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HMRLIGNAN™ SHOWN TO REDUCE HOT FLASHES BY MORE THAN 50 PERCENT

U.S. Clinical Study demonstrates excellent tolerance and efficacy at modest doses

LOCARNO, SWITZERLAND & EASTON, PA – November 6, 2007 – A recently completed U.S. clinical study of HMRLignan™ and hot flashes has shown significant alleviation for women by cutting incidence of hot flashes by 53 percent in postmenopausal women.

The pilot study, entitled, “The effect of HMRLignan™ on mammalian lignan and estrogen metabolite levels in post-menopausal women: A randomized, double-blind, single dummy, parallel group, pilot study,” led by Jay Udani, M.D. and Mary Hardy, M.D. from Medicus Research in Northridge, CA, analyzed changes in enterolactone levels and estrogen metabolites following ingestion of the plant lignan hydroxymatairesinol (HMR) and found significant improvement in reported hot flashes by the study participants.

The researchers investigated outcomes from two different dosages of HMR, 25 mg and 50 mg. At baseline, both supplement groups had a similar mean number of hot flashes per day, 4.3. At week four, the 25 mg group showed no statistically significant change, while the 50 mg group did ($p = 0.04$). By week 8, the 25 mg group had clear but modest reduction, down from baseline to 3.7 hot flashes per day. However, the 50 mg group had significant reduction to 2.0 per day by week 8 ($p = 0.01$), a 53% decrease in only two months.

When comparing groups, there was a clear advantage in hot flush reduction for the high dose group. The differences between groups in hot flashes was statistically significant at week 4 ($p = 0.003$) and at week 8 ($p = 0.007$). According to Donald Brown, N.D., “This pilot study nicely sets the stage for a larger placebo-controlled study.” Notable was the lack of side effects in the study with only one woman complaining of minor gastrointestinal upset. Dr. Brown adds, “Contrast this with a recent study using flax in which half the women complained of side effects with abdominal bloating and gas being the most common.”

Previous pharmacokinetic studies have demonstrated that at doses as low as 10 mg per day, HMRLignan is a highly efficient precursor of enterolactone. A 3-fold increase in serum enterolactone levels were noted in postmenopausal 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 also suggested a dose-dependent effect and that higher doses of HMRLignan produce increased levels of enterolactone.

Enterolactone is the primary circulating human lignan and is used as the primary marker for plant lignan intake in studies. Of all the dietary lignans found in numerous plant foods, HMR and maitairesinol are converted in the body’s intestinal tract directly to enterolactone. Other plant-based lignans, such as secoisolariciresinol (the predominant lignan in flax), must go through an extra step, converting first to enterodiol and then to enterolactone. “This is an important distinction,” says Robin Ward, Vice President for Linnea, “because a large number of studies have shown that high circulating enterolactone levels are associated with lower risks of hormone-mediated cancers such as breast cancer, as well as with cardiovascular health.”

This makes HMRLignan a highly economical choice for manufacturers – and consumers. “Compliance is a key issue,” Ward says. “Especially when it is considered that flaxseed powders, a commonly studied source for women’s health,

have used doses ranging from 25 to 60 grams per day and flax standardized extracts studied was between 200 to 250 mg per day. In addition, flax derivatives are not converted directly into enterolactone.”

HMRlignan is a naturally occurring plant lignan, HMR, from the