SelenoExcell® High Selenium Yeast

SelenoExcell® High Selenium Yeast is a high-potency (1,200 mcg/g) 100% organically-bound selenium yeast product. As a natural nutritional food source, yeast replicates the mineral conversion process performed by most plants (i.e. garlic, broccoli). This natural plant process converts inorganic (low bioavailability, potentially toxic) minerals to safer organic (high bioavailability) forms for improved nutrient utilization. SelenoExcell® is supported by a Clinical Trial Agreement with the Cancer Prevention Division of the National Cancer Institute and also selected by leading research teams for a series of health and cancer related studies based on its organic certification and strictly controlled quality as demonstrated by its minimal batch-to-batch variation.

SelenoExcell® Product Highlights
- Starts with a primary grown, pure culture yeast strain.
- Natural form of selenium in 100% organically bound form Natural food form of selenium.
- Provides a full composition of seleno compounds including amino acid complex, lipids and cellular bylayers.
- Consistently provides minimal batch-to-batch variation.
- Has been selected by leading cancer and health research groups.
- Supported by a Clinical Trial Agreement with the National Cancer Institute.
- Provides uniform size and shaped particles which meet stringent mesh requirements.
- Recently received independent GRAS (Generally Recognized as Safe) approval.
- Superior Quality Specifications.

Antioxidant Enzyme: Glutathione Peroxidase

In 1973, Dr. J.T. Rotruck of the University of Wisconsin and his colleagues discovered that selenium is a component of glutathione peroxidase, an antioxidant enzyme produced in the human body. This resulted in selenium’s essential nutrient status. An antioxidant is a substance that has the ability to neutralize free radicals—highly reactive molecules that cause damage to the body. Selenium is not an antioxidant in the classical sense, but rather is an essential component of antioxidant enzymes, such as glutathione peroxidases, which are produced by the body. Antioxidants that are produced by the body are called endogenous antioxidants. They are usually enzymes (substances that work as catalysts to carry out body reactions), coenzymes (substances that help the enzyme carry out its function), and sulfur-containing compounds such as glutathione. Glutathione peroxidases are the most studied selenium-containing antioxidant enzymes.

These antioxidants protect the water-friendly places in your body—particularly the cell interior, but also outside the cell and within the bloodstream. These enzymes protect cells against damage by halting free-radical chain reactions involving lipid peroxides (rancid fats) and hydroperoxides (oxidized chemicals). They do this by using glutathione as a hydrogen donor, which neutralizes the free radical by restoring electron balance. Selenium protects cell membranes and lipoproteins (the “fat-friendly” places in your body), as well, though indirectly. Although selenium-containing enzymes are not stored in the bi-layered cell membranes, they do act on both the interior side of the cell membranes and the extracellular surfaces of the cell membranes and lipoproteins, thus protecting these areas from both inside and outside the cell.

Applications
SelenoExcell® has been shown to formulate well with many of the methods being used by nutraceutical companies. Whether producing capsules, tablets, hard gels or soft gels, the spray-dried form of SelenoExcell® provides the finished product manufacturer an ideal product for all their selenium formulation needs. As a result of the recent GRAS (Generally Recognized as Safe) approval and classification, SelenoExcell® may now be added to various food and beverage categories.

Nutritional

<table>
<thead>
<tr>
<th>Specification</th>
<th>1150 - 1270 mcg/g</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Selenium(Se)</td>
<td></td>
</tr>
<tr>
<td>Organically Bound Selenium</td>
<td>100% (No Free Selenium)</td>
</tr>
<tr>
<td>Protein</td>
<td>45 - 55%</td>
</tr>
<tr>
<td>P₂O₅</td>
<td>2.0 - 3.4%</td>
</tr>
</tbody>
</table>

Physical

<table>
<thead>
<tr>
<th>Specification</th>
<th>2.5 - 7.5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture</td>
<td>Tan</td>
</tr>
<tr>
<td>Extraneous Material</td>
<td>Negative</td>
</tr>
<tr>
<td>Bulk Density</td>
<td>0.6469 g/ml</td>
</tr>
<tr>
<td>Particle Size</td>
<td>100% through 100 MESH</td>
</tr>
</tbody>
</table>

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SelenoExcell® High Selenium Yeast has been selected as the intervention agent in series of cancer and health related studies.

The product has gained the confidence of researchers, government-funded organizations and numerous privately funded health organizations. These collective research efforts in investigating the positive health benefits of selenium will assist in raising public awareness of selenium supplementation.

Funding Organizations
- National Cancer Institute (NCI) U.S.A and Canada
- National Institute of Health (NIH) United States
- Department of Agriculture (USDA)
- Department of Defense (DOD)
- International Cancer Alliances

The Gold Standard
- Randomized Controlled Clinical Trial
- Double Blinded
- Placebo Controlled
- Primary and Secondary End Points
- Long Term Studies
- Peer Reviewed
- Journal Publication

Clinical Trial Agreement (CTA)
The manufacturer of SelenoExcell® has also signed a Clinical Trial Agreement (CTA) with the National Cancer Institute's Division on Cancer Prevention (DCP). The agreement is to promote the use of SelenoExcell® High Selenium Yeast in clinical trials that may lead to a New Drug Application (NDA) and a Biological License Application (BLA). The NDA and BLA are vehicles by which natural products like SelenoExcell® are made widely available to cancer patients and the the general public as cancer prevention and control therapies.

Nutritional Prevention of Cancer Trial (Extended)
The original Nutritional Prevention of Cancer Trial was extended for 3 years and supported by renewed funding of $2,500,000 from the National Cancer Institute.

Following the unblinding of the original study group, the remaining participants have been placed on selenium supplementation.

The selected intervention agent and source of organically bound selenium is SelenoExcell® High Selenium Yeast.

Original NPC Trial Results

<table>
<thead>
<tr>
<th>All Cause Mortality</th>
<th>↓ 17%</th>
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</thead>
<tbody>
<tr>
<td>Total Cancer Mortality</td>
<td>↓ 50%</td>
</tr>
<tr>
<td>Total Cancer Incidence</td>
<td>↓ 37%</td>
</tr>
<tr>
<td>Lung Cancer Incidence</td>
<td>↓ 46%</td>
</tr>
<tr>
<td>Colon Cancer Incidence</td>
<td>↓ 58%</td>
</tr>
<tr>
<td>Prostate Cancer Incidence</td>
<td>↓ 63%</td>
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SelenoExcell® Receives Independent GRAS Evaluation
SelenoExcell® High Selenium Yeast has received independent GRAS (Generally Recognized As Safe) designation for use in several food categories. The evaluation was based on scientific procedures and the safety assessment criteria established by the U.S. Food and Drug Administration.