

## peroxiredoxin

Cat. No. EXWM-0496

Lot. No. (See product label)

### Introduction

#### Description

Peroxiredoxins (Prxs) are a ubiquitous family of antioxidant proteins. They can be divided into three classes: typical 2-Cys, atypical 2-Cys and 1-Cys peroxiredoxins. The peroxidase reaction comprises two steps centred around a redox-active cysteine called the peroxidatic cysteine. All three peroxiredoxin classes have the first step in common, in which the peroxidatic cysteine attacks the peroxide substrate and is oxidized to S-hydroxycysteine (a sulfenic acid) (see mechanism). The second step of the peroxidase reaction, the regeneration of cysteine from S-hydroxycysteine, distinguishes the three peroxiredoxin classes. For typical 2-Cys Prxs, in the second step, the peroxidatic S-hydroxycysteine from one subunit is attacked by the 'resolving' cysteine located in the C-terminus of the second subunit, to form an intersubunit disulfide bond, which is then reduced by one of several cell-specific thiol-containing reductants (R'-SH) (e.g. thioredoxin, AhpF, tryparedoxin or AhpD), completing the catalytic cycle. In the atypical 2-Cys Prxs, both the peroxidatic cysteine and its resolving cysteine are in the same polypeptide, so their reaction forms an intrachain disulfide bond. To recycle the disulfide, known atypical 2-Cys Prxs appear to use thioredoxin as an electron donor. The 1-Cys Prxs conserve only the peroxidatic cysteine, so that its oxidized form is directly reduced to cysteine by the reductant molecule.

#### Synonyms

thioredoxin peroxidase; tryparedoxin peroxidase; alkyl hydroperoxide reductase C22; AhpC; TrxPx; TXNPx; Prx; PRDX

### Product Information

#### Form

Liquid or lyophilized powder

#### EC Number

EC 1.11.1.15

#### CAS No.

207137-51-7

#### Reaction

$2 \text{ R}'\text{-SH} + \text{ROOH} = \text{R}'\text{-S-S-R}' + \text{H}_2\text{O} + \text{ROH}$

#### Notes

This item requires custom production and lead time is between 5-9 weeks. We can custom produce according to your specifications.

### Storage and Shipping Information

#### Storage

Store it at +4 °C for short term. For long term storage, store it at -20 °C~-80 °C.