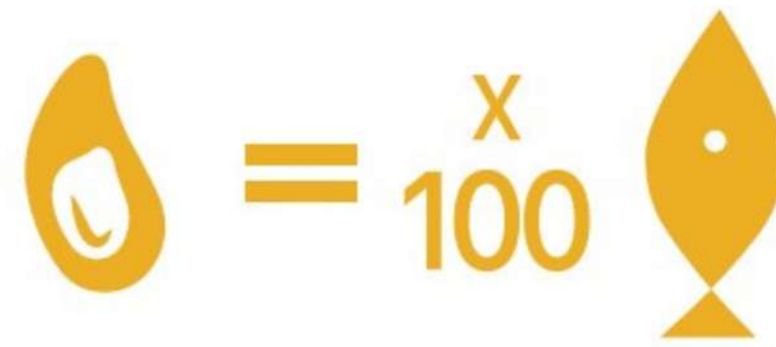




## Frequently Asked Questions

# HOW STRONG IS MUSSEL OIL COMPARED TO FISH OIL?



A clinical study showed that how GLM oil is\*:

- 100 times more potent than fish oil at reducing inflammation.
- 247 times more potent than Salmon oil.
- 3950 times more potent than Flaxseed oil.


\*Reference: Whitehouse MW, Macrides TA, Kalafatis N, Betts WH, Haynes DR, Broadbent J. Anti-inflammatory activity of a lipid fraction from the NZ Green-Lipped mussel. Inflammopharmacology 5,237-246,1997.



# WHERE DO YOUR GREEN LIPPED MUSSELS COME FROM?

Our mussels are harvested at several locations around South Island, New Zealand. Most of our mussels come from Banks Peninsula in South Island of New Zealand. This area are abundant with algae which ensures that our mussels are rich in omega-3s.



\*None of our mussels are imported from other countries.



□ Mussel farm, Banks Peninsula  
New Zealand



## WHAT IS THE DIFFERENCE BETWEEN MP POWDER AND MP OIL?

	Marine Phospholipid <b>OIL</b> 	Marine phospholipid <b>POWDER</b> 
Strength on joints	●●●●●	●●●●●
Longevity	●●●●●	●●●●●
Main benefit	Powerful joint support	Cartilage repair support
Omega-3 content	●●●●● 30+ Essential Fatty Acids Including Omega 3 (EPA, DHA, ETA & More!)	●●●●●
GAGs content GAGs (Glycosaminoglycans) is a natural substance perfect for promoting cartilage and joint health	●●●●●	●●●●●
List of ingredients	New Zealand Green Lipped Mussel Oil, Natural Olive Oil, Vitamin E	New Zealand Green Lipped Mussel Powder

**Summary:** The oil helps with the joints whereas the powder helps with the cartilage around the joints. Taking them together helps prevent joint issues and help with recovery.



# WHICH IS BETTER MP OIL OR MP POWDER FOR MY DOG?

The oil and powder are both great joint supplements. The oil helps with the inflammation in the joints and its mobility.

The MP powder is more for the cartilage around the joints, its flexibility and tensile strength. For recovery of the joint, you can take both together but if you were to choose one, oil is best and powder second as oil is more potent.

The distinction between our two products lies in their form and potency. Our MP Oil is a concentrated blend, rich in omega-3, specifically formulated to manage stronger inflammation symptoms and provide robust joint support. On the other hand, our MP Powder is a natural freeze-dried green-lipped mussel powder, ideal for daily use. With naturally occurring GAGs for cartilage and joint health, it serves as an excellent everyday option. In summary, while the MP Powder is perfect for daily support, our MP Oil is preferred for more challenging situations.





### Are there any side-effects of your products?

There are no known side-effects of taking our products, other than in the case of allergies, for example seafood allergies in case of Marine Phospholipid Oil and Powder.

### What can you recommend for a dog having hay fever?

Our Dog Honey could be a great alternative to explore. It combines our potent Green-Lipped Mussel Oil with Airborne's Honeydew Honey, providing a tasty Omega-3 supplement that supports joint health naturally. Honeydew honeys, like the one we use, are known for their low glucose and fructose content, which reduces crystallization tendencies.

