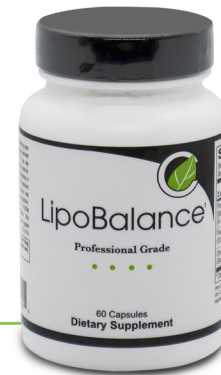


# LipoBalance



## CLINICAL APPLICATIONS

- Maintains Normal Inflammatory Balance
- Promotes Healthy Cholesterol Levels Already Within the Normal Range
- Provides Antioxidant Support for Blood Vessels
- Supports the Body's Ability to Maintain Healthy Levels of oxLDL
- Helps Maintain Optimal Endothelial Health
- Supports Healthy HDL Function



## CARDIOVASCULAR HEALTH

This product is designed to support the body's ability to maintain healthy levels of oxidized LDL, which research indicates is an important factor in maintaining proper endothelial function and cardiovascular health.<sup>1,2</sup> Containing standardized antioxidant extracts from olive fruit, pomegranate, and French maritime pine bark, this product synergistically maintains normal endothelial function, supports healthy blood pressure levels and a normal inflammatory response.

### Overview

The endothelium is a one cell thick layer which lines our blood vessels that acts as an interface between the blood and the rest of the body. Current research indicates maintaining levels of oxidized low-density lipoproteins (oxLDL) already within the normal range is one of the most important markers for endothelial and cardiometabolic health.<sup>2-4</sup> OxLDL and nitric oxide (NO) have been shown to exert opposing forces within the endothelium, with studies showing oxLDL inhibits thyroid stimulated NO production as well as increases arginase activity, the enzyme responsible for metabolizing arginine for endothelial mediated vasodilation, leading to arginine deficiency.<sup>5-7</sup> This product contains key ingredients that maintain vascular health and HDL function, supports levels of oxLDL already within normal limits, as well as positively influences functional endothelial tests such as carotid intimal medial thickness and flow mediated dilation (FMD) assay.

### Oligopin Maritime Pine<sup>†</sup>

French maritime pine bark extract (FMPBE) contains oligomeric procyanidins (OPC), a specific type of flavonoid showing strong antioxidant properties which help support healthy levels of circulating oxLDL.<sup>8</sup> Oligopin (OP) is a standardized FMPBE with a unique profile characterized by high concentration of OPC and

an absence of tannins, resulting in improved bioavailability.<sup>8,9</sup> In a randomized, double-blind, placebo-controlled crossover trial consisting of 24 participants, 150 mg of OP supported many aspects of cardiometabolic health including maintaining healthy levels of both HDL-C and ApoB/A1 ratios, as well as supporting plasma oxLDL levels already within the normal range.

### MEDITEANOX™ Olive Fruit Extract<sup>†</sup>

Olive oil possess naturally occurring phenolic compounds that have been investigated for their beneficial role in the Mediterranean diet's ability to maintain arterial and cardiometabolic health.<sup>10-14</sup> MEDITEANOX™ is an olive fruit extract standardized for hydroxytyrosol (HT), one of the olive's primary polyphenols with potent antioxidant effects, with animal and invitro studies showing its ability to support cardiometabolic health.<sup>15</sup> Human pilot intervention studies using MEDITEANOX™ show beneficial effects in supporting healthy plasma oxLDL levels and antioxidant capacity, as well as supporting optimal cytokine balance.<sup>16-18</sup>

### Pomanox™ Pomegranate Extract<sup>†</sup>

Pomegranate fruit has been a symbol of health and longevity used by many cultures throughout history, with research now revealing the fruits health promoting properties are due to a unique class of polyphenols called punicalagins (PC).<sup>19</sup> Pomanox™ uses a propriety extraction method producing a polyphenol spectrum corresponding to whole fresh pomegranates, enabling natural synergy between PC and other pomegranate polyphenols which helps maintain cardiovascular health.<sup>19,20</sup> Mechanistically, pomegranate PCs are able to support the function of HDL through PON1 activation, as well as activate nitric oxide production by activating the AKT/eNOS axis, supporting endothelial function.<sup>21-24</sup> In a

<sup>†</sup> These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

clinical trial using both Pomanox™ and MEDITEANOX™, the authors found HT and PC supported healthy blood pressure, as well as healthy levels of malondialdehyde (MDA) and oxLDL.<sup>25</sup>

## Directions

2 capsules per day or as recommend by your health care professional.

## Does Not Contain

Gluten, yeast, artificial colors and flavors.

## Cautions

Do not consume this product if you are pregnant or nursing. Consult your physician for further information.

