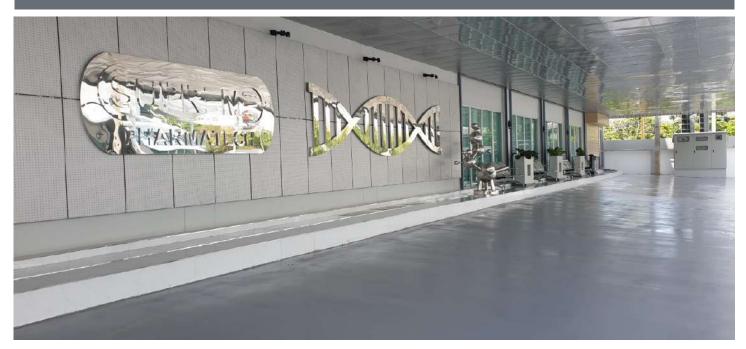
THIS WHEY

CHEWABLE TABLETS WITH WHEY PROTEIN AND NANO LIPOSOMAL ACTIVE INGREDIENTS



ABOUT SUPREME PHARMATECH



Supreme Pharmatech is one of the few biotech companies in the world, which is actively developing and applying liposomal nanotechnology on production scale. Supreme Pharmatech is operating at over 10,000 square meters facilities, which are partially powered by solar energy. The production process is automated at maximum level and complies with GMP regulations. All company products are certified by Thai FDA. The company also passed US FDA registration since beginning of 2021.

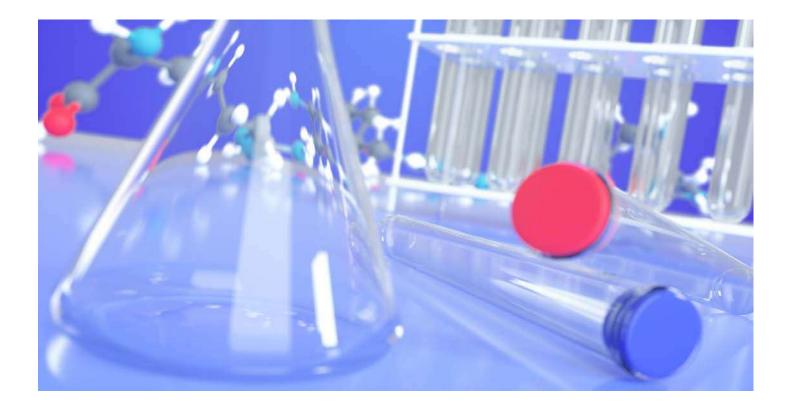
Nowadays food supplements market is rapidly changing into nano liposomal food supplements market, and Supreme Pharmatech is playing a leading role in this change. Liposomal nanotechnology is a revolutionary step in development of pharmaceutical and food industries. Liposomes can manipulate the solubility of encapsulated active ingredients, as well as protect them from degradation, and even achieve delivery to specific site. Oral liposome delivery system is capable to bypass the gastric system and deliver nutrients to the target cells and tissues in almost full digested amount. Liposomes are considered as the most promising carriers for nutrients delivery to the cells because of their ability of long circulation residence time, as well as precise targeting.

Liposomal ingredients of natural origin will soon play an important role in daily life of whole mankind. Liposomal nanotechnology is already used in development and production of vaccines and anti-cancer drugs. Liposomal nanoemulsions are finding more and more applications in pharmaceutical and food industries. It is estimated, that at the end of this decade liposomal nanotechnology will become dominant delivery system for pharmaceuticals and natural active ingredients.

Supreme Pharmatech is applying patented liposomal nanotechnology for production of new generation dietary food supplements for human and animal consumption. Liposomal dietary food supplements for humans may play vital role in integrative medicine and as a preventive measures for many diseases. Liposomal veterinarian dietary supplements may do the same for house pets and bigger animals. Human liposomal dietary food supplements and veterinarian liposomal dietary food supplements may have numerous forms, such as tablets, hard shell capsules with dry powders and hard shell capsules filled with nanoemulsion, softgels with nanoemulsion, ampoules with nanoemulsion, nano sprays, nano powders in sachets, nanoemulsions in sachets, and many more.

