The Most "OCEANABLE" Corporation

Conducts grouper breeding and biotechnology product R&D through high-tech

www.tekho.com.tw

TMBIO
Tekho Marine Biotech

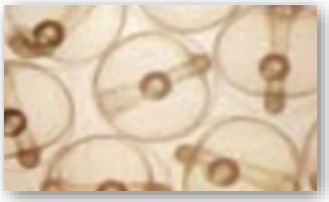
Breeding Strategy

1. Rich bank of fishes
   - Exclusive fish farm (implant management)

2. Artificial breeding technique of own species fish.

3. Grouper sperm freezing technology.
   (university–industry cooperation)

4. Establish sperm bank of excellent fish for scientific management.
   (super low temperature of storage equipment)



R&D advantages of the industry

A・R&D staffs specialize in professional backgrounds of aquaculture, biomedicine, food nutrition and patent affairs.

B・One-stop breeding experience（fertilized roes—adult fish）

C・Own broodfish breeding farm and adult-fishing farm.
Mass techniques of fry production.

D・Safe breeding-HACCP、TGAP、SGS

E・Aesthetic medicine product development.
International patents & trademarks.

TMBIO
Tekho Marine Biotech

TMBIO
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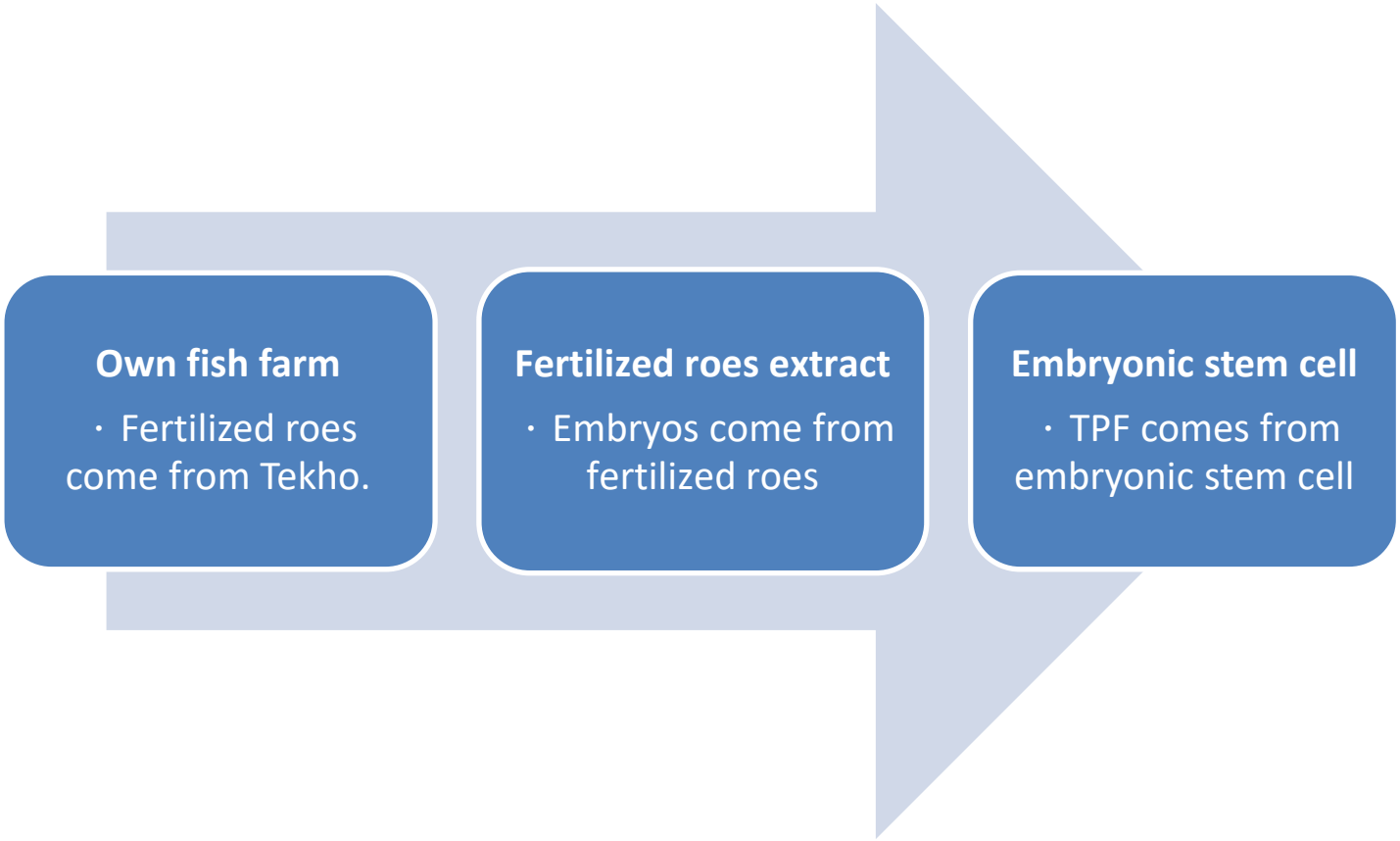


Totipotent Prostembryona Factor®

TEKHO MARINE BIOTECH TPF-C83 / TPF-H01 / TPF-88 / TPF-101

Prostembryona = (**Pro**: super)+(**Stem**: stem cell)+(**Embryona**: embryonic)

