

HEALTH FUNCTIONAL FOOD IS SCIENCE

Polysac Ginsan Premium

POLYSACCHARIDE "Ginsan" from Panax ginseng



**God-given Treatment
Immune cells in your Body!
How is your immunity?
The best materials is "GINSAN"**



Health BioMed
[주] 헬스바이오메드

- Address : 8, Dogok-ro 28gil, Gangnam-gu, Seoul 06272, Korea
- Phone : +82-2-6207-8812, Fax : +82-2-6207-8813
- Web : www.healthbiomed.com
- Contact person : T J, Lee (Mobile) +82-10-7663-2460, E-mail : tjlee016@gmail.com
K S, Park (Mobile) +82-10-9953-3290, E-mail : wkgsp@naver.com

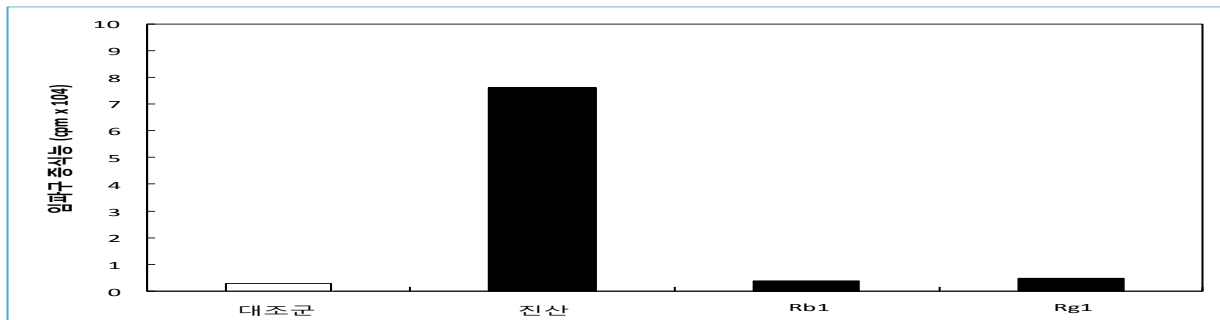
▶ The key backdrop to promoted commercialization of the ginseng polysaccharide "Ginsan"

Since the 1990s, the Korea Institute of Radiological & Medical Sciences has been studying radiation combination therapy and anticancer immunotherapy as research projects in the "Nuclear Research and Development Project" of the Ministry of Education, Science and Technology and the "Healthcare Technology Research and Development Project" of the Ministry of Health and Welfare. In this process

About 70 kinds of medicinal plants were searched for substances which are effective for immunity enhancement. As a result, ginseng was the most excellent substance for improving immunity.

However, among the components of ginseng,

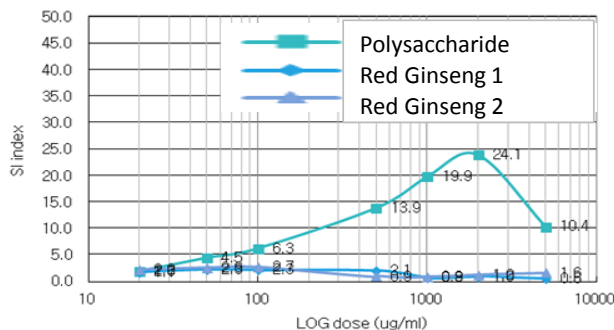
We found that ginseng polysaccharide(Ginsan), which is a representative active ingredient of non saponin system, is more excellent substance than saponin.



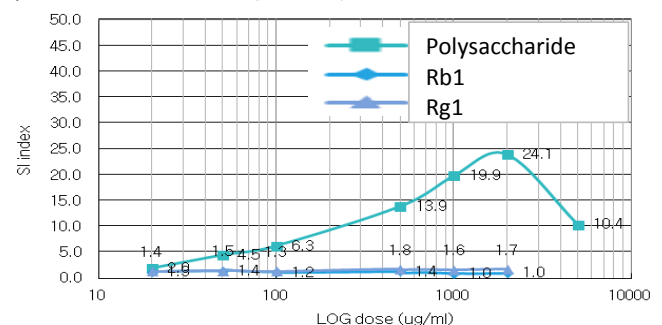
When the ginseng extract is precipitated in the alcohol, it is separated into saponin and non saponin. Lymphocyte proliferative activity of the ginseng polysaccharide-containing extract, a representative active ingredient of the non-saponin system, In comparison with the lymphocyte proliferative potency of ginsenosides Rb1 and Rg1, which are representative active ingredients of the saponin system, About 15 times higher.(See chart above)