R&D department of Supreme Pharmatech constantly carries research in the field of biotech nanotechnology. We had developed numerous SOPs (Standard Operational Procedure) for vitamins, minerals, proteins and amino acids, oils, active botanicals and other active pharmaceutical ingredients (APIs).





ABOUT LIPOSOMAL TECHNOLOGY

WHAT IS LIPOSOME

A liposome is a tiny sphere consisting of an aqueous core entrapped within one or more natural phospholipids, which are forming closed bilayered structures. It is happening because phospholipids are amphiphilic, they consist of a hydrophilic head and hydrophobic tail. When phospholipids get in an aqueous solution, the hydrophobic tails face each other avoiding the water and forming a phospholipid bilayer. This bilayer must form closed liposomal sphere in order to exclude water contacting hydrophobic tails.

SIZE OF LIPOSOMES

Liposomes are nano-particles

PHOSPHOLIPID BILAYER

Supreme Pharmatech is using highest purity phospholipids derived from sunflower

TOXISITY OF LIPOSOMES

Liposomes have low toxicity and lack of immune system activation

PATENTED TECHNOLOGY

Supreme Pharmatech is applying patented technology of liposomal encapsulation without the usage of harmful solvents. This unique method of nanoencapsulation can be described as Green Technology.

ADVANTAGES OF LIPOSOMAL TECHNOLOGY

DIGESTIVE ADVANTAGES

Phospholipid bilayer of liposomes is impervious to the various digestive enzymes, acids and bile salts

AVOIDING LIVER METABOLIZATION

The liposomes are absorbed by the enterocytes of the villi in the small intestine and incorporated into chylomicrons inside the enterocytes, then transported to subclavian vein through the lymph system, bypassing the portal circulation of the liver

INTRA-CELLULAR DELIVERY

- Adsorption way - is when the liposome wall adheres to the wall of the cell and releases its content into the cell.

- Endocytosis way - is when the cell engulfs the liposome, forms a membrane-bounded vesicle (endosome) and the liposome gains entry into the cell without passing through the cell membrane.

- Fusion way – is when liposome membrane melds with the membrane of the cell and carry the contents of the liposome into the cell.

- Lipid exchange – is when the contents of the liposome and cell exchange their lipid contents.

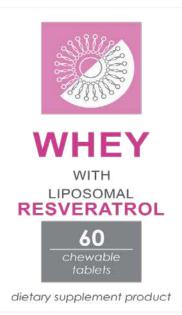
ANTI-AGEING







SUGAR FREE



United States Patent US20100239521A1



WHEY PROTEIN

Whey is low-calorie source of protein, which helps support healthy bones, muscles, hair, and organ function.

Protein provides the amino acids the body needs to rebuild damaged muscle tissue and create new muscle.

Regularly adding whey protein to the diet can help reduce markers of chronic inflammation. Chronic inflammation is linked to a number of potential health problems, such as heart disease, diabetes, inflammatory bowel disease, and arthritis.

Some studies suggest that whey protein may help lower high cholesterol levels, especially LDL cholesterol (the "bad" one). High level of cholesterol is connected to a higher risk of strokes and heart diseases.

