Peptide Introduction

Our factory is the earliest enterprise to develop the research and production of protein peptides in China. The company started the research and development of biological protein peptides in 1997. In 2003, based on the technical achievements of "The Development and Application of soybean oligopoly peptides", a national key scientific and technological project of the Ministry of Science and Technology, the company built a specialized soybean peptide factory with an annual output of 5000 tons. In 2004, it participated in drafting the first production standard of protein peptide in China (soybean peptide QB/T2653-2004), which kicked off the industrialization, large-scale and standardized production of protein peptide industry in China and effectively realized the breakthrough of zero protein peptide industry in China.

Our factory always upholds the "Food safety first, scientific and technological innovation first" enterprise development philosophy, driven by scientific and technological innovation and brand manufacturing, to constantly improve the application breadth of product field, experimental research depth, customer service temperature as measures, always follow the "new products, new ideas, update everyday, every innovation" of the **"scientific + production + OEM + ODM to develop sales + technical services"** of the whole industry chain operation mode,tries to build up China's biological active peptide industry famous brand integrity, sustained efforts to protein peptide industry in our country better off to the scientific development.

Enterprise Qualification Certificate

FSSC22000,ISO22000, Kosher, Halal...

Qc management

After years of wind and rain course, we have formed a set of deep their own culture of modern enterprise scientific management system, combines the characteristic of the modern industrial enterprise, set up including process procedures, standard operating procedure (SOP), post operation procedures such as a full set of scientific management system and management system strictly.In 2007, the company was awarded as "high-tech enterprise" by shandong Provincial Department of Science and Technology.

Product list

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Peptide product list
---- Types of Normal & Low-bitterness & Discolored

NO.	Product Name	Spec.s	Package
1	soybean peptide powder Soybean Peptide Powder (Granular Debittering) Soybean Peptide Powder (Low Sodium Type for Special Medical Use)	1. Total protein ≥ 90% 2. Peptide content ≥ 80% 3. Molecular weight less than 2000≥90%	10kg/carton
2	Corn oligopeptide powder	1. Total protein ≥ 80% 2 . Peptide content ≥ 75% 3. Molecular weight less than 1000≥90%	10kg/carton
3	Wheat oligopeptide powder	1. Total protein ≥ 90% 2 . Peptide content ≥ 75% 3. Molecular weight less than 1000≥85%	10kg/carton
4	Ocean fish oligopeptide (cod skin)	1. Total protein ≥ 90% 2. Molecular weight less than 1000≥85%	10kg/carton

5	Collagen Peptides (Cod Fish Skin) Marine fish bone collagen oligopeptide powder	1 . Total protein ≥ 90% 2 . Molecular weight less than 10000≥ 90%	10kg/carton
6	Albumin peptide	1. Total protein ≥ 80% 2 . Peptide content ≥ 70% 3. Molecular weight less than 1000≥80%	10kg/carton
7	Mung bean peptide	1. Total protein ≥ 90% 2 . Peptide content ≥ 80% 3. Molecular weight less than 1000≥85%	10kg/carton
8	Pea peptide	1. Total protein ≥ 90% 2 . Peptide content ≥ 80% 3. Molecular weight less than 1000≥85%	10kg/carton
9	Oyster peptide	1. Total protein ≥ 70% 2 . Peptide content ≥ 60% 3. Molecular weight less than 1000≥80%	10kg/carton
10	Walnut peptide	1. Total protein ≥ 50% 2. Peptide content ≥ 35% 3. Molecular weight less than 1000≥80%	10kg/carton

11	Rice oligopeptide	1. Total protein ≥ 80% 2. Peptide content ≥ 70% 3. Molecular weight less than 2000≥80%	10kg/carton
12	Sea Cucumber Gut Peptide	1. Total protein ≥ 80% 2. Peptide content ≥ 75% 3. Molecular weight less than 1000≥80%	10kg/carton
13	Whey Peptides	1. Total protein ≥ 60% 2. Peptide content ≥ 50% 3. Molecular weight less than 5000≥80%	10kg/carton
14	Donkey-hide gelatin peptide	1. Total protein ≥ 80% 2. Peptide content ≥ 50% 3. Molecular weight less than 5000≥60%	10kg/carton
15	Spirulina oligopeptide	1. Total protein ≥ 60% 2. Peptide content ≥ 50% 3. Molecular weight less than 2000≥70%	10kg/carton

16	Cartilage Extract	1. Total protein ≥ 60% 2. Chondroitin sulfate ≥ 20%	10kg/carton
17	Casein peptide	1. Total protein ≥ 80% 2. Peptide content ≥ 75% 3. Molecular weight less than 2000≥80%	10kg/carton
18	Dilongin peptide	1. Total protein ≥ 65% 2. Peptide content ≥ 30% 3. Molecular weight less than 2000≥80%	10kg/carton

Main Product list and Rearch

Soybean peptide powder

Our soybean peptide powder is a kind of oligopeptide substance with high biological activity and multiple biological effects, which is mainly composed of 2~6 amino acids and 200~800Dalton peptide chain with molecular weight. Compared with proprotein and amino acids composed of proprotein, it has good functional, water-soluble, water-holding and other advantages, and can completely dissolve under any pH2~10 acid and alkali conditions, and can effectively combine with other functional components and nutritional elements, and maintain their original physical and nutritional characteristics.

Compared with proprotein and amino acid composition of proprotein, our peptide powder is more easily absorbed by the human body, can no longer go through gastrointestinal secondary digestion, directly into the small intestine cells to be absorbed, play its role at the tissue level, and is not affected by the body condition.

Our soybean peptide powder contains a variety of bioactive peptide chains, which makes the product has a variety of biological effects, including antioxidant, blood pressure regulation, blood lipid regulation, cholesterol reduction, anti-fatigue, enhance immunity and so on.As a new multifunctional nutrition ingredient, it can be widely used in functional food, health food, sports food, fermented products, special medicine and medical food and other fields.

The physical and chemical indicators

Inspection items	Quality standard
Total protein (dry base %)	90.0 or higher
Peptide content (% in dry basis)	80.0 or higher
≥80% relative molecular weight of the peptide	2000 or less
Moisture content (%)	7.0 or less
Ash content (dry base %)	6.5 or less
Urease (urea) activity	negative
Total number of colonies (CFU/g)	10000 or less
Coliform (MPN/100g)	92 or less
Mold and Yeast (CFU/g)	50 or less
salmonella	0/25 or less g
Staphylococcus aureus	0/25 or less g
Arsenic (As) mg/kg	0.3 or less
Lead (in Pb) mg/kg	0.5 or less
Crude fat (dry base %)	1.0 or less

Benchmarking peptide chain:

ACE inhibitory activity: TYR-LEu-Ala-GLY-ASN-GLN

Val-Met-Asp-Lys-Pro-Gln-Gly

Phe-phe-leu, ILe-Tyr-LEu-leu, Ile-ala

Antioxidant activity: LEU-Leu-pro-his, pro-his

Tyr-Pro-Leu-Lys-Pro-Trp

Improvement effect of soybean peptide on four items of blood lipid in rats				
group	CHOL	TG	HDL-C	LDL-C
Model reference	3.22	1.68	0.65	0.83
Low dose group	3.21	1.43	0.75	0.82
Dose group	2.85	1.54	0.78	0.66
High dose group	2.53	0.69	0.73	0.59
ck	2.28	1.08	0.76	0.43

Effect of Soybean Peptide on serum creatine kinase (CK) value of Athletes during training period (n=18)					
The experimental group	Quiet value	The morning after the first high intensity	The morning after the second high intensity	Medium intensity after morning	Adjust the next morning
Soybean peptide	196 + 94	289 + 129	315 + 146	305 + 124	287 + 146
Sugar control	198 + 93	264 + 82	326 + 115	347 + 123	331 + 80
ck	195 + 96	409 + 304	463 + 229	519 + 345	443 + 226

Corn oligopeptide powder

Food in celebration of corn low poly peptide is the natural food corn protein as raw material, extracted by compound enzymes directional enzyme and specific small

peptide separation technology for small molecule biological active peptide substances, the nutrition is rich, and the solubility and absorbance of complete is better than that of the original proteins and amino acids, which can effectively supplement the human body needs many kinds of amino acid and peptide nutrition.

Our corn oligopeptide production raw materials is from natural, safe and reliable, its heat and acid-base stability, components will not be affected and change, the function of stable and not lost. It has a wide range of biological functions, including protein nutrition enhancement, improvement of "nitrogen balance", enhancement of human endurance and antiviral ability, anti-fatigue, blood pressure regulation, promotion of liver material and alcohol metabolism, liver protection and liver protection, and enhancement of liver function.Maize oligopeptide branch chain amino acids are rich, especially in sports nutrition support and liver function maintenance.