● Comparison of Lymphocyte Proliferative Capacity of the Concentrate of Ginsan and Red Ginseng

(1) Ginsan VS Red Ginseng



(2) Ginsan VS Rb1, Rg1 of saponin



The lymphocyte proliferation ability of the ginseng polysaccharide concentrate is about 9 times higher than that of the red ginseng concentrate

Also, Compared with ginsenoside Rb1 and Rg1, it is about 13 times higher

"Ginsan" is considered to be the best substance in the immunopotentiating activity.

• Experimental results (based on optimum concentration)

(Table 1)

Ginsan : 24.1

Red ginseng 1 : 2.3

Red ginseng 2 : 2.7

(Table 2)

Ginsan : 24.1

Rb1 : 1.4

Rg 1 : 1.8

► Company Profile

For commercialization of ginseng polysaccharide "Ginsan" extracted and separated from ginseng HealthBioMed Co.,Ltd was established on June 24, 2010.

Based on the manufacturing technology of ginseng polysaccharide "Ginsan" transferred from the Korea Institute of Radiological & Medical Sciences, we continued to pursue research and development for commercialization of "Ginsan". As a result,

"Ginsan" which helps immune enhancement is the functional material that Health Bio Med Co., Ltd has licensed separately from the KFDA, on April, 2015, also applied FDA.

Since April 2016, we launched the product under the brand name "Polysac Ginsan Premium"

"Ginsan" is a proprietary product that only HealthBioMed Co.,Ltd can produce and sell in KOREA

► What is Ginseng Polysaccharide "Ginsan" ?

The root of *Panax ginseng* C. A. Meyer (Araliaceae) is established traditional herbal medicine in Korea, having been used for thousands of years, and is now used worldwide as a nutraceutical source to improve physical performance, boost resistance against infection, reduce risk of cancer, and support current therapeutic modalities for some chronic diseases.

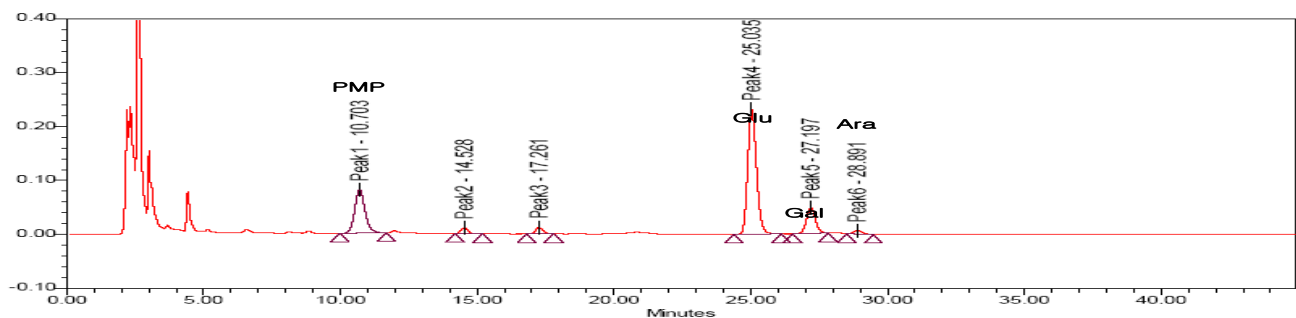
That's not opinion - that's a well proven fact.

Polysaccharide from ginseng *C. A. Meyer* (another name "Ginsan") is isolated from the ethanol-insoluble fraction of aqueous *Panax ginseng* extracts through an industrial process under strict quality control.

"Ginsan" is a compound word that combines "Gins" of the ginseng and "-an" to mean polysaccharides in bio chemistry.