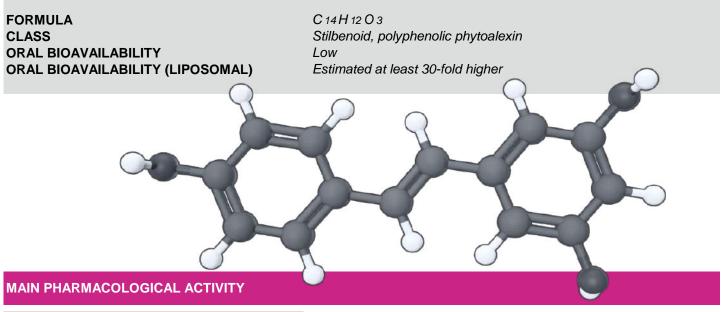
RESVERATROL

Resveratrol is antioxidant polyphenol from grapes. The anti-aging mechanisms of resveratrol were mainly ameliorating oxidative stress, relieving inflammatory reaction, improving mitochondrial function, and regulating apoptosis.

Resveratrol could be an effective and safe compound for the prevention and treatment of aging and agerelated diseases.



RESVERATROL



ANTIOXIDATIVE

Scavenging free radicals, modulating antioxidant enzymes, prevents oxidative stress-induced cellular damage by increasing the plasma antioxidant capacity

ANTICANCER

Ability to inhibit carcinogenesis at multiple stages by inhibiting angiogenesis, preventing the activation of carcinogens, and induction of cell cycle arrest and apoptosis in tumor cells

CARDIOPROTECTIVE

Blocks the platelet aggregation that results in ischemia and stroke Promotes vasorelaxation through multiple pathways Reduces the formation of atherosclerotic plaques Improves serum cholesterol and triglyceride concentrations

ANTI-INFLAMMATORY

Decreases inflammation by inhibiting the activation of inflammation mediators and markers

IMMUNOMODULATING

Exerts immune-regulatory effects on immune cells Participates in immune cells activation Improves immunologic activity against cancer cells

NEUROPROTECTIVE

Protects the brain against damage following cerebral ischemia and Alzheimer disease

ANTIOBESITY

Reduces body weight and adiposity, prevents an increase in triacylglycerol concentrations

ANTIDIABETIC

Improves glucose homeostasis, decreases insulin resistance, improves insulin secretion, and protects beta cells of pancreas

POSSIBLE CLINICAL APPLICATION

Cancers

Cardiovascular diseases including atherosclerosis, stroke, ischemia, heart failure Metabolic disorders, including diabetes and obesity Neurodegenerative diseases including Alzheimer's disease, Parkinson's disease, Huntington disease Pathological inflammation Bacterial and viral infectious diseases Autoimmune disease including lupus, multiple sclerosis, rheumatoid arthritis, psoriasis

References:

https://www.nature.com/articles/nrd2060 https://www.mdpi.com/2072-6643/10/12/1892 https://pubmed.ncbi.nlm.nih.gov/31035454/

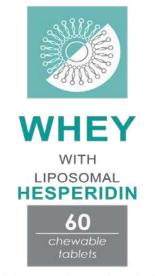
METABOLISM







SUGAR FREE



dietary supplement product

United States Patent US20100239521A1



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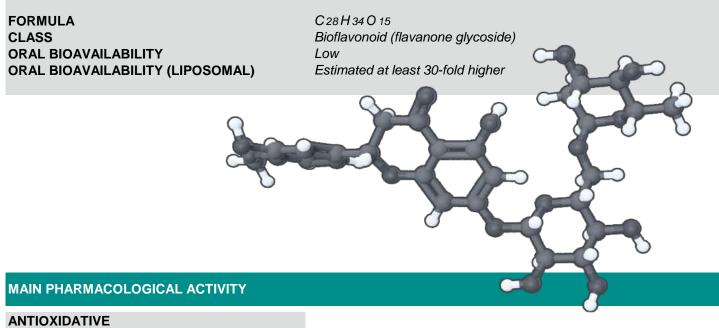
HESPERIDIN

Hesperidin is a flavanone from citrus fruits with diverse biological activities. Hesperidin possesses inhibitory effect against obesity diseases.

Hesperidin regulates lipid metabolism and glucose metabolism, also regulates antioxidant index and inflammation due to obesity. Hesperidin can significantly improve symptoms such as postprandial hyperglycemia and hyperlipidemia.