The physical and chemical indicators

Inspection items	Quality standard
Total protein (dry base)/(g/100g)	80.0 or higher
Peptide content (% in dry basis)	75.0 or higher
Proportion of protein hydrolysates with a relative molecular weight distribution of less than 1000, %	90.0 or higher
Moisture/(g/100g)	7.0 or less
Ash content/(g/100g)	8.0 or less
Total number of colonies (CFU/g)	5000 or less
Coliform (MPN/100g)	30 or less
Mold (CFU/g)	25 or less
Yeast (CFU/g)	25 or less
Lead (in Pb) mg/kg	0.2 or less
Arsenic (As) mg/kg	0.2 or less
Chromium (in Cr) mg/kg	1.0 or less
Pathogenic bacteria (Salmonella, Shigella, Staphylococcus aureus, Hemolytic streptococcus)	May not be detected

Benchmarking peptide chain:

Enhanced liver function activity: Pro-Tyr-LEu-pro-leu-pro-Ser

Gln-Leu-Leu-Pro-Phe

Anti-fatigue activity: Glu-asp-tyr-Glu

Antihypertensive activity: LEU-ARg-PRO, Pro-Ser-GLy-GLN-Tyr-TYR

Antioxidant activity: PHE-pro-leu-Glu-met-Met-pro-PHE

Therapeutic effect of corn oligopeptide on liver injury induced by thioacetamide in mice ($\bar{X}$ ± S,n=10)

Don't set	Dose (mg/kg)	Alanine aminotransferase (U/L)	Liver glycogen (mg/g liver)	Malondialdehyde (nmol/g liver)
The control group	-	24.0 + / - 2.45 * *	31.8 + / - 9.28 * *	32.6 + / - 6.53 * *
Thioacetamide	-	70.4 + / - 9.93	16.6 + / - 9.54	74.8 + / - 12.3
Corn peptide	High dose	60.7 * 7.64 mm	27.7 * 10.6 mm	56.3 + / - 13.0 * *
	The dose	59.6 * 6.96 mm	25.4 * 8.59 mm	62.1 * 12.3 mm
	Low dose	65.0 + / - 10.3	22.2 + / - 10.3	67.8 + / - 23.7

Effects of corn oligopeptide on malondialdehyde, reduced glutathione and triglyceride in mouse liver homogenate ($\bar{X}$ ± S,n=12)

group	MDA (Nmol /mg liver tissue)	GSH (umol/g liver tissue)	TG (umol/g liver tissue)
ck	0.309 + / - 0.064	37.8 + / - 6.6	0.031 + / - 0.013

Model reference	0.530 + / - 0.109	24.8 + / - 5.3	0.096 + / - 0.021
Positive control	0.322 + / - 0.068	37.5 + / - 7.6	0.055 + / - 0.017
Low dose group	0.355 + / - 0.072	36.8 + / - 7.3	0.065 + / - 0.015
Dose group	0.326 + / - 0.062	38.8 + / - 5.4	0.059 + / - 0.012
High dose group	0.329 + / - 0.100	36.8 + / - 5.4	0.054 + / - 0.016

Effect of corn oligopeptide on blood lactic acid in swimming mice (X±SD n=12)

Don't set	Before swimming	0 min after swimming	15 min after swimming	60 min after swimming
The control group	24.8 + / - 5.4	45.6 + / - 4.4	29.8 + / - 6.3	17.7 + / - 3.2
Low dose	23.6 + / - 4.7	41.2 + / - 5.3	24.6 + / - 3.4	16.9 + / - 4.3
The dose	22.8 + / - 3.6	40.8 + / - 4.9	24.8 + / - 3.3	16.6 + / - 3.9
High dose	22.9 + / - 4.1	34.6 + / - 4.5 * *	22.7 * 3.1 mm	15.9 + / - 3.6

Wheat oligopeptides

Our wheat oligopeptide is a small molecule oligopeptide substance with high activity, which is obtained from protein extracted from natural food wheat flour by gradient directed digestion of compound enzyme and special directed small molecule separation technology.It is rich in a variety of bioactive peptide chains, and oligopeptides account for a high proportion of the function of a wide range of products to meet the market development needs of different types of products.

It is rich in glutamic acid and glutamine, which can effectively regulate gastrointestinal function, repair gastrointestinal cells, promote gastrointestinal inflammation to subside, and can be used as a special nutrient for intestinal dysfunction.In addition, wheat oligopeptide contained morphine-like peptides that could improve neuroregulation, relieve mental stress and improve sleep.Its other main functions include enhancing physical fitness and eliminating fatigue, lowering cholesterol, regulating blood pressure, anti-oxidation, enhancing immunity, etc.

The physical and chemical indicators

Inspection items	Quality standard
Total protein (dry base %)/(g/100g)	90.0 or higher
Oligopeptide (dry base %)/(g/100g)	75.0 or higher
Total glutamic acid/(g/100g)	25.0 or higher
Proportion of protein hydrolysates with relative	85.0 or higher
Moisture/(g/100g)	7.0 or less
Ash content/(g/100g)	7.0 or less
Total number of colonies (CFU/g)	10000 or less
Coliform (MPN/g)	0.92 or less
Mold (CFU/g)	50 or less
Yeast (CFU/g)	50 or less
Lead (in Pb) mg/kg	0.5 or less
Arsenic (As) mg/kg	0.5 or less
salmonella	n=5,c=0,m=0/25g,M=0
Staphylococcus aureus	n=5,c=1,m=100cfu/g,M=100cfu/g

Benchmarking peptide chain:

Morphine-like activities: GLy-Tyr-Tyr-Pro-thr, GLy-Tyr-Tyr-Pro

Tyr - Gly Gly - Trp Leu, Tyr Gly Gly - Trp

Glutamine peptide: GLy-GLN, Ala-GLN

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Effects of wheat oligopeptide and formula on insomnia of zebrafish (n=14)			
group	Concentration (μg/mL)	Insomnia time (seconds) (mean ± SE)	Sleep improvement effect (%)
Normal control group	-	5417 + 173	-
Model control group	-	6733 + 206	-
Lithium chloride	500 microns	5540 + 291 * *	91 * *
Pure peptide	Specific dose group	5974 + 218 *	58 *
	Low dose group	5961 + 183 * *	59 * *
"# 2"	Dose group	5636 + 214 * *	83 * *
	High dose group	5468 + 217 * * *	96 * * *

Promoting effect of wheat oligopeptide on inflammation subside of colitis (n=14)			
group	**Concentration (mu g/mL)**	**Number of neutrophils (mean±SE)**	**Anti-inflammatory effect (%)**
Normal control group	-	3 + / - 0.4	-
Model control group	-	7-0.5	-
prednisone	15	4 * * * 0.3 mm	40 * * *
1# control pure peptide	Specific dose group	5 * 0.5 mm	26 *
"1 #"	Low dose	4 * * * 0.5 mm	37 * * *

	group		
	Dose group	4 * * * 0.6 mm	44 * * *
	High dose group	3 + / - 0.3 * * *	58 * * *

Rice oligopeptides

Our rice oligopeptide is a kind of food-borne small molecule bioactive peptide which is prepared from rice protein by compound enzyme digestion and specific small molecule separation technology.The raw material rice protein is rich in nutrition and contains various essential amino acids. Its amino acid composition is close to "complete protein". Compared with other cereal proteins, the raw price (BV) and protein utility ratio (PER) are higher.Rice oligopeptides are regarded as high quality protein sources due to their reasonable amino acid composition, high bioavailability and special physical and chemical properties. They are very suitable for food of special populations and can meet the nutritional needs of specific populations for amino acids.

Studies have shown that the protease hydrolysates of ours contain a variety of small molecular peptides with physiological activities, including blood pressure lowering, anti-aging, nerve regulation and immune regulation activities.A variety of peptides with angiotensin-converting enzyme inhibitory activity can be isolated from these compounds, which can be used in the development of blood pressure regulation products.The product also has strong free radical scavenging ability and has good inhibition on lipid peroxidation and oil peroxidation.In addition, the product also contains immunoactive peptide chain, can induce phagocytic activity of human leukocytes in vitro, can be used for human immune regulation.

The physical and chemical indicators

Inspection items	Quality standard
Total protein (dry base %)/(g/100g)	80.0 or higher
Peptide content (dry base %)/(g/100g)	70.0 or higher
Proportion of protein hydrolysates with relative molecular	80.0 or higher
Moisture/(g/100g)	7.0 or less
Ash content/(g/100g)	8.0 or less
Total number of colonies (CFU/g)	n=5,c=2,m=100,M=100

Coliform (MPN/g)	0.92 or less
Mold (CFU/g)	25 or less
Yeast (CFU/g)	25 or less
Lead (in Pb) mg/kg	0.5 or less
Total mercury (Hg) mg/kg	0.02 or less
Inorganic arsenic (As) mg/kg	0.3 or less
Chromium (in Cr) mg/kg	1.0 or less
Cadmium (in Cd) mg/kg	0.2 or less
Pathogenic bacteria (Salmonella, Staphylococcus aureus)	0/25 or less g

Benchmarking peptides

Antihypertensive activity: ILE-Ala-pro-ISN-Tyr, Val-Ala-Pro-Ala-Giy-THr - Tyr-PHE

Glu-Glu-Cys-Pro-Cys-Ala-Asn-Cys-Cys-Gly-Gly

Arg-tyr, Met-TRP, GLy-Val-TYr, GLy-ASP-PHE

Thr-gln-val-try, LEU-ARg-Pro, LEu-Ser-Pro, LEU-GLn-Pro,

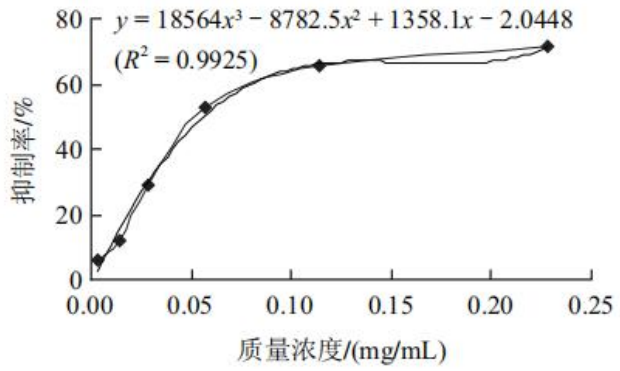
Immunoactivity: Gly-Tyr-pro-Met-Tyr-pro-LEu-ARG, ILe-Lys-Pro

Antagonistic activity of opioids: ASP-ser-val-ARg, asp-gly-ser-val-ARg

Effects of Rice oligopeptide and compound on GSH content and ACTIVITIES of SOD and CAT in serum of mice (X ± S, n = 10)

group	GSH (μmol /L)	The CAT (U/mL)	SOD (U/mL)
Aging model group	5.31 + / - 0.62	2.62 + / - 1.29	64.93 + / - 7.97
Juvenile control group	10.35 * 1.98 mm	4.33 * 1.03 mm	108.11 + / - 19.31 * *
Rice oligopeptide group	11.58 * 1.75 mm	3.15 + / - 0.4	70.15 + / - 6.01
Rice oligopeptide	22.12 + / - 2.19 * *	3.67 * 0.55 mm	86.12 + / - 5.33 * *

compound group



不同质量浓度大米肽对ACE抑制活性

ACE inhibitory activity of rice peptide at different concentrations

Walnut peptide

Our walnut peptide is a kind of bioactive peptide obtained from walnut meal which is defatted by physical cold pressing with modern enzyme targeted digestion and specific small peptide separation technology.The results showed that the relative molecular weight of oligopeptides below 1000 accounted for more than 80%.Amino acid analysis showed that the product contained a complete range of amino acids, including 8 essential amino acids needed by the human body, and the types and proportion of amino acids were reasonably balanced. The evaluation of amino acids met the needs of the human body and effectively improved the bioavailability of walnut peptide.

