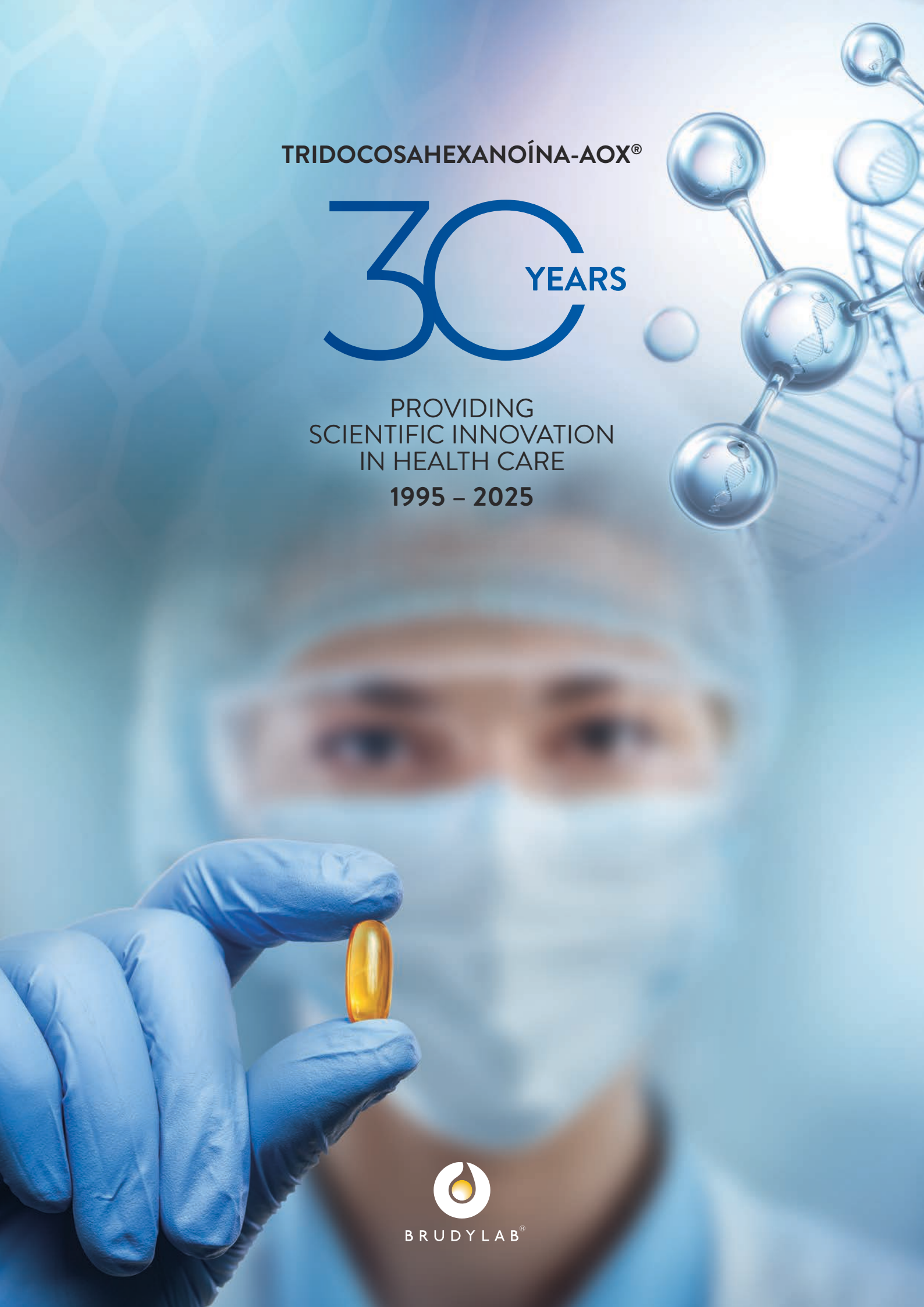

TRIDOCOSAHEXANOÍNA-AOX®
30 YEARS
PROVIDING
SCIENTIFIC INNOVATION
IN HEALTH CARE
1995 – 2025
BRUDYLAB®

About us

BRUDY is a pioneering biotechnology company in Medical Nutrition. We believe in high-quality clinical research and are driven by our innovative spirit in the field of omega-3 fatty acids, particularly Docosahexaenoic Acid (DHA) and its impact on human health.

Our goal is to improve the quality of life for everyone and contribute to the treatment of diseases associated with oxidative stress and inflammation.

Our track record

BRUDY has been committed to researching and developing innovative DHA-based products since 1995. Our multidisciplinary team focuses on creating top-quality products. Our approach merges science and state-of-the-art techniques, providing tailored solutions with an ongoing commitment to excellence and innovation.

We have invested more than €10 million in research projects throughout our history and hold three international patents[1-3] on the use of our DHA-enriched triglyceride, Tridocosahexanoína-AOX®.

We meet the highest quality standards and have repeatedly provided optimal bioactivity, hence positioning us as global leaders in this field.