HESPERIDIN



Exerts direct free radical scavenging ability, capability to increase cellular glutathione content, reduces oxidative stress markers, inhibits lipid peroxidation, and prevents DNA damage

NEUROPROTECTIVE

Ameliorates deficits in social interactive behaviors, suppresses the oxidative stress, attenuates behavioral alterations, regulates cellular signaling pathways involved in stroke and epilepsy

PSYCHOPROTECTIVE

Exerts an antidepressant-like effect, decreases stress and anxiety, exerts a sedative effect

ANTICANCER

Prevents carcinogenesis by inducing apoptosis of tumor cells, suppression of inflammation, and inhibition of the proliferation of cancer cells

CARDIOPROTECTIVE

Exerts anti-hypotensive, hypolipidemic effect, and reduces inflammation

ANTI-INFLAMMATORY

Decreases inflammation biomarkers, suppresses pro-inflammatory protein production

ANTIDIABETIC

Exerts both hypoglycemic and hypolipidemic effects, attenuates hyperglycemia mediated oxidative stress

RADIOPROTECTIVE

Protecting the DNA, immune and hematopoietic systems from X-ray, UV, and γ-radiation

POSSIBLE CLINICAL APPLICATION

Cancers

Cardiovascular diseases including hypertension, myocardial infraction Neurodegenerative diseases including epilepsy, Parkinson's and Alzheimer's diseases, stroke, Huntington disease Psychiatric disorders including stress and anxiety Liver disease including fatty liver, steatosis, alcohol-induced liver disease, and liver cancer Allergies, asthma Diabetes, hypercholesterolemia Inflammatory skin diseases Rheumatoid arthritis Viral and bacterial infectious diseases Osteoporosis Kidney diseases

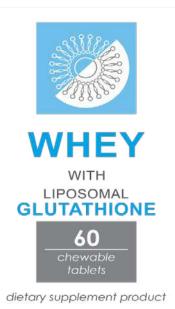
SKIN, HAIR, NAILS







SUGAR FREE



United States Patent US20100239521A1



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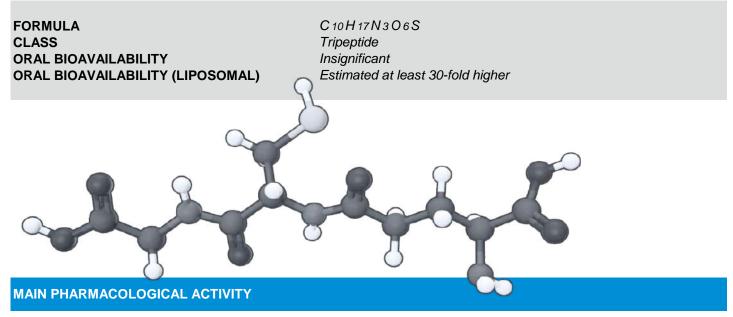
GLUTATHIONE

Glutathione is an antioxidant present in almost every cell in the body. It is a tripeptide, and made from the amino acids glycine, cysteine, and glutamic acid.

Glutathione also possesses antimelanogenic, UVprotecting, skin lightening, hyperpigmentation and wrinkles reducing properties. Glutathione also possesses certain anti-aging properties.



GLUTATHIONE



ANTIOXIDATIVE

Scavenges free radicals directly or through enzymatic catalysis, prevents the oxidation of biomolecules

ANTI-INFLAMMATORY

Capable to suppress inflammation by decreasing the reactive oxygen species (ROS) Capable to inhibit inflammatory pathways

NEUROPROTECTIVE

Exerts significant improvement in cognitive performance and the Dementia Rating Scale

ANTICANCER

Effective in removal and detoxification of carcinogens, helps to reduce cancer incidents

