

# Selenoproteins

## Product Introduction

Selenoproteins represent a category of selenium-containing proteins characterized by the presence of at least one selenocysteine (Sec/SeCys) residue. In the human body, 25 genetically encoded selenoproteins have been identified, including notable examples such as glutathione peroxidase (GPx), iodinated thyronine deiodinase (DIO), and thioredoxin reductase (TXNRD). These selenoproteins primarily exert diverse physiological functions through enzymatic activities, encompassing roles in antioxidant defenses and metabolic regulation. Their catalytic sites typically feature a selenocysteine (Sec) residue.

**Glutathione peroxidase system (GPx):** Comprising 5 distinct selenoproteins, the GPx enzyme system primarily serves as a biological catalyst to eliminate harmful metabolites within human cells, cell membranes, and extracellular spaces. Notably, it targets substances like hydrogen peroxide and lipids, exhibiting antioxidant capabilities attributed to the trace element selenium. GPx1 predominantly operates within the cell cytoplasm, GPx3 focuses on the plasma, and GPx4 is instrumental in cell membranes, playing a role in sperm maturation.

**Iodinated thyronine deiodinase system (DIO):** The DIO enzyme system's core function revolves around regulating thyroid hormone activity, thereby showcasing the metabolic regulatory prowess of the trace element selenium.

**Thioredoxin reductase system (TXNRD):** The TXNRD enzyme system is pivotal in catalyzing the reduction of thioredoxin (Trx), indirectly manifesting the antioxidant capabilities of selenium. Additionally, selenoprotein T (SelT) operates through a similar reduction

## Applications

### **In the food industry:**

Selenium proteins find application to enhance the nutritional value and functionality of food products. For instance, incorporating selenoproteins into staple foods like bread and biscuits serves to augment their nutritional content. Additionally, they can be introduced into beverages such as milk, yogurt, and juice, contributing to improved functionality.

### **In the feed industry,**

Selenium proteins play a role in enhancing the production performance and health of livestock and poultry. For instance, the inclusion of selenoproteins in feed can positively impact the egg production rate, egg weight, and feed conversion rate in broilers. It also has the potential to improve the growth rate and feed conversion rate in pigs, while concurrently reducing the incidence of mastitis in dairy cows.

### **In the pharmaceutical industry,**

Selenoproteins are employed to treat and prevent a variety of diseases. For instance, they can be utilized in the treatment of cancer, cardiovascular diseases, and neurodegenerative diseases. Additionally, selenoproteins have a preventive role, being applied to address conditions such as selenium deficiency and Kashin-Beck disease.

### **In the cosmetics industry,**

Selenium proteins are utilized to counteract skin aging and promote skin whitening. Incorporating selenoproteins into skincare products such as facial masks, lotions, and essences contributes to delaying the aging process. Moreover, the inclusion of selenoproteins in cosmetics like lipstick, eye shadow, and blush serves to impart skin-whitening properties.

## **Product List**

Product	Purity	Grade	Packaging
Selenoproteins	1000mg/kg	Food Grade	25kg/barrel



**Service Hotline:** 400-021-8158

**International Market:** [www.allinno.com](http://www.allinno.com)

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