

## Product Information

### YOP Protein Tyrosine Phosphatase from *Yersinia enterocolitica*, recombinant expressed in *E. coli*

Product Number **Y 4127**  
Storage Temperature  $-20\text{ }^{\circ}\text{C}$

Synonym: YOP51\*

#### Product Description

YOP protein tyrosine phosphatase (YOP51\*) is a product of the Yop51 gene that contains the C235R mutation. YOP51\* is a *Yersinia enterocolitica* protein expressed in *E. coli* by a T7 expression system. The YOP protein tyrosine phosphatase wild type (YOPH or YOP51) is a member of a group of effector proteins that are translocated into host cells by the pathogenic bacterial species *Yersinia*. YOPs are *Yersinia* outer proteins and include several enzymatic activities. The related *Yersinia pestis* is the causative agent of Black Death or the plague.

Both YOP51 and YOP51\* are 51 kDa proteins with a C-terminal protein tyrosine phosphatase (PTPase) domain and a central proline rich region.<sup>1</sup> The protein has high homology with the eukaryotic PTPase family. The family of PTPases is composed of receptor-like and non-receptor proteins that act alone or with protein-tyrosine kinases to control levels of cellular phosphorylation. PTPases are specific for hydrolyzing the phosphate group from the tyrosine of proteins. *Yersinia* PTPases are the most active PTPases known.<sup>2</sup> YOP51\* activity is inhibited by vanadate.<sup>2,4</sup>

Unit definition: one unit will hydrolyze 1 nmole of p-nitrophenyl phosphate (50 mM) in 1 minute at pH 7.0 at 30 °C in a total reaction volume of 50  $\mu\text{l}$ .

#### Components

YOP51\* is supplied in a solution containing 100 mM NaCl, 50 mM HEPES, pH 7.0, 2 mM sodium EDTA, 5 mM DTT, 0.01% BRIJ<sup>®</sup> 35, and 50% glycerol.

Also supplied are the following:

- Product Code R 8901 - 10x Reaction Buffer (500 mM Tris-HCl, pH 7.0, 1 M NaCl, 20 mM sodium EDTA, 50 mM DTT, 0.1% BRIJ 35)
- Product Code A 6723 - 10x BSA Solution (10 mg/ml)

#### Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices. Warning statements are included on the label where applicable. Avoid contact and inhalation of the product.

#### Storage/Stability

The product ships on wet ice and storage at  $-20\text{ }^{\circ}\text{C}$  is recommended.

YOP51\* may be heat inactivated at 65 °C for 1 hour.

#### References

1. Black, D. S., and Bliska, J. B., Identification of p130<sup>Cas</sup> as a substrate of Yersinia YOPH (YOP51), a bacterial protein tyrosine phosphatase that translocates into mammalian cells and targets focal adhesions. *EMBO J.*, **16**, 2730-2744 (1997).
2. Zhang, Z.-Y., et al., Expression, purification, and physicochemical characterization of a recombinant Yersinia protein tyrosine phosphatase. *J. Biol. Chem.*, **267**, 23759-23766 (1992).
3. Guan, K. L., and Dixon, J. E., Protein tyrosine phosphatase activity of an essential virulence determinant in Yersinia. *Science*. **249**, 553-556 (1990).

- Gordon, J. A., Use of vanadate as protein-phosphotyrosine phosphatase inhibitor. *Methods Enzymol.* **201**, 477-482 (1991).

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