PATRIOT
Pharmaceuticals Corp.

Eicosapentaenoic acid ethyl ester
+ Docosahexaenoic acid ethyl ester

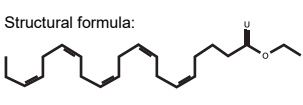
℞

Omacor®

460mg/380mg
Softgel Capsule
Antihyperlipidemia

FORMULATION:
Each 1000mg capsule contains 90% omega-3 acid ethyl esters predominantly a combination of:
Eicosapentaeonic acid (EPA) ethyl ester, EP.....460mg
Docosahexaenoic acid (DHA) ethyl ester.....380mg
Eicosapentaenoic acid (EPA) ethyl ester

Structural formula:



Molecular Formula: $C_{22}H_{34}O_2$
Molecular Weight: 330.51
The empirical formula of EPA is $C_{22}H_{34}O_2$. MW: 330.51.
It is a pale yellow liquid. Very soluble in methanol, ethanol, acetone and heptane. Practically insoluble in water. Slight smell.
Docosahexaenoic acid (DHA) ethyl ester.

Structural formula:

Molecular formula: $C_{24}H_{36}O_2$
Molecular Weight: 356.55
The empirical formula for DHA is $C_{24}H_{36}O_2$. MW: 356.55.
It is a pale yellow liquid. Very soluble in ethanol, acetone, heptane, and freely soluble in methanol. Practically insoluble in water. Slight smell.

The capsules also contain: 4mg of d-alpha-tocopherol (mixed with a vegetable oil e.g. soya oil) as antioxidant, gelatin, glycerol, purified water, medium chain triglycerides and lecithin (soya). Omacor® capsules are gluten-free.

PHARMACOLOGY

Pharmacodynamics
The omega-3 series polyunsaturated fatty acids (OFA), eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) are essential fatty acids. They are essential nutrients that cannot be synthesized by the human body in sufficient amounts and have to be obtained in the diet. Like all fatty acids, omega-3 fatty acids are used to provide energy and are stored in adipose tissue; small amounts are incorporated into cell membranes as well.

Omacor® is active on the plasma lipids by lowering triglyceride levels as a result of a fall in VLDL (very low density lipoprotein), and the substance is also active on homeostasis and blood pressure.

The mechanism of action of Omacor® in lowering plasma triglycerides (TG) is not completely understood. Potential mechanisms of action include inhibition of acyl CoA: 1,2-diacylglycerol acyltransferase, increased mitochondrial and paroxysmal B-oxidation of fatty acids in the liver and decreased lipogenesis in the liver. Omacor® may reduce the synthesis of TG in the liver because EPA and DHA are poor substrates for the enzymes responsible for TG synthesis, and EPA and DHA inhibit esterification of other fatty acids.

Omacor® increases low density lipoproteins (LDL) cholesterol in some patients with hypertriglyceridaemia.

A small rise in high-density lipoproteins (HDL) cholesterol has also been observed however it is significantly smaller than seen after fibrates, and is not consistent across this population subset.

There is no strong evidence that lowering the triglycerides reduces the risk of ischaemic heart disease.

During treatment with Omacor® a decrease in thromboxane A2 production has been observed and a slight increase in bleeding time (particularly with the higher doses, 4g per day). No significant effect has been observed on the other coagulation factors (see section PRECAUTIONS).

Omacor® has been shown to cause a significant reduction in blood pressure.

Pharmacokinetics
The hydrolysis of omega-3 ethyl esters by esterases in the intestine is complete and rapid. After absorption, OFA are metabolised by multiple pathways that are not highly predictable. Animal pharmacokinetic studies have shown that there is no systemic exposure of the ethyl esters. Due to this complicated process, it is not possible to conduct standard bioavailability studies, and consequently, to measure meaningful values for Cmax, Tmax, AUC, etc. for Omacor®.

The levels of EPA and DHA do increase on ingestion of Omacor®, although in a less than dose proportional manner.

