SEIGENUSA.com

Order line 1-800-320-3015

Science of SEIGEN Life-Force

SYNOPSIS: Scientific studies provide evidence that Seigen eliminates excess free radicals, lowers blood lipid peroxides, has anti-oxidant activity, suppresses mutations, reduces blood GOT, GPT and blood urea nitrogen, protects against liver cell destruction, and improves both liver and renal function.

SEIGEN Life-Force
Studies on Lactobacillus Fermented Extract
By Takeo Mizutani, Ph.D.

Oxygen, Inflammation and Chronic Disease

SEIGEN Life-Force eliminates excess free radicals and lowers blood lipid peroxides

Oxygen is essential to life, but too much or too little can have negative effects on health. Oxygen is used to help break down and derive energy from food in a process called respiration. However, an unhealthy diet and a lack of antioxidants cause some of these oxygen byproducts from respiration to get out of hand. These reactive oxygen species (also called free radicals) can combine with protein, DNA and other cell constituents to cause dysfunction and disease. The result is chronic systemic inflammation, which over time can lead to serious diseases. Reactive oxygen species contribute to aging and diseases such as arteriosclerosis, cancer, liver and kidney disorders, blindness, depression and dementia. Reactive oxygen species represent a major risk factor for roughly 90% of all types of illnesses.

STUDY 1: The anti-oxidant power of SEIGEN Life-Force

EXPERIMENTAL PROCEDURES:
The ability of SEIGEN Life-Force to capture free radicals was measured. Comparisons were made between Seigen Life-Force and soybeans, the raw material used to make Seigen.

RESULTS:
Soybeans contain isoflavones, which have anti-oxidant properties. The amount of radical remaining in test tubes containing soybean alone was 68%, while that for SEIGEN Life-Force was only 48%. This 20% difference indicates that SEIGEN Life-Force exceeded the anti-oxidant power of soybeans. Apparently, the anti-oxidants contained in soybeans are further fortified through the metabolic action of lactic acid bacteria and yeast, in the production of Seigen.

STUDY 2: SEIGEN Life-Force significantly reduces the level of lipid peroxide

When reactive oxygen species react with lipids (i.e., unsaturated fats) in the body, lipid peroxides are formed. These contribute to vascular diseases such as atherosclerosis. Since SEIGEN Life-Force has anti-oxidant properties in the test tube, the possibility that SEIGEN Life-Force may also suppress the production of lipid peroxide in the body was examined.

EXPERIMENTAL PROCEDURES:
Rats were fed either ordinary chow (control animals) or chow with 3% SEIGEN Life-Force. After 5 or 10 weeks, the amount of lipid peroxide in the blood and brain tissue of rats was compared between the two

groups using standard measures of detection.

RESULTS:
After 5 weeks, the lipid peroxide concentration in the blood of rats on the SEIGEN Life-Force diet was reduced by 45% ($p<0.05$) compared to controls (0.6 vs. 1.1 nanomoles/ml). Similarly, the lipid peroxide concentration in brain tissue in the SEIGEN Life-Force group, measured 10 weeks after the diet was initiated, was reduced by 20% compared to controls (100 vs. 125 nmoles/g tissue). This latter result was highly significant ($p<0.01$). The study suggests that SEIGEN Life-Force may help protect against vascular disease, such as arteriosclerosis and stroke, and warrants further investigation.

CARCINOGENESIS

The more SEIGEN Life-Force is used, the greater the anti-mutagenic effect against carcinogens

Substances that produce DNA damage are called mutagens. Some mutagens in food are natural, some arise from pollution, while others are produced during processing and cooking. Suppressing the action of mutagens can reduce the risk of cancer, since these mutations are the first step in the progression of cancer. In this connection, the anti-mutagenic properties of SEIGEN Life-Force
were examined.