HEPATOPROTECTIVE

Prevents liver oxidative injury by increasing antioxidant level

ANTIVIRAL

Inhibits viral replication by reducing ROS levels, inhibits pro-inflammatory proteins levels associated with viral infections in HIV and Tuberculosis patients, prevents cytokine storm in Covid-19

CARDIOPROTECTIVE

Prevents major cardiovascular diseases like hypertension and atherosclerosis by maintaining redox balance

LUNG PROTECTIVE

Preventing lung diseases like chronic obstructive pulmonary diseases by maintaining the balance of thiol-redox state

ANTIDIABETIC

Improves insulin-mediated glucose uptake, prevents the development of hyperglycemia and the decrease in insulin levels, reduces apoptosis in pancreatic β -cells

IMMUNOMODULATING

Prevents autoimmune diseases and immune dysfunctions by reducing the oxidative burden and regulating immune cells response

POSSIBLE CLINICAL APPLICATION

Cancers

Pulmonary viral infections diseases Neurodegenerative diseases (Alzheimer's, Parkinson's, multiple sclerosis, autism) Liver diseases (alcoholic, injury related, fibrogenesis related) Autoimmune diseases (arthritis, lupus, psoriasis) Osteoporosis

References:

<u>https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2756154/</u> https://www.mdpi.com/2076-3921/9/10/914/htm https://link.springer.com/article/10.1007/s11064-020-03030-1

BONES, JOINTS







SUGAR FREE



dietary supplement product

United States Patent US20100239521A1



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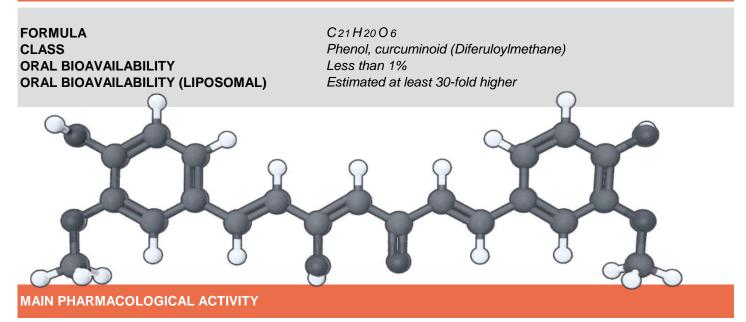
CURCUMIN

Curcumin is a polyphenolic compound derived from turmeric. Among the various molecular targets of curcumin, some are involved in bone remodeling, which strongly suggests that curcumin can affect the skeletal system.

Curcumin has potential application to treat bone disorders characterized by an excessive resorption activity.



CURCUMIN



ANTIOXIDATIVE

Improves systemic markers of oxidative stress

Modulates the activity of GSH, catalase, and SOD enzymes active in the neutralization of free radicals Inhibits ROS-generating enzymes such as lipoxygenase/cyclooxygenase and xanthine hydrogenase/oxidase

ANTI-INFLAMMATORY

Capable to suppress inflammation through many different mechanisms

ANTIVIRAL

Antiviral activity against different viruses: papillomavirus virus (HPV), influenza virus, Hepatitis B virus (HBV), Hepatitis C virus (HCV), adenovirus, coxsackie virus, Human norovirus (HuNoV), Respiratory syncytial virus (RSV) and Herpes

ANTICANCER

Prevents carcinogenesis by affecting two primary processes: angiogenesis and tumor growth

ANTIBACTERIAL, ANTIFUNGAL

Inhibits growth of a variety of periodontopathic bacteria, pathogenic bacteria (E.coli, S.aureus, H.pylori), able to control fungal related spoilage and fungal pathogens

ANTIALLERGIC

Regulates airway inflammation and airway obstruction mainly by modulating cytokine levels

IMMUNOMODULATING

Immunesuppressive activities resulting in improvement of symptoms of rheumatoid arthritis

LIPID LOWERING, ANTIDIABETIC

Improves overall function of beta-cells, lowering level of HOMA-IR (insulin resistance index) Shown significant improvements in BMI, body fat and body measures