The absorption of Omacor® has been determined by measuring the increase of EPA and DHA in plasma serum phospholipids after dosing. Significant, dose-dependent increases in serum phospholipids EPA content were seen, while increase in DHA incorporation were less marked and not dose dependent. Uptake of EPA and DHA into plasma/serum phospholipids in subjects treated with Omacor® was also independent of gender, age, and hypertensive status. Concomitant ingestion of another unsaturated fatty acid, olive oil, did not affect absorption of omega-3 fatty acids from Omacor®. During and after absorption there are three main pathways for the metabolism of the omega-3 fatty acids:
- The fatty acids are first transported to the liver where they are incorporated into various categories of lipoproteins and then channeled to the peripheral lipids stores.
- The cell membrane phospholipids are replaced by lipoprotein phospholipids and the fatty acids can then act as precursors for various eicosanoids.
- The majority is oxidized to meet energy requirements.

The concentration of omega-3 fatty acids, EPA and DHA, in the plasma phospholipids corresponds to the EPA and DHA incorporated into the cell membranes.

Clinical trial Hypertriglyceridaemia:
There have been eight double-blind, parallel group, placebo-controlled studies in hypertriglyceridaemia, using Omacor® 4 g per day. These eight studies are the pivotal studies. These studies included seven individual studies and one part of a study that evaluated Omacor® 2 g, 4g, 8g, and placebo treatment arms. The duration of the eight pivotal studies was short term (maximum 12 weeks). Numerous studies in patients with hypertriglyceridaemia have been conducted with Omacor®, with variable designs: double-blind studies, placebo-controlled studies, randomized studies, open studies and long term studies (up to 24 months). Omacor® at doses of 4 g per day consistently and significantly reduced triglycerides levels compared to placebo. The studies have shown that the reductions were maintained for up 24 months after treatment.

Table 1: Omacor® has been documented to have the following effects on the lipid profile.

Lipid	Effect
TG-levels	Omacor® 2-4g per day consist and significantly reduced TG levels compared with Placebo. These reductions were maintained for up to 20 months after treatment. Reductions in TG levels were observed across age, gender, and baseline TG. When Omacor® was used in conjunction with statins, an additive effect was observed.
Very - low - density lipoprotein (VLDL) cholesterol (VLDL-C) levels	Omacor® 2-4g daily produced reduction in VLDL-C levels that were consistent with reductions in TG levels.
TC levels	Omacor® 2-4g daily had no effect on TC levels in patients with hyperlipidaemia type IIb.
HDL-C levels	Omacor® 2-4g daily produced small, significant increase in HDL-C levels, especially in patients with low HDL-C at baseline.
LDL-C levels	Omacor® 2-4g daily increased LDL-C levels, especially in patients with low LDL-C at baseline (HTG type IV). The increase was probably due to cholesterol enrichment of LDL particles with shift from small, dense LDL particles to larger, more buoyant LDL particles.

The following table summarizes the median percent changes in lipid parameters from baseline in the overall population, and in patients with Types IIb, IV and V dyslipidaemia.

Table 2: Summary of median percent changes from baseline for lipids parameters by dyslipidaemia classification

	TG		TC		HDL-C		LDL-C		VLDL-C		Non-HDL-C	
	Omacor	Pbo	Omacor	Pbo	Omacor	Pbo	Omacor	Pbo	Omacor	Pbo	Omacor	Pbo
Overall (%)	-28.0	+2.5	-2.9	-0.5	+8.9	+3.5	+16.8	+0.7	-25.5	+8.0	-3.9	-1.0
Type IIb (%)	-26.3	+0.8	-2.3	-1.5	+5.5	+4.6	+1.4	-3.9	-10.9	+13.7	-3.2	-2.1
Type IV (%)	-25.5	+4.5	-2.0	+1.1	+11.1	+2.9	+33.8	+2.2	-34.3	+6.7	+1.4	+1.0
Type V (%)	-39.4	+2.8	-16.5	+0.5	+18.1	-4.6	+42.8	+19.9	-31.9	+2.2	-18.9	+0.7

Remarks:
- The documented number of patients enrolled in clinical trials with Type 1 dyslipidaemia is very limited and no studies were designed to especially investigate the effect of Omacor® in these patients. Type HI dyslipidaemic patients are homozygotes for ApoE, and genotyping of patients was only performed in one study (K85-95011). More Type III dyslipidaemic patients may have been therefore enrolled in clinical studies without being verified as such. There is no reason to believe that Type HI dyslipidaemic patients do not respond to Omacor®.