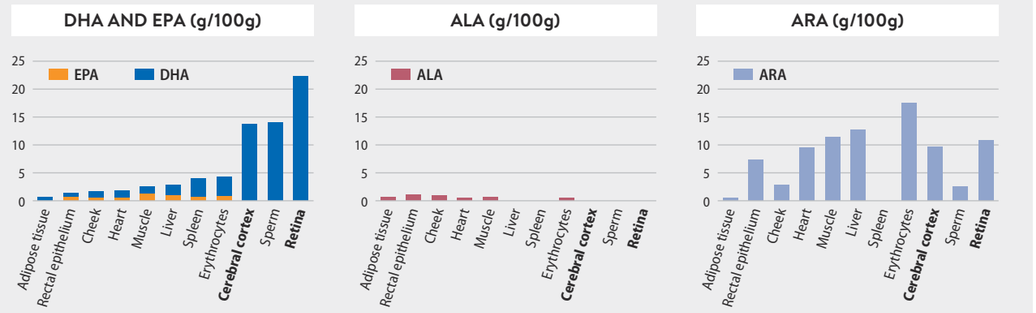
BRUDYLAB has focused on marketing our proprietary products with Tridocosahexanoína-AOX® as the main ingredient in food supplements, food for special medical purposes as well as cosmetic products on a national and international level since 2010.

BRUDY worldwide

DHA – an essential omega-3 for health

DHA is a very long-chain (C22:6) polyunsaturated fatty acid, an essential omega-3 for cell membrane structure and function.

Fatty acid concentration found in human tissues[4]



EPA: Eicosapentaenoic Acid / DHA: Docosahexaenoic Acid / ALA: Alpha-linolenic Acid / ARA: Arachidonic Acid

Only trace amounts of ALA and EPA are found in tissues, whereas DHA usually outweighs EPA by 5 to 30 times in most organs.

Health benefits of DHA acknowledged by the European Commission[5]

HEALTH BENEFITS OF DHA APPROVED BY THE EUROPEAN COMMISSION	CONSUMERS SHOULD BE INFORMED THAT BENEFITS ARE OBTAINED WITH THE INTAKE OF:
DHA (and DHA + EPA) contributes to normal heart function.	250 mg/day of DHA (EU 432/2012). For adults. EFSA Journal 2014;12(10):3840. For children aged 2 to 18.
DHA contributes to normal vision.	
DHA contributes to normal brain function.	
DHA contributes to normal visual development in children up to 12 months.	100 mg/day of DHA (EU 440/2011).
Maternal intake of DHA contributes to normal visual development of the foetus and of breastfed infants.	(Pregnant and breast-feeding women) 200 mg/day of DHA in addition to the 250 mg/day daily intake for adults (EU 440/2011).
Maternal intake of DHA contributes to normal brain development of the foetus and of breastfed infants.	
DHA (or DHA + EPA) helps maintain normal triglyceride levels in the blood.	2 g/day of DHA or DHA + EPA. Do not exceed 5 g/day of combined intake (EU 536/2013).
DHA and EPA help reduce blood pressure.	3 g/day of DHA or DHA + EPA. Do not exceed 5 g/day of combined intake (EU 536/2013).

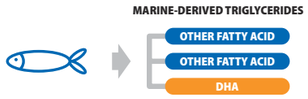
EU Regulatory Consultations at: **www.eur-lex.europa.eu** (search by year and regulation no. mentioned in the right-hand table column)

What is Tridocosahexanoína-AOX®?

A DHA-enriched source developed by **BRUDY** as highly purified and structured re-esterified triglyceride to ensure bioavailability and biological efficacy.

Tridocosahexanoína-AOX® synthesis in 3 steps:

1. SUSTAINABLY SOURCED DHA



Fish triglycerides that are sustainably sourced and follow responsible environmental practices.

2. PURE, HIGH-QUALITY DHA

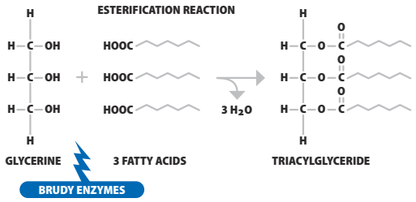
Cholesterol, phytic acid and most non-DHA FAs are removed to obtain a 70% DHA-concentrated oil.

Filtration purifies the oil from environmental pollutants, heavy metals, fish proteins and microbial contaminants.

	European legislation[6]	GOED	IFOS	Brudy's batch*
Purity, safety and cleanliness				
PCBs	200 ng/g	90 ng/g	<=45 ppb	<15 ng/g
Dioxins	1.75 pg/g	1.75 pg/g	<= 1 ppt	<0.4 pg/g
Dioxins and similar PCBs	6 pg/g	3 pg/g	<= 1.5 ppt	<0.5 pg/g
Heavy metals				
Mercury (Hg)	0.5 ppm	0.1 ppm	<= 0.1 ppm	<0.005 ppm
Lead (Pb)	0.1 ppm	0.05 ppm	<= 0.1 ppm	<0.02 ppm
Arsenic (As)	-	0.1 ppm	<= 0.1 ppm	<0.05 ppm
Cadmium (Cd)	0.1 ppm	0.1 ppm	<= 0.1 ppm	<0.05 ppm
Stability				
Acid value	-	-	<=3 mg KOH/g	0.1 mg KOH/g
Peroxide	-	-	<=5 meq/kg	2-4 meq O2/kg
Anisidine	-	-	<=20	4-10 U.A.

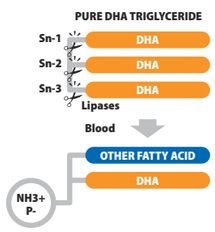
Each batch of oil is analysed by Eurofins Analytics

3. TRIDOCOSA-HEXANOÍNA-AOX® SOURCE OF DHA



Re-esterification with proprietary enzymes to obtain oil as triglycerides with an increased percentage of DHA at the centre (Sn-2).

