References


About Linnea
From its headquarters and manufacturing facility in Locarno, Switzerland, Linnea specializes in the manufacture of botanical extracts and phytochemicals, and is a leading supplier to the pharmaceutical, dietary supplement and cosmetic industries. The company is a joint venture company between Dr. Willmar Schwabe (Germany) and Ipsen (France). HMRlignan™ is a proprietary, patent-protected product manufactured by Linnea SA. The company’s U.S. office, Linnea Inc., is located in Easton, Pennsylvania.

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Dietary lignans and women’s health.

More and more, today’s women are looking at dietary lignans as part of a long-term health strategy. And they’re right to do so, because a growing body of evidence shows that dietary lignans can provide a range of health benefits throughout the various phases of a woman’s life from adolescence onward. Studies have found that increased lignan intake may improve breast and heart health, and manage menopausal symptoms such as hot flashes.*

Lignans are phytonutrients, a class of plant compounds known to be beneficial to human health, and they are commonly found in the healthy diet. The primary plant lignans of dietary importance are hydroxymatairesinol, matairesinol, and secoisolariciresinol. A critical aspect of the health benefits of these plant lignans is their conversion in the intestinal tract to human lignan enterolactone.

While dietary precursors of enterolactone such as sesame seeds, whole grains, and fresh vegetables are important parts of a healthy diet, HMRlignan™ (7-hydroxymatairesinol) offers women the first standardized low-dose precursor of enterolactone in a dietary supplement. Derived from the Norway spruce tree, HMRlignan™ is an easily absorbed and efficient way for women to maintain healthy enterolactone levels in the body.

Hydroxymatairesinol, the dietary lignan found in grains and vegetables.

Although flax is well known as a rich source of lignans, it is not particularly common in the diet. However, a recent study in Finland has established hydroxymatairesinol as the predominant lignan in the bran portion of a range of common grains in the diet such as wheat, triticale, barley, corn, amaranth, millet, and oats.1 Due to the over processing of food and a lower intake of fruits, vegetables, and unrefined grains in the modern diet, most people do not get enough lignans to reap the benefits of this important phytonutrient. In fact, the average intake in the U.S. diet is less than 1 mg per day, well below the levels that research indicates is needed to achieve health benefits.2 HMRlignan™ is standardized to contain 80,000 mg/100g of lignans; since the daily dosage needed to raise enterolactone levels is 10 to 50 mg, HMRlignan™ can be easily dosed in one-a-day capsules or tablets or included in new or existing multi-ingredient formulations.

Enterolactone is key to the benefits of dietary lignans.

Conversion of dietary lignans to enterolactone is a key to the health benefits associated with lignans. Enterolactone is the primary circulating human lignan, and it is used as the primary marker for plant lignan intake in studies. Among the dietary lignans, hydroxymatairesinol and matairesinol are directly converted to enterolactone in the intestinal tract. Secoisolariciresinol, the predominant lignan in flax, is initially converted to enterodiol and then must go through a second conversion process to become enterolactone.

Together with lignans such as hydroxy-matairesinol, enterolactone has been shown to provide antioxidant protection associated with cardiovascular health benefits.* In women, enterolactone appears to play an important role in healthy estrogen metabolism and has emerged as an important factor in breast health throughout a woman’s life.*

*This statement has not been evaluated by the Food and Drug Administration. The product is not intended to diagnose, treat, cure or prevent any disease.
Breast health.

Lignans have been a newsworthy topic when it comes to breast health. A significant body of research has found that increased dietary lignan intake (such as hydroxymatairesinol), as well as increased blood levels of enterolactone (ENL), is associated with improved breast health in women.* The protection appears to extend all the way from young adulthood through the postmenopausal phase of a woman’s life. Large population studies have found that higher intakes of lignans and especially higher blood levels of enterolactone are associated with promoting breast health in both premenopausal and postmenopausal women.*

Cardiovascular health.

Dietary lignans and enterolactone (ENL) have also been found to contribute to cardiovascular health.* Increased blood levels of ENL have been shown to reduce oxidation of blood lipids and promote cardiovascular health.* In a heart disease risk factor study in Kuopio, Finland, higher serum ENL levels were found to positively promote cardiovascular health.* The National Health and Nutrition Examination Survey (NHANES 1994-2004) examined lignan intake in 1,492 U.S. adults (males and females) and urinary excretion of enterolactone. Higher urinary concentrations of enterolactone were found to correlate with cardiovascular health in both women and men.*

Helping to manage menopause and beyond.*

In addition to breast and heart health, studies indicate that lignans may afford other health benefits to women during menopause and beyond.* Research in the Netherlands reported that during the postmenopausal phase of a woman’s life, mental sharpness and focus were found to be improved with increased lignan intake in the diet.*

HMRlignan™ reduces hot flashes.

A U.S. clinical study found that HMRlignan™ effectively reduces hot flashes by 53% in menopausal women.* Completed by Medicus Research in Northridge, CA, the pilot study compared the effect of two doses of HMRlignan (25 mg and 50 mg per day) over an 8-week treatment period. Compared to baseline (pre-treatment), women taking 50 mg of HMRlignan™ per day had a significant reduction in the number of hot flashes after just 4 weeks (37.2%; p=0.04). At 8 weeks, the mean reduction in daily hot flashes was 53.5% (p = 0.01). Adverse effects were minimal with only one woman reporting mild gastrointestinal upset during the study.

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HMRlignan™ - an efficient source of enterolactone production without side effects.

HMRlignan™ is a low-dose, cost-effective method of bringing lignans to a product line. Doses of 25 to 50 mg per day have been shown to increase enterolactone levels more efficiently than other sources of lignans. Alternative sources of flax (such as standardized extracts) are typically dosed at 200 to 250 mg per day, while flaxseed powder studies have used doses from 25 to 40 grams per day. Data from a recent clinical study examining the effects of flax powder (40 g/day) on hot flashes in women reported that 50% of the women experienced abdominal distension or bloating, and 21% were unable to complete the study. The results of a similar study using doses of 25 to 50 mg of HMRlignan™ reported that there were no side effects such as gas or bloating.

A three-fold increase in enterolactone.

Pharmacokinetic studies have demonstrated that at doses as low as 10 mg per day, HMRlignan™ is a highly efficient precursor of enterolactone. A three-fold increase in serum enterolactone levels were noted in post-menopausal women taking 25 mg of HMRlignan™. While enterolactone peaked at 24 hours after this single dose, significant elevations were also noted at 48 and 72 hours. Earlier pharmacokinetic studies have suggested that this effect may be dose-dependent and that higher doses of HMRlignan™ produce increased levels of enterolactone.

This low dose and high bioavailability of HMRlignan™ makes it an ideal ingredient for a variety of women’s supplements ranging from multivitamin and mineral products to those focused on breast health and menopause.

Safety.

Safety studies with HMRlignan™ have demonstrated that dosages as high as 1350 mg/day are safe and have not been associated with adverse events.