STUDY: SEIGEN Life-Force suppresses mutations

EXPERIMENTAL PROCEDURES:
A procedure known as the "Ames test" was employed to screen mutagens using a special type of Salmonella bacteria. Using this detection system, the extent to which SEIGEN Life-Force suppressed mutations in Salmonella was measured for different mutagens.
Three mutagens were evaluated in combination with different doses of SEIGEN Life-Force:
(1) 4-nitroquinoline-1-oxide (4NQO)
(2) Nitrosoguanidine (MNNG)
(3) Broiled meat-derived mutagen Trp-P-2

RESULTS:
The mutation rate in control bacteria, which received no SEIGEN Life-Force, was set at 100%. These were compared to mutation rates in the presence of SEIGEN Life-Force at different concentrations. The results demonstrate that SEIGEN Life-Force can suppress the mutagenic activity of several well-characterized mutagens in a dose-dependent manner by as much as 85%. Thus, the more SEIGEN Life-Force used, the more suppression achieved, as seen below.

HEPATIC AND RENAL DYSFUNTION

SEIGEN Life-Force improves both liver function and kidney function

Liver function is usually measured by GOT/GPT, which are enzymes that become elevated in the presence of liver damage. Likewise, BUN values are markers of liver and kidney damage.

*GOT glutamic-oxaloacetic transaminase
*GPT glutamic-pyruvic transaminase
*BUN blood urea nitrogen

STUDY 1: Suppression of blood GOT and GPT in an animal model of liver and renal dysfunction

EXPERIMENTAL PROCEDURES:
An animal model of hepatic and renal dysfunction was created by feeding rats food supplemented with deoxycholic acid, a bile acid. Concurrently, the animals were fed regular chow or chow containing 3% SEIGEN Life-Force. The effects of SEIGEN Life-Force supplementation were measured for 6 weeks.

RESULTS:
The results clearly show a significant reduction in liver dysfunction in the SEIGEN Life-Force-supplemented food group ($p<0.05$).
Blood GOT and GPT levels peaked at 4 weeks in both the regular and the SEIGEN Life-Force-supplemented food groups, marking the height of liver cell damage. However, the damage was noticeably lower in the SEIGEN Life-Force-treated group. The blood GOT value in the control group was 65% lower in the SEIGEN Life-Force-treated group compared to controls (1800 vs. 5200 Karmen units). The GPT blood level 68% lower in the SEIGEN Life-Force-treated group compared to controls (320 vs. 1000 Karmen units).

STUDY 2: Suppression of blood urea nitrogen in a model of liver and renal dysfunction

EXPERIMENTAL PROCEDURES:
Renal function was also examined in the animal model described in STUDY 1.

RESULTS:
In addition to the benefit it imparts upon liver function, SEIGEN Life-Force was also shown to improve renal function. Blood urea nitrogen (BUN) measured at 6 weeks was reduced by 29% in the SEIGEN Life-Force-treated group compared to controls (21 vs. 29 mg/dl). These differences were significant at both week 4 and week 6 ($p< 0.01$).

STUDY 3: Suppression of GOT in a second model of hepatic dysfunction

EXPERIMENTAL PROCEDURES:
A model of liver damage based on D-galactosamine toxicity was employed to determine the effectiveness of SEIGEN Life-Force against hepatic dysfunction. Three weeks prior to D-galactosamine challenge, half of the rats were maintained on normal chow while the other half were fed chow supplemented with a 5% SEIGEN Life-Force. Changes in GOT values were monitored for 6 days after the injection of D-galactosamine.

RESULTS:
GOT values at day 1 were 60% lower in the SEIGEN Life-Force-supplemented group compared to the control group (2000 vs. 5,000 Karmen units) On day 2, a 67% reduction in GOT was achieved (1500 vs. 4,500 Karmen units). Thus, liver cell destruction was clearly and significantly reduced on the SEIGEN Life-Force regimen ($p<0.05$).

The studies described here and above provide experimental evidence that SEIGEN Life-Force protects against various types of liver damage.