What happens in the body?



Digestive lipases break the bonds at the Sn-1 and Sn-3 positions. The monoglyceride with DHA at the centre is absorbed through the enterocyte. It is rapidly converted into DHA phospholipids and can be located in the cell membrane.

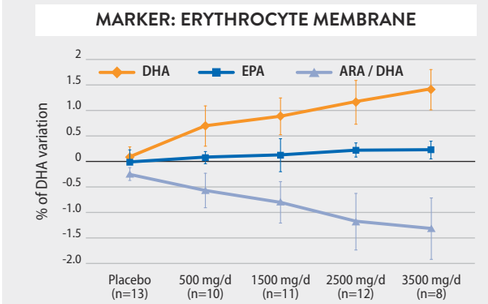
- BIOAVAILABILITY
- BIOACTIVITY
- SAFETY

Proven short- and long-term bioavailability[7, 8]

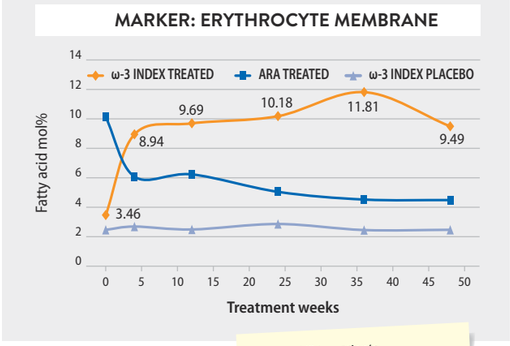
In the short term, supplementation with Tridocosahexanoína-AOX® increases DHA levels in cell membranes, suggesting **efficient absorption** and **quick incorporation** into tissues.

In the long term, ongoing supplementation keeps DHA levels high.

From the outset, a dependent relationship between increased DHA and reduced arachidonic acid (ARA) levels was observed.



- *n = 54 healthy volunteers*
- *5 groups: placebo and increasing doses of Tridocosahexanoína-AOX®*
- *Duration = 1 month*

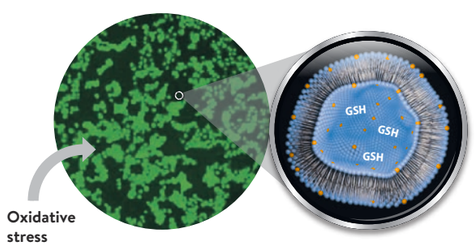


- *n = 73 HIV+ patients*
- *Control group (n = 38) without supplementation*
- *Experimental group (n = 35) with 4 g/day of Tridocosahexanoína-AOX®*
- *Duration = 1 year*

Patented antioxidant activity of Tridocosahexanoína-AOX®

Our analyses of human cell cultures revealed that, with Tridocosahexanoína-AOX®, cell membranes **increase glutathione synthesis by 200% to 300%[9]**. This powerful antioxidant, which is essential for regulating internal cellular balance, protects cells from oxidative stress by neutralising free radicals that can damage cells and cause cell death. Glutathione protects cellular health, and its increase, which is stimulated by Tridocosahexanoína-AOX®, prepares cells to withstand external aggressions.

ARPE-19 RETINAL CELLS
CONTROL GROUP CELL CULTURE

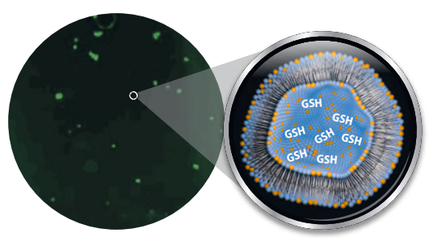


GSH: Glutathione

ARA: Arachidonic Acid Omega 6

DHA: Docosahexaenoic Acid Omega 3

ARPE-19 RETINAL CELLS
BRUDY TG-DHA CELL CULTURE

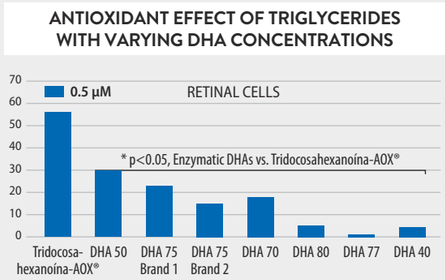


200-300% increase of glutathione

Increase in endogenous antioxidant defence capacity

Bioactivity – our main Gold standard

At **BRUDY**, we produce clean, pure DHA as bioavailable triglyceride with **bioactivity that mimics human physiology**. Our production process preserves the natural DHA structure, while maintaining the cis double bonds that provide its antioxidant capacity and benefits for the body. Each batch of oil undergoes cellular bioactivity testing to ensure its **antioxidant protection activity (50-60%).** Unlike other processes, our technology ensures that bioactivity does not only depend on DHA concentration, but also on the preservation of its structure, from oil extraction to the end product.



Consolidated group "Drug Transportation and Delivery" (2009 SGR-367). Department of Biochemistry and Molecular Biology, University of Barcelona. Reproduction of graphs is prohibited © All rights reserved.

Clinical research

At **BRUDY**, our mission is to back up the benefits of our products with scientific evidence, while always seeking to provide innovative solutions based on current needs. Thus, we work with national and international experts in several areas, such as ophthalmology, fertility, sports medicine or lipid metabolism disorders.

