# Seleno-Iodide

ORTHO MOLECULAR PRODUCTS®
Because Efficacy Matters®


### *CLINICAL APPLICATIONS*

- *Supports Thyroid Health*
- *Supports Healthy Synthesis of Thyroid Hormones*
- *Helps Maintain Healthy Breast Tissue*

## ENDOCRINE HEALTH

Seleno-Iodide provides a synergistic blend of iodine, along with its trace mineral partner, selenium, to help maintain iodine levels and reduce oxidative stress for optimal thyroid and breast health. Seleno-Iodide provides 3 mg of iodine combined with 100 mcg of selenium sourced from SelenoExcell®, a highly bioavailable, organically bound selenium.

### Iodine†

Iodine is an essential trace mineral found in various forms in nature and is necessary for human growth and development. Dietary sources of iodine include seafood, seaweeds including wakame and nori, navy beans, potatoes, and iodized salt.

Approximately 15 to 20 mg of iodine is concentrated in the thyroid gland in a healthy human body.[1] Iodine is necessary for the synthesis of thyroid hormones, as it is one of the most important components of the hormones thyroxine (T4) and tri-iodothyronine (T3). T3 is the most active thyroid hormone and binds to receptors in the liver and brain to regulate gene expression.

In addition to supporting thyroid hormone production, research shows iodine acts as an antioxidant, supporting a healthy thyroid gland and protecting a variety of tissues, including mammary tissue, the eyes and the gastrointestinal lining.[2] In other tissues, such as the mammary glands, the protective role of iodine is connected to its antioxidant function.[3,4] Iodide can act as an electron donor in the presence of hydrogen peroxide ($H_2O_2$) and peroxidase, thereby decreasing damage by free oxygen radicals (Figure 1). In research studies, serum concentrations of iodine as low as 15 micromolar have demonstrated comparable antioxidant activity to vitamin C.[5]

### Selenium†

Selenium is a trace mineral required to produce several important compounds, including enzymes involved in antioxidant mechanisms and thyroid hormone metabolism. Selenium intake depends largely on soil conditions in the region where food is grown or raised. Food sources of selenium include Brazil nuts, eggs, peas, poultry and meats. SelenoExcell® is a bioavailable, organic selenium supplement that is closest to forms found in nature.

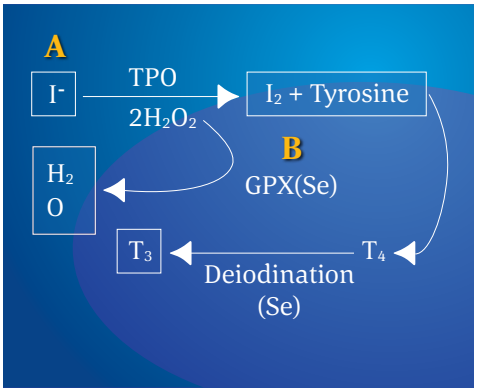
Under-functioning of the thyroid has been found to be common in regions where selenium deficiency rates are high.[6] Selenium is crucial in supporting thyroid health, as it is a required cofactor for three key enzymes involved in the production of thyroid hormones, the iodothyronine deiodinases. Iodothyronine deiodinases catalyze the release of iodine from T4 to T3, allowing for increased production of the more metabolically active thyroid hormone T3 (Figure 1). Low plasma selenium concentrations have been found to be associated with impaired conversion of T4 to T3.[7]

The thyroid gland is a highly metabolically active tissue in which oxidative processes are indispensable for thyroid hormone synthesis. This is because the thyroid naturally produces large amounts of $H_2O_2$, which is a necessary substrate for thyroid peroxidase (TPO), an enzyme expressed mainly in the thyroid, which plays a major role in thyroid hormone synthesis (Figure 1).

Under healthy physiological conditions, a balance between the generation and detoxification of free radicals is maintained. A powerful antioxidant enzyme system is activated to ensure

the thyroid is protected from ongoing free radical production. Glutathione is one of the key antioxidants used to neutralize free radicals in the thyroid. Glutathione requires selenium to activate the enzyme glutathione peroxidase (GPX). Selenium-containing GPX in the thyroid cell plays a pivotal role in maintaining normal thyroid functioning by protecting the gland from oxidative stress by removing excess $H_2O_2$ from the tissues.[8,9] Subsequently, supplementation with selenium has been shown to modify inflammatory and immune responses in patients with immune challenges and decrease TPO antibodies.[6,10,11]

**Figure 1. Antioxidant Benefits of Iodine and Selenium**




TPO - Thyroperoxidase
GPX - Glutathione Peroxidase
$T_3$ - Triiodothyronine
$T_4$ - Thyroxine

A) Iodine ($I_2$) is catalyzed by thyroid peroxidase using $H_2O_2$. $H_2O_2$ used in this reaction decreases the amount of $H_2O_2$ that would otherwise be available for damaging oxidation reactions.
B) Selenium containing GPX removes $H_2O_2$ from the tissues, also decreasing oxidative damage.

## Breast Health†

The breast and ovaries also concentrate high amounts of iodine. Iodine plays a vital role in supporting the structure and function of the mammary glands. In animal studies, iodine deficiency has been connected to an alteration in the structure and function of mammary glands.[12] In a randomized, double-blind, placebo-controlled trial, 111 subjects were recruited to examine the effects of iodine administration on breast health in women with normal thyroid function. Following three months of treatment, a statistically significant improvement in breast comfort was observed in the groups receiving 3 or 6 mg of iodine per day compared to placebo.[13]

## Directions

1 capsule per day or as recommended by your health care professional.

## Does Not Contain

Gluten, artificial colors or flavors.

## Cautions

Do not consume this product if you are pregnant or nursing. Consult your physician for further information.

## Supplement Facts V3

Serving Size 1 Capsule
Servings Per Container 90

| | Amount Per Serving | % Daily Value |
|---|---|---|
| Iodine (from Potassium Iodide) | 3 mg | 2,000% |
| Selenium (as SelenoExcell® (a High Selenium Yeast)) | 100 mcg | 182% |

Other Ingredients: Hypromellose (Natural Vegetable Capsule), Microcrystalline Cellulose, Magnesium Stearate and Silicon Dioxide.

**ID# 621090 90 Capsules**

† These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

## References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