Totipotent Prostembryona Factor®

Physiological action of cells

Efficacy

Safety

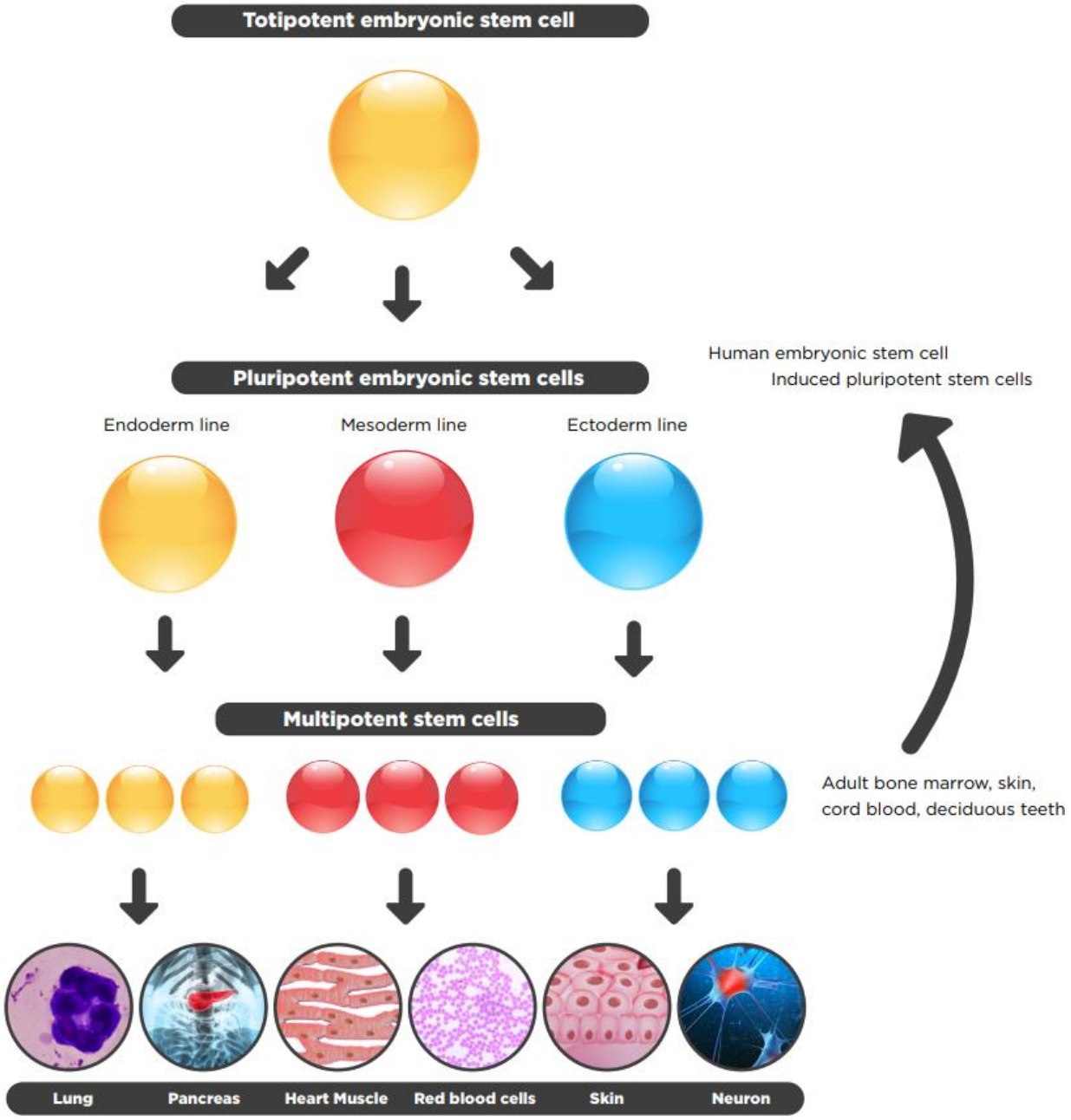
Compare with roe extract

Compare with plant stem cell extract

Method of extract

Officially launch

TMBIO
Tekho Marine Biotech

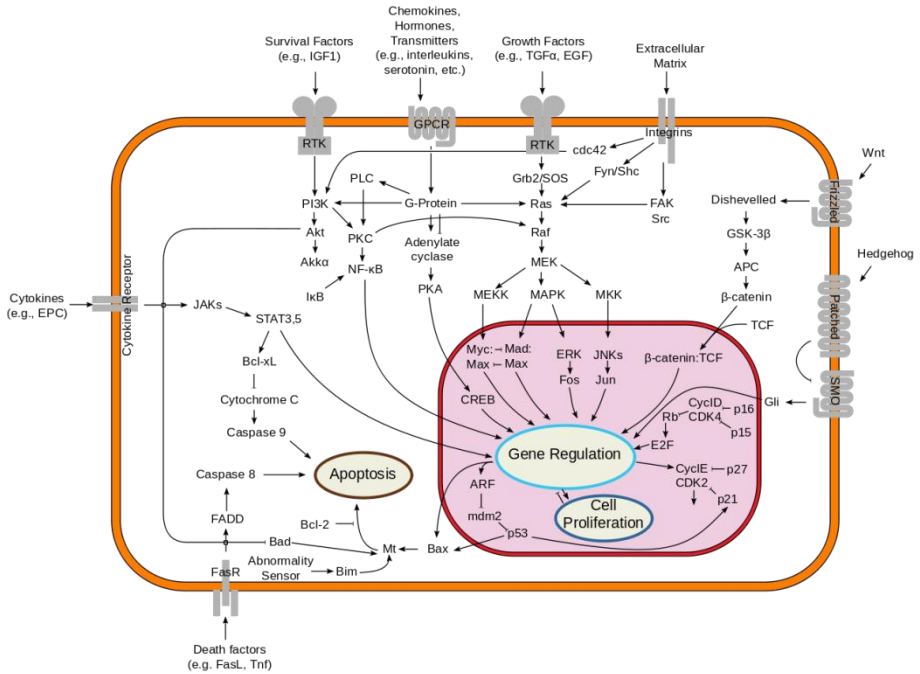


What is Totipotent Prostembryona Factor®

- Extract from embryonic stem cells of deep-sea fish species

By our exclusive cold-water extraction method, we got all kinds of peptides from embryonic stem cells, which could secrete multiple ingredients such as growth factor and cytokines that induce cell proliferation and differentiation. It is the most favorable condition to retain for the cell regeneration and differentiation of Totipotent Prostembryona Factor® .

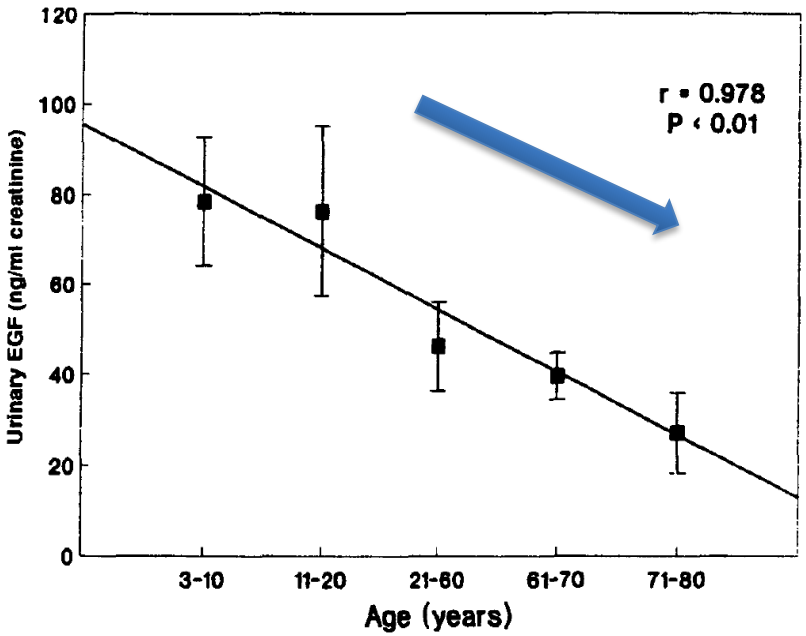
Cell signal transduction



Growth Factor decreased with increasing age

Test EGF in urine from 3-79 years old healthy male and female(70 people)a day

EGF(Epidermal Growth Factor)



Embryonic Stem cells can differentiate into other types of cells, and can also divide in self-renewal in a developing embryo. By secreting lots of peptide molecule, they can also differentiate into all the specialized cells and organs. In that case, that is the reason why embryonic stem cells are extremely precious.

— Application of TPF —

SKIN

TPF-C83 (Functional Cosmetics Raw Material)

◆It has comprehensive repair effects such as moisturizing, whitening, and delaying skin aging.

TPF-H01 (functional dressing-medical)

◆Promote the healing of burns, scalds and skin wounds.

SCALP

TPF-88 (Materials for functional hair-health products)

◆ Effectively promote hair growth and hair density.

HEALTH

TPF-101 (Functional Food Material)

◆Effectively increase the concentration of insulin-like growth factor (IGF-1) in the blood.

◆Effectively reduce the concentration of angiotensin-converting enzyme (ACE) in the blood.

◆Recognized by the Food and Drug Administration of the Ministry of Health and Welfare as edible food ingredients.

Cosmetic Ingredient

TPF-C83

What is TPF-C83

- Functional cosmetic ingredient

Features：Extracted from precious deep-sea fish fertilized roe (embryonic stem cells) through multiple low-temperature processes.

The worldwide only natural multiple ingredient (growth factors、cytokines) that used in skin care materials, which is exclusively developed by Tekho Marine Biotech Co., Ltd.

Recommended dosage：1～4%

Experiments suggest that TPF-CG01 is rich in moisturizing、whitening、anti-aging and promoting skin wound healing.

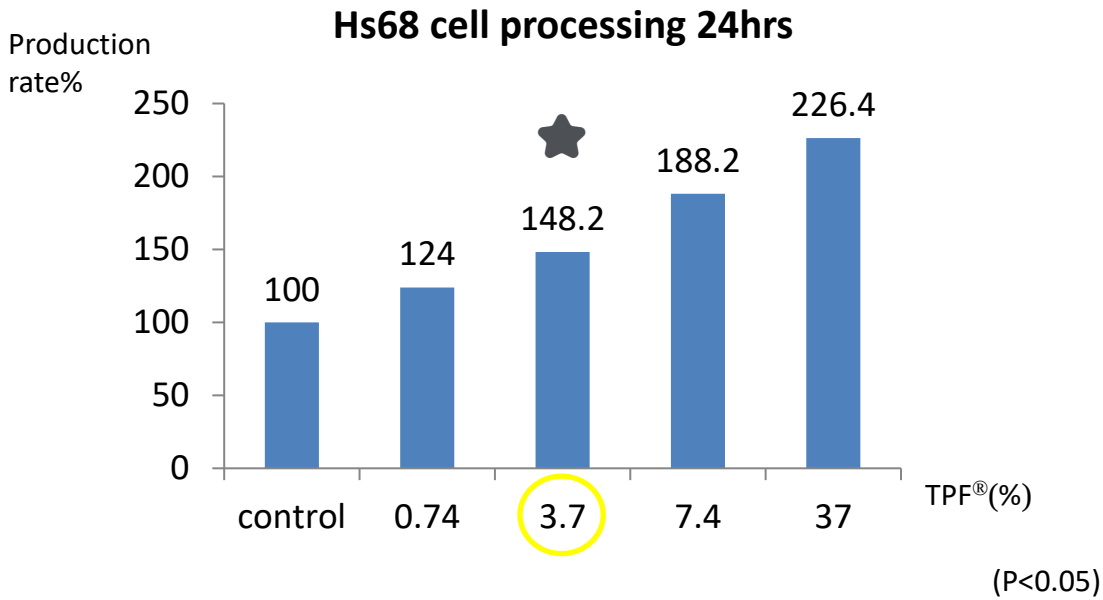
Physiological Action of Cells

- After several cell/animal model tests, we have confirmed that our products have well function on anti-oxidation, inhibition of tryrosinase activity, promoting collagen synthesis and promoting skin wound healing. In that case, TPF-CG01 possess **anti-aging** (elastic, firm, anti-wrinkle), whitening, moisturizing and accelerated-healing for all-round skin care.