42 clinical studies + 5 review articles

Eye care

19 studies
3 review articles

- 9 studies on **Dry eye***
- 5 studies **Retina** + 2 review articles
- 4 studies on **Glaucoma***
- 2 studies on **Eye inflammation**
- 1 study **Topical effect** + 1 review article**

Other therapeutic areas

23 studies
2 review articles

- 6 studies **Sports**
- 3 studies **Lipid metabolism disorder** + 2 review articles
- 4 studies **Fertility**
- 4 studies **Children with ADHD**
- 2 studies **Cystic fibrosis**
- 3 studies **Neurological disorder**
- 4 studies **In vitro techniques**

*Categories shared by one or more studies.
**Accepted article pending publication

DHA triglyceride concentration	Antioxidant protection	Glutathione increase		
70%	50-60%	200-300%	100% bioactivity in each batch	3 patents for Tridocosahexanoína-AOX® use

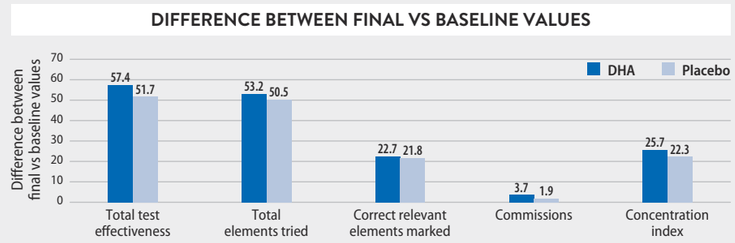
Evidence of Tridocosahexanoína-AOX® in other therapeutic areas

CHILD CARE

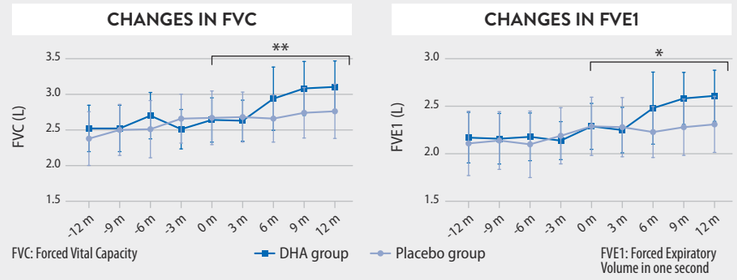
3 studies

- **Improvement in cognitive and behavioural variables supporting its benefit in children and adolescents with attention deficit hyperactivity disorder (ADHD)**
- **Improvements in lung function (FVC and FEV1) and decrease in the number of exacerbations in children with cystic fibrosis**

***Child care*[1]**
- *N = 66 patients aged 6 to 18 with ADHD*
- *1000-2000 mg/day of Tridocosahexanoína-AOX® (according to weight)*
- *Duration = 6 months*



***Child care*[3]**
- *N = 22 patients (aged 6 to 18)*
- *Placebo group = 11 patients*
- *Supplemented group = 11 patients with 700-2800 mg/day of Tridocosahexanoína-AOX® (according to weight)*
- *Duration = 1 year*

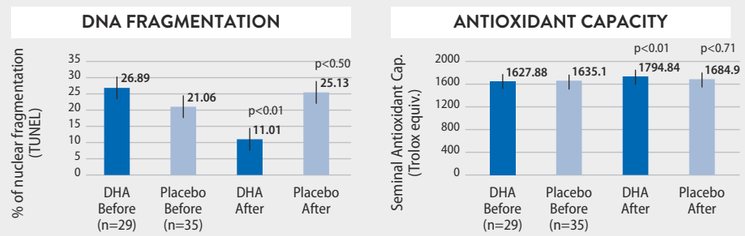


FERTILITY

4 studies

- **Increased antioxidant capacity**
- **Decreased DNA fragmentation**
- **Increased sperm motility**

***Fertility*[4]**
- *N = 64 subjects undergoing fertility assessment*
- *Placebo group = 29*
- *Supplemented group = 35 (1050 mg/day of Tridocosahexanoína-AOX®)*
- *Duration = 10 weeks*



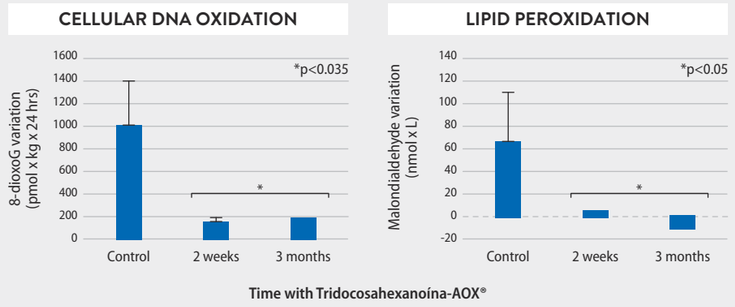
Before and 10 weeks after supplement intake