<b>Supplement Facts</b> <sup>v1</sup>		
Serving Size 2 Capsules		
Servings Per Container 30		
<b>2 capsules contain</b>	<b>Amount Per Serving</b>	<b>% Daily Value</b>
Pomegranate Fruit Extract (Pomanox®) [Standardized to contain 30% Total Punicalagins (A & B) and Punicalins (A & B)]	650 mg	*
French Maritime Pine Bark Extract (OLIGOPIN®) (Standardized to contain 65% Procyanidins)	150 mg	*
Olive Fruit Extract (Mediteanox®) (Standardized to contain 20% Hydroxytyrosol)	50 mg	*
* Daily Value not established		

## References

- Chen, C., & Khismatullin, D. B. (2015). Oxidized Low-Density Lipoprotein Contributes to Atherogenesis via Co-activation of Macrophages and Mast Cells. *Plos One*,10(3). doi:10.1371/journal.pone.0123088
- Maiolino, G., Rossitto, G., Caielli, P., Bisogni, V., Rossi, G. P., & Calò, L. A. (2013). The role of oxidized low-density lipoproteins in atherosclerosis: the myths and the facts. *Mediators of inflammation*, 2013, 714653. doi:10.1155/2013/714653
- Trpkovic, Andreja, et al. "Oxidized Low-Density Lipoprotein as a Biomarker of Cardiovascular Diseases." *Critical Reviews in Clinical Laboratory Sciences*, U.S. National Library of Medicine, 2015.
- Valente, A. J., Irimpen, A. M., Siebenlist, U., & Chandrasekar, B. (2014). OxLDL induces endothelial dysfunction and death via TRAF3IP2: Inhibition by HDL3 and AMPK activators. *Free Radical Biology and Medicine*,70, 117-128. doi:10.1016/j.freeradbiomed.2014.02.014
- Gradinaru, D., Borsa, C., Ionescu, C., & Prada, G. I. (2015). Oxidized LDL and NO synthesis—Biomarkers of endothelial dysfunction and ageing. *Mechanisms of Ageing and Development*,151, 101-113. doi:10.1016/j.mad.2015.03.003
- Vicinanza, R., Coppotelli, G., Malacrino, C., Nardo, T., Buchetti, B., Lenti, L., . . . Scarpa, S. (2013). Oxidized Low-Density Lipoproteins Impair Endothelial Function by Inhibiting Non-Genomic Action of Thyroid Hormone-Mediated Nitric Oxide Production in Human Endothelial Cells. *Thyroid*,23(2), 231-238. doi:10.1089/thy.2011.0524
- Wang, W., Hein, T. W., Zhang, C., Zawieja, D. C., Liao, J. C., & Kuo, L. (2010). Oxidized Low-Density Lipoprotein Inhibits Nitric Oxide-Mediated Coronary Arteriolar Dilatation by Up-regulating Endothelial Arginase I. *Microcirculation*,18(1), 36-45. doi:10.1111/j.1549-8719.2010.00066.
- Assouad, J., & Piriou, Y. (2007). Procyanidins from French Maritime Pine Bark Extraction and Biological Properties. *NUTRAfoods*, 6(3).
- Valls, R., Llauradó, E., Fernández-Castillejo, S., Puiggrós, F., Solà, R., Arola, L., & Pedret, A. (2016). Effects of low molecular weight procyanidin rich extract from french maritime pine bark on cardiovascular disease risk factors in stage-1 hypertensive subjects: Randomized, double-blind, crossover, placebo-controlled intervention trial. *Phytomedicine*,23(12), 1451-1461. doi:10.1016/j.phymed.2016.08.007
- Torre-Carbot, K. D., Chávez-Servín, J. L., Jaúregui, O., Castellote, A. I., Lamuela-Raventós, R. M., Nurmi, T., . . . López-Sabater, M. C. (2010). Elevated Circulating LDL Phenol Levels in Men Who Consumed Virgin Rather Than Refined Olive Oil Are Associated with Less Oxidation of Plasma LDL. *The Journal of Nutrition*,140(3), 501-508. doi:10.3945/jn.109.112912
- Marrugat, J., Covas, M., Fitó, M., Schröder, H., Miró-Casas, E., Gimeno, E., . . . Farré, M. (2004). Effects of differing phenolic content in dietary olive oils on lipids and LDL oxidation. *European Journal of Nutrition*,43(3), 140-147. doi:10.1007/s00394-004-0452-8.
- Castañer, O., Covas, M., Khymentets, O., Nyyssonen, K., Konstantinidou, V., Zunft, H., . . . Fitó, M. (2012). Protection of LDL from oxidation by olive oil polyphenols is associated with a downregulation of CD40-ligand expression and its downstream products in vivo in humans. *The American Journal of Clinical Nutrition*,95(5), 1238-1244. doi:10.3945/ajcn.111.029207