### What would you recommend for environmental allergies in dogs ?

For environmental allergies in dogs, we recommend our algae oil, which is known for its benefits to skin, coat, and fur health. However, the effectiveness may vary depending on the specific type of allergy your dog is experiencing. If your dog's allergies are related to plants or pollen, you might also consider using honey. Please note that honey is typically given as a dietary supplement rather than applied to the skin.

# MP OIL

## What is the EPA and DHA content in MP Oil?

Total fat: 99.1g/100g

DHA: 12.3g/100g

EPA: 19.4g/100g

DPA: 1.0g/100g

ALA: 3.4g/100g

## What is expiry date of MP oil?

Use by date : 3 years

## Is MP Oil safe for a senior cat with hyperthyroidism?

Yes, green-lipped mussels are safe for senior cats with hyperthyroidism, unless your cat has a shellfish allergy. These mussels contain beneficial omega-3 fatty acids and joint health components. However, it's essential to consult your veterinarian for the appropriate dosage based on your cat's specific needs.





# MP OIL

## How many drops are in MP Oil?

9ml - 180 drops | 30ml - 300 drops

## Can you give your cat the MP Oil as well as the Algae Oil at the same time?

Yes, MP Oil is great for reducing inflammation and algae for skin coat and fur. Though both contain omega 3 that's fine. You could recommend using MP Oil at night and Algae in the day time. As they must eat at least 2 times a day.

## Is MP Oil for dogs and humans interchangeable?

While our Green Lipped Mussel (GLM) oil for pets and humans share the same high-quality source, there is a significant difference in potency. The pet oil has a much stronger taste, making it less palatable for human consumption. We recommend using our human MP oil, which comes in an easy-to-swallow gel capsule, eliminating concerns about taste and ensuring consistent potency. However, it's worth noting that our pet products are human-grade. If you prefer, you could use the pet oil, but we wouldn't recommend it due to taste considerations and potency differences.



# MP OIL

## Is MP Oil good for horses too? How much is the dosage?

Yes, MP oil can be given to horses too (only ingredients we use are mussel oil and virgin olive oil extract so if their horse is able to have that then you can offer. We recommend the bigger 30ml size.

## Can we give the MP Oil and Powder at the same time?

Yes, absolutely! It's perfectly fine to give both our MP Oil and MP Powder simultaneously. In fact, we recommend using both for a comprehensive approach to your pet's recovery and overall well-being.

## Will Green Lipped Mussel Oil cure arthritis?

Green-Lipped Mussels (GLMs) are supplements, not a cure. while GLMs won't necessarily prevent arthritis, they can significantly ease joint pain and improve overall joint health in dogs.





# MP POWDER

## How much MP Powder is recommended per day for a cat?

We don't offer powder for cats, however you can try to feed your cat with half of the dog's dosage from MP Powder.

## Can MP powder influence a dog's sexual behavior?

While marine phospholipids can positively impact health, there's no direct evidence linking them to sexual behavior in dogs. Sexual behavior is primarily influenced by hormones, genetics, and social factors. If your greyhound is exhibiting sexually frisky behavior, it's unlikely that marine phospholipids alone are causing it.

Regular veterinary check-ups can help differentiate between age-related changes and potential health issues. If you're concerned about your greyhound's behavior, consult with your veterinarian to rule out any underlying problems.





# BEEF BONE

**Is beef broth okay for dogs with beef allergy ?**

We do not recommend for dogs with beef allergies.

**What are the ingredients of the Beef Bone Broth Powder?**

100% New Zealand Grass-fed Beef Bone.

**What are bone broth powder made of?**

100% New Zealand Grass-fed Beef Bone.





# ALGAE OIL

## How much EPA and DHA are in each serving of Algae Oil?

EPA (Eicosapentaenoic Acid): 13%

DHA (Docosahexaenoic Acid): 43%

OMEGA-3 Fatty Acids: 64%

OMEGA-6 Fatty Acids: 6%

Each 2ml pump of algae oil contains approximately 260mg of EPA and 860mg of DHA. These quantities are derived from the percentages of EPA (13%) and DHA (43%) present in the oil.

This is one of the highest purity of omega-3 in the market!