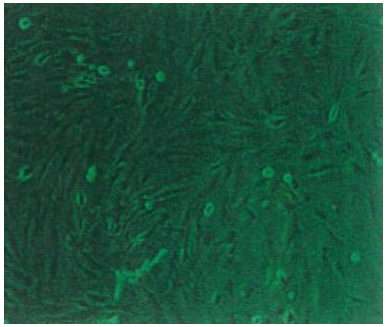
TPF-C83 in vitro/in vivo test

- DPPH：IC_{50}=2.11mg/ml
- Assessment of cytotoxicity：0.5%TPF-C83，Hs68 cells survival rate >90%
- Assessment of tyrosinase activity：0.0125%TPF-C83 with B16, inhibition rate = 23.07%

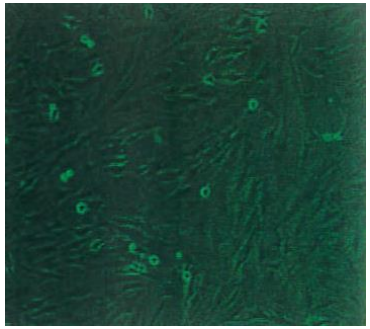
Collagen production test(Hs68)



control



37%TPF (200x)



Cells survival rate > 90%

Efficacy of TPF-C83

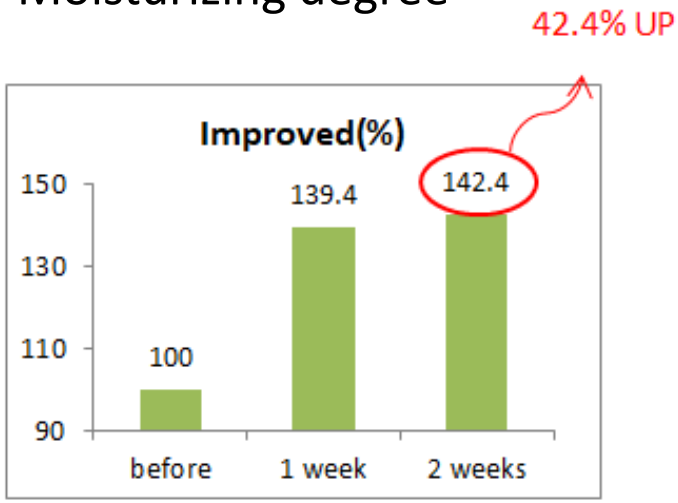
- Embryonic stem cells have the powerful ability of stimulating cell proliferation and differentiation; in addition, they have secreted multiple growth factors as well.
- We use our exclusive cold-water extraction method to get the multiple growth factors. TPF-C83 can not only act on epidermis layer but also on dermis layer, that stimulates fibroblast to secrete collagen, inhibition of melanin synthesis, and accelerated wound-healing. It shows the remarkable potential to exceed the limit of traditional cosmetic products which only act on skin epidermis layer and reach real **anti-aging** efficiency.

Human Skin Test

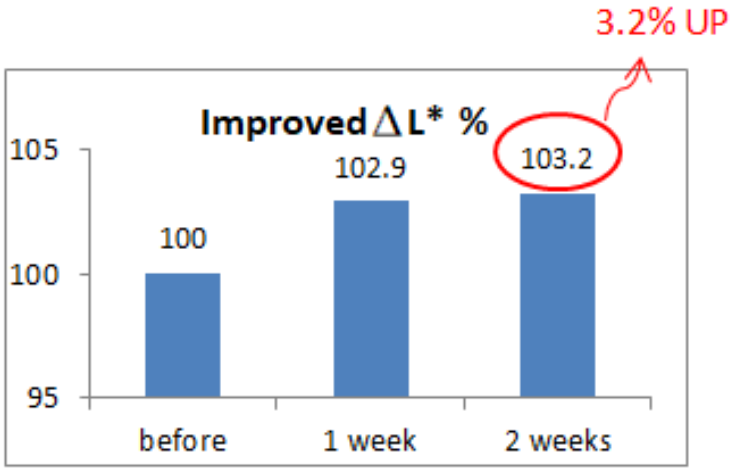
Form 1：Face Mask

- Period：2 weeks
- Frequency：1 per day
- Test Item：Improvement of moisturizing degree, elasticity and firmness

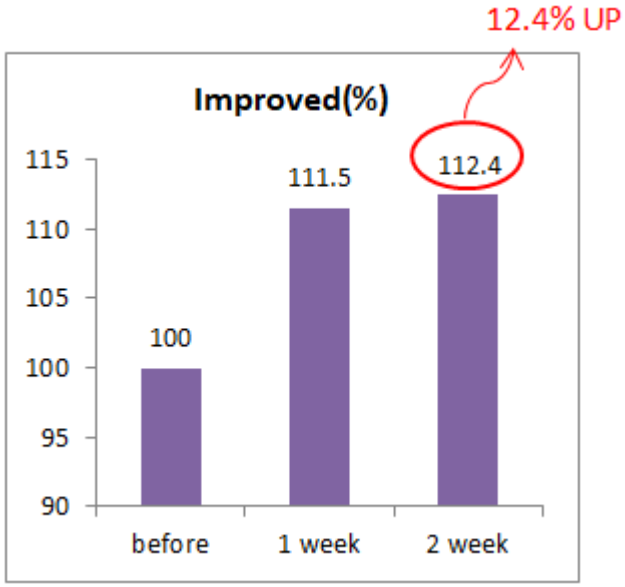
Moisturizing degree



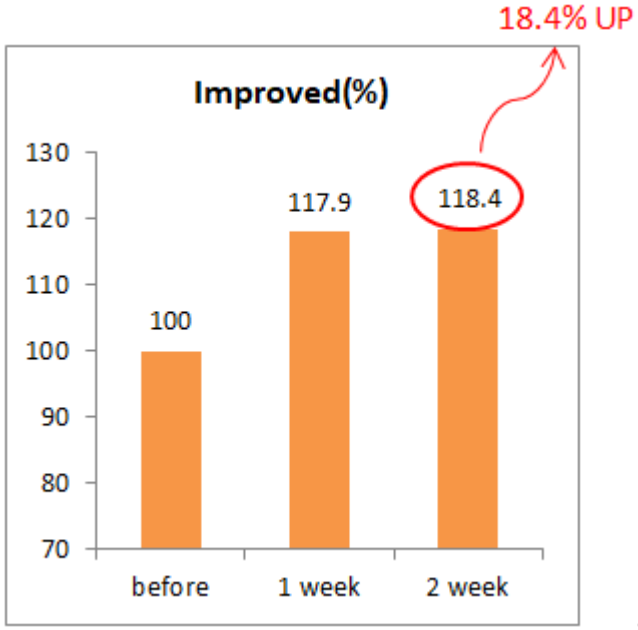
Whiteness



Elasticity

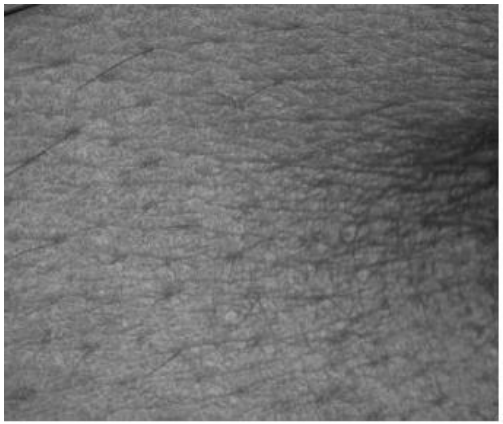


Firmness

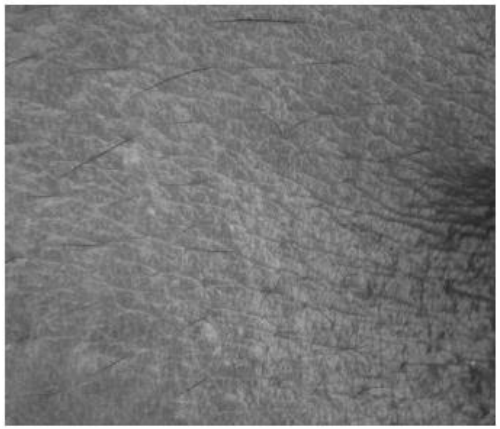


Form 2：Eye Gel

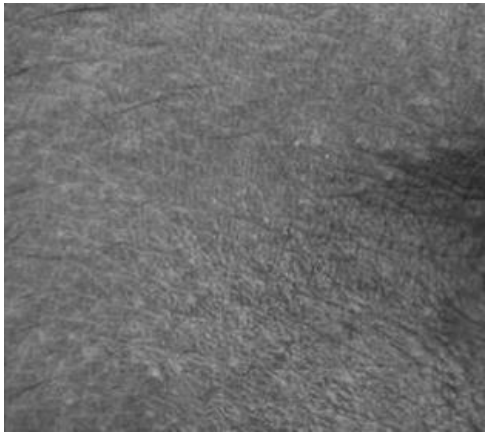
- Period：4 weeks
- Frequency：1 per day
- Test Item：Crow’s Feet



Before



2 weeks reducing 15%



4 weeks reducing 17%

Safety of TPF-C83

- Our product is naturally extracted from deep-sea fish species and solvent free during the process. According to the clinical skin patch safety test, TPF-C83 cause no itch, redness and tingling that can be **safely** applied to human skin.

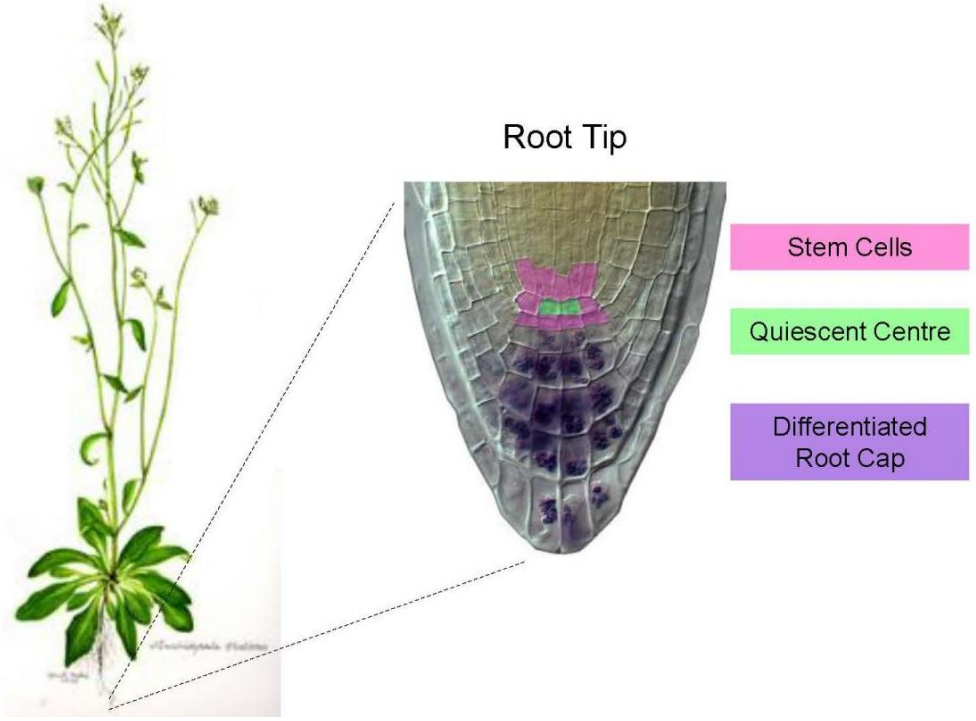
Test Item	Result
Aquaculture drug residue	Negative
Heavy Metal (As、Pb、Cd、Hg)	Negative
Total plate count	<100 CFU/g
E. coli	Negative
Assessment of cytotoxicity	safe
Skin patch safety test	safe