Walnut peptide by detection contains specific for improving and enhancing memory of small molecule peptide chain, can effectively improve and maintain the function of brain nerve cells, reduce the damage of harmful substances to brain tissue.Walnut peptide can remove excess free radicals produced by human body in the process of metabolism, prevent free radicals from causing damage to brain cells, and help prevent memory decline and alzheimer's disease.For people with memory

dysfunction and forgetfulness, it has a good role in maintaining normal brain function, and also has a good effect on adolescent brain development, intelligence and memory enhancement.

The physical and chemical indicators

Inspection items	Quality standard
Total protein (dry base %)/(g/100g)	50.0 or higher
Peptide content (dry base %)/(g/100g)	35.0 or higher
Proportion of protein hydrolysates with relative molecular	80.0 or higher
Moisture/(g/100g)	7.0 or less
Ash content/(g/100g)	8.0 or less
Total number of colonies (CFU/g)	10000 or less
Coliform (MPN/g)	0.92 or less
Mold (CFU/g)	50 or less
Yeast (CFU/g)	50 or less
Lead (in Pb) mg/kg	0.5 or less
Total arsenic (As) mg/kg	0.5 or less
salmonella	0/25 or less g
Staphylococcus aureus	0/25 or less g

Benchmarking peptide chain:

Antioxidant activity: Ala-ASP-Ala-PHE

Enhance memory activity: TRP-ser-arg-glu-gln-glu-arg-glu-glu

Ala-Asp-Ile-Tyr-Thr-Glu-Glu-Ala-Gly-Arg

Effects of Walnut peptide on scopolamine - treated D-galactose mice learning and memory ability in dark chamber (X ± S, n=10)

Don't set	Dose (mg/kg)	Incubation period (s)	Number of errors (n)

D-galactose model group	Such as the volume	39.33 + / - 14.69	3.46 + / - 0.82
Walnut peptide low dose group	167	99.75 + / - 71.74 * *	2.73 * 0.65 mm
Walnut peptide medium dose group	333	117.67 + / - 91.16 * *	2.64 * 0.92 mm
Walnut peptide high dose group	1000	147.50 + / - 81.78 * * *	1.27 + / - 0.90 * * *
Drug control group	800	79.67 * 56.55 mm	2.36 + / - 1.21

Antioxidant evaluation of Walnut peptide in vitro			
	·OH clearance rate (%) (1.0mg/ mL)	Reducing power (A_{700}) (1.0 mg/ml)	ORAC value (μmol TE/g)
Walnut peptide	44.14 + / - 0.58	0.99 + / - 0.05	1428.13 + / - 34.27
GSH	41.57 + / - 0.32	1.33 + / - 0.03	1567.75 + / - 41.65

Mung bean peptide

Our mung bean peptide is a high quality small molecular plant oligopeptide which is obtained from mung bean protein by biocomplex enzyme digestion and specific small molecular separation technology.Mung bean peptide, as one of the plant oligopeptides, can be used to regulate chronic diseases, including anti-arteriosclerosis, eliminating harmful substances such as free radicals in human body, promoting detoxification and reducing cholesterol.

It has been proved that the mung bean peptide has a good effect on the elimination of heavy metals, and the repeated lead metabolism experiment shows that the mung bean peptide has a significant effect on the inhibition of gastrointestinal lead absorption and the promotion of lead excretion, which can be used to prevent the injury of peripheral motor nerve cells caused by lead poisoning and promote cell regeneration.Cell experiments showed that the product had inhibition effect on a

variety of microorganisms and had good antibacterial broad-spectrum.Animal experiments show that it has a significant effect on reducing blood cholesterol.In addition, mung bean peptide also has a good antialcoholic effect in mice alcohol poisoning test.

The physical and chemical indicators

Inspection items	Quality standard
Protein (dry base %)/(g/100g)	90.0 or higher
Peptide content (dry base %)/(g/100g)	80.0 or higher
Proportion of protein hydrolysates with relative molecular	85.0 or higher
Moisture/(g/100g)	7.0 or less
Ash content/(g/100g)	6.5 or less
Total number of colonies (CFU/g)	10000 or less
Coliform (MPN/g)	0.92 or less
Mold (CFU/g)	50 or less
Yeast (CFU/g)	50 or less
Lead (in Pb) mg/kg	0.5 or less
Total arsenic (As) mg/kg	0.3 or less
salmonella	0/25 or less g
Staphylococcus aureus	0/25 or less g

Benchmarking peptide chain:

Immunoenhancing activity: LEU-TYR, ILe-TYR, try-GLN

Leu (Ile) -ALA -Phe-Ala, Leu (Ile) -ALA -Ala-Phe

ACE inhibitory activity: LYS-ASP-TYr-ARG-LEU

Val-Thr-Pro-Ala-Leu-Arg

Lys-Leu-Pro-Ala-Gly-Thr-Leu-Phe

Effect of Mung bean Peptide on lead content in blood, liver and bone of lead poisoning rats (X ± S, n=10)				
group	Dose (body mass)/(mL/kg)	w(Pb)		
		blood	liver	bone
Blank control group	-	0.04 + / - 0.01	0.15 + / - 0.03	1.24 + / - 0.08
Model control group	-	0.48 + / - 0.21	2.58 + / - 0.32	101.25 + / - 23.86
Mung bean peptide	Low dose group	0.52 + / - 0.17	1.60 + / - 0.38	82.08 + / - 24.55
	Dose group	0.46 + / - 0.12	1.60 + / - 0.40	76.34 + / - 13.86
	High dose group	0.03 + / - 0.10	1.85 + / - 0.56	76.30 + / - 14.12

Effect of pure mung bean peptide and Compound Mung Bean Peptide on promoting regeneration of Peripheral motor nerve Injury in Zebrafish (n=10)			
group	Concentration (mu g/mL)	Length of peripheral motor nerve (Pixels, Mean ± SE)	Promoting regeneration (%)
Normal control group	-	228 + / - 2.39	-
Model control group	-	204 + / - 2.59	-
Calcium sodium ediate	125 ng/tail	215 * 4.00 mm	46 *

Pure peptide	1 #	211 + / - 5.50	29
	2 #	214 * 2.67 mm	42 *
Mung bean peptide compound	Low dose group	215 * 3.55 mm	46 *
	Dose group	216 * 3.61 mm	50 *
	High dose group	216 * 2.86 mm	50 *

Pea peptide

Our pea peptide is a small bioactive oligopeptide obtained from pea protein by enzyme digestion and specific small molecule separation.It contains 8 essential amino acids required by human body and the proportion of amino acids is close to the FAO/WHO recommended pattern.The results showed that our pea peptide has a good muscle-enhancing effect, can effectively promote the production of growth factor, used for the formation of human muscle, improve muscle weakness and inhibit the degradation of muscle protein.

Our pea peptide has a good effect on lowering blood pressure, can restore the normal value of pressure difference, and has a good effect on lowering blood lipid.On the other hand, it also has the function of enhancing human immune function, mainly in antioxidant, scavenging free radicals, enhance the activity of immune cells and so on.In beauty, pea peptide can inhibit elastase and protect elastin from decomposition;It also stimulates collagen synthesis, improves skin elasticity and firmness.

The physical and chemical indicators

Inspection items	Quality standard
Protein (dry base %)/(g/100g)	90.0 or higher
Peptide content (dry base %)/(g/100g)	80.0 or higher
Proportion of protein hydrolysates with relative molecular	85.0 or higher
Moisture/(g/100g)	7.0 or less
Ash content/(g/100g)	6.5 or less
Total number of colonies (CFU/g)	10000 or less
Coliform (MPN/g)	0.92 or less

Mold (CFU/g)	50 or less
Yeast (CFU/g)	50 or less
Lead (in Pb) mg/kg	0.5 or less
Total arsenic (As) mg/kg	0.3 or less
salmonella	0/25 or less g
Staphylococcus aureus	0/25 or less g

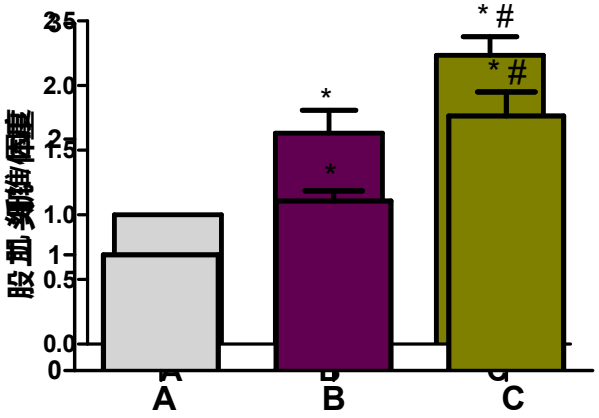
Benchmarking peptide chain:

Antioxidant activity: Phe-Glu-gly-Met-THr - PHE-LEU-LEu

Study on thermal stability of antibacterial activity of pea antimicrobial peptides					
Heating time (min)	0	10	20	30	40
Bacteriostatic zone diameter (mm)	16.85	16.76	16.72	16.55	16.34

Effect of Pipea peptide on muscle biceps/body weight ratio (n=60) (A exercise and pea peptide fiber circumference and control group;B Exercise group;C: combination group)

Effect of Pea Peptide on muscle Growth Promoting factor IGF-1 (X ± S, n=60)			
Igf-1 growth promoting factor	Drug group (mu g/mL)	Exercise groups (mu g/mL)	Exercise group (μg/mL)
The initial	1289.9	1305.7	1312.2
4W	1315.7	1458.6	1573
8W	1426.8	1762.5	2051.6



Aglycin peptide (Agrahim)

Aglycin peptide family is a new bioactive peptide isolated from pig intestine by Prof. Chen Zhengwang of Huazhong University of Science and Technology in Viktor Mutt laboratory of Karolinska Institute in Sweden in 1997.Prof. Zhengwang Chen in Suad Efendic laboratory found that the peptide can promote the synthesis and secretion of insulin in isolated pancreatic β cells under the stimulation of 16.7mM high concentration of glucose.Subsequently, the primary structure of the peptide was analyzed in Hans Jornvall's laboratory, and the unusual molecular weight was determined to be 3742Da, and the sequence of amino acids was determined.Because the amino terminal of the peptide is Alanine and the carboxyl terminal is Glycin, it was named Aglycin in Chinese.