SPORTS

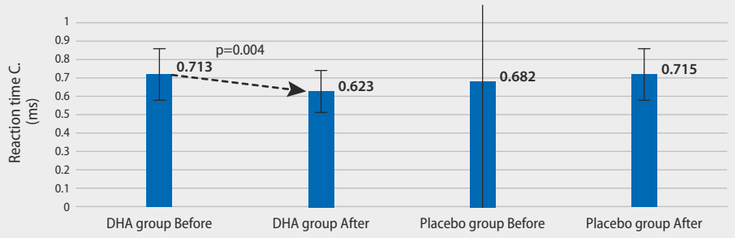
6 studies

- **Significant protection against oxidative damage resulting from moderate-intense exercise**
- **Improved perceptual-motor reaction time**
- **It promotes low inflammation concentrations and muscle damage markers, while also decreasing muscle pain**

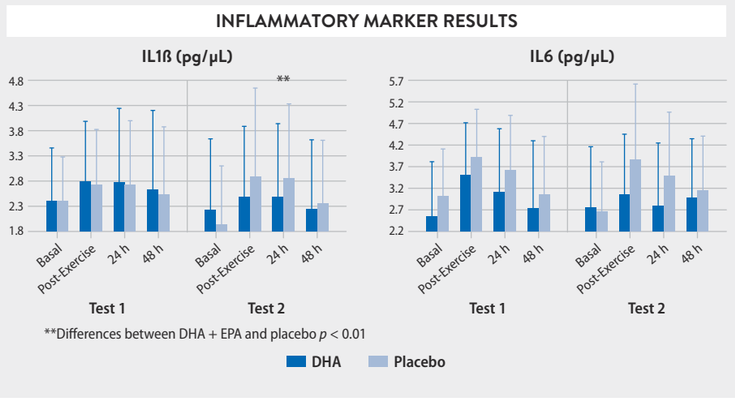
***Sports*[6]**
- *n = 40 healthy sportspeople*
- *Treatment with 2000 mg/day of Tridocosahexanoína-AOX®*
- *Duration = 3 months*



***Sports*[1]**
- *N = 24 professional female football players*
- *Control group n = 12 placebo*
- *Supplemented group n = 12 3500 mg/day of Tridocosahexanoína-AOX®*
- *Duration = 4 weeks*



***Sports*[4]**
- *n = 15 triathletes*
- *Supplemented group with 2000 mg/day of Tridocosahexanoína-AOX®*
- *Duration = 10 weeks*



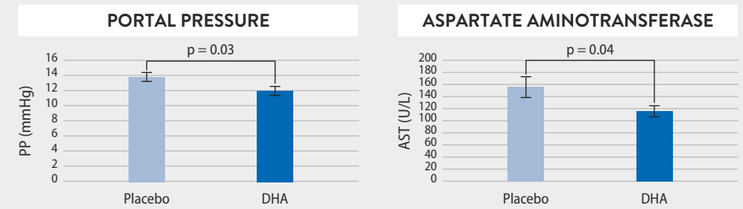
LIPID METABOLISM

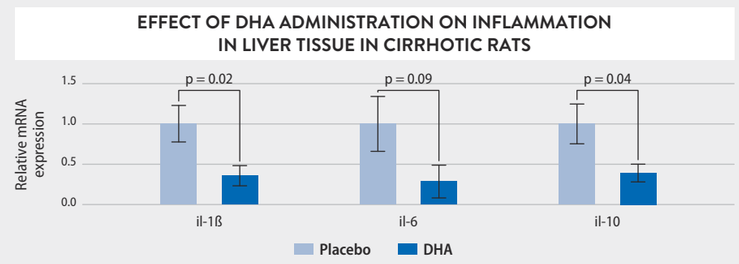
3 studies

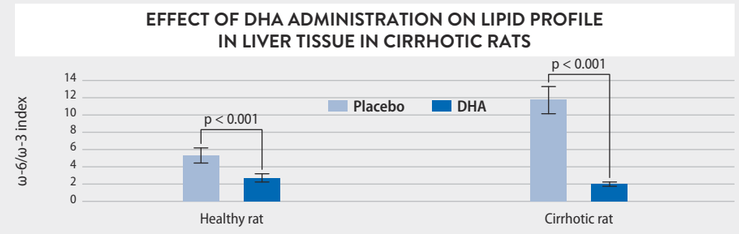
2 review articles

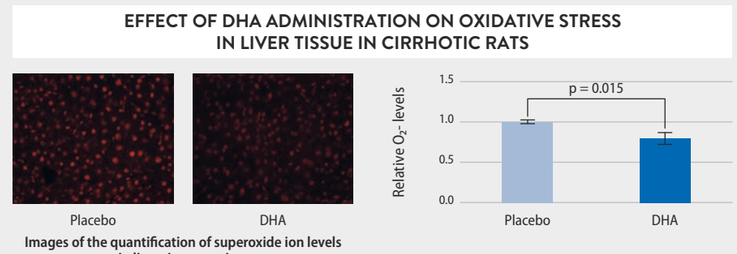
- **Correction of intrahepatic omega-6/omega-3 imbalance**
- **Reduction of intrahepatic oxidative stress: -20.7%**
- **Reduction in the expression level of circulating inflammatory markers: IL-1ß: -65% | IL-10: -61% | IL-6: -71.63%**
- **Deactivation of mouse and human hepatic stellate cell and slowing down of the fibrotic process**
- **Significant reduction in portal pressure: -13.4%**
- **Reduction in circulating aspartate aminotransferase: -25.7%**

***Lipid metabolism*[3]**
- *n = 12 healthy rats and 25 cirrhotic rats*
- *½ with placebo and ½ supplemented with Tridocosahexanoína-AOX® (500 mg/kg)*
- *Duration = 2 weeks*