Comparison between TPF-C83 and Roe Extract

Item	TPF-C83	Roe Extract
From	Active fertilized roe	Inactive roe
Ingredient	Stem cells：growth factors、cytokine、peptide	protein、nucleic acid
Efficacy	moisturizing、whitening、anti-aging and promotes skin wound healing	moisturizing
Market visibility	Exclusive	common

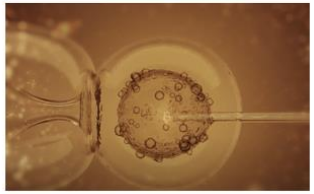
Comparison between TPF-C83 and Plant Stem Cell Extract

	TPF-C83	Plant Stem Cell Extract
From	Embryonic Stem Cell	Stem cell
Biocompatibility	Higher	General
Efficacy	Excellent	Good



TPF-C83 versus Marine Placenta

Fertilized Roe Complex Peptide



Salmon Ovary Peptide

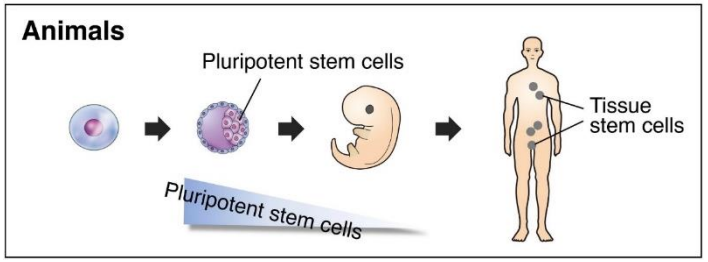
Cosmetics ingredient	TPF-C83	Plancental Protein
INCI name (Mono ID)	Fertilized Roe Extract (33531)	Placental Protein (2343)
Extracted from	Fertilized roe of deep-sea fish species	Salmon ovary membrane
Containing	Embryonic stem cell secreted: Growth Factor、Cytokines、other peptides	Amino acids、 Mucopolysaccharide
Function	Anti-oxidation Inhibit tyrosinase activity Promotion of collagen synthesis	Antioxidant action Promotion of collagen synthesis
Efficacy on skin	moisturizing、whitening、anti-aging (elasticity, firming, anti-wrinkle)、promotes skin wound healing	elasticity、texture、dark pores improvement
Improved collagen synthesis	Dependent on different TPF concentration, synthesis rate upon 24～126%	Dosage: data not show The best synthesis rate upon 26%
Kill fish in the manufacturing process	No Sustainable use Environmental protection	Yes

TPF-C83 versus Human Adipose Derived Stem Cell Conditioned Media

Cosmetics ingredient	TPF-C83	Human Adipose Derived Stem Cell Conditioned Media
INCI name (Mono ID)	Fertilized Roe Extract (33531)	Human Adipose Derived Stem Cell Conditioned Media (33641)
Extracted from	Fertilized roe of deep-sea fish species	Human adipose derived stem cell medium
Cell potency	**Totipotent** stem cell (High level)	**Multipotent** stem cell (Low level)
Containg	Embryonic stem cell secreted: Growth Factor、Cytokines、other peptides	Growth Factor、Cell metabolites
Efficacy on skin	Anti-oxidation Inhibit tyrosinase activity Promotion of collagen synthesis	Promotion of collagen synthesis
Improved collagen synthesis	moisturizing、whitening、anti-aging (elasticity, firming, anti-wrinkle)、promotes skin wound healing	Anti-aging
Risk and cost	No common infectious diseases Lower cost	Common infectious diseases Higher cost

Biocompatibility with human being

- **The BEST + FIRST Choice**



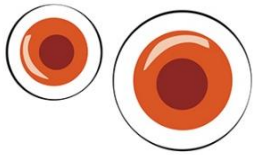
Human Stem Cell

Infectious disease and ethics

Mammals Stem Cell

Risk of zoonosis

Fish Embryonic Stem Cell

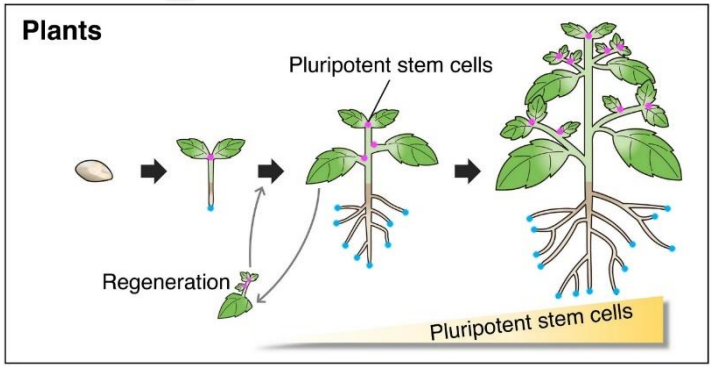


Fertilized Roe Extract

Plant Stem Cell

Roe Extract

Plant Extract



Method of extract TPF-C83

- Our product extract from stem cells of deep-sea fish species, which secreting multiple peptide. It is a **friendly biological** factory that is consistent with **sustainable use** and **environmental protection**.

Officially Launch

- TPF-C83 has been exclusively approved by the International Cosmetic Ingredient Name (INCI NAME). Above all, we have already applied for several international patents and trademarks.

