

peptide-methionine (R)-S-oxide reductase

Cat. No. EXWM-1667

Lot. No. (See product label)

Introduction

Description

The reaction occurs in the reverse direction to that shown above. The enzyme exhibits high specificity for reduction of the R-form of methionine S-oxide, with higher activity being observed with L-methionine S-oxide than with D-methionine S-oxide. While both free and protein-bound methionine (R)-S-oxide act as substrates, the activity with the peptide-bound form is far greater. The enzyme plays a role in preventing oxidative-stress damage caused by reactive oxygen species by reducing the oxidized form of methionine back to methionine and thereby reactivating peptides that had been damaged. In some species, e.g. *Neisseria meningitidis*, both this enzyme and EC 1.8.4.11, peptide-methionine (S)-S-oxide reductase, are found within the same protein whereas in other species, they are separate proteins. The reaction proceeds via a sulfenic-acid intermediate. For MsrB2 and MsrB3, thioredoxin is a poor reducing agent but thionein works well. The enzyme from some species contains selenocysteine and Zn²⁺.

Synonyms

MsrB; methionine sulfoxide reductase (ambiguous); pMSR; methionine S-oxide reductase (ambiguous); selenoprotein R; methionine S-oxide reductase (R-form oxidizing); methionine sulfoxide reductase B; SelR; SelX; PilB; pRMSr

Product Information

Form

Liquid or lyophilized powder

EC Number

EC 1.8.4.12

Reaction

peptide-L-methionine + thioredoxin disulfide + H₂O = peptide-L-methionine (R)-S-oxide + thioredoxin

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.