Supported by the National 863 Program and the National Natural Science Foundation of China, relying on the scientific research achievements of Professor Chen Zhengwang from Huazhong University of Science and Technology, has successfully achieved the large-scale production of Aglycin peptide family.Aglycine as a functional food has been sent to The Health Analysis and Testing Center of Shandong University, the health food registration and inspection agency selected by the State Food and Drug Administration, for testing. The testing results are as follows according to the requirements of national laws and regulations:

1) Aglycin peptide family products produced have obvious auxiliary hypoglycemic effect;

2) Aglycin peptide family products produced are non-toxic;

3) The Aglycin peptide family products produced by histopathological examination and biochemical composition analysis showed no obvious acute and chronic toxicological damage to the tested organs, and the biochemical composition indexes were normal.

Through the basic theoretical studies on the biophysics, biochemistry, cell biology, molecular biology and immunology of Aglycin peptide, the study proved that:

1) The four peptide chains of this peptide family all have the function of incretin, and the function is stronger when used together;

2) Under the condition of hyperglycemia (>8.0Mm/L), oral agglutination stimulated insulin secretion and decreased blood glucose;

3) In the hypoglycemic state, there is no effect of lowering blood glucose and no risk of hypoglycemia;

4) Aglycin polypeptide has a protective effect on the pancreas, which can restore the morphology and function of the damaged pancreatic tissue, so it has the dual effect of prevention and treatment of diabetes, and prevent the occurrence of diabetes complications;

5) The l-type calcium channels distributed on the cell membrane can induce calcium influx outside the microcirculation of pancreatic β cells and drive them to secrete insulin;

6) Aglycin polypeptide can regulate blood glucose balance by activating insulin receptor/insulin receptor substrate 1 pathway;

7) Aglycin peptides can activate the insulin gene promoter and promote the expression of glucose operating-protein 4 gene.

Aglycin peptide related research results are published in:

(1) PA1b,a plant peptide,induces intracellular "Ca2+" increase via Ca2+ increase via Ca2+ through the L-type Ca2+ Channel and Triggers in pancreatic beta cells. Sci China Ser C-life Sci ｜June 2007｜ Vol.50｜ No.3｜285-291

(2) The Glucose peptide aglycin regulates glucose homeostasis in type 2 diabetic mice via IR/IRS1 pathway nutrional biochemistry 23(11):1449-57, 2012.

(3) Oral administration of soybean peptide Vglycin normalizing fasting and restore marginalized function in type 2 diabetic Wistar rats. The Journal of Nutritional Biochemistry(25(9)954-063 2014)

The Diabetic β-cells throngh improvement of proliferation and Inhiassessment of The Transgenic peptide Vgkycin polycarbonate is treated with treated water. (4) The Diabetic β-cells throngh improvement of proliferation and Inhiassessment of The treated water Apoptosis. Scientific Reports 599 ｜ ｜ 5:15 D01:10:10 3 / srep15599 (2015).

Collagen peptide/Marine fish oligopeptide

In celebration of the ocean fish low poly peptide is a safe and pollution-free cold-water north Pacific cod fish skin as raw materials, adopting compound enzyme directed enzyme and specific small molecular separation technology, the quality of macromolecular protein enzyme solution into low molecular weight, 100% dissolved, and can be absorbed by human body perfect the high purity of collagen peptide, its nutritional and functional has been effectively enhanced.

It can be quickly absorbed into the human body, used for the synthesis of collagen in the human body, repair the damage of viscera, and participate in the functional maintenance of human organs and tissues.It can also be used to form skin collagen, which can repair skin damage, accelerate wound healing and desalinate postoperative and other body surface scars.

Our Marine fish collagen oligopeptide has good transdermal absorption, can be widely used in cosmetics, skin care, enhance skin elasticity and firmness, and then play a whitening, wrinkle resistance, improve skin elasticity and other functions.In the health food, it has the enhancement bone density, the improvement osteoporosis, the promotion mineral element absorption, the activation cell, the enhancement immune function, the anti-aging, the prevention skin aging, the weight loss health and so

on extensive function.

The physical and chemical indicators

Inspection items	Quality standard
Total nitrogen (dry base %)	14.5 or higher
Oligopeptides (dry basis %)	85.0 or higher
Proportion of protein hydrolysates with molecular weight	85.0 or higher
Hydroxyproline /%	3.0 or higher
Dry weight loss (%)	7.0 or less
Ash content (%)	7.0 or less
Total number of colonies (CFU/g)	5000 or less
Coliform (MPN/100g)	30 or less
Mold (CFU/g)	25 or less
Yeast (CFU/g)	25 or less
Lead (in Pb) mg/kg	0.5 or less
Inorganic arsenic (As) mg/kg	0.5 or less
Methylmercury mg/kg	0.5 or less
Cadmium (in Cd) mg/kg	0.1 or less
Pathogenic bacteria (Shigella, Salmonella,	May not be detected

Benchmarking peptide chain:

Antioxidant activity: Glu-Gly-Leu, Gwr-Gly-asp-glu-tyr

His-Gly-Pro-Leu-Gly-Pro-leu

Changes of GSH-Px, SOD and MDA of Marine fish skin collagen oligopeptide before and after human						
group	Gsh-px/U.m l^{-1}		SOD/U.m l^{-1}		MDA/nmol./ml^{-1}	
	Before the	After the test	Before the	After the test	Before the	After the test
Experim	79.23 ±	90.13 ±	78.27 ±	81.77 ± 17.98	9.47 ± 3.21*	6.54 ± 3.26▲#
The	80.19 ± 16.27	81.73 ± 13.53	77.96 ± 16.81	78.06 ± 14.52	9.48 ± 3.18	9.16 ± 3.41

Effects of Marine fish skin collagen oligopeptide on Hydroxyproline and collagen in mouse skin (X ± S,n=48)		
group	HYP content in skin (%)	Collagen content in skin (%)
The normal group	9.1 + / - 0.6	65.8 + / - 3.5
Model group (D-galactose senescence)	8.4 + / - 0.6	60.2 + / - 3.8
Low dose group	9.6 + / - 0.4	68.9 + / - 2.7
High dose group	9.9 + / - 0.5	71.2 + / - 3.9

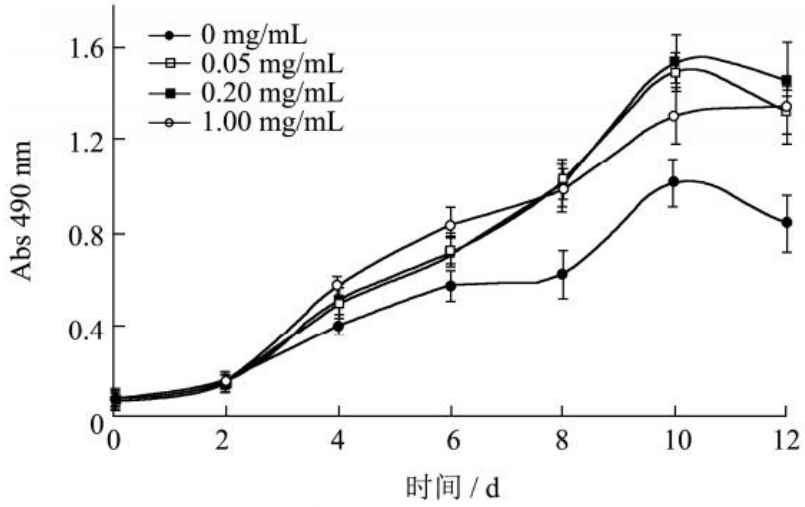


图　鱼皮胶原酶解物对 HaCat 细胞增殖的影响

Collagen peptide/freshwater fish protein peptide

Our freshwater fish protein peptide by safe pollution-free tilapia fish scales as raw material, use compound directional enzyme and enzyme specific small peptide separation of small molecules and biological effect, 100% dissolved, can be absorbed by human body perfect high purity and high active collagen peptides, its beauty, physiological activity of tissue damage repair perfect play.

The product has good transdermal absorption, can be widely used in cosmetics, skin care, enhance skin elasticity and firmness, and then whitening, wrinkle resistance, improve skin elasticity and other functions.In the medical field, it can also play a good biological role in the treatment of arthritis, tendon pain, hemostasis, plastic surgery and so on.In the health food, it has the enhancement bone density, the improvement osteoporosis, the promotion mineral element absorption, the activation cell, the enhancement immune function, the anti-aging, the prevention skin aging, the weight loss health and so on extensive function.

The physical and chemical indicators

Inspection items	Quality standard
Total nitrogen (dry base %)	15.0 or higher
Peptide content (% in dry basis)	80.0 or higher
Proportion of protein hydrolysates with molecular weight less	75.0 or higher
Hydroxyproline /%	6.0 or higher
Moisture content (%)	7.0 or less
Ash content (%)	6.0 or less
Total number of colonies (CFU/g)	3000 or less
Coliform (MPN/100g)	30 or less
Mold (CFU/g)	25 or less
Yeast (CFU/g)	25 or less
Lead (in Pb) mg/kg	1.0 or less
Inorganic arsenic (As) mg/kg	0.1 or less
Methylmercury mg/kg	1.0 or less
Cadmium (in Cd) mg/kg	0.1 or less
Pathogenic bacteria (Shigella, Salmonella, Staphylococcus	May not be detected

Benchmarking peptides

Antioxidant activity: HIS-Cys-NET-LEU, TYr-ALA

ACE inhibitory activity: GLy-Pro-LEU, GLy-Pro-Met, Val-ile-TYR

Table of water content determination of fish collagen peptide for each tested object (X ± S, n=12)

group	70s	Moisture	95S	Moisture	150S	160S	Water
blank	53.98 + / -	51.34 + / -	49.13 + / -	43.65 + / -	39.28 + / -	37.63 + / -	34.35 + / -

Positive control (Hyaluroni	65.41 + / - 0.62	58.97 + / - 0.92	54.23 + / - 0.87	45.25 + / - 0.66	39.81 + / - 1.50	37.95 + / - 0.88	36.19 + / - 0.75
Collagen peptide	64.44 + / - 0.70	62.42 + / - 1.12	57.19 + / - 0.93	47.66 + / - 0.99	45.41 + / - 1.07	40.45 + / - 1.23	38.39 + / - 1.05

Collagen peptide/Marine fish bone collagen oligopeptide

Marine fish bone collagen peptide is a safe and pollution-free cold water COD bone from the North Pacific Ocean, adopting compound enzyme directed enzyme and specific small molecular separation technology, quality of macromolecular fishbone collagen protein enzyme solution into low molecular weight, 100% dissolved, and can be absorbed by human body perfect the high purity of collagen protein peptide, Its nutritional and functional properties have been comprehensively and effectively enhanced, and it has many biological functions such as enhancing bone density, improving osteoporosis, promoting mineral absorption, repairing damaged articular cartilage and links, and improving symptoms of bone and joint diseases.