MSDS-TPF

Specification-TPF

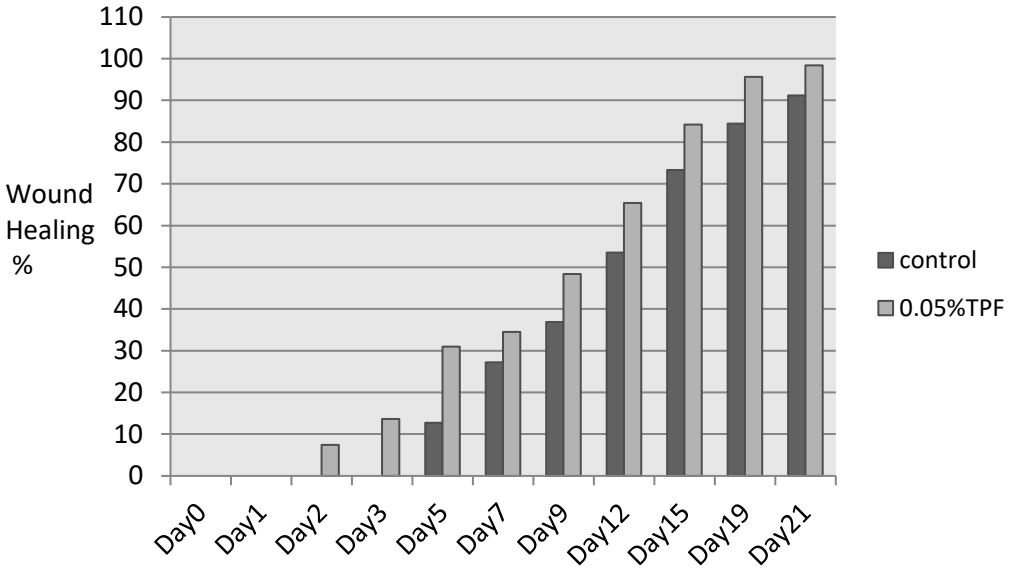
TPF-COA

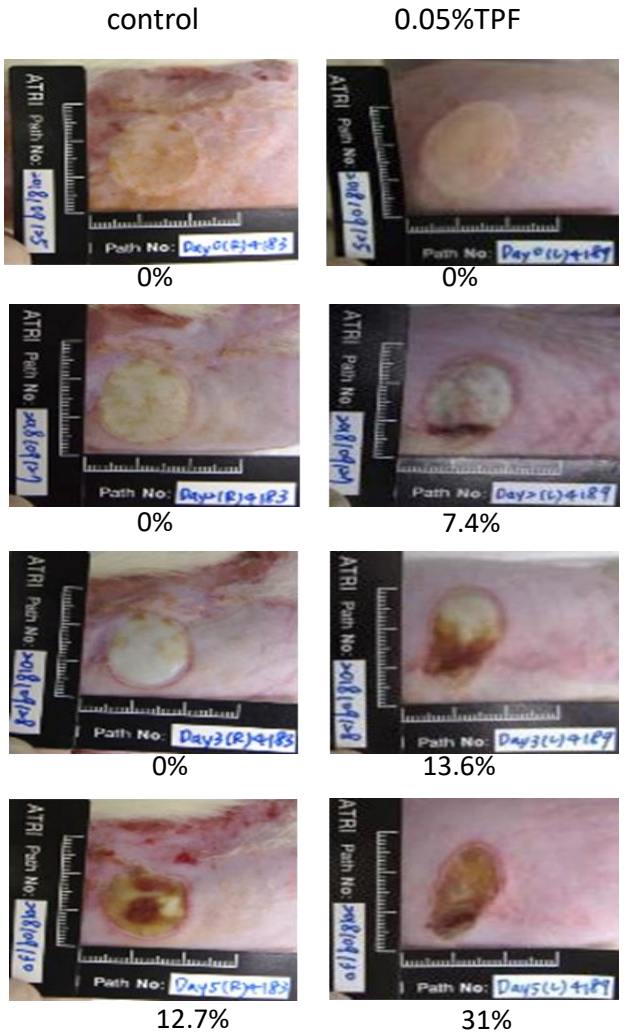
Surgical Dressing Ingredient

TPF-H01

Animal Model - Burning wound healing

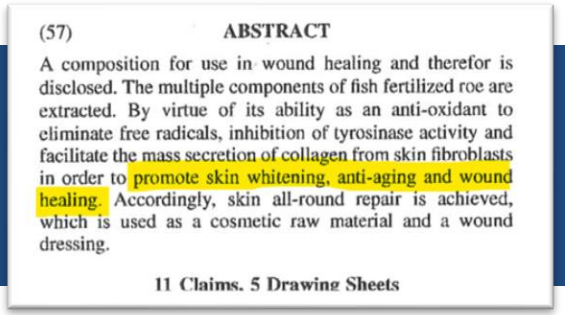
Deep Second Degree Burns
(92 ° C copper rod 12 seconds _2 cm round wound)





Promote skin wound healing 2 ~ 3 days earlier

Invention Patent

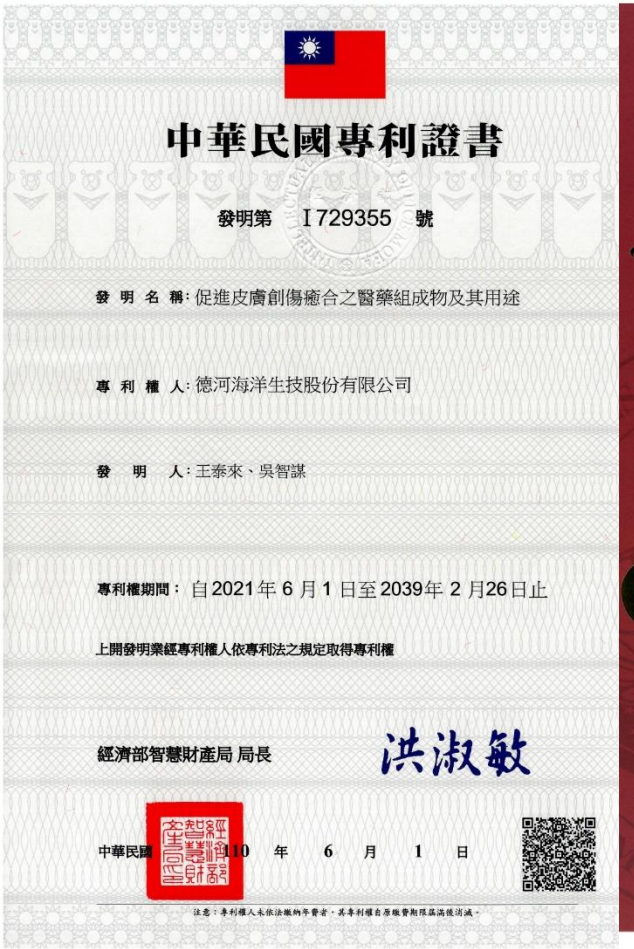


(57) **ABSTRACT**

A composition for use in wound healing and therefor is disclosed. The multiple components of fish fertilized roe are extracted. By virtue of its ability as an anti-oxidant to eliminate free radicals, inhibition of tyrosinase activity and facilitate the mass secretion of collagen from skin fibroblasts in order to promote skin whitening, anti-aging and wound healing. Accordingly, skin all-round repair is achieved, which is used as a cosmetic raw material and a wound dressing.

11 Claims, 5 Drawing Sheets

- Obtained **Taiwan, United States, Japan** invention patent of Totipotent Prostembryona Factor®: Medical composition for promoting skin wound healing and its use.



中華民國專利證書

發明第 I729355 號

發 明 名 稱：促進皮膚創傷癒合之醫藥組成物及其用途

專 利 權 人：德河海洋生技股份有限公司

發 明 人：王泰來、吳智謀

專利權期間：自2021年6月1日至2039年2月26日止

上開發明業經專利權人依專利法之規定取得專利權

經濟部智慧財產局 局長 洪淑敏

中華民國 110 年 6 月 1 日

注意：專利權人未依法繳納年費者，其專利權自原繳費期限屆滿後消滅。

United States of America

PATENT

To Promote the Progress of Scien

The Director

of the United States Patent and Trademark Off

an application for a patent for a new and useful inv

and description of the invention are enclosed. Th

of law have been complied with, and it has been d

a patent on the invention shall be granted und

Therefore, this United States

Paten

grants to the person(s) having title to this patent the right to exclud

using, offering for sale, or selling the invention throughout the Unite

importing the invention into the United States of America, and if th

of the right to exclude others from using, offering for sale or selling t

States of America, products made by that process, for the term set for

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Maintenance Fee Notice on the inside of the cover.

Director of the United States Patent and Trade

特 許 証

(CERTIFICATE OF PATENT)

特許第6912830号

(PATENT NUMBER)

発明の名称 (TITLE OF THE INVENTION) 医薬組成物の製造方法とその医薬組成物

特許権者 (PATENTEE) 台湾臺南市７０８４１安平區世平路１３６號
国籍・地域 台湾
德河海洋生技股ふん有限公司

発明者 (INVENTOR) 王 泰來
吳 智謀

出願番号 (APPLICATION NUMBER) 特願2019－117005

出願日 (FILING DATE) 令和 1年 6月25日(June 25, 2019)

登録日 (REGISTRATION DATE) 令和 3年 7月13日(July 13, 2021)

この発明は、特許するものと確定し、特許原簿に登録されたことを証する。
(THIS IS TO CERTIFY THAT THE PATENT IS REGISTERED ON THE REGISTER OF THE JAPAN PATENT OFFICE.)

令和 3年 7月13日(July 13, 2021)

特許庁長官 (COMMISSIONER, JAPAN PATENT OFFICE) 森 清

Scalp Care Ingredient

TPF-88

What is TPF-88™

- Functional scalp care ingredient

Features：Extracted from precious deep-sea fish fertilized roe (embryonic stem cells) through multiple low-temperature processes.

The worldwide only natural multiple ingredient (growth factors、cytokines) that used in hair care materials, which is exclusively developed by Tekho Marine Biotech Co., Ltd.

Recommended dosage：0.5 ~ 4%

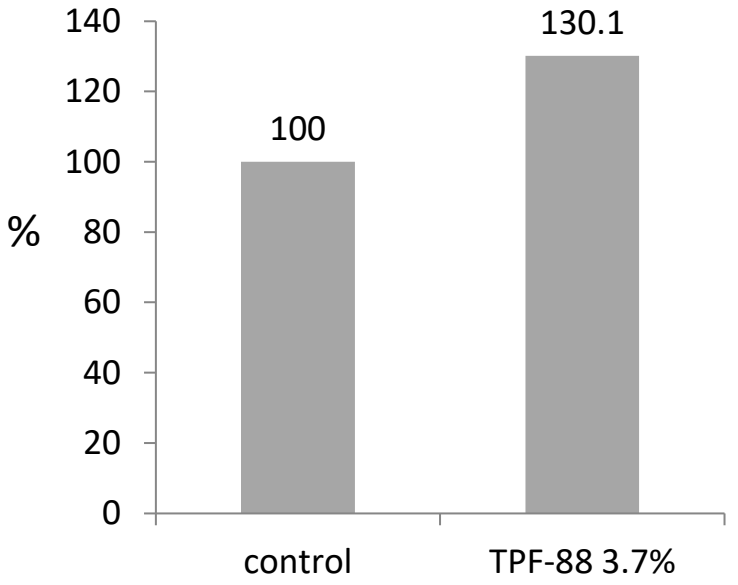
Experiments suggest that TPF-88™ has an excellent effect on promoting hair growth and thick hair.

TPF-88™ Functional Experiments

Hair growth-promoting test (Entrusted Agricultural Technology Research Institute)

Day16 Hair growth rate

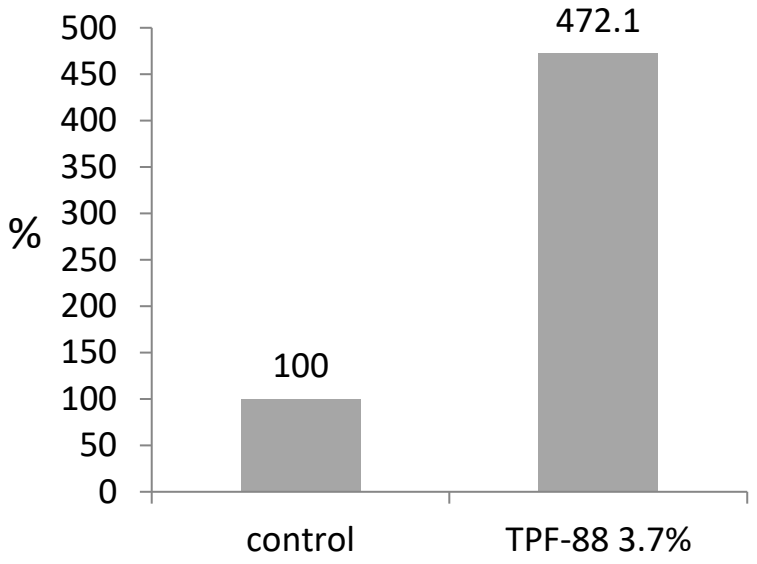
30.1% UP



P<0.05

Day8 Hair growth area

372.1% UP



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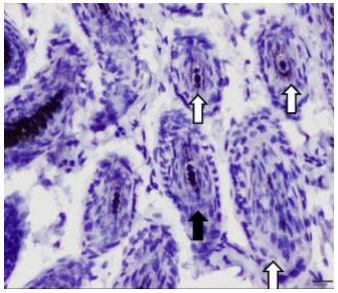
Immunostaining analysis: VEGF-A (Vascular Endothelial Growth Factor) in hair follicles and hair shafts

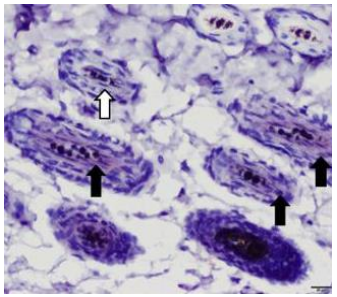
- VEGF-A is regarded as the main product that promotes hair follicle germination and inhibits apoptosis.

