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.

Linnea SA
Via Cantonale, 6595 Riazzino (Locarno) Switzerland • Phone: +41 91 850 5050 • www.linnea-us.com

Linnea Inc. USA
435 McCartney Street, Easton, PA 18042 • Phone: 888-253-0044 • www.hmrllignan.com

References
Dietary lignans and men’s health.

Few men consume the amount of lignans needed to promote well-being yet lignans offer a range of benefits for men interested in maintaining long term health. Clinical and epidemiological studies point in particular to the role of enterolactone in prostate health and cardiovascular health.

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 men 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 men 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. The target daily intake of lignans from food in order to maintain healthy enterolactone levels is approximately 50 mg per day, but 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. HMRlignan™ is standardized to contain 80,000 mg/100g of lignans; since the daily dosage needed to raise enterolactone levels is 25 to 50 mg, HMRlignan™ can be easily dosed in one-a-day capsules or tablets or included in new or existing multi-ingredient formulations.
Prostate health.

Studies suggest that lignans and enterolactone help maintain a healthy prostate.* In vitro studies suggest that this may partially be due to interactions with factors in the body such as aromatase and sex-hormone binding globulin.* Animal studies have found that 7-hydroxymatairesinol promotes prostate health.* Large population studies with middle aged and older men have found that increased intake of lignans and higher blood levels of enterolactone are associated with helping promote prostate health.*

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 in men.* 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.*

*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.
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 (40g/day) showed that 50% of individuals experienced abdominal distension or bloating. 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.

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.