Images of the quantification of superoxide ion levels in liver tissue sections

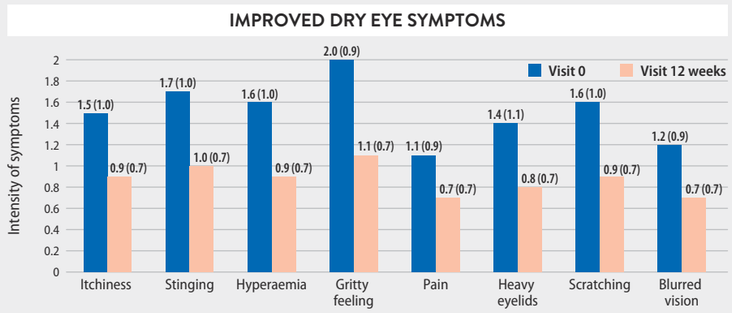
Evidence of Tridocosahexanoína-AOX® in eye care

DRY EYE SYNDROME

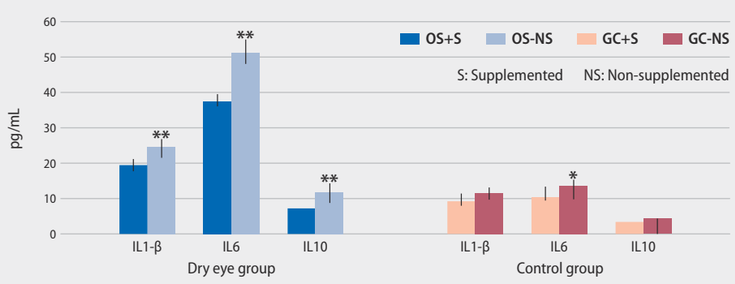
9 studies

- Improved dry eye symptoms
- Reduced inflammation
- Improved tear quantity and quality

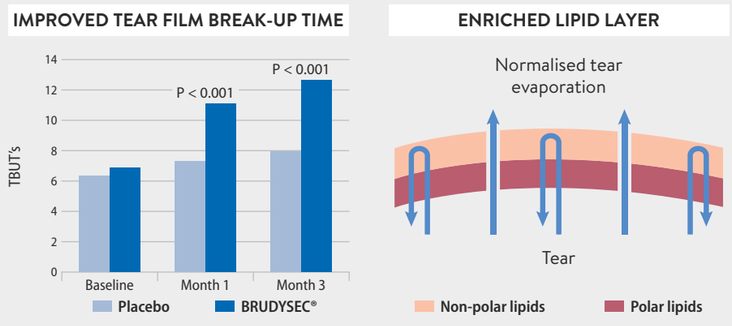
Dry eye disease[4]
- *n = 905 patients with dry eye symptoms*
- *1050 mg/day of Tridocosahexanoína-AOX®*
- *Duration = 3 months*



Dry eye disease[1]
- *n = 66 patients (132 eyes)*
- *1050 mg/day of Tridocosahexanoína-AOX®*
- *Mild-moderate dry eye group > 1 year (n = 30) ½ suppl. – ½ not suppl.*
- *Healthy control group (n = 36) ½ suppl. – ½ not suppl.*
- *Duration = 3 months*



Dry eye disease[3]
- *n = 61 patients with meibomian gland dysfunction (MGD)*
- *Control group (n = 31) with placebo*
- *Experimental group (n = 30) 1050 mg/day of Tridocosahexanoína-AOX®*
- *Duration = 3 months*



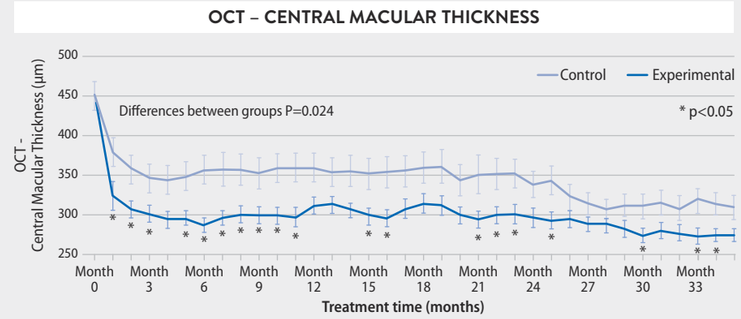
RETINAL/MACULAR DISORDERS

5 studies

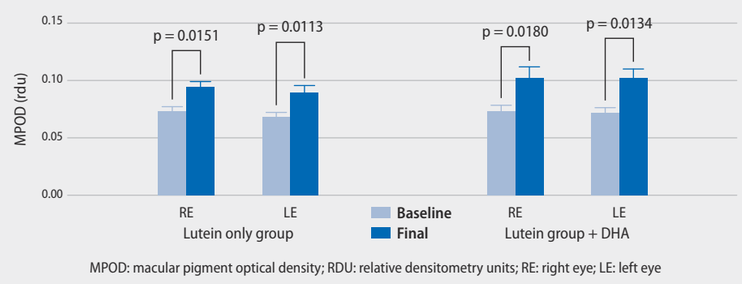
2 review articles

- Anti-oedematous effect in addition to conventional treatment of Age-related Macular Degeneration (AMD)
- Significant increase in Macular Pigment Optical Density (MPOD)
- Improved macular sensitivity and macular integrity assessment in Non-Proliferative Diabetic Retinopathy (NPDR)