The physical and chemical indicators

Inspection items	Quality standard
Total nitrogen (dry base %)	13.5 or higher
Oligopeptides (dry basis %)	75.0 or higher
Proportion of protein hydrolysates with molecular	85.0 or higher
Hydroxyproline /%	2.0 or higher
Dry weight loss (%)	7.0 or less
Calcium/(mg/kg)	P 400
Total number of colonies (CFU/g)	5000 or less
Coliform (MPN/100g)	30 or less
Mold (CFU/g)	25 or less
Yeast (CFU/g)	25 or less
Lead (in Pb) mg/kg	0.5 or less

Inorganic arsenic (As) mg/kg	0.5 or less
Methylmercury mg/kg	0.5 or less
Cadmium (in Cd) mg/kg	0.1 or less
Pathogenic bacteria (Shigella, Salmonella,	May not be detected

Benchmarking peptide chain:

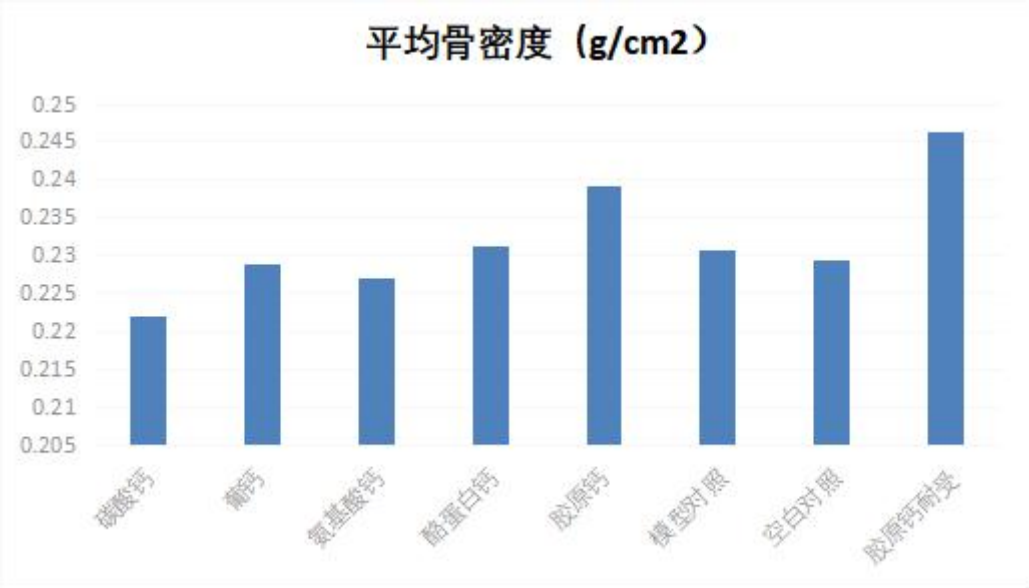
Antigout activity: TYR-LEU-ASP-ASN-TYR

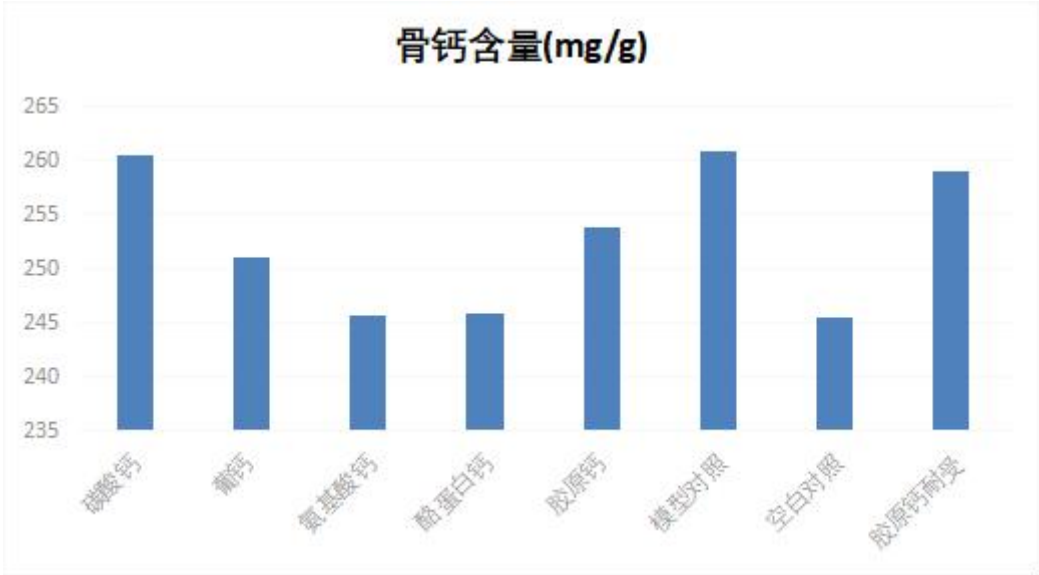
Ser-Pro-Pro-Tyr-Trp-Pro-Tyr

Effect of Marine fish bone collagen peptide and formula on osteoporosis of zebrafish

group	Concentration (mu g/mL)	Spinal fluorescence intensity (Mean ± SE)	Effect of osteoporosis treatment (%)
Normal control group	-	91499 + 5699	-
Model control group	-	51226 + 2977	-
Disodium etidronate	300	83419 + 5356 * * *	80 * * *
4# control pure peptide	Specific dose group	70985 + 3925 *	49 *
	Low dose group	71315 + 4541 * *	50 * *
"4 #"	Dose group	75689 + 3794 * *	61 * *
	High dose group	83170 + 3107 * * *	79 * * *

KEEP INGREDIENTS
Keep Healthy From Us





Egg white peptide (albumin peptide)

Our egg white peptide, also known as albumin peptide, is a small molecule bioactive polypeptide prepared from egg white powder as raw material by compound enzyme targeted digestion and specific small molecule separation.The results of biochemical analysis and biological experiments showed that albumin peptide was a small molecule with biological activity and had many biological effects. As an animal protein peptide, egg white peptide is more suitable for human utilization in terms of nutrient composition, amino acid type and proportion, and has high bioutilization value.

Albumin peptide has strong biological activity and a variety of biological effects, its main effects are to inhibit the activity of tumor cells, prevent the deterioration of cell canceration, enhance the immune function of human body, enhance the comprehensive function of human body, anti-fatigue, chemical liver injury has an auxiliary protection effect.Albumin peptide can also be used as a transport carrier to promote the absorption of nutrients such as calcium, iron and zinc in various organs of the human body.In addition, albumin peptide can well participate in the synthesis of albumin in human body, effectively improve hypoproteinemia and regulate human immunity.

The physical and chemical indicators

Inspection items	Quality standard
Total protein (dry base %)/(g/100g)	80.0 or higher
Peptide content (dry base %)/(g/100g)	70.0 or higher
Proportion of protein hydrolysates with relative molecular	80.0 or higher
Moisture/(g/100g)	7.0 or less
Ash content/(g/100g)	6.5 or less
Total number of colonies (CFU/g)	10000 or less
Coliform (MPN/g)	0.92 or less
Mold (CFU/g)	50 or less
Yeast (CFU/g)	50 or less
Lead (in Pb) mg/kg	0.5 or less
Arsenic (As) mg/kg	0.3 or less
salmonella	0/25 or less g
Staphylococcus aureus	0/25 or less g

Benchmarking peptide chain:

Antioxidant activity: Ala-glu-glu-ARg-TYr-Pro

Trp-Asn-Trp-Ala-Asp

Asp-Glu-Asp-Thr-Gln-Arg-Met-Pro

Antibacterial activity: Thr-Ser-Ser-Asn-Val-Met-Glu-Glu-Arg, GLy-ile -Ile-Arg-Asn

Free radical scavenging activity: TRP-ASN-ILe-Pro, ALA-GLy-TRP-ASN-ILe-Pro, TRP-ASN-TRP, TRP-AlA-ASP

Effects of egg white active peptide on the activities of T-SOD, CAT and GSH-Px in HEK293 cells

group	Concentration	T-sod activity	CAT activity	Gsh-px activity (Nmol/(min·mL))

The	-	208.11 + / - 1.27	26.22 + / - 1.30	59.23 + / - 2.15
Damage to	-	88.36 + / - 2.68##	8.36 + / - 0.94##	20.59 + / - 3.93##
Egg white peptide	0.1	98.76 * 1.23 mm	9.28 * 0.74 mm	23.96 * 1.95 mm
	0.5	147.36 + / - 3.24 *	19.24 + / - 0.98 * *	32.33 + / - 2.75 * *
	1.0	176.25 + / - 1.98 *	21.03 + / - 1.52 * *	37.36 + / - 4.17 * *

Inhibitory rate of albumin peptide on the growth of cancer cells in vitro (%)

group	MCF-7			MDA-MB-231			Hela		
	24	48	72	24	48	72	24	48	72
Albumin peptide (low dose)	15.48	16.34	23.17	12.53	22.31	23.62	9.84	23.52	21.65
Albumin peptide (medium dose)	25.64	18.37	35.61	11.29	26.72	30.27	15.62	25.81	29.86
Albumin peptide (high dose)	22.31	31.29	42.18	16.54	27.62	28.75	21.62	31.53	31.21

Whey protein peptide

Our whey protein peptide is made from whey protein, adopting compound enzyme directed enzyme and specific small molecular separation technology for small molecule bioactive peptides, its biological function has improve immunity, restrain virus infection, caused by broad-spectrum antibacterial activity, anti-inflammatory,

inhibiting tumor cell growth and regulate the body's immune response, etc.In addition, studies have shown that whey protein peptide also has sedative function.