- One of the pivotal clinical trials in patients with type IV and V (K85-95009 study) demonstrated a mean LDL-C increase of 42.6% with Omacor® 4g per day. 67% of the patients in the study experienced increases in LDL-C, and the increases observed were in the range of 6%-110%. However, mean LDL-C concentrations at the end of the study were still only equal to 2.69 mmol/L (104 mg/dL). For the majority of these patients (40 of 42 with no history of coronary disease) this is still below their target LDL-C levels.
Only equal to 2.69 mmol/L (104 mg/dL).

In clinical trials on patients with Type Hb dyslipidaemia mean LDL-C is unchanged or slightly increased (maximum 8.6%) with Omacor® treatment. In studies with concomitant treatment of Omacor® and a statin no significant increase in LDL-C has been observed with Omacor®. The cholesterol enrichment of LDL particles appears to happen in conjunction with a marked reduction in VLDL-C. Studies also demonstrate a shift from small, dense LDL particles to larger, more buoyant LDL particles, indicating a shift towards less atherogenic lipoprotein particles.

Consistent with the overall population (see Table 3 hereafter), subjects in each baseline triglycerides level category in the Omacor® 4 g treatment group had significantly larger mean absolute and relative changes in triglycerides levels compared with those in the placebo treatment group.
For the subjects who received Omacor® 4 g per day, those with higher baseline levels (TG = 500-749 mg/dL and 3750 mg/dL [5.65-8.46 mmol/L, and 8.47 mmol/L) had greater reductions in triglycerides levels, and therefore were more likely to exhibit a better response to Omacor®.

Table 3: Mean change from baseline in TG levels at endpoint, overall and by baseline TGlevel - Integrated analysis of the 8 Category I studies.

	Omacor 4 g		Placebo		
	Mean Value		Mean Value		P-Value*
Overall					
	(n=206)		(n=204)		
Baseline value (mg/dL, mmol/L)	422,8	4,77	404,0	4,56	
Endpoint value (mg/dL, mmol/L)	285,7	3,23	410,3	3,63	
Absolute change (mg/dL, mmol/L)	-137,0	-1,55	6,3	0,07	<0,0001
Relative change (%)	-28,0		2,5		<0,0001
≤ 250 mg/dL (≤ 2.82 mmol/L)					
	(n=63)		(n=67)		
Baseline value (mg/dL, mmol/L)	215,1	2,43	207,1	2,34	
Endpoint value (mg/dL, mmol/L)	172,6	1,95	216,9	2,45	
Absolute change (mg/dL, mmol/L)	-42,6	-0,48	9,8	0,11	<0,0001
Relative change (%)	-19,8		4,9		<0,0001
251-499 mg/dL (2.83-5.64 mmol/L)					
	(n=90)		(n=88)		
Baseline value (mg/dL, mmol/L)	332,7	3,76	334,8	3,78	
Endpoint value (mg/dL, mmol/L)	243,5	2,75	338,4	3,82	
Absolute change (mg/dL, mmol/L)	-89,2	-1,01	3,6	0,04	<0,0001
Relative change (%)	-27,0		0,9		<0,0001
500-749 mg/dL (5.65-8.46 mmol/L)					
	(n=28)		(n=26)		
Baseline value (mg/dL, mmol/L)	599,3	6,77	597,1	6,74	
Endpoint value (mg/dL, mmol/L)	360,3	4,07	598,6	6,76	
Absolute change (mg/dL, mmol/L)	-239	-2,70	1,5	0,02	<0,0001
Relative change (%)	-39,5		1,5		<0,0001
≥ 750 mg/dL (≥ 8.47 mmol/L)					
	(n=25)		(n=23)		
Baseline value (mg/dL, mmol/L)	1072,4	12,11	1024,1	11,56	
Endpoint value (mg/dL, mmol/L)	638,8	7,21	1035,9	11,70	
Absolute change (mg/dL, mmol/L)	-433,6	-4,90	11,8	0,19	<0,0001
Relative change (%)	-39,4		2,8		<0,0001

*P-values were computed using analysis of variance (ANOVA)

A number of studies have been conducted to evaluate the effect of concomitant use of Omacor® with widely used statins (simvastatin, atorvastatin). The studies have been carried out in patients with elevated serum triglycerides receiving statin therapy. The results of the studies demonstrate that the combined treatment increases the efficacy in lowering triglycerides. In these studies, little or no effect on LDL-C has been observed and no significant safety issues have been raised.