VEGF-A expression

control



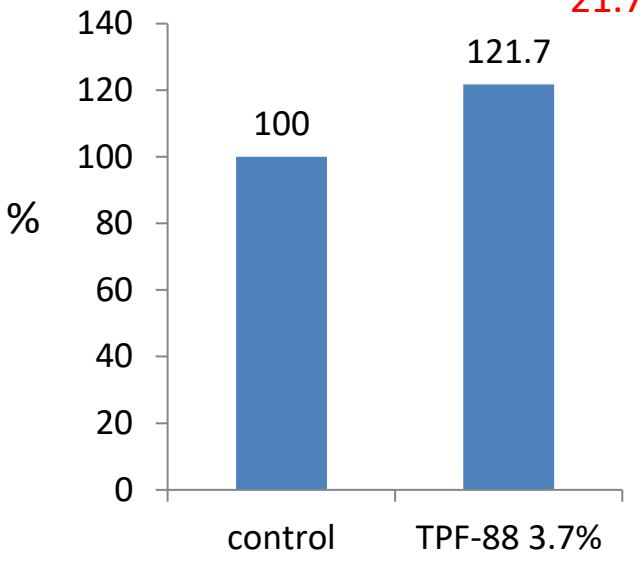
TPF-88
3.7%



White arrow: Non expressed
Black arrow: expressed

Day16 VEGF-A expression

21.7% upon



P<0.05

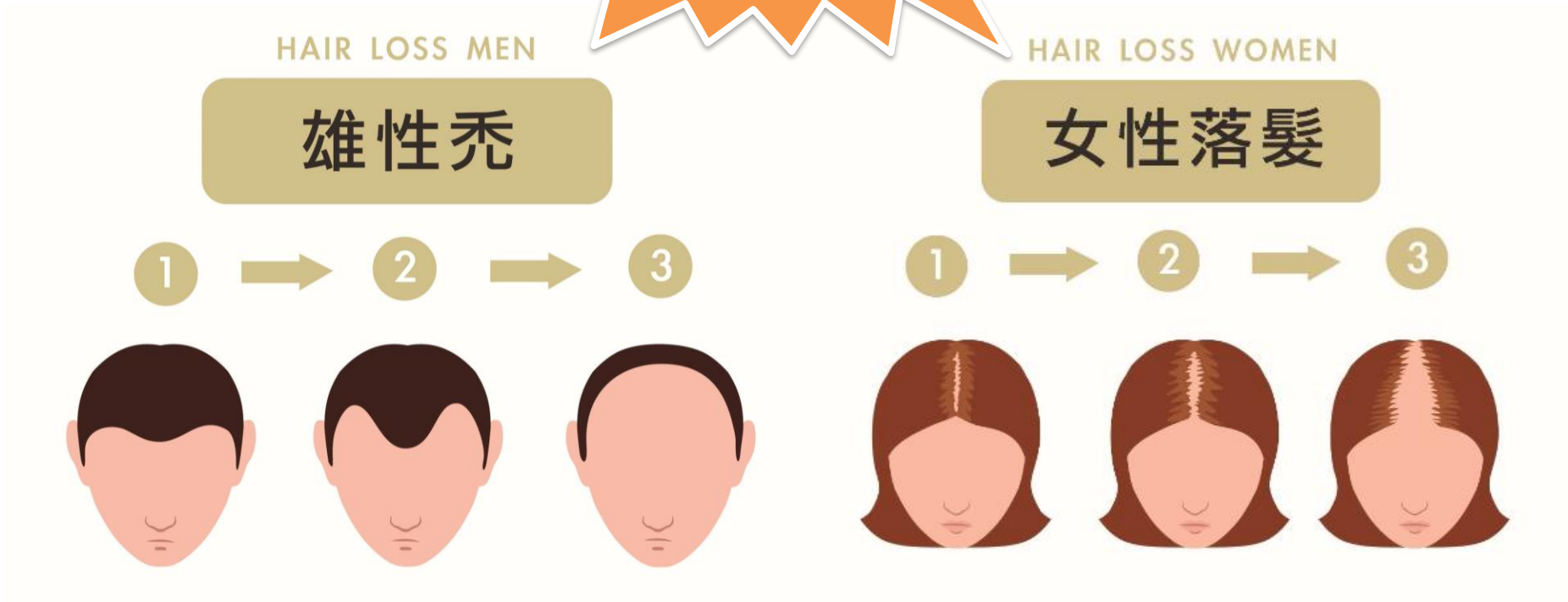
Tests confirm that TPF-88™ has the potential to stimulate hair germination

Active Efficacy

Function	Efficacy
Promote hair growth	Nourish scalp / Improve hair growth speed
Enhance hair growth area	Strong hair roots / Promote hair thickness

TPF-88™ natural extract achieve the effect of scalp care

Solve Hair Loss Problem



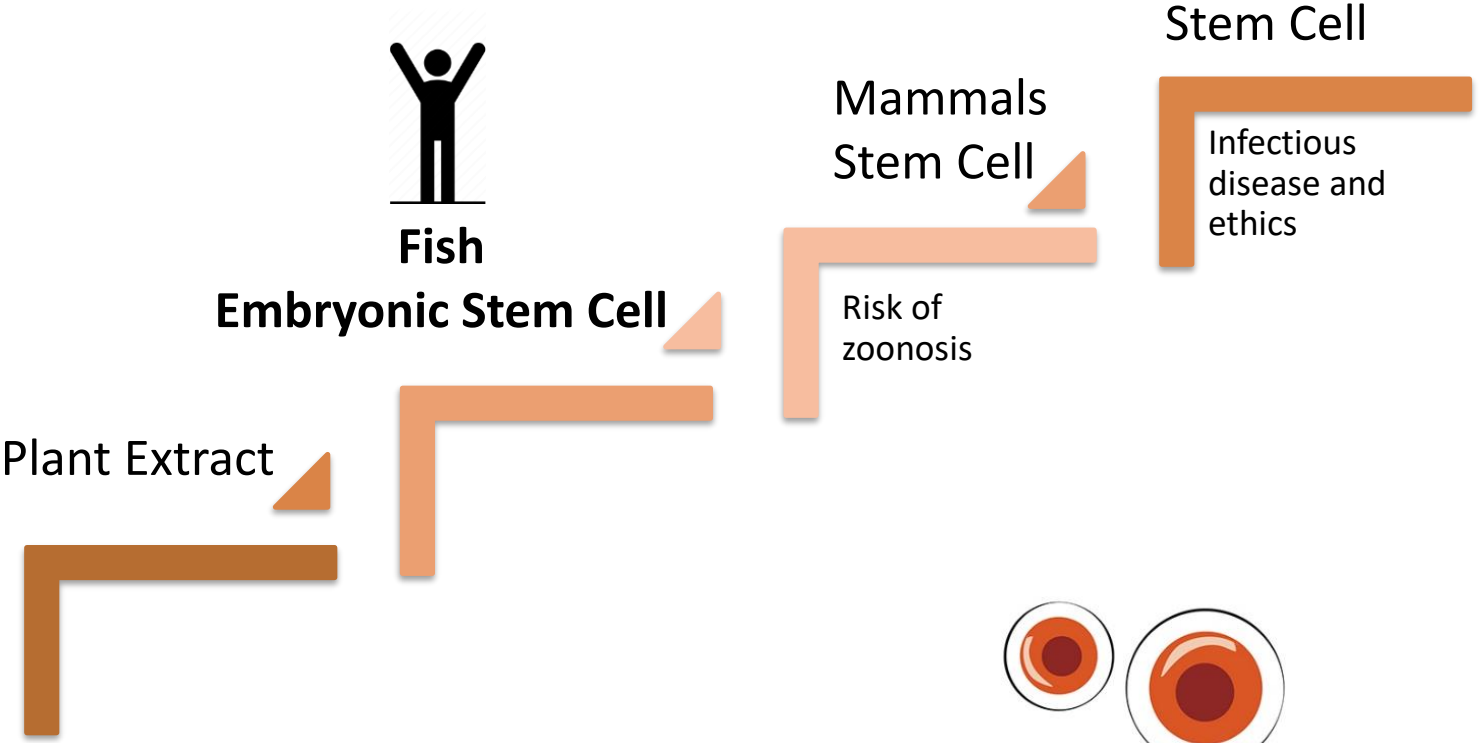
Experimental results show TPF-88™ promotes hair growth and thickness.
It has the potential to develop into scalp care products(nourish the scalp, strengthen hair roots).