In sports nutrition, whey protein peptide can be used to supplement high quality nitrogen source and promote positive nitrogen response and muscle formation in human body.It can maintain stable blood pressure and balance core body temperature.It has antioxidant function and can protect cells from oxidative damage caused by excessive body temperature.It has the characteristics of fast absorption and can provide energy for muscle cells quickly.It can improve cell metabolism and secretion of cytokines.

The physical and chemical indicators

Inspection items	Quality standard
Total protein (dry base %)/(g/100g)	60.0 or higher
Peptide content (dry base %)/(g/100g)	50.0 or higher
Proportion of protein hydrolysates with molecular weight	80.0 or higher
Moisture/(g/100g)	8.0 or less
Ash content/(g/100g)	8.0 or less
Total number of colonies (CFU/g)	10000 or less
Coliform (MPN/100g)	30 or less
Mold (CFU/g)	25 or less
Yeast (CFU/g)	25 or less
Lead (in Pb) mg/kg	0.5 or less
Arsenic (As) mg/kg	0.5 or less
Chromium (in Cr) mg/kg	2.0 or less
Nitrite/(mg/kg)	2.0 or less
Aflatoxin M1/ (mg/kg)	0.5 or less
salmonella	n=5,c=0,m=0/25g,M=0
Staphylococcus aureus	n=5,c=1,m=100cfu/g,M=10 00cfu/g

Benchmarking peptide chain:

Immunomodulatory activity: Gly-Leu-phe

Opioid activity: TYR-LEU-LEu-PHE, TyR-Gly-Leu-PHE

Antibacterial activity: Pro-PHE-LEu-GLy-ALA

Effect of Whey protein peptide on weight gain (G) of rats at Different Stages of growth (X ± S, n=20)								
group	The first	In the	The third	The	The fifth	6 weeks	Seven	Cumulative
Whey	23.9 + / -	26.6 + / -	19.6 + / -	21.9 + / -	25.9 + / -	26.4 + / -	32.9 + / -	177.2 + / - 10.6
Whey	19.8 + / -	17.3 + / -	15.1 + / -	14.2 + / -	21.5 + / -	20.3 + / -	26.3 + / -	134.5 + / - 7.6

Effects of different doses of Whey protein peptide on the contents of blood lactic acid, liver glycogen and serum urea nitrogen in mice (X ± S, n=40)			
Dose (mg/Kg)	Blood lactic acid (mmol/L)	Liver glycogen (mg/g)	Serum urea nitrogen (mmol/L)
0	6.39 + / - 1.25	0.80 + / - 0.50	11.55 + / - 1.24
50	4.31 * 0.90 mm	1.32 * 0.52 mm	10.22 + / - 1.26
100	3.49 + / - 1.51 * *	1.65 * 0.79 mm	9.35 * 1.56 mm
200	2.15 + / - 1.38 * * *	2.05 + / - 0.71 * *	8.65 * 0.98 mm

Effect of whey protein peptides with different molecular weight ranges on inhibitory effect of Escherichia coli and Glucococcus aureus									
Bacterial species	A (da 200 ~ 530 da) (Concentration g/ml)			B (530 da da ~ 750) (Concentration g/ml)			C (750 da da ~ 1000) (Concentration g/ml)		
	0.05	0.10	0.15	0.05	0.10	0.15	0.05	0.10	0.15
E. coli	6.5	9.3	12.8	9.5	11.6	13.8	6.1	7.3	9.4

Glucococcus	6.3	7.5	9.5	11.6	12.9	15.3	8.8	10.6	12.8

Oyster peptide

Our oyster peptide is a small molecule oligopeptide obtained from natural oyster meat powder by enzyme digestion and specific small molecule separation technology. Oyster peptide not only retained the natural oyster contains various active components (oyster polysaccharide, taurine, etc.) and nutrient elements (arginine, zinc, etc.), and further through the purification of bioactive substances, its relative molecular weight is less than 1000 Dalton small molecule low poly peptide accounts for more than 80%, effectively improve and strengthen the nutrition and efficacy of traditional oysters.

For ordinary people, supplementing oyster peptide with high quality nitrogen source can improve nitrogen balance, be beneficial to muscle formation and tissue repair, and significantly improve body growth and function maintenance.For men crowd, oyster peptide have results: fine, fine, strong effect, can be used to improve the genital organs index, strengthen the function of liver and kidney, and the male sperm quality, quantity, activity, etc. With good effect.For the female population, it can improve the menopausal syndrome, for female adolescent uterine functional bleeding, prenatal or postpartum weakness have good effects.

The physical and chemical indicators

Inspection items	Quality standard
Total protein (dry base %)/(g/100g)	70.0 or higher
Oligopeptide (dry base %)/(g/100g)	60.0 or higher
Proportion of protein hydrolysates with relative molecular	80.0 or higher
Moisture/(g/100g)	7.0 or less
Ash content/(g/100g)	8.0 or less
Total number of colonies (CFU/g)	10000 or less
Coliform (MPN/g)	0.92 or less
Mold (CFU/g)	50 or less
Yeast (CFU/g)	50 or less
Lead (in Pb) mg/kg	0.5 or less
Inorganic arsenic (As) mg/kg	0.5 or less

Chromium (in Cr) mg/kg	2.0 or less
Methylmercury (Hg) mg/kg	1.0 or less
N-dimethylnitrosamine	4.0 or less
Polychlorinated biphenyls (PCBS)	0.5 or less
salmonella	0/25 or less g
Staphylococcus aureus	0/25 or less g

Benchmarking peptide chain:

Zinc binding activity: His- Leu-arg-gln -Glu-Glu-Lys-Glu-Glu-Val-Thr-Val- glly -Ser- LEu-Lys

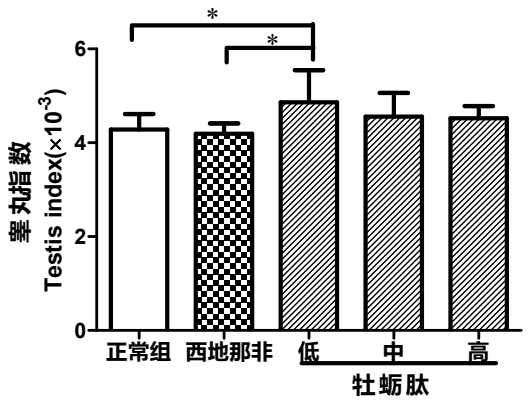
Antibacterial activity: Tyr-Cys-Ser-Tyr-Thr- Met-glu-Ala

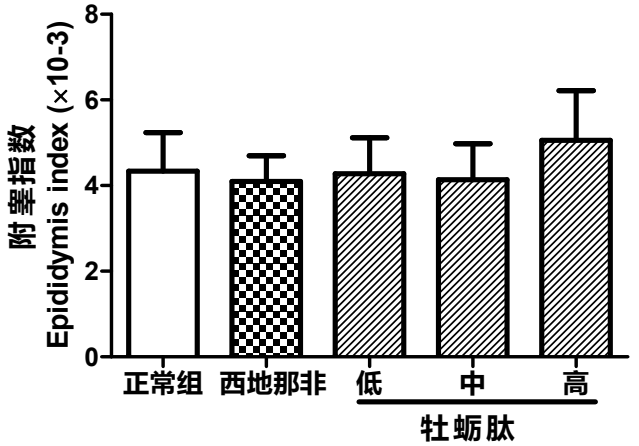
Val-Asn-Val-Asp-Glu-Arg-Trp-Arg-Lys-Leu

Effects of Oyster Peptide on hypothalamic-pituitary-thyroid axis in rats with Kidney-Yang Deficiency ($\bar{X} \pm S$, n=60)

group	Serum T3 (ng/L)	Serum T4 (ng/L)	Serum TSH (mU/L)	Expression of Thyrotropin-releasing hormone (TRH) mRNA in hypothalamus (%)
The normal group	32	57	3.2	10.5
Model group	22	38	4.3	5.4
Low dose group	25	40	4.2	6.0
Dose group	28	42	3.6	6.6
High dose group	30	50	3.4	8.4

Effects of Enteral nutritional support of Oyster Peptide Compound on blood biochemical indices and visceral-body ratio of mice ($\bar{X} \pm S$, n=50)				
group	**Thymus/body weight C/mg·g-1**	**Spleen/body weight C/mg·g-1**	**The total protein C/g · L 1**	**Albumin C/g · L 1**
model	1.68 + / - 0.21	4.36 + / - 0.33	58.36 + / - 3.64	32.69 + / - 1.34
positive	1.70 + / - 0.19	4.39 + / - 0.25	60.69 + / - 3.53	33.19 + / - 1.95
Low dose	1.68 + / - 0.20	4.36 + / - 0.28	64.54 * 5.61 mm	34.25 + / - 1.31
The dose	1.69 + / - 0.24	4.37 + / - 0.31	61.95 * 3.85 mm	42.95 * 1.28 mm
High dose	1.73 + / - 0.25	4.40 + / - 0.29	60.35 + / - 8.51	38.47 * 2.95 mm





The sea cucumber intestinal peptide

Our sea cucumber intestinal peptide is a small molecule bioactive oligopeptide obtained from the natural and pollution-free sea cucumber intestinal eggs in the Icelandic sea by compound enzyme digestion and specific small molecule separation technology. The sea cucumber intestinal peptide retains all kinds of nutrient elements and bioactive substances rich in natural sea cucumber intestinal eggs and effectively guarantees all biological functions.The results showed that sea cucumber intestinal peptide can effectively inhibit the activity of cancer cells in vitro, prevent the proliferation of cancer cells, and promote the apoptosis of tumor cells.In addition, it was also found that sea cucumber intestinal peptide had scavenging activity against free radicals, and the activity increased with the increase of concentration.

Sea cucumber intestinal peptide is easily absorbed and utilized by human intestine, and can participate in maintaining zang fu function, promoting adult somatic regeneration and body injury repair, and has the effects of improving human immunity, repairing gastrointestinal mucosa, delaying aging, anti-tumor, improving anemia and so on.Sea cucumber intestinal peptide can promote the apoptosis of tumor cells and inhibit the generation, diffusion and metastasis of tumor cells.

