzes the chemical reaction: D-glucose 6-phosphate + NADP <sup>+</sup> ↔ 6-phospho-D-glucono-1,5-lactone + NADPH + H <sup>+</sup> . This enzyme is in the pentose phosphate pathway, a metabolic pathway that supplies reducing energy to cells (such as erythrocytes) by maintaining the level of the co-enzyme nicotinamide adenine dinucleotide phosphate (NADPH). |
| <b>Applications</b>             | The enzyme is useful for enzymatic determination of NAD <sup>+</sup> (NADP <sup>+</sup> ) and G-6-P, and activities of phosphoglucose isomerase, phosphoglucomutase and hexokinase. The enzyme is also used for enzymatic determination of glucose and creatine phosphokinase activity when coupled with hexokinase.                                                                                                                                                 |
| <b>Appearance</b>               | White amorphous powder, lyophilized                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Form</b>                     | Freeze dried powder                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Enzyme Commission Number</b> | EC 1.1.1.49                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Activity</b>                 | 200U/mg-solid or more                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>CAS No.</b>                  | 9001-40-5                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Contaminants</b>             | Creatine phosphokinase < 1×10 <sup>-3</sup> % Phosphoglucomutase < 1×10 <sup>-3</sup> %<br>6-Phosphogluconate dehydrogenase < 5×10 <sup>-3</sup> % Phosphoglucose isomerase < 1×10 <sup>-2</sup> %<br>Glutathione reductase < 1×10 <sup>-3</sup> % Hexokinase < 1×10 <sup>-2</sup> % Myokinase < 1×10 <sup>-2</sup> % NADH                                                                                                                                           |



**Creative Enzymes**

*Diagnostic Enzymes*

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oxidase <  $1 \times 10^{-2}\%$  NADPH oxidase <  $1 \times 10^{-2}\%$

|                            |                                                                                                                                                                                                                                  |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Molecular Weight</b>    | approx. 140 kDa (by gel filtration)                                                                                                                                                                                              |
| <b>pH Stability</b>        | pH 5.0-11.0 (25°C, 22hr)                                                                                                                                                                                                         |
| <b>Michaelis Constant</b>  | NAD <sup>+</sup> linked $2.4 \times 10^{-4}\text{M}$ (NAD <sup>+</sup> ), $4.7 \times 10^{-4}\text{M}$ (G-6-P), NADP <sup>+</sup> linked $7.4 \times 10^{-6}\text{M}$ (NADP <sup>+</sup> ), $3.2 \times 10^{-4}\text{M}$ (G-6-P) |
| <b>Optimum pH</b>          | 7.8                                                                                                                                                                                                                              |
| <b>Optimum temperature</b> | 50°C-55°C                                                                                                                                                                                                                        |
| <b>Thermal stability</b>   | below 50°C (pH 7.8, 30min)                                                                                                                                                                                                       |
| <b>Stability</b>           | Stable at -20°C for at least one year                                                                                                                                                                                            |
| <b>Inhibitors</b>          | Metal ions, iodoacetamimide, SDS etc.                                                                                                                                                                                            |
| <b>Synonyms</b>            | Glucose-6-phosphate dehydrogenase; G6PD; G6PDH; Glucose-6-phosphate dehydrogenase (NADP(+)); EC 1.1.1.49; Glucose-6-phosphate 1-dehydrogenase; Glucose-6-phosphate dehydrogenase; GPD                                            |