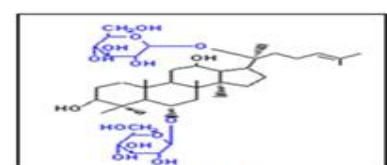
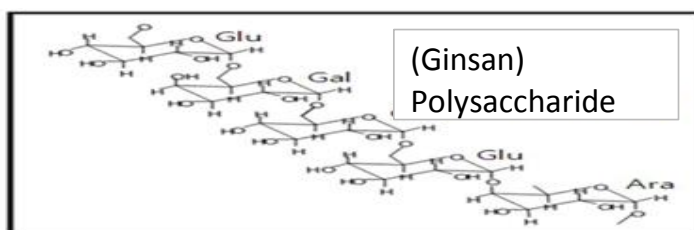
► "Ginsan" is a new functional ingredient differentiated from (Red) ginseng.

● The components of Ginsan

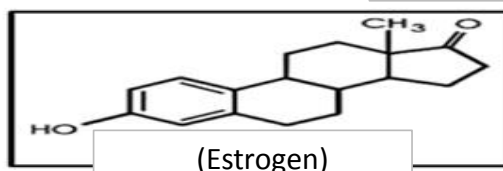


The polysaccharide chain structure of Ginsan consist of glucose, galactose, arabinose, galacturonic acid, glucuronic acid and trace amounts of unidentified substances.

● The structure of Ginsan



(Ginsenoside) is (Phytoestrogen)



▶ What is Polysac Ginsan(Rigistered)Premium?

-Polysac Ginsan Premium is a product made from 100% raw Ginsan powder form without additives.

● Using raw materials



The name of using materials :
Dried white ginseng

● The final substances (Convenient to take a powder type)



The name of final substances :
Ginseng polysaccharide extract

▶ Recommended Dose and How to ingest

(Patients or persons with a weakened immune system)

-Take one bottle(3g) at one time, twice a day with water.

(If you are normal person)

-Take one bottle(3g), a day with water.

-Half dose is recommended for children under the age of 15.

-Stir until the powder is completely dissolved in cold water to avoid getting lumps before ingestion.

▶ Composition and Ingredients

-Ginseng polysaccharide extract(powder form)100%

-Mixing rate of raw ginseng : dried white ginseng root 100%
(Over 4 years old root, Korea origin)

▶ Shelf life : 2 years from date of manufacture.

▶ Package Unit : 180g/60bottles, 96g/32bottles

▶ Notice for ingestion

-In case of allergic or unusual consitution, make sure to check the ingredients prior to ingestion

-The bottle is fragile and should be handled with care.

-Children under the age of 15 should take only with adult supervision.

▶ Storage Instructions and Important Notice

-Store and Keep at room temperature.(avoide humidity, direct sunlight and place in cool place. Keep refrigerated is preferred)

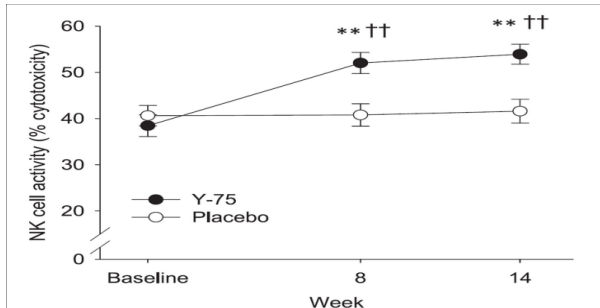
▶ The efficacy of ginseng polysaccharide "Ginsan" that we have studied in clinical trial is as follows.

□ Immune enhancing effect.