† These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

13. Machowetz, A., Poulsen, H. E., Gruendel, S., Weimann, A., Fitó, M., Marrugat, J., . . . Koenig, C. (2007). Effect of olive oils on biomarkers of oxidative DNA stress in Northern and Southern Europeans. *The FASEB Journal*,21(1), 45-52. doi:10.1096/fj.06-6328com
14. Covas, M., Torre, K. D., Farré-Albaladejo, M., Kaikkonen, J., Fitó, M., López-Sabater, C., . . . Torre, R. D. (2006). Postprandial LDL phenolic content and LDL oxidation are modulated by olive oil phenolic compounds in humans. *Free Radical Biology and Medicine*,40(4), 608-616. doi:10.1016/j.freeradbiomed.2005.09.027
15. Colica, C., Renzo, L. D., Trombetta, D., Smeriglio, A., Bernardini, S., Cioccoloni, G., . . . Lorenzo, A. D. (2017). Antioxidant Effects of a Hydroxytyrosol-Based Pharmaceutical Formulation on Body Composition, Metabolic State, and Gene Expression: A Randomized Double-Blinded, Placebo-Controlled Crossover Trial. *Oxidative Medicine and Cellular Longevity*,2017, 1-14. doi:10.1155/2017/2473495
16. Pilot study about the effect of Mediteanox in olive oil in the prevention of LDL oxidation. Unpublished manuscript, Probelte Biotecnología S.L, Murcia, Spain.
17. Pilot study on the antioxidant effect of mediteanox. Unpublished manuscript, Probelte Biotecnología S.L, Murcia, Spain.
18. Nutritional intervention study with Meditanox in persons with high waist circumference. Unpublished RCT, University Hospital La Paz, Madrid, Spain.
19. Tsang, C., Smail, N. F., Almoosawi, S., Davidson, I., & Al-Dujaili, E. A. (2012). Intake of polyphenol-rich pomegranate pure juice influences urinary glucocorticoids, blood pressure and homeostasis model assessment of insulin resistance in human volunteers. *Journal of Nutritional Science*,1. doi:10.1017/jns.2012.10
20. Stockton, A., Farhat, G., Mcdougall, G. J., & Al-Dujaili, E. A. (2017). Effect of pomegranate extract on blood pressure and anthropometry in adults: A double-blind placebo-controlled randomised clinical trial. *Journal of Nutritional Science*,6. doi:10.1017/jns.2017.36
21. Vilahur, G., Padró, T., Casaní, L., Mendieta, G., López, J. A., Streitenberger, S., & Badimon, L. (2015). Polyphenol-enriched Diet Prevents Coronary Endothelial Dysfunction by Activating the Akt/eNOS Pathway. *Revista Española De Cardiología (English Edition)*,68(3), 216-225. doi:10.1016/j.rec.2014.04.021
22. Aviram, M., Dornfeld, L., Rosenblat, M., Volkova, N., Kaplan, M., Coleman, R., . . . Fuhrman, B. (2000). Pomegranate juice consumption reduces oxidative stress, atherogenic modifications to LDL, and platelet aggregation: studies in humans and in atherosclerotic apolipoprotein E-deficient mice. *The American Journal of Clinical Nutrition*, 71(5), 1062–1076. <https://doi.org/10.1093/ajcn/71.5.1062>
23. Davidson, M. H., Maki, K. C., Dicklin, M. R., Feinstein, S. B., Witchger, M., Bell, M., . . . Aviram, M. (2009). Effects of consumption of pomegranate juice on carotid intima-media thickness in men and women at moderate risk for coronary heart disease. *The American Journal of Cardiology*, 104(7), 936–942. <https://doi.org/10.1016/j.amjcard.2009.05.037>
24. Parsaeyan, N., Mozaffari-Khosravi, H., & Mozayan, M. (2012). Effect of pomegranate juice on paraoxonase enzyme activity in patients with type 2 diabetes. *Journal of Diabetes & Metabolic Disorders*, 11(1), 11. <https://doi.org/10.1186/2251-6581-11-11>
25. Quirós-Fernández, R., López-Plaza, B., Bermejo, L., Palma-Milla, S., & Gómez-Candela, C. (2019). Supplementation with Hydroxytyrosol and Punicalagin Improves Early Atherosclerosis Markers Involved in the Asymptomatic Phase of Atherosclerosis in the Adult Population: A Randomized, Placebo-Controlled, Crossover Trial. *Nutrients*,11(3), 640. doi:10.3390/nu11030640