Retinal/macular disorders[3]
- *n = 77 AMD patients treated with ranibizumab IV*
- *Control group (n = 29) without supplementation*
- *Experimental group (n = 26) 1050 mg/day of Tridocosahexanoína-AOX®*
- *Duration = 36 months*

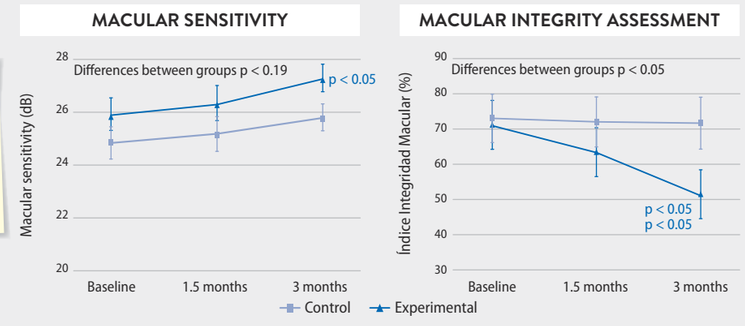


Retinal/macular disorders[4]
- *n = 100 healthy volunteers (200 eyes)*
- *Control group (n = 49) Placebo with lutein*
- *Experimental group (n = 51) 1050 mg/day of Tridocosahexanoína-AOX®*
- *Duration = 3 months*



MPOD: macular pigment optical density; RDU: relative densitometry units; RE: right eye; LE: left eye

Retinal/macular disorders[2]
- *n = 24 patients with NPDR*
- *Control group (n = 12) without supplement*
- *Experimental group (n = 12) 1050 mg/day of Tridocosahexanoína-AOX®*
- *Duration = 3 months*



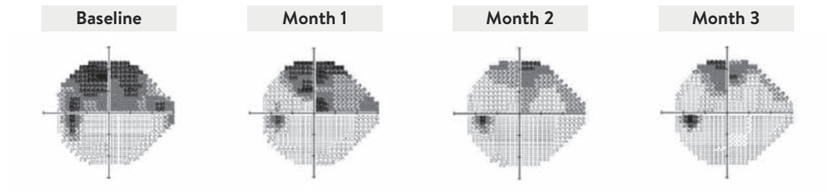
GLAUCOMA

4 studies

- **Improved visual field indices and progression rate with Tridocosahexanoína-AOX® + citicoline combined**
- **Improved dry eye symptoms and decrease in lacrimal gland inflammation**
- **Antioxidant and inflammation-regulating effects as mechanisms related to glaucoma**

WINNER NUTRA INGREDIENTS AWARDS 2024

Glaucoma[4]
- *n = 73 glaucoma patients with controlled IOP*
- *Control group (n = 17) vitamin C*
- *Group A (n = 16) 1050 mg/day of Tridocosahexanoína-AOX®*
- *Group B (n = 20) 326 mg of citicoline*
- *Group C (n = 20) 1050 mg/day of Tridocosahexanoína-AOX® + 326 mg of citicoline*
- *Duration = 3 months*



Images provided by Dr Alfonso Anton at the Catalan Retina Institute, taken from a case in the DHA + citicoline group

VISUAL FIELD PARAMETERS AT BASELINE AND AFTER 3 MONTHS OF TREATMENT

	Baseline MD (dB)	Month 3 MD (dB)	p Value	Baseline VFI (%)	Month 3 VFI (%)	p Value
Global (mean ± SD)	-8,96 ± 3,91	-8,42 ± 4,29	0,025	77,47 ± 12,83	78,52 ± 13,94	0,096
Vitamin C (mean ± SD)	-8,46 ± 3,70	-8,32 ± 3,87	0,727	78,35 ± 12,97	78,53 ± 13,24	0,871
DHA (mean ± SD)	-9,08 ± 4,07	-8,86 ± 5,07	0,685	78,13 ± 12,83	77,56 ± 15,72	0,719
Citicoline (mean ± SD)	-8,74 ± 3,70	-8,71 ± 4,17	0,957	78,50 ± 12,46	78,90 ± 13,16	0,687
DHA+Citicoline (mean ± SD)	-9,52 ± 4,36	-7,85 ± 4,36	0,001	75,15 ± 13,76	78,90 ± 14,82	0,008

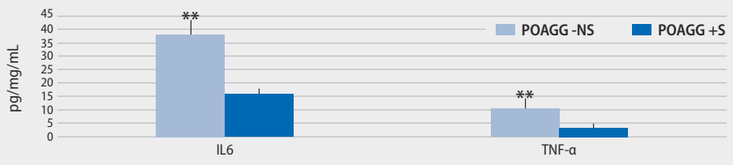
COMPARISON BETWEEN PRE- AND POST-TREATMENT VISUAL FIELD INDEX SLOPES IN EACH GROUP

	MD Slopes (dB/Month)		p Value	VFI Slopes (%/Month)		p Value
	Pretreatment	Post-Treatment		Pretreatment	Post-Treatment	
Global (mean ± SD)	-0,0613 ± 0,1736	0,0867 ± 0,3092	0,005	-0,1107 ± 0,2781	0,1625 ± 0,8499	0,018
Vitamin C (mean ± SD)	-0,0502 ± 0,1459	0,055 ± 0,2895	0,350	-0,079 ± 0,3665	0,1425 ± 0,8992	0,485
DHA (mean ± SD)	-0,0135 ± 0,1116	0,0295 ± 0,1939	0,733	-0,0509 ± 0,1998	0,0150 ± 0,5971	0,532
Citicoline (mean ± SD)	-0,0624 ± 0,1307	0,1029 ± 0,4504	0,192	-0,1364 ± 0,3151	0,1733 ± 1,2439	0,371
DHA+Citicoline (mean ± SD)	-0,1041 ± 0,2471	0,1383 ± 0,2544	0,006	-0,1557 ± 0,2310	0,2780 ± 0,5661	0,006

MD, mean defect of visual field; dB, decibels; VFI, visual field index; SD, standard deviation; DHA, docosahexaenoic acid.