NEUROPROTECTIVE

Beneficial effects against neurodegenerative diseases

POSSIBLE CLINICAL APPLICATION

Allergies and respiratory diseases, including respiratory tract infections and asthma Bacterial and parasitic diseases, fungal and viral infections Cancers, tumors, lupus, AIDS, β-Thalassemia Cognitive impairment, including Alzheimer's disease Metabolic disorders, including diabetes and obesity Musculoskeletal diseases, including arthritis and degenerative bone diseases Neuroinflammatory diseases, including Parkinson's disease and diabetic neuropathy Depression, anxiety Skin diseases (vitiligo, psoriasis)

References:

<u>https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5664031/</u> <u>https://www.ijrrjournal.com/IJRR_Vol.7_Issue.1_Jan2020/IJRR0039.pdf</u> <u>https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3535097/</u>

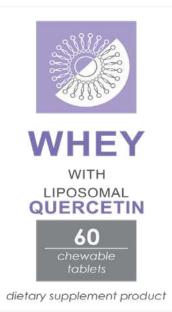
BRAIN, NERVES







SUGAR FREE



United States Patent US20100239521A1



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QUERCETIN

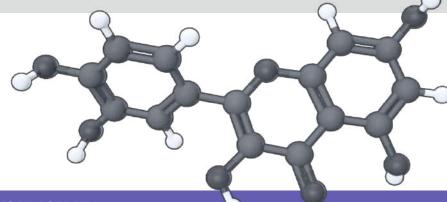
Quercetin is a widely presented in nature flavonoid, which has been demonstrated to have a role in the prevention of neurodegenerative and cerebrovascular diseases.

Quercetin improves memory, learning, and cognitive functions, and all these effects have been shown to be associated with its antioxidant properties.



QUERCETIN

FORMULA CLASS ORAL BIOAVAILABILITY ORAL BIOAVAILABILITY (LIPOSOMAL) C 15 H 10 O 7 Bioflavonoid (3,3',4',5,7-pentahydroxyflavone) Low Estimated at least 30-fold higher



MAIN PHARMACOLOGICAL ACTIVITY

ANTIOXIDATIVE

Directly scavenging free radicals Chelating metal ions and inhibiting lipid peroxidation Regulating levels of glutathione to enhance antioxidant capacity Increasing expression of antioxidant enzymes glutathione transferase and aldo-keto reductase

ANTIMICROBAL

Good inhibitory effect on the growth of pathogenic bacteria: Aspergillus flavus, Escherichia coli, Proteus, Pseudomonas aeruginosa, Salmonella enteritidis, Staphylococcus aureus

ANTIPROTOZOAL

Inhibitory effects against various protozoan parasites: Toxoplasma, Babesia, Theileria, Trypanosoma, and Leishmania

ANTIVIRAL

Strong antiviral activity towards a wide range of viruses

ANTI-INFLAMMATORY

Significant anti-inflammatory potential in different cell types

IMMUNOMODULATING

Enhancing cellular and humoral immune functions

NEUROPROTECTIVE

Beneficial effects against neurodegenerative diseases with inhibitory effect against acetylcholinesterase and oxidative stress

POSSIBLE CLINICAL APPLICATION

Allergies and respiratory diseases Bacterial and parasitic diseases and viral infections Cancers, tumors Cardiovascular diseases Cognitive impairment, including Alzheimer's disease Hepatoprotective and anti-mycotoxin effect Immunomodulative effect Metabolic disorders, including diabetes and obesity Musculoskeletal diseases, including arthritis and degenerative bone diseases Neuroinflammatory diseases, including Parkinson's disease Renoprotective and anti-oxalate effect (kidney stones, gout) Skin and body ageing

References:

https://www.hindawi.com/journals/omcl/2020/8825387/ https://www.mdpi.com/2304-8158/9/3/374/pdf http://www.bioline.org.br/pdf?pr14215

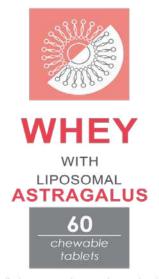
IMMUNITY







SUGAR FREE



dietary supplement product

United States Patent US20100239521A1



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ASTRAGALUS

Astragalus have been demonstrated to support a healthy immune system and it is considered a master immune herb.

Astragalus effectively promotes immune system health by improving B and T lymphocyte activity and helping balancing inflammatory cytokines, involved in a healthy immune response.



ASTRAGALUS

PHARMOCOLOGICAL ASSAY

FORMULA CLASS ORAL BIOAVAILABILITY ORAL BIOAVAILABILITY (LIPOSOMAL) C 41 H 68 O 14 (Astragaloside IV) Saponin, triterpene glycoside Low Estimated at least 30-fold higher

Low Estimated at least 30-fold higher Control of the second secon

MAIN PHARMACOLOGICAL ACTIVITY

ANTIOXIDATIVE

Scavenges free radicals, increases the activity of antioxidant enzymes, inhibits the peroxidation

ANTICANCER

Exerts anti-carcinogenesis properties by inhibiting tumor cell growth, preventing inflammation, increasing tumor suppression, and inhibiting cancer cell invasion

CARDIOPROTECTIVE

Lowers the plasma lipids, exerts vasorelaxation effect, reduces cardiac muscle injury, inhibits blood pressure elevation

ANTI-INFLAMMATORY

Inhibition of the production of inflammatory factors and their gene expression

ANTIASTHMATIC

Inhibits airway inflammation associated with asthma

IMMUNOMODULATING

Improves immune organs such as the liver, kidneys, and spleen, improves immunity by the proliferation of immune cells, exerts immune system enhancing effects

NEUROPROTECTIVE

Protects dopaminergic neurons and promotes neural process outgrowth, maintains dopamine synthesis, prevents neuron pathology, reduces neural apoptosis, improves cognitive functions

ANTIVIRAL

Decreases the viral replication, enhances the cellular immunity against viruses

ANTIDIABETIC

Protects pancreatic beta cells from cell death, exerts positive effects on regulating the mechanism of glucose and lipid metabolisms, improves the insulin function, decreases the expression of an insulin-resistance protein

POSSIBLE CLINICAL APPLICATION

Weakened immune system Cancers Neurodegenerative diseases incl. Alzheimer's disease, Parkinson's disease, substantia nigra Metabolic diseases incl. diabetes type I and II Viral infections incl. influenza and the common cold Liver diseases incl. hepatitis, fatty liver disease, fibrosis, chronic liver injury Cardiovascular diseases incl. heart failure, myocardial ischemia, reperfusion injury, cardiac hypertrophy Asthma

References:

https://www.sciencedirect.com/science/article/pii/S1756464620305636 https://pubmed.ncbi.nlm.nih.gov/25087616/

CHEWABLE WHEY TABLETS

Yoghurt	Banana	Vanilla	Caramel	Chocolate	Strawberry
WHEY WITH LIPOSOMAL RESVERATROL 60 Chewcble tablets	WITH LIPOSOMAL HESPERIDIN 60 Chewcoble tablets dietary supplement product	WITH LIPOSOMAL GLUTATHIONE 60 Chewable tablets dietary supplement product	WHEY WITH LIPOSOMAL CURCUMIN 60 Chewable tablets dietary supplement product	WITH LIPOSOMAL QUERCETIN 60 Chewcoble tablets dietary supplement product	WITH LIPOSOMAL ASTRAGALUS 60 Chewable tablets
Whey protein Liposomal resveratrol	Whey protein Liposomal hesperidin	Whey protein Liposomal glutathione	Whey protein Liposomal curcumin	Whey protein Liposomal quercetin	Whey protein Liposomal astragalus