# ALGAE OIL

## How many pumps are in algae oil?

80 pumps ( bottle is 120ml ; one pump is 1.5ml)

## Pump on Algae Oil seems faulty?

It is possible that the contents have crystalized, which can affect the pumping process. This is a common occurrence with natural products rich in saturated fatty acids. To address this, we recommend gently heating the product to around 40 degrees Celsius. You can achieve this by placing the bottle in a warm water bath and stirring it gently. This should help liquefy the crystals and restore the product's normal consistency for pumping. Additionally, storing the product in a slightly warmer environment can prevent future crystallization.

## How to store algae oil?

We recommend keeping it in the fridge once opened to slow down oxidation and maintain its freshness. However, if it hasn't been opened yet, storing it below 25°C (77°F) as indicated on the box is perfectly fine.



# DOG HONEY

The label says the honey is unfiltered, can you explain that?

There is a filtration process but not a typical one. We do not use a modern filtration system like most honey companies do but use our own traditional method to filter honey that is excessive. We only strain our honey through a coarse mesh size to remove visible impurities but retain all the natural things like pollen that should be in natural honey. And, because we select slow crystallizing honeys to present as liquid, we don't need to ultra-filter our honeys to remove all the pollen that can act as a nucleation point for crystallization.





# DOG HONEY

**The label says the honey is “undamaged by heat”. Will it be shipped in a refrigerated container? The FDA requires that the honey is heated to 100°C for at least 30 minutes for some imports. Will heating the honey damage the properties that you are trying to market?**

The honey is heated, but not excessively like others. We have a patented process for liquefying our honey that routinely delivers the lowest amount of heat damage of any honey in the New Zealand market. We have tested (and continue to test) this.

We select honeys that are least likely to crystallize for our liquid honeys, so they don't need excessive heating to stop them from crystallizing. We also don't need to pasteurize our honey to prevent it from fermenting because we don't add water to it.





## **Anti-cyclooxygenase effects of lipid extracts from the New Zealand green-lipped mussel, *Perna canaliculus***

S. McPhee (a), L.D. Hodges (a), P.F.A. Wright b, P.M. Wynne (c), N. Kalafatis a, D.W. Harney (a), T.A. Macrides (a),\*

(a) Natural Products Research Group, School of Medical Sciences, Division of Laboratory Medicine, RMIT University, PO Box 71, Bundoora, Victoria 3083, Australia

(b) Toxicology Key Centre, School of Medical Sciences, School of Medical Sciences, RMIT University, Bundoora, Victoria, 3083, Australia

(c) SGE International Pty Ltd., Ringwood, Victoria, Australia

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One natural alternative for the treatment of inflammation is the New Zealand green-lipped mussel, *Perna canaliculus* (Bivalvia: Mytilidae). This marine mollusc has demonstrated gastroprotective, antihistaminic, antioxidant, anticytokine, anti-inflammatory and antiarthritic properties (Gibson et al., 1980; Rainsford and Whitehouse, 1980; Kosuge et al., 1986; Whitehouse et al., 1997; Mani et al., 1998; Tan and Berridge, 2000);



# Studies

A lipid-rich extract, prepared by supercritical fluid extraction of fresh stabilized mussel powder, showed significant anti-inflammatory (AI) activity given therapeutically and prophylactically po to Wistar and Dark Agouti rats developing either (a) adjuvant-induced polyarthritis or (b) collagen(II)-induced autoallergic arthritis, with  $ED_{50} \leq 15$  mg/kg; c.f. naproxen  $\geq 25$  mg/kg or various therapeutic oils (flaxseed, evening primrose, fish)  $> 1800$  mg/kg given orally. It showed little or no activity in acute irritation assays (carrageenan, kaolin, histamine) indicating it is not mimicking rapid-acting NSAIDs.

Incorporating Green lipped mussel into arthritogenic adjuvants composed of heat-killed Mycobacterium tuberculosis suspended in olive oil or squalane, effectively prevented arthritis development at a dose of 5 mg/rat. By contrast, 'dummy adjuvants' prepared with Mycobacterium tuberculosis and flaxseed, evening primrose or fish oils were still arthritogenic in Dark Agouti rats (doses of oil = 90 mg/rat).

Subfractions inhibited leukotriene-B, biosynthesis by stimulated human polymorpho-nuclear leukocytes in vitro, and prostaglandin-E2 production by activated human macrophages in vitro. Much of this AI activity was associated with polyunsaturated fatty acids and natural antioxidants (carotenoids, etc.).