Comparison between TPF-88™ and market materials

Item	TPF-88™	Caffeine / Plant Extract
From	Active fertilized roe	Chemical composition/plant extract
Ingredient	Stem cells：Growth factors、cytokine、peptide	alkaloids、vegetable protein
Efficacy	nourish scalp、promote hair growth and thickness	nourishing/scalp care
Market visibility	Exclusive	common
Price	Own price	popular price

Biocompatibility with human being

- **The BEST + FIRST Choice**



TPF-88 胚髮因子™
Fertilized Roe Extract

Officially Launch

- Totipotent Prostembryona Factor® (TPF-88™) has been exclusively approved by the International Cosmetic Ingredient Name (INCI NAME). Above all, we have already applied for several international patents and trademarks.

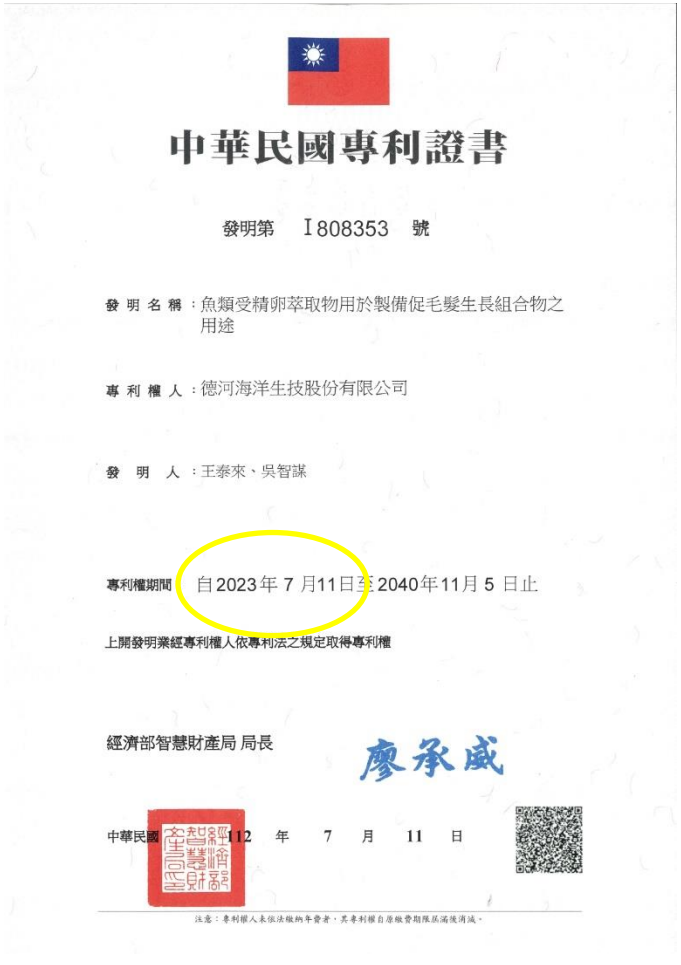
MSDS_ TPF-88™

Specification_ TPF-88™

COA_ TPF-88™

Invention Patent

- Obtained **Taiwan** invention patent of TPF-88™: method of using fish fertilized roe extract to manufacture **hair growth** composition.



中華民國專利證書

發明第 I808353 號

發明名稱：魚類受精卵萃取物用於製備促毛髮生長組合物之用途

專利權人：德河海洋生技股份有限公司

發明人：王泰來、吳智謀

專利權期間 自2023年7月11日至2040年11月5日止

上開發明業經專利權人依專利法之規定取得專利權

經濟部智慧財產局 局長 廖承威

中華民國 112 年 7 月 11 日

注意：專利權人未依法繳納年費者，其專利權自原繳費期限屆滿後消滅。

Healthy Food Ingredient

TPF-101

What is TPF-101™

- Functional food ingredient

Features：Extracted from precious deep-sea fish fertilized roe which has natural multiple ingredient (growth factors、cytokines) through biotechnology. It is a novel functional & healthy food ingredient.

Application: Can be added to functional foods as a nutritional supplement.

Recommended dosage：0.2 ~ 1 gm/daily

Animal experiments suggest that TPF-101™ has the following effects：

– Effectively increase ↑the concentration of **I**nsulin-like **G**rowth **F**actor 1 (IGF-1) in blood.

– Effectively reduce ↓the concentration of **A**ngiotensin-**c**onverting **E**nzyme (ACE) in blood.

Physiological function of IGF-1

- Pituitary gland secretes HGH (Human Growth Hormone) to stimulate liver producing IGF-1 which decreases with age.
- According to research, maintaining sufficient amount of IGF-1 can **slow the aging** process.
  ☆ Improve cell energy metabolism, build muscle mass, increase bone density, promote hair growth, improve skin elasticity, reduce fat accumulation, maintain a normal nervous system, boost the immune function etc. ☆

Physiological function of ACE

- The main physiological function is to catalyze angiotensin Ⅰ to angiotensin Ⅱ that promote vasoconstriction and increase blood pressure.

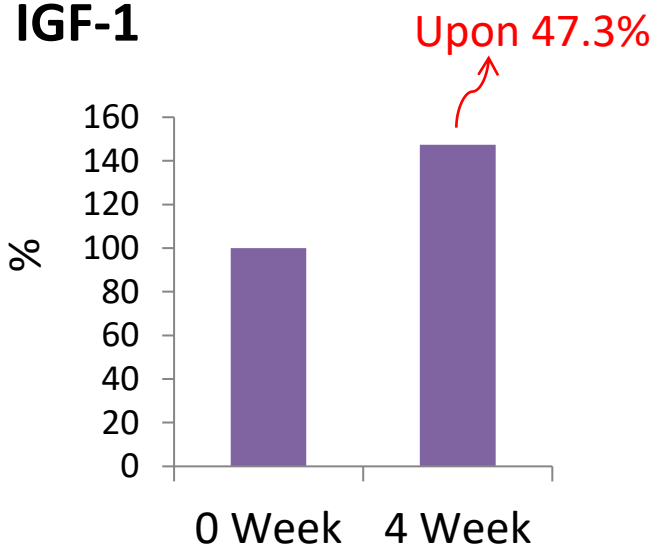
TPF-101™ Functional Experiments

Efficacy test：Anti-aging of body function (Entrusted Agricultural Technology Research Institute)

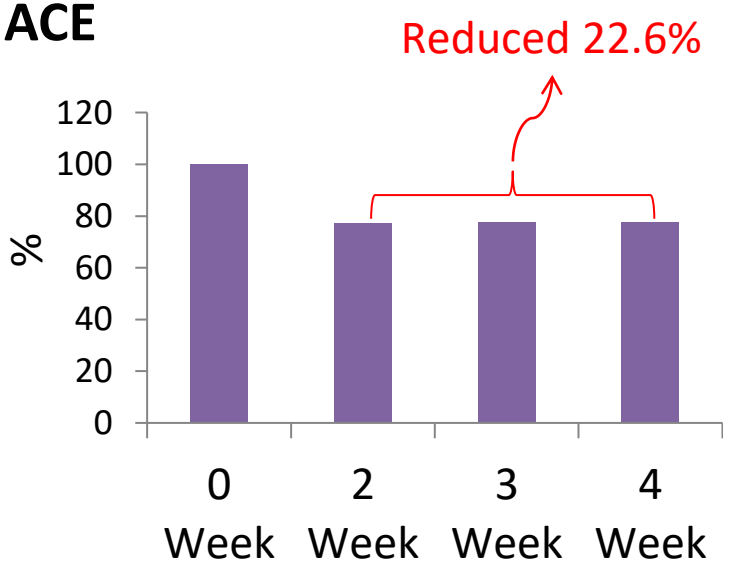
Rat feeding test

- Feeding period：4 weeks
- Biochemical Test：IGF-1【Aging-related indicators, the higher the age the lower the concentration】
  ACE【High blood pressure with aging, lower concentration can reduce blood pressure】

IGF-1



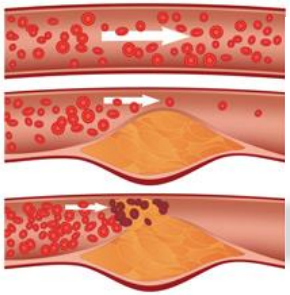
ACE

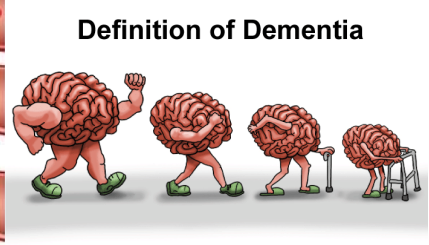


Summary：Since fertilized roe are rich in a variety of active peptides (e.g. growth factors), regular intake of TPF-101™ has the potential to **slow the aging of body functions**. After long-term intake of TPF-101™, the ACE concentration decreases (**lower blood pressure**) and reaches in a stable range.

TPF-101™ Contains Special Nutrients

Lecithin	EPA	DHA	Squalene	Sialic acid
Effectively help learning and memory. Slow down brain degeneration.	Clean blood vessels and lower blood fat.	Prevent cognitive decline and dementia.	Improve the active of SOD in your body. Enhance immunity, anti-aging and anti-fatigue.	N-Acetylneuraminic acid improve infant intelligence and memory, fight against Alzheimer's disease, improve human immunity and increase intelligence.