The physical and chemical indicators

Inspection items	Quality standard
Total protein (dry base %)/(g/100g)	80.0 or higher
Peptide content (dry base %)/(g/100g)	75.0 or higher
Proportion of protein hydrolysates with relative molecular	80.0 or higher
Moisture/(g/100g)	7.0 or less
Ash content/(g/100g)	8.0 or less
Total number of colonies (CFU/g)	10000 or less
Coliform (MPN/g)	0.92 or less
Mold (CFU/g)	50 or less
Yeast (CFU/g)	50 or less
Lead (in Pb) mg/kg	0.5 or less
Inorganic arsenic (As) mg/kg	0.5 or less
Methylmercury (Hg) mg/kg	0.5 or less
salmonella	0/25 or less g
Staphylococcus aureus	0/25 or less g

Benchmarking peptide chain:

Endogenous neuropeptide: Gly-phe-Ser-lys-LEu-Tyr-PHE-NH2

Ser-Gly-Tyr-Ser-Val-Leu-Tyr-Phe-NH2

Antioxidant activity: Val-Thr- Pro-TYr, Val-LEu-LEU-TYr

Val-Gly-Thr-Val-Glu-Met

Intestinal cell regeneration activity: GLy-ARg-GLy-Aspthr -Pro

Arg Gly - Asp - Ser, Arg Gly Asp

Inhibitory rate of Sea cucumber intestinal peptide on the growth of cancer cells in vitro (%)			
group	MCF-7	MDA-MB-231	Hela

	24	48	72	24	48	72	24	48	72
Low dose group	22.15	34.68	39.72	25.36	33.42	41.59	14.26	23.35	33.26
Dose group	46.81	48.63	53.52	28.56	39.61	48.63	18.62	21.52	52.36
High dose group	50.23	68.21	73.28	32.57	64.37	69.57	25.82	48.34	65.35

Inhibitory effects of sea cucumber intestinal peptide and its formulae on transplanted zebrafish human breast cancer (McF-7)

group	Concentration (μg/mL)	Sum of fluorescence intensity pixel (mean±SE)	Tumor inhibition (%)
Model control group	-	385517 + 21349	-
Capecitabine formation	20	171709 + 6949 * * *	55 * * *
3# control pure peptide	Specific dose group	217993 + 11649 * * *	43 * * *
	Low dose group	284622 + 11582 * * *	26 * * *
"3 #"	Dose group	193586 + 9200 * * *	* * * 50
	High dose group	183401 + 6334 * * *	52 * * *

Effects of sea cucumber intestinal peptide on WBC, RBC and HGB in mice simulated

group	dose	The WBC (10^9 / L)	RBC ($10.^{12}$ / L)	HGB (g /L)
Blank control	-	5.26 + / - 1.52	8.112 + / - 1.29	116.68 + / - 10.32
Hypoxia model	-	5.08 + / - 1.81	9.58 * 0.85 mm	142.12 * 13.65 mm
Positive control	-	4.92 + / - 1.73	9.57 * 0.83 mm	145.23 * 10.05 mm

Sea cucumber intestinal peptide group	Low dose group	5.18 + / - 1.25	9.82 * 0.65 mm	145.50 * 14.98
	Dose group	5.31 + / - 1.85	9.91 * 1.15 mm	146.13 * 20.37 mm
	High dose group	5.48 + / - 1.36	10.46 * 1.20 mm	148.50 * 11.32 mm

Gelatin peptide

Our donkey-hide gelatin peptide is a small molecule bioactive oligopeptide substance obtained from donkey-hide gelatin powder by compound enzyme targeted digestion and specific small molecule separation technology.Through research and selection of various biological action models, further isolation and purification of the bioactive oligopeptide chain related to the biological role of donkey-hide gelatin peptide and identification of its structure, it is clear that donkey-hide gelatin peptide has anti-fatigue, improve immunity, nourish blood and nourish blood, beauty and skin care and other biological functions.

Through in-depth studies, it was found that ccA peptides have good effects on increasing the number of Hb(hemoglobin), RBC(red blood cell) and WBC(white blood cell), and can improve anemia.It has strong free radical scavenging activity and good inhibitory effect on lipid peroxidation.It can improve spleen weight index and regulate human immunity.

The physical and chemical indicators

Inspection items	Quality standard
Total protein (dry base %)/(g/100g)	80.0 or higher
Peptide content (dry base %)/(g/100g)	50.0 or higher
Proportion of protein hydrolysates with molecular weight	60.0 or higher
Moisture/(g/100g)	7.0 or less
Ash content/(g/100g)	8.0 or less
Total number of colonies (CFU/g)	n=5,c=2,m=100,M=5000

Coliform (MPN/100g)	30 or less
Mold (CFU/g)	25 or less
Yeast (CFU/g)	25 or less
Lead (in Pb) mg/kg	5.0 or less
Cadmium (in Cd) mg/kg	0.3 or less
Arsenic (As) mg/kg	5.0 or less
Hg mg/kg	2.0 or less
Copper (Cu) mg/kg	20.0 or less
Pathogenic bacteria (Salmonella, Staphylococcus aureus)	May not be detected

Benchmarking peptide chain:

Hematopoietic activity: Ala-leu-lys - ARg-Gln-glly - ARg-THr - Leu-Tyr-GLy-phe-gly-gly

Arg-Gly-Gln-Arg-Lys-Leu-Ala

Antioxidant activity: Gly-pro-Ala-GLy-pro-P * -GLy-pro-P *

Immunoregulatory activity: Pro-gly-Glu-Ala-Gly-Leu-pro-Gly-Ala-Lys

Gly-Ser-Glu-Gly-Pro-Gln-Gly-Val-Arg

Effect of Collagen peptide on Hb, RBC and WBC in mice ($\bar{X}$ ± S, n=10)

group	Hb (g / 100 ml)	RBC (x 10^9ML,$^{-1}$)	The WBC (x 10^6ML,$^{-1}$)
After building	7.3 + / - 0.85	4.31 + / - 1.05	5.24 + / - 0.66
After the delivery	10.5 + / - 0.71	10.12 + / - 0.95	9.96 + / - 0.72
Normal rat	11.3 + / - 0.62	10.50 + / - 0.85	10.65 + / - 0.68

Effects of Different Molecular weight segments of CcA peptides on Hb, RBC and

WBC in mice ($X^{-} \pm S$, n=10)			
group	Hb (g / 100 ml)	RBC (x $10^{9}ML,^{-1}$)	The WBC (x $10^{6}ML,^{-1}$)
Before dosing	7.5 + / - 0.72	4.24 + / - 0.83	5.15 + / - 0.67
1 ~ 3 kd group	9.9 + / - 0.80	9.56 + / - 0.77	9.91 + / - 0.44
< 3 kd group	10.4 + / - 0.95	10.01 + / - 1.05	10.09 + / - 0.36
< 1 kd group	8.1 + / - 0.66	5.55 + / - 0.59	6.87 + / - 0.81

Earthworm protein peptide

Digitalis is also known as earthworm. Digitalis protein peptide is the general name of many bioactive small molecule peptides obtained from digitalis protein enzymatic hydrolysis.Diglycosaurus protein peptide is a kind of food-derived oligopeptide substance with multiple biological effects and strong biological activity, which is obtained from diglycosaurus protein by compound enzyme targeted digestion and specific small molecule separation technology.

As a kind of biological preparation for anti-tumor and enhancing immune function, our dilong protein peptide is a kind of peptide substance with various biological activities such as immune activity and antioxidant activity. It was found that the peptide can significantly improve the killing activity of NK cells, enhance the phagocytosis activity of macrophages, regulate the body's non-specific immune function, and play an important role in the killing effect of activated macrophages on tumor cells.Other studies have proved that the peptide can be used to prevent the formation of thrombotic plaque in blood vessels, has inhibitory activity to the oxidative agglutination of blood, and has the anticoagulant effect on the formed thrombotic plaque.

The physical and chemical indicators

Inspection items	Quality standard
Total protein (dry base)/(g/100g)	65.0 or higher
Peptide content (dry base)/(g/100g)	30.0 or higher

Proportion of protein hydrolysates with molecular weight	80.0 or higher
Moisture/(g/100g)	8.0 or less
Ash content/(g/100g)	9.0 or less
Total number of colonies (CFU/g)	10000 or less
Coliform (MPN/100g)	30 or less
Mold (CFU/g)	25 or less
Yeast (CFU/g)	25 or less
salmonella	n=5,c=0,m=0/25g,M=0
Staphylococcus aureus	n=5,c=1,m=100cfu/g,M=1000cf

Benchmarking peptide chain:

Thrombolytic activity: ILe-val-gly-gly-ile-glu-Ala-ARg-pro-tyr

Glu-Phe-Pro-Trp-Gln-Val-Ser-Val-Arg-Arg-Lys-Ser-Ser-Asp

Antibacterial activity: Ala-met-val-ser-ser

Ala-Met-Val-Gly-Thr

Results of thrombus prevention effect of compound product of Dilong protein peptide and its pure peptide on treated zebrafish (n=10)

group	The concentration of (including g/mL)	Cardiac red blood cell staining intensity (pixels) (mean ± SE)	Prevention of thrombosis (%)
Normal control group	-	1641-41	-
Model control group	-	693 + 48	-
aspirin	25	1247 + 83 * * *	58 * * *
Low molecular weight heparin	C/200	1410 + 69 * * *	76 * * *

calcium injection			
Dilatine compound 1#	450	1486 + 83 * * *	84 * * *
Dilongpeptide compound 2#	450	1431 + 83 * * *	78 * * *
	Low dose	1154-37 * * *	49 * * *
Pure peptide	The dose	1261-37 * * *	60 * * *
	High dose	1475 + 81 * * *	82 * * *

Effects of different treatments on activated thrombin time and fibrinogen concentration of carrageenan induced thrombus in rats ($X^{-} \pm S$, n=42)

group	Dose (mg/kg)	APPT		FIB	
		Time (s)	Elongation rate (%)	Concentration (g/L)	Coefficient of decline (%)
Vermis kinase group	61.73	20.3	22.9	2.41	30.1
Aspirin group	7.72	31.5	89.8	1.79	48.1
Low dose group	-	24.9	50	2.199	50
Dose group	-	26.6	60.2	2.65	23.2
High dose group	-	25.2	51.8	2.23	35.4
Normal saline group	-	16.6	0	3.45	0

Prevention group	-	24.5	47	2.1	39.1

Effects of Digitalis protein peptide on NK cells and Macrophages activity ($\bar{X} \pm S$, n=12)

group	Dose (mg/ml)	NK	macrophages
Blank control group	-	4.10 + / - 1.20	0.13 + / - 0.03
Digitalis protein peptide group	0.1	13.24 + / - 1.51	0.18 + / - 0.03
	0.5	17.56 + / - 1.80	0.15 + / - 0.06
	1.0	19.63 + / - 2.05	0.16 + / - 0.05

Spirulina oligopeptides

Spirulina is a genus of cyanophyta, oscillatoria, containing vitamins, trace elements and essential amino acids and other nutrients, including protein content as high as 60% ~ 70%, consists of 18 kinds of amino acids, and contains all eight kinds of essential amino acids, and the reasonable proportion, were identified as the world health organization (who) one of the most high quality super food in the world.