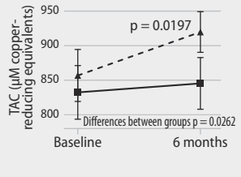
Glaucoma[1]
- *n = 97 patients suffering from dry eye*
- *Group 1 – Mild-moderate dry eye (n = 30) ½ suppl. – ½ not suppl.*
- *Group 2 – Primary Open-Angle Glaucoma (POAG) (n = 31) ½ suppl. – ½ not suppl.*
- *Group 3 – Healthy controls (n = 36) ½ suppl. – ½ not suppl.*
- *700 mg/day of Tridocosahexanoína-AOX®*
- *Duration = 3 months*

IL-6 AND TNF-α IN TEAR SAMPLES FROM THE GLAUCOMA GROUP

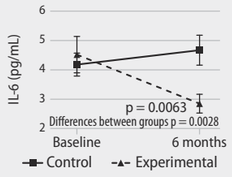


Glaucoma[3]
- *n = 47 patients suffering from pseudoexfoliative glaucoma with controlled IOP*
- *Control group (n = 24) without supplement*
- *Experimental group (n = 23) 1050 mg/day of Tridocosahexanoína-AOX®*
- *Duration = 6 months*

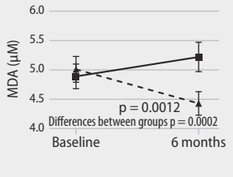
CHANGES IN TAC



CHANGES IN IL-6



DECREASE IN MDA



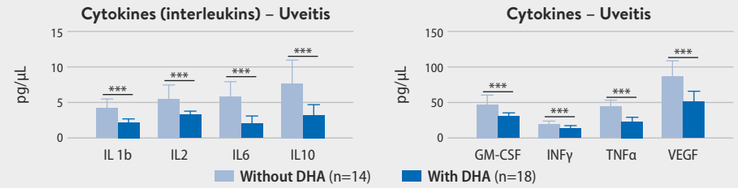
EYE INFLAMMATION

2 studies

- **Reduced systemic inflammatory burden**
- **Antioxidant and anti-inflammatory effect to address the underlying pathophysiological mechanisms of keratoconus**

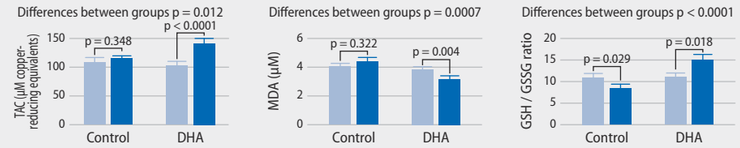
Eye inflammation[1]
- *n = 62 patients*
- *Group 1 (n = 30) healthy volunteers ½ suppl. – ½ not suppl.*
- *Group 2 (n = 32) NIU in remission phase ½ suppl. – ½ not suppl.*
- *500 mg/day of Tridocosahexanoína-AOX®*
- *Duration = 3 months*

COMPARISON BETWEEN SUPPLEMENTED NIAU PATIENTS AND UNSUPPLEMENTED NIAU PATIENTS

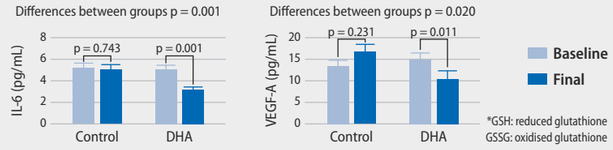


Eye inflammation[2]
- *n = 34 patients with keratoconus*
- *Control group n = 15 without supplement*
- *Supplemented group n = 19 1000 mg/day of Tridocosahexanoína-AOX®*
- *Duration = 3 months*

PLASMA ANTIOXIDANT PROTECTION



PLASMA INFLAMMATORY MARKERS



TOPICAL TREATMENT

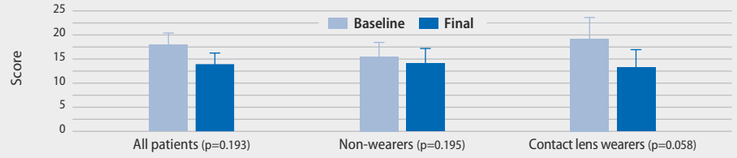
1 study

1 review article

- **Clinically proven efficiency and safety of cream with Tridocosahexanoína-AOX®**

Topical effect[1]
- *n = 60 healthy volunteers (30 contact lens wearers)*
- *1 application of cream on the eyelid skin at night*
- *Duration = 2 weeks*

OSDI – VALIDATION OF THE SYMPTOM QUESTIONNAIRE (Ocular Surface Disease Index)



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