Active Efficacy

Function	Efficacy
Provide special nutrients	Supplement special nutrients required for body metabolism
Increase IGF-1 concentration	**Promote growth** and **slow the aging of body functions**
Decrease ACE concentration	**Lower and stabilize blood pressure**

TPF-101™ natural extract achieve the effect of healthy food ingredient

Comparison between TPF-101™ and market materials

Item	TPF-101™	Antler	Yan Wo(Bird's nest)
From	Active fertilized roe	Sambar (deer)	Birds
Ingredient	Multiple peptides (growth factors、cytokines) and special nutrients	IGF-1、hormones	EGF、sialic acid
Efficacy	Effectively increase IGF-1 in blood and reduce ACE to slow the aging of body functions	Anti-aging	Anti-aging、anti-oxidant
Market visibility	Exclusive	common	common
Particularity	The precious and necessary completed elements and cell nutrients that can form a living body	The product of species growth process (can be discarded)	The product of species excretion (discarded matter)
Risk	No specific zoonosis associated with Fish	Risk of zoonosis	

Officially Launch

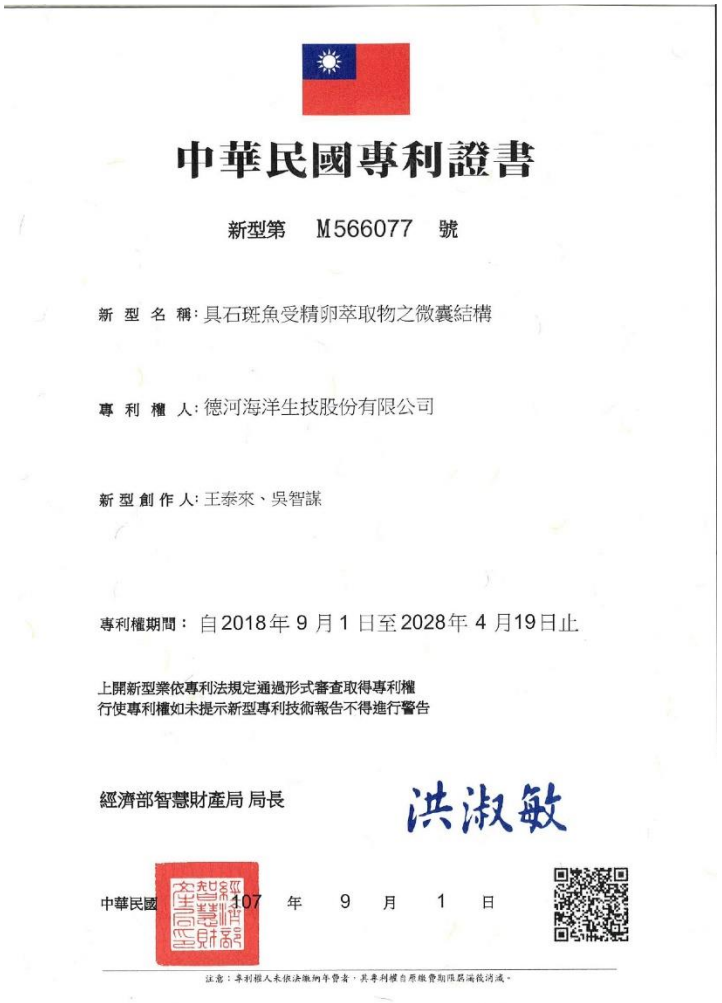
- TPF-101™ has been exclusively recognized as an edible food ingredient by Taiwan Food and Drug Administration. Related product specification sheets and COA data are all available as well.

Specification_TPF-101™

COA_TPF-101™

Invention Patent

- Obtained **Taiwan** invention patent of TPF-101™: microcystic structure of grouper fertilized egg extract.



中華民國專利證書

新型第 M566077 號

新型名稱：具石斑魚受精卵萃取物之微囊結構

專利權人：德河海洋生技股份有限公司

新型創作人：王泰來、吳智謀

專利權期間：自2018年9月1日至2028年4月19日止

上開新型業依專利法規定通過形式審查取得專利權
行使專利權如未提示新型專利技術報告不得進行警告

經濟部智慧財產局 局長 洪淑敏

中華民國 107 年 9 月 1 日

注意：專利權人未依法繳納年費者，其專利權自原繳費期限屆滿後消滅。

Product Introduction

Biotechnology Business (Aesthetic Medicine)

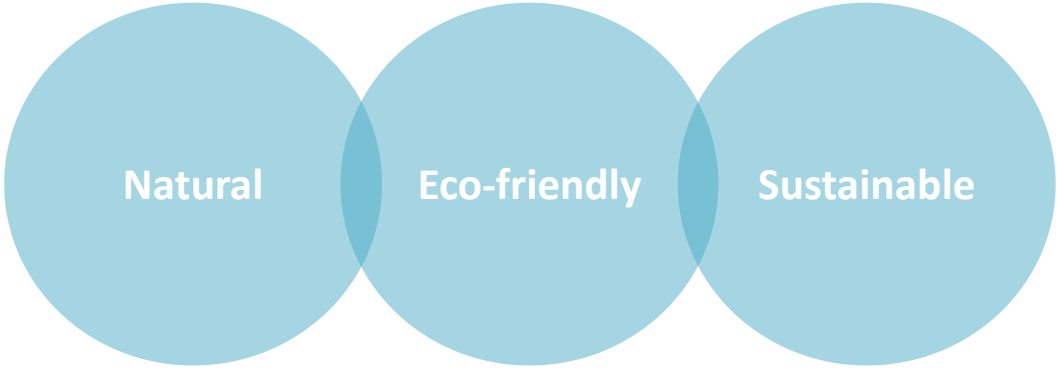
- **Bioyona** series: SKIN CARE, SUN CARE, SCALP CARE & HEALTH CARE
  - Original brand of TPF®

  Biyomena series
  - China market

- Exclusively innovated embryonic stem cell extract
  - Patent：「Totipotent Prostembryona Factor®」
  - Obtained Taiwan/USA/Japan Invention Patent
  - TPF has the well functions on moisturizing, whitening, firming lift, anti-aging.
  - TPF has the functions of enhancing IGF and lowering blood pressure in the body.
  - Promoting collagen synthesis 24~126%
  - Accelerating skin wound healing
  - Apply global patent widely and create an exquisite brand

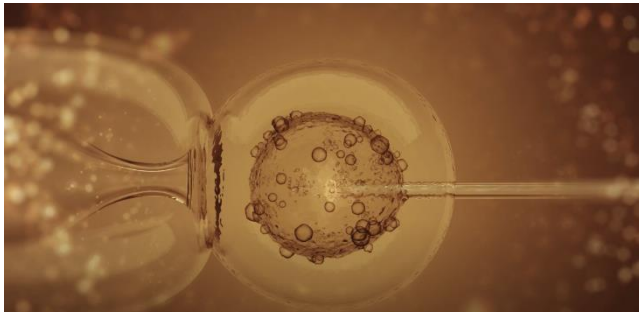
Core Value and Advantages

TMBIO
Tekho Marine Biotech



Sustainable raw materials

-It's worth noting that we own the fish farm and obtain fertilized roes. Due to sustainable goals, the extraction processes are natural and eco friendly for the purpose. Fish is not be killed which is the biggest difference from general caviar and animal raw materials.



Innovative raw material

-When it comes to organic raw materials, we must emphasize that our raw materials are different from plants ingredient in terms of efficacy and skin compatibility.

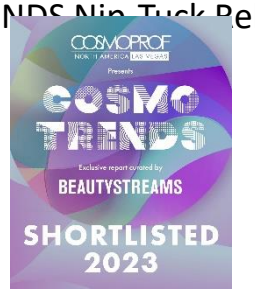
Biqyona TPF Skin Activating Treatment

Effectively solve all kinds of skin aging problems

*TPF: Totipotent Prostembryona Factor®

Company Milestones

2023……
- ◆Exhibited at Cosmoprof Asia Hong Kong 2023
- ◆Obtained **Taiwan invention patent** of **TPF**-88™ (scalp care field)
- ◆Exhibited at Cosmoprof North America 2023
- ◆"Skin Activating Treatment Serum Ampoule" shortlisted 2023 COSMO TRENDS Nip-Tuck Relief.



2022……
- ◆Exhibited at Cosmoprof Asia Singapore 2022
- ◆2022 SNQ National Quality Award (nutritional supplement)

2021……
- ◆Obtained **Taiwan** & **Japan invention patent** of **TPF** (skin care field)
- ◆Obtained **China National Cosmetics Certificate (Shanghai)**

2020……
- ◆Obtained **TPF Japanese INCI** No.21098 named by JCIA
- ◆Obtained the **U.S.A. invention patent** of **TPF** (skin care field)
- ◆2020 Monde Selection Gold Quality Award of "TPF Skin Activating Treatment Serum"
- ◆Exhibited at COSME Tech 2020 TOKYO and COSME TOKYO 2020

2019……
- ◆ Launched exclusive cosmetic ingredient **TPF** and its brand new Bioyona series products.

2018……
- ◆Obtained the patent of fishery and electricity symbiosis breeding system.
- ◆Obtained the patent of **TPF** and **INCI Name** No.33531 approved by PCPC.

2016……
- ◆Cooperation with National Museum of Marine Biology & Aquarium on "grouper sperm freezing technology".

2005……
- ◆Passed HACCP Certification and TGAP(Taiwan Good Agricultural Practice)

1965……
- ◆Establishment of Tekho Trading Co. Ltd. (Pharmaceutical Sales Agency)

THANK YOU

FAQs