The oligopeptide of Spirulina chinensis is a kind of foodborne bioactive peptide substance with multiple biological effects, which is produced by the compound enzyme targeted digestion and specific small molecule separation technology.At present, antioxidant peptides, ACE inhibitory peptides, bacteriostatic peptides, anti-tumor peptides, immunomodulatory peptides and other functional fragments have been successfully extracted from spirulina protease hydrolysates.It was found that various components of spirulina oligopeptide could inhibit the growth of hepG-2 and McF-7 cells.Other studies have shown that spirulina oligopeptide has a good scavenging ability of DPPH free radical, and can participate in the regulation of human immune function, improve and maintain the human immune system.

The physical and chemical indicators

Inspection items	Quality standard

Total protein (dry base)/(g/100g)	60.0 or higher
Peptide content (dry base)/(g/100g)	50.0 or higher
Proportion of protein hydrolysates with molecular weight	70.0 or higher
Moisture/(g/100g)	7.0 or less
Ash content/(g/100g)	8.0 or less
Total number of colonies (CFU/g)	n=5,c=2,m=100,M=10000
Coliform (MPN/g)	0.92 or less
Mold (CFU/g)	25 or less
Yeast (CFU/g)	25 or less
Lead (in Pb) mg/kg	2.0 or less
Pathogenic bacteria (Salmonella, Staphylococcus aureus)	0/25 or less g

Benchmarking peptide chain:

Anticancer activity: Ala-gly-Gly-Ala-Ser - LEu-LEu-LEu-LEu-ARg

Leu-Ala-Gly-His-Val-Gly-Gly-Val-Arg

His-Val-Leu-Ser-Arg-Ala-Pro-Arg

Antibacterial activity: ASP-ALa-VAL-ASN-ARG

Met-Met-Leu-Asp-Phe

Inhibitory effect of Spirulina oligopeptide at Different Molecular weight range on HEPG-2 hepatoma cells in vitro ($X^{-}\pm S$,n=4) (%)

Concentration/(μg/mL)	31.25	62.5	125	250	500	IC50 alue concentration
< 3 kd	37.88 + / - 0.011	56.72 + / - 0.009	73.19 + / - 0.012	83.37 + / - 0.014	92.54 + / - 0.010	47.67

3KD~5KD	30.18 + / - 0.006	50.24 + / - 0.008	77.20 + / - 0.011	88.38 + / - 0.013	93.97 + / - 0.017	61.65
5KD~10KD	21.07 + / - 0.005	43.28 + / - 0.012	64.31 + / - 0.011	77.10 + / - 0.015	96.70 + / - 0.008	79.44
5-fluorouracil control group	33.77 + / - 0.008	61.05 + / - 0.028	73.60 + / - 0.027	84.54 + / - 0.023	88.06 + / - 0.034	45.55

Effects of Spirulina oligopeptide on NK cell Activity and Humoral immune Function in mice ($X^{-} \pm S$)

group	Number of animals (only)	NK cell activity (%)	Antibody producing cell	Serum hemolysin
			Number of hemolytic plaques $(\times 10)^3$Whole spleen)	Antibodies to the accumulation of
The control group	10	11.00 + / - 2.84	4.25 + / - 0.76	48.2 + / - 9.8
Low dose group	10	13.55 + / - 7.88	4.47 + / - 1.02	45.7 + / - 4.5
Dose group	10	16.36 + / - 2.33	5.28 + / - 1.12 * *	48.8 + / - 6.8
High dose group	10	18.98 + / - 8.79 * *	5.93 + / - 1.65 * *	52.5 + / - 8.8

Cartilage extract

Our cartilage extract is a kind of high activity and small molecule functional substance obtained from chicken breast cartilage by compound enzyme gradient directed enzyme digestion and specific small molecule separation technology. Cartilage extract is high in small biological molecules chondroitin sulfate, which can be used to repair soft tissue injury of joint, promote the secretion and metabolism of synovial fluid in joint cavity, and have significant improvement effect on various joint diseases.Other studies have shown that cartilage extract has scavenging ability on hydroxyl free radical, superoxide anion free radical and DPPH free radical, can inhibit lipid peroxidation reaction, directly remove reactive oxygen free radical, and activate the body's own internal antioxidant defense system.

The physical and chemical indicators

Inspection items	Quality standard
Total protein (dry base)/(g/100g)	60.0 or higher
Chondroitin sulfate/(g/100g)	20.0 or higher
Fat (dry base)/(g/100g)	2.0 or less
Moisture content (%)	10.0 or less
Ash content (%)	8.0 or less
Total number of colonies (CFU/g)	5000 or less
Coliform (MPN/g)	0.92 or less
Mold (CFU/g)	25 or less
Yeast (CFU/g)	25 or less
Lead (in Pb) mg/kg	2.0 or less
Total arsenic (As) mg/kg	1.0 or less
Pathogenic bacteria (Salmonella,	May not be detected

Benchmarking peptide chain:

Osteogenic growth activity: Tyr-GLy-PHE-GLy-Gly

Osteoporosis improvement activity: Gly-GLY-AlA-Pro, Met-Pro-Lys-Tyr-ALA

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Effects of cartilage extract on the activities of glutathione peroxidase and catalase in mouse liver and brain tissues ($\bar{X} \pm S$, n=40)

group	Liver tissue		Brain tissue	
	Gsh-px (NU)	U/mgport (CAT)	Gsh-px (NU)	U/mgport (CAT)
The normal group	325.90 + / - 26.56	47.61 + / - 6.11	8.79 + / - 1.12	5.50 + / - 1.09
Model group	291.31 + / - 30.52	40.12 + / - 7.98	6.12 + / - 0.88	4.20 + / - 0.93
Low dose group	360.35 + / - 25.31 * *	50.23 * 2.65 mm	8.10 * 0.41 mm	5.05 + / - 0.55
High dose group	375.68 + / - 22.76 * *	55.72 + / - 3.43 * *	15.65 + / - 1.68 * *	5.61 + / - 0.34 * *

Effects of cartilage extract on body weight and tumor growth in mice transplanted with S-180 sarcoma ($\bar{X} \pm S$, n=40)

group	Dose (mg/Kg)	Weight (g)		Tumor weight (g)	IR(%)
		start	The end of the		
The control group	-	18.77 + / - 1.12	24.45 + / - 1.51	0.90 + / - 0.08	-
cyclophosphamide	28	18.95 + / - 1.23	21.00 + / - 0.99	0.27 + / - 0.11	70.61
Cartilage extract	6	18.88 + / - 0.89	24.24 + / - 1.57	0.51 + / - 0.17	43.14
	28	18.89 + / -	24.28 + / -	0.35 + / - 0.11	60.78

		1.03	1.34		
	110	18.68 + / - 1.04	23.29 + / - 1.20	0.33 + / - 0.10	63.58

In the food are celebrating the development of enterprises

In 1997, the industrial transformation of bioactive peptides was first carried out in China

In 2001, the scientific research pilot workshop was built

In 2002, the foundation was laid to construct a large-scale workshop for industrial production of bioactive peptides

In 2003, the first large-scale production factory of soybean protein peptide was built in China

Drafted the first domestic protein peptide industry standard (soybean peptide QB/T2653-2004) in 2004

In 2005, it became the largest protein peptide manufacturer in China with an annual output of 5000 tons of soybean peptide raw materials

In 2009, the company obtained the first soybean peptide production license in China

In 2011, it won the first prize of Science and Technology Progress Award of State Light Industry Federation

Awarded AAA certificate of quality credit by China Product Quality Association

In 2012, it was identified as shandong Plant polypeptide Engineering Technology Research Center

The company's albumin peptide production patent won the third prize of Shandong Provincial Patent and Intellectual Property Office

In 2014, it was identified as Shandong Bioactive peptide Engineering Laboratory

Agracin peptide won the silver award in the 42nd Geneva International Innovation and Invention Exhibition

In 2015, the company's corn oligopeptide production patent won the third prize of Shandong Provincial Patent And Intellectual Property Office

In 2016, the "Tianjiu - Flinders Microalgae Project Joint Laboratory" was established with Flinders University, Australia.

It has been identified as the "Food safety Shandong" food production demonstration enterprise in Shandong Province

In 2018, it was approved to undertake the project of "Introduction of talents in urgent need of Western Economic Uplift Belt" in Shandong Province

In 2019, it was identified as "Shandong Province Rural Revitalization Expert Service Base"

Won the "Outstanding Award of China Private Science and Technology Progress" by China Private Science and Technology Promotion Association

In 2020 to complete the international FSSC22000 quality standard system certification;

To build an intelligent health care product production workshop, and apply for approval of more than ten blue hat products with jian brand name.

In 2021, it won a number of domestic and international invention patents in China, the United States, Australia and other countries.

Apply and develop bioactive peptide nutrition science, promote human health, and build a well-known brand in the whole industry chain of Bioactive peptide in China!

High standards and strict requirements to ensure the production of high-quality products, to create the industry's best quality biological active peptide "raw material supplier" brand.

Professional and efficient to provide high-quality value-added services, to create the industry's best quality biological active peptide "OEM" brand.

Scientific rigor for high-quality formula design, to create the industry's best quality biological active peptide "ODM Maker" brand.