INDICATIONS
For isolated or predominant endogenous hypertriglyceridaemia in patient at risk of ischaemic heart disease and or pancreatitis; as a supplement to diet when appropriate and assiduous dietary measures alone are insufficient to produce an adequate response.

CONTRAINDICATIONS
Hypersensitivity to the active substance, to soya (Including soya milk, soya beans) or to any of the excipients. Omacor contains soya oil. If you are allergic to peanut or soya, do not use this medicinal product.

PRECAUTIONS
Omacor should be used with caution in patients with known sensitivity or allergy to fish.
During treatment with Omacor® there is a fall in thromboxane A2 production. No significant effect has been observed on the other coagulation factors. Some studies with omega-3-acids demonstrated a prolongation of bleeding time, but the bleeding time reported in these studies has not exceeded normal limits and did not produce clinically significant bleeding episodes.
Clinical studies have not been done to thoroughly examine the combined effects of Omacor® and concomitant anticoagulants. Patients receiving treatment with Omacor® and an anticoagulant or other drug affecting coagulation (eg, acetylsalicylic acid, warfarin and coumarin) should be monitored periodically, and the dosage of anticoagulant therapy adjusted if necessary.
It is recommended that routine monitoring of the entire lipid profile is undertaken. As a possible rise in LDL-C has been shown in some studies with intake of Omacor® 4g/day (see section CLINICAL TRIALS), LDL-C should therefore be monitored on a regular basis, especially in patients with type IV and V dyslipidaemia.
Omacor® is not recommended as monotherapy in Type IIb dyslipidaemia. Statins are to be used as first line treatment with Omacor® indicated as add-on therapy when control of the triglyceride levels is required.

Hepatic Impairment:
Regular monitoring of hepatic function (especially ALT - see section ADVERSE EFFECTS, and AST) is required in patients with hepatic impairment, in particular with the higher dosage of 4g per day.
Use in children: In the absence of efficacy and safety data, the use of this medication in children is not recommended.

Effects on Fertility
No adverse effects on fertility were observed in a rat fertility study at oral doses of up to 2,000 mg/kg/day (35 times the human dose of 4g/day on a mg/kg basis).

Carcinogenicity
There was no evidence of a carcinogenic effect of Omacor® from the carcinogenicity studies in rats and mice at oral doses of up to 2,000 mg/kg/day (35 times the human dose of 4 /day on a mg/kg basis).

Genotoxicity
There was no clear evidence of a genotoxic effect of Omacor® from the genotoxicity studies conducted (Ames test in Salmonella Typhimurium, gene mutation at the HGPRT locus in Chinese hamster V79 cells, chromosome aberration study in cultured human lymphocytes and in vivo mouse micronucleus test).

Use in Pregnancy: Category B1
There are no adequate data from the use of Omacor® in pregnant women. The potential risk for humans is unknown. Therefore Omacor® should not be used during pregnancy unless clearly necessary.

Use in Lactation
There are no data on the excretion of Omacor® components in human milk. Because many drugs are excreted in human mik, caution should be exercised when Omacor® is administered to a woman who is breastfeeding.

INTERACTIONS WITH OTHER DRUGS
Increased time has been seen when Omacor® is given in conjunction with acetylsalicylic acid and warfarin, but without haemorrhagic complications (see section PRECAUTIONS). Acetylsalicylic acid: Patients should be informed about potential increased bleeding time. Warfarin and coumarin: The prothrombin time/international normalised ratio (PT/INR) must be monitored during combination treatment with Omacor® among patients receiving blood-thinning therapy, and when treatment with Omacor® is discontinued.
Statins: Omacor® 4 g has been administered with simvastatin 80 mg under fasting conditions to 24 healthy volunteers in a two 14-days period drug-drug interaction study. Results of this study demonstrated that at steady state, the co-administration of Omacor® capsules with simvastatin did not appear to affect the pharmacokinetics of simvastatin tablets.
The combination appeared to be well tolerated.

ADVERSE EFFECTS
Hypertriglyceridaemia:
In all subjects (655) treated with Omacor® for hypertriglyceridaemia, the following results were seen:
- Adverse events (AEs) occurred in approximately 30% of subjects,
- Only 11 specific AES occurred at a rate greater than 1%,
- The most common treatment-emergent AES were eructation (4.4%) and taste perversion (4.1 %),
- Treatment emergent serious adverse events occurred in 2.4% of subjects,
- Four subjects (0.6%) died.