From September 2012 to April 2012,

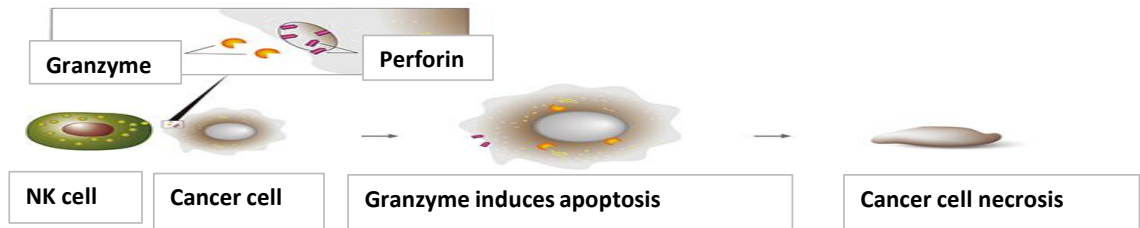
In a clinical trial on 72 adults aged 50 to 75 conducted at the catholic university of Korea, Seoul ST. Mary's Hospital. The following results were cofirmed.

■ NK cells activity promoting effect■



In take "Ginsan polysaccharide" for 8weeks and 14weeks, NK cells activity, respectively 35.2%, 40.2% increased.

● About the function of NK cells

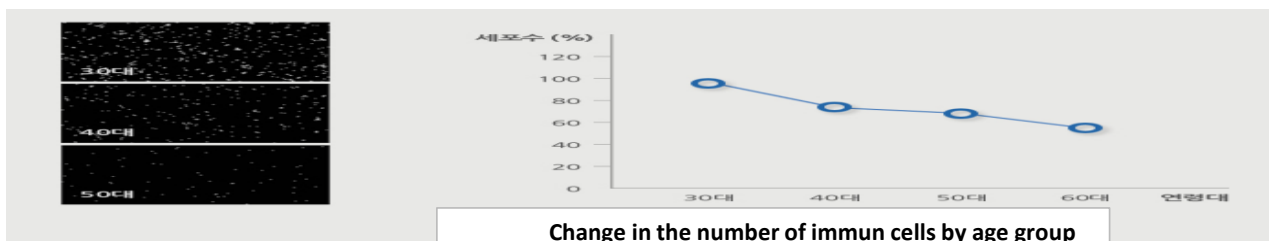


Unlike other cells, virus-infected cells and cancer cells have abnormalities such as a decrease in specific protein(MHC Class 1) on the cell surface. NK cells detect the abnormality and recognize virus-infected cells and cancer cells and attack.

At this time, perforin is secreted to punture cell membranes of infected cells and cancer cells. And granzyme is added to kill the cells

In particular, NK cells are able to effectively control cancer stem cell, which play an important role in the recurrence of cancer, in addition to preventing the development, proliferation and metastasis of cancer cells by attacking cancer sells.

● Change in the number of immune cells by age group



As people age, the activity of Nk cell decreases, and

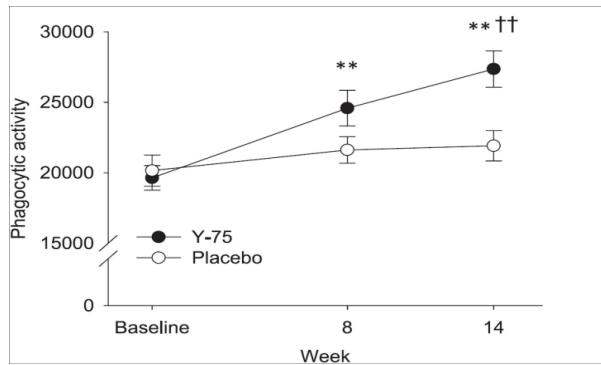
The toxicity of perforin and granzyme secretion is also weakened, and the secretion of cytokines also reduced. NK cells are immun cells at the fore front of defending of our bodies.

If the function of the NK cell is broken, It can not cope with the antigen that is introduced into the living body from the outside, the living body function is weakened, and the body is weakened and the aging is promoted.