In contrast to NSAIDs, this is non-gastrotoxic in disease-stressed rats at 300 mg/kg po and does not seem to affect platelet aggregation (human, rat). These data show to be a reproducible, relatively stable, source of bioactive lipids with much greater potency than plant/marine oils currently used as nutritional supplements to ameliorate signs of inflammation.



The situation changed dramatically in 1986 when dried mussel extracts became available that had been stabilized with 3% tartaric acid immediately after removing the flesh from the shell [17]. This additive acts as both a metal chelator and antioxidant, in effect preserving labile unsaturated molecules from spontaneous (possibly metal-catalyzed) auto-oxidative destruction.

The mussel 'oil', obtained by supercritical fluid extraction (SFE) of this stabilized mussel powder using liquified carbon dioxide [18]. It represents about 4-5% original dry weight and contains triglycerides, sterol esters, free fatty acids, polar lipids and carotenoids but no solvent residues. As this report shows, the bulk of the anti-inflammatory activity of stabilized Seatone is extracted into this lipid fraction so that effectively constitutes a 20-fold concentrate of the original dried mussel. Being very low in protein it is unlikely to be allergenic and being salt-free it is more acceptable for cardiac patients than the original dried mussel preparations.



## **Novel anti-inflammatory omega-3 PUFAs from the New Zealand green-lipped mussel, *Perna canaliculus***

AP Treschow, LD Hodges, PFA Wright, P M Wynne, N Kalafatis, T A Macrides

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### **Abstract**

The present study has identified in the marine mollusc, *Perna canaliculus*, an homologous series of novel omega 3 polyunsaturated fatty acids (omega-3 PUFA) with significant anti-inflammatory (AI) activity. The free fatty acid (FFA) class was isolated from a supercritical-CO<sub>2</sub> lipid extract of the tartaric acid-stabilised freeze-dried mussel powder by normal phase chromatography, followed by reversed- phase high performance liquid chromatography (RP-HPLC). The RP-HPLC involved separation based on carbon numbers, followed by argentation-HPLC (Ag-HPLC) of the methyl esters based on degree of unsaturation. Identification of the FFA components was performed using gas chromatography (GC) with flame ionisation detection, and individual structures were assigned by GC-mass spectroscopy (GC-MS). Inhibition of leukotriene production by stimulated human neutrophils was used as an in vitro screening method to test the AI activity of the purified PUFAS. A structurally related family of omega-3 PUFAs was identified in the most bioactive fractions, which included C18:4, C19:4, C20:4, and C21:5 PUFA. The C20:4 was the predominant PUFA in the extract, and was a structural isomer of arachidonic acid (AA). The novel compounds may be biologically significant as AI agents, as a result of their in vitro inhibition of lipoxygenase products of the AA pathway.



## Executive summary

### Detection of green lipped mussel lipids using nuclear magnetic resonance spectroscopy

This study was designed to validate the nuclear magnetic resonance (NMR) spectroscopy method to detect polyunsaturated fatty acids. The hypothesis was that we would be able to detect polyunsaturated fatty acids in human plasma using NMR spectroscopy.

Human blood plasma was collected, and lipids were extracted with chloroform/methanol and water. The lipid fraction was freeze dried before resuspending in deuterated chloroform before analysis by NMR.

First, the extraction was optimized for extraction volumes and solvent ratios. A plasma volume of 0.5-1.5 ml and a solvent ratio of 2:1 v/v chloroform/methanol is appropriate for analysis. Characteristic chemical shift values for unsaturated fatty acids at 5.15 ppm and 2.2 ppm were confirmed to be used for quantification. To improve quantification, tetramethylsilane (TMS) is added to the plasma, which co-isolates with lipids. The peak intensity for TMS can then be used for normalisation.

The quantification of unsaturated fatty acids before and four hours after ingestion of two Korure™ capsules yielded concentrations of 799  $\mu\text{M}$  ( $\pm 10 \mu\text{M}$ ) before ingestion and 828  $\mu\text{M}$  ( $\pm 10 \mu\text{M}$ ) after ingestion. The difference of 29  $\mu\text{M}$  ( $\pm 10 \mu\text{M}$ ) was statistically significant with a p-value of 0.0238.

In conclusion, after optimisation of the lipid extraction protocol and the inclusion of an internal standard, unsaturated fatty acids in human plasma can be quantified with high accuracy using NMR.