The 8 pivotal trials showed similar safety profiles.
The only potentially drug-related laboratory abnormality was mild elevation in alanine aminotransferase (ALT) levels, without concurrent elevation in aspartate amnotransferase (AST) levels.

A slight, but significant, prolongation of bleeding time has been observed without any reports of bleeding problems during clinical trials with Omacor® alone. The following table summarizes the treatment-emergent adverse events experienced by subjects from placebo controlled studies in hypertriglyceridaemia, using Omacor® 4g per day (see section CLINICAL TRIALS).

Table 4: Summary of treatment-emergent adverse events that were experienced by at least 1% of subjects in either treatment group by system organ class and preferred term (all from the 8 pivotal studies)

	Omacor® 4g per day (N=226)		Placebo (N=228)		P-Value
SOC/Preferred Term	n	(%)	n	(%)	
Subject with a least	80	(35.4)	63	(27.6)	0.0859
Infections and infestations					
- Infections	10	(4.4)	5	(2.2)	0.2010
- Influenza	8	(3.5)	3	(1.3)	0.1398
Nervous system disorder	6	(2.7)	0	(0.0)	0.0147
- Dysgeusia	3	(1.3)	3	(1.3)	1.0000
- Headache					
Cardiac disorders	3	(1.3)	2	(0.9)	0.6847
- Angina pectoris					
Gastrointestinal disorders	11	(4.9)	5	(2.2)	0.1351
- Eructation	8	(3.5)	8	(3.5)	1.000
- Diarrhea	7	(3.1)	7	(3.1)	1.000
- Nausea	7	(3.1)	6	(2.6)	0.7868
- Dyspepsia	4	(1.8)	9	(3.9)	0.2599
- Flatulence	2	(0.9)	3	(1.3)	1.000
- Abdominal pain					
Skin and subcutaneous tissue disorders					
- Rash	4	(1.8)	1	(0.4)	0.2146
Musculosketal and connective tissue disorders					
- back pain	5	(2.2)	3	(1.3)	0.5025
General disorders and administration site conditions					
- pain	4	(1.8)	3	(1.3)	0.7235

Adverse events according to System Organ Class:
The following list presents the frequencies of study related adverse events, observed both in post myocardial infarction and in hypertriglyceridaemia.
Immune system disorders:
Rare: hypersensitivity
Metabolism and nutrition disorders:
Uncommon: hyperglycaemia, gout
Nervous System disorders:
Uncommon: dizziness, dysgeusia, headache
Vascular disorders:
Uncommon: hypotension
Respiratory, thoracic and mediastinal disorders:
Uncommon: epistaxis
Gastrointestinal disorders:
Common: gastrointestinal disorders (including abdominal distension, abdominal pain, constipation, diarrhoea, dyspepsia, flatulence, eructation, gastro-oesophageal reflux disease, nausea or vomiting)
Uncommon: gastrointestinal hemorrhage
Hepatobiliary disorders
Rare: liver disorders (including transaminases increased, alanine aminotransferase increased and aspartate aminotransferase increased)
Skin and subcutaneous tissue disorders:
Uncommon: rash
Rare: urticaria
Not known: pruritus

For suspected adverse drug reaction, report to the FDA: www.fda.gov.ph

Dosage and Administration.
Hypertriglyoeridaemia
Initial treatment two capsules daily. If adequate response is not obtained, the dose may be increased to four capsule daily. The capsules may be taken with food to avoid gastrointestinal disturbances.
There is no information regarding the use of Omacor® in children and adolescents, in elderly patients over 70 years of age, or in patients with hepatic impairment (see section 4.4), and only limited information regarding the use in patients with renal impairment.

Caution:
Foods, Drugs, Devices and Cosmetics Act prohibits dispensing without prescription.

Overdosage
There are no special recommendations for overdosage with Omacor®. Treatment should be symptomatic.

Availability
1000 mg; Soft, oblong, transparent capsule containing pale yellow oil. Omacor® capsules are packed in white tamper-evident high density polyethylene (HDPE) bottles with desiccant closed with an inner seal and a screw cap.

Pack size: 28 capsules.

DR-XY25262
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STORE AT ROOM TEMPERATURES NOT EXCEEDING 30°C

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