NK cells mature in the liver and bone marrow as a kind of white blood cells in blood responsible for innate immunity, Also reffered to as so-called "natural killer cells"

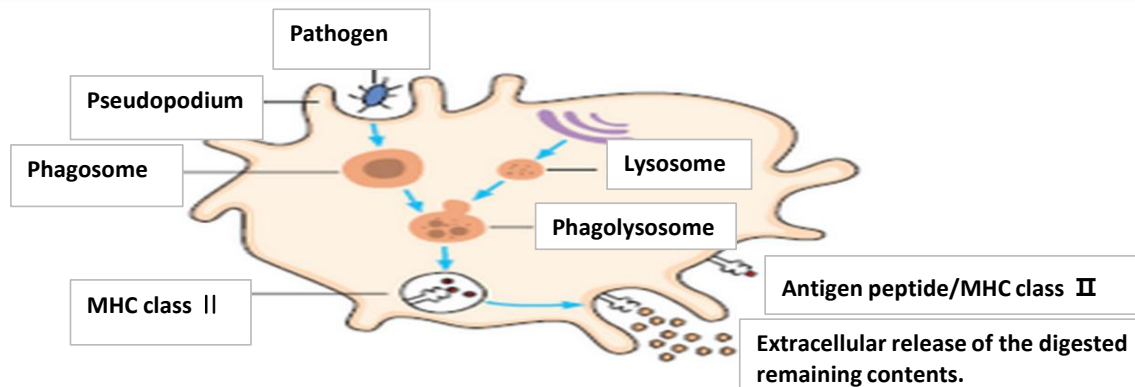
It is the main function of NK cells to directly attack and remove virus-infected cells or tumor cells.

■ Macrophage(Phagocytic) activity promoting effect



In take "Ginsan polysaccharide" for 8weeks and 14weeks, Macrophage activity, respectively 25.2%, 39.4% increased.

● About the function of Macrophage



※ Phagocytosis process of Macrophage (Auto-Phage)

Macrophages are a type of white blood cell that engulfs and digests cellular debris, foreign substances, microbes, cancer cells, and anything else that does not have the types of proteins specific of health body cells on its surface in a process called phagocytosis. Phagocytosis begins with the attachment of Pathogen to the cell membrane of Macrophages. When a macrophage ingests a pathogen, the pathogen becomes trapped in a phagosome, which then fuses with a lysosome. Within the phagolysosome, enzymes and toxic peroxides digest the pathogen.

● Role in adaptive immunity

Macrophages are versatile cells that play many roles.

As scavengers, they rid the body of worn-out cells and other debris.

Along with dendritic cells, they are foremost among the cells that present antigens, a crucial role in initiating an immune response.

Antigen presentation of macrophages is essential for the activation of T cells and

It is the most important step to initiate an adaptive immune response.

For example, they are important as antigen presenters to T cells.

● Main function of Macrophage

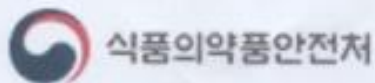
Activated macrophages remove the several types of antigenic targets such as virus-infected cells, cancer cells and intracellular infected bacteria, etc.

This product is health functional food which helps the body's immune enhancement, not medicine for preventing or curing disease.

Through the active immunization, you will maintain a healthy life.

▶ CERTIFICATE OF KFDA

발급번호 : 01TK-6HO2-6WYA-4N2Q-CCDN



Osong Health Technology Administration Complex, 187 Osongsaeongmyeong2-ro, Osong-eup heungdoek-gu cheongju-si, Chungcheongbuk-do, Korea 363-700 Tel: +82-43-719-2211, Fax: +82-43-719-2200

Certificate No. : MFDS FID - 2017023991

CERTIFICATE OF FUCTIONAL INGREDIENT FOR HEALTH/FUNCTIONAL FOOD

MM/DD/YY : 05/23/17

This is to certify that the following ingredient is the Fuctional Ingredient for Health/Functional Food, which is approved by compliance with Article 14 and 15 of the Health Fuctional Food Act of Republic of Korea.

- Name of ingredient : Ginseng Polysaccharide Extract
- Name of Representative : Lee Seounghee
- Name of business establishment : HealthBioMed co.,Ltd.
- Address : 114-6-7ho, 8, Dogok-ro 28gil, Gangnam-gu, Seoul 06272, Korea
- Health claims : It can help improve immune function. (Physiological activity level 2)
- Approval Date : 20170523
- Remarks :

Signature :

SooDoo Lee

Nutrition Safety Policy Division
Singapore
Ministry of Food and Drug safety
Republic of Korea



This certificate was issued by internet and can be verified at Food Safety Korea Site(<http://www.foodsafetykorea.go.kr>)

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