

The logo consists of a white stylized drop shape containing a leaf-like element, positioned to the left of the brand name.

# PHYCOIL

**Enrich your life with our science-based innovative products**

Combining the power of novel ingredients isolated from exotic microorganisms and our proprietary Phycoil Signal Process (PSP) technology, we provide bio-active materials essential to your health and well-being.

# PHYCOIL

## ENRICH YOUR LIFE WITH SCIENCE-BASED INNOVATIVE PRODUCTS.

As a leader in industrial biotechnology, PHYCOIL commercializes plant-based omega-3 oils, food ingredients, and novel exopolysaccharides to enhance human and pet health, boost the immune system, and rejuvenate skin.

## PHYCOIL's Environmental, Social, and Governance goals align with the 17 sustainable development goals of the United Nations.



### Health and well-being

We offer sustainably produced omega-3 solutions, including DHA oil for the young and old. Our product is especially good for pregnant and nursing mothers and babies.



### Sustainable product for our environment

We strive to maintain a sustainable production process with innovative technology, actively participate in recycling and reducing waste, and design smart packaging for our products.



### Natural resource conservation

We are a socially responsible business. We use a proprietary precision industrial fermentation technology to produce novel products.

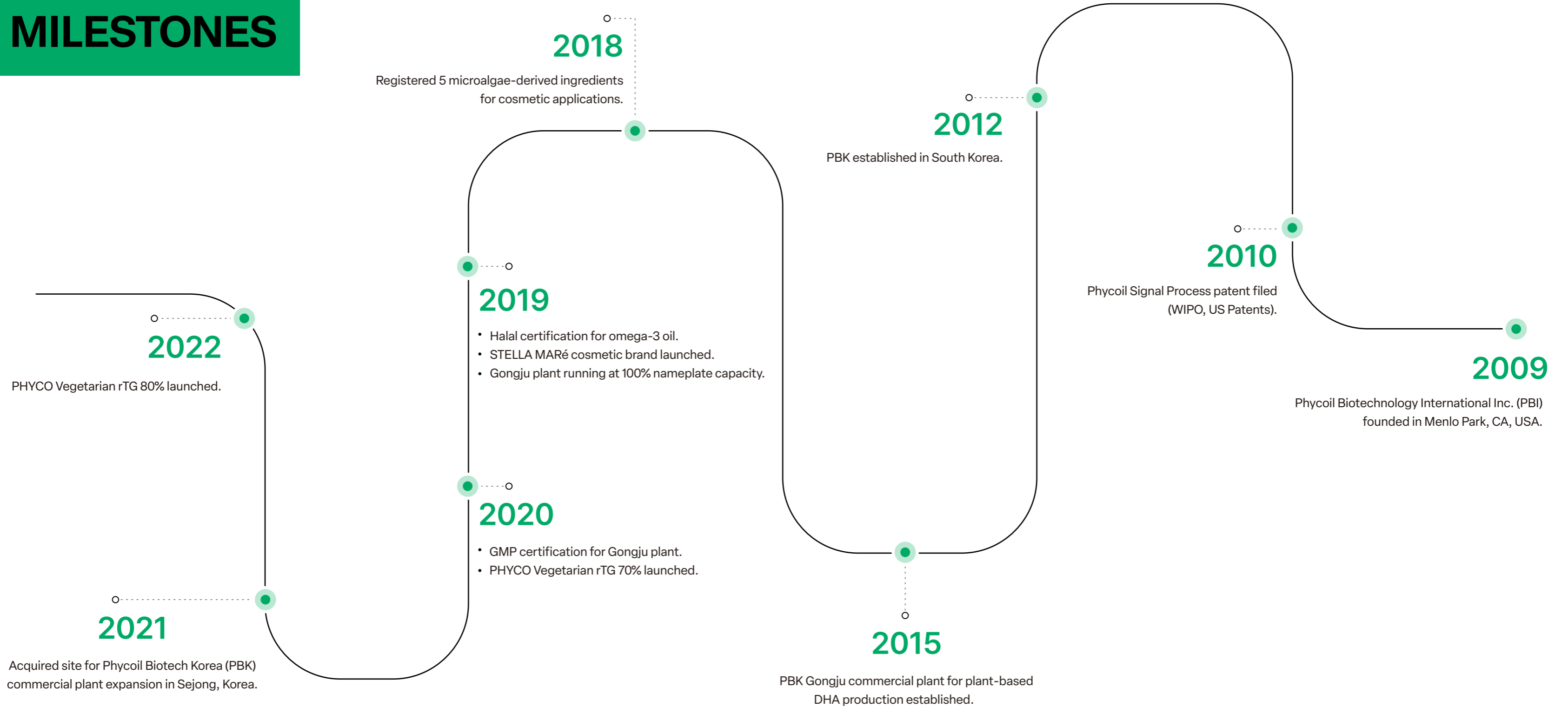


### Preservation of marine life

Microalgae are a crucial component of aquatic ecosystems, and our current raw materials originate from microalgae strains discovered in saltwater and freshwater environments. We participate in conservation activities to keep our rivers and oceans healthy.



# KEY MILESTONES

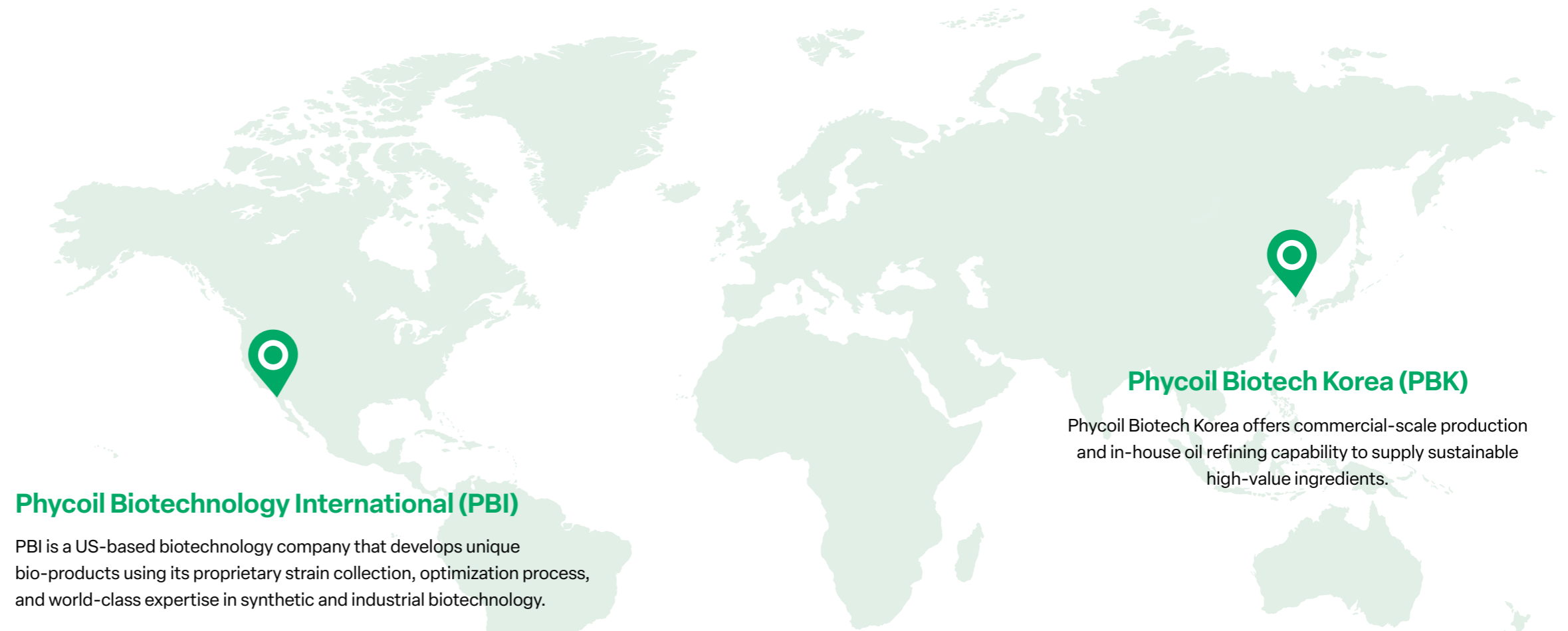


# MICROALGAE:

## An efficient single-unit factory at the core of our technology platform

Though they are small and unassuming, microalgae have long been the backbone of our land and aquatic ecosystems. These single-celled organisms are one of our planet's largest oxygen producers and the basis of the food pyramid for multiple species on earth. In the last 5-10 years, the molecular biology community has started to take notice of the potential of microalgae as a groundbreaking biotechnological platform in the development of a wide array of sustainable and high-value products.

As a trailblazer in the biotechnology sector, PHYCOIL capitalizes on the promise of these efficient microorganisms in order to produce our distinct line of environmentally friendly products for your health and well-being.

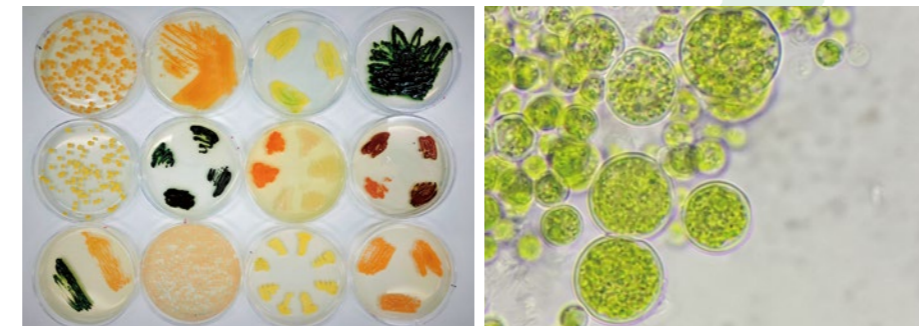


### Phycoil Biotechnology International (PBI)

PBI is a US-based biotechnology company that develops unique bio-products using its proprietary strain collection, optimization process, and world-class expertise in synthetic and industrial biotechnology.

### Phycoil Biotech Korea (PBK)

Phycoil Biotech Korea offers commercial-scale production and in-house oil refining capability to supply sustainable high-value ingredients.



### Conscious Design

We screen our microbial library to identify strains that produce either precursors or desired end products. Then, we use bioinformatics tools to understand metabolic pathways and design pilot studies to modulate the desired products.

### Pathway Engineering

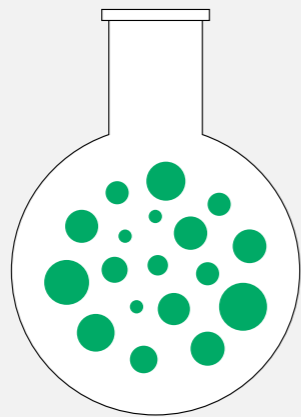
We generate strains to be used in the production of high-value products through our expertise in cell adaptation, improvement, and programming.

### Commercial Plant Expansion Plan in Sejong, Korea

- Complete, end-to-end plant-based omega-3 oil manufacturing and cGMP oil refining.
- 500 metric tons of highly purified and concentrated oil.
- GMP-certified ingredients manufacturing.
- Commercial scale fermentation, process development, and validation.
- Quality control labs.

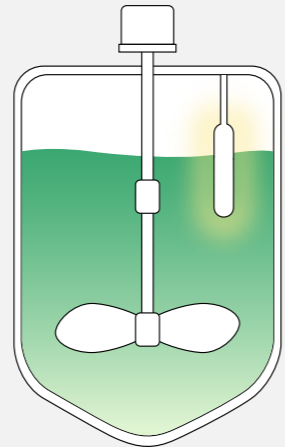


# MANUFACTURING PROCESS



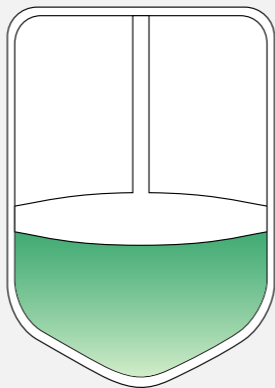
**PASS**  
Phycoil Adapted Smart Strain

Proprietary strains, isolated from nature, produce high amounts of novel product after passing through our strain evolution process.



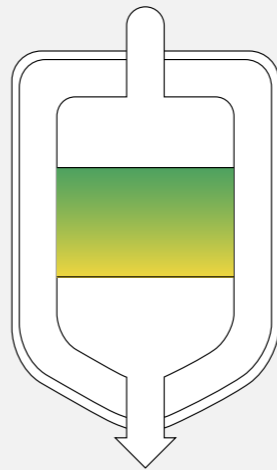
**PSP**  
Phycoil Signal Process

Higher fermentation productivity achieved by PSP.  
  
PATENT US 9932554:  
Microalgae Fermentation using controlled illumination



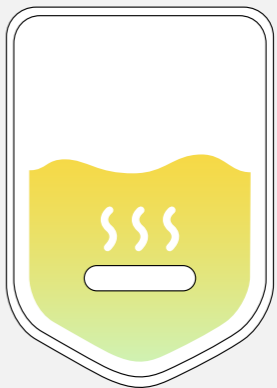
**PHET**  
Phycoil Harvest & Extraction Technology

- Not using organic solvent
- Combination know-how of various eco-friendly harvesting and extraction technologies using centrifugation, freeze drying, spray drying, supercritical extraction, etc.



**PURT**  
Phycoil Ultra-vacuum Refining Technology

In-house oil refining, concentration, and final product formulation capability.



# SOLUTIONS



01 Technology and Business Platform



02 Food Ingredients



03 Health and Well-being: PUFAs



04 Personal Care

# 01 Turn-Key Technology and Business Platform

Buoyed by the successful commercialization of our multiple plant-based omega-3 oil offerings, we provide a technology platform for the commercialization of innovative materials for various sectors.

<b>SECTORS</b>	FOOD / FEED / NUTRITION / PERSONAL CARE / MATERIALS
<b>PLATFORM AND SERVICE</b>	Strain development
	▼
	Production and Downstream process development
	▼
	Plant engineering and Regulatory
▼	
Large scale manufacturing and Commercialization	



# 02 Food Ingredients

Future products in development

## Algal Oil and Fats

- Edible oil containing a high amount of PUFAs with on-demand ratios of various fatty acids.
- Composition compatible with natural seed oils without dependence on traditional agriculture.
- Vegan fats to replace animal fats.

## Algal Flour

- Natural source for micronutrients such as vitamins and minerals.
- Vegan source for macronutrients such as proteins, fats, and carbohydrates.
- Free from allergens or intolerances such as soy, nuts, or gluten.





# 03 Health and Well-being: Polyunsaturated Fatty Acids (PUFAs)

## Pharmaceutical ingredients

Our plant-based omega-3 oil products contain high amounts of polyunsaturated fatty acids to maintain your cardiovascular, brain, and eye health.

Contents	Phyco DHA EE970	Phyco EPA EE*
EPA	< 1.0%	> 70%
DHA	> 97.0%	-
DPA	< 3.0%	-
Acid Value	Max. 1.0	Max. 1.0
Peroxide Value	Max. 5.0	Max. 5.0
Total Omega-3	> 98.0%	> 70.0%
Total PUFAs	> 99.0%	> 80.0%

*\* future product*



# 04 Personal Care

## Proprietary and novel ingredients for beauty

PHYCOIL produces nutritional oils containing novel exopolysaccharides and significant amounts of oleic, linoleic, and  $\alpha$ -linolenic acids. Our oils also have high amounts of antioxidants (lutein, zeaxanthin, astaxanthin), phytosterols, and squalene that are known to rejuvenate skin.



PROPRIETARY INGREDIENTS

### PHYCOIL Microalgae Marine Lutein Chlorella Minutissima Oil

#### Natural lutein-rich oil for your skin

Oil extracted from our natural microalgae strain contains high amounts of oleic, linoleic, and  $\alpha$ -linolenic acids that are beneficial for our overall health, including our skin and hair. This oil additionally contains a high amount of naturally occurring carotenoid, lutein. Lutein contributes a beautiful and vibrant yellow color and is a known antioxidant with photoprotective properties that are beneficial for eye and skin health. Based on in-vitro assay data, this lutein-rich oil is safe for human skin, has antioxidant and anti-aging properties, and improves skin color tones.

### Phycopolumeriderm™ Oblongichytrium sp. PB-55

#### Natural polysaccharides for anti-aging effects

Exopolysaccharides (EPS) have biological properties that can be used in pharmacology, cosmetology, and functional foods. EPS produced from our unique protist strain — isolated from estuaries in the Pacific Ocean — are effective gelling and hydrating agents, making them particularly attractive ingredients for cosmetic applications. Having analyzed in-vitro assay data, we found that our purified polysaccharide is also safe for human skin, reduces wrinkles, and promotes collagen and hyaluronic acid synthesis.

	NATURAL MICROALGAE DERIVED INGREDIENTS	DESIGNER COLOR AND OIL SERIES	NATURAL POLYSACCHARIDES
<b>Description</b>	Lutein-rich oil, extracts, and powder	Designed microalgae strain producing nutritional oil containing different colors of antioxidants	Highly purified microalgal derived polysaccharides
<b>Regulatory</b>	INCI* registered	INCI* registered	INCI* registered
<b>Trade name</b>	Phycoil microalgae marine lutein oil	PhycoZeaxanthin Oil	Phycopolumeriderm™
	Phycoil microalgae marine lutein extracts and powder	PhycoAstaxanthin Oil	
<b>Effects</b>	Hydration and Anti-aging	Hydration and Anti-aging	Hydration and Anti-aging

\* INCI - International Nomenclature of Cosmetic Ingredients

## Differentiated high quality

We provide plant-based DHA oil for food, nutraceutical, and pharmaceutical applications.



✓ PHYCO DHA® and PHYCO OMEGA-3® guarantee the source and quality of our product.



## PHYCOIL's Triple Safe Technology



### NON GMO

Naturally enhanced microalgal strain sourced from the ocean.



### NOT FISH OIL

Oil that is non-disruptive to the ocean's fragile life cycle and free from microplastics, heavy metals, and endocrine disruptors.



### NO ORGANIC SOLVENTS

Oil that is extracted using a hydrothermal process and refined at a GMP-certified facility.

## PHYCO DHA® Series Algae Omega-3 oil in various forms and concentrations

Our oil is produced and extracted from a natural strain. Certified HALAL and VEGAN. All Vegetarian.



Product Name	DHA Content	Oil Form	Application
PHYCO DHA®	min. 400 mg/g	TG [Triglyceride]	Raw material for dietary supplements, food additives, and infant formula.
PHYCO DHA® 500	min. 500 mg/g	TG [Triglyceride]	Raw material for dietary supplements, food additives, and infant formula.
PHYCO DHA® rTG 700	min. 700 mg/g	rTG [Re-esterified Triglyceride]	Raw material for dietary supplements and food additives.
PHYCO DHA® rTG 800	min. 800 mg/g	rTG [Re-esterified Triglyceride]	Raw material for dietary supplements and food additives.
PHYCO DHA® EE 800	min. 800 mg/g	EE [Ethyl Ester]	Raw material for dietary supplements and pharmaceutical applications.

We ship our products in 190 kg capacity steel drums.

# PHYTO-PLANKTON

## 4 Step *Anti-Aging* Skin Care Products

We believe the health of our Earth and our beauty are interconnected.

A clean, healthy Earth provides a nourishing environment for our skin to thrive. Continuing this cycle is essential to us, thus using our biotechnology to sustainably harvest the powerful nutrients of Phyto-plankton and infusing them into the world of beauty.



### Earth-Friendly & Skin-Friendly

STELLA MARE® was born when botanists, in a small laboratory in California, uncovered marvelous skin rejuvenation properties of 'Phytoplankton' - underwater microscopic plants that appeared first in the early days of the earth, even before land plants existed.

Realizing the potential and evolving consumer need for plant-based ingredients with potent skin restorative properties, the active ingredients from several proprietary phytoplankton were isolated, evaluated for safety and efficacy, and formulated into groundbreaking personal care products.

### 4 Step Anti-Aging Skin Care Products



<p><b>01</b> PHYTO-PLANKTON MARINE BOTANICAL HANDMADE SOAP Daily Use Cleansing Bar</p>	<p><b>02</b> PHYTO-PLANKTON ESSENCE STARTER Multi-Corrective Balancing Toner</p>
<p>Full Size 100g</p>	<p>Full Size 150ml / 5.07 fl.oz</p>



<p><b>03</b> PHYTO-PLANKTON SUPER BOOSTER Multi-Corrective Elixir Serum</p>	<p><b>04</b> PHYTO-PLANKTON PERFECT FINISHER Multi-Corrective Enrich Cream</p>
<p>Full Size 30ml / 1.01 fl.oz</p>	<p>Full Size 50ml / 1.69 fl.oz</p>

All products are dermatologically tested under the human skin compatibility evaluation test (24 hours Occlusive Patch Test): *No irritation.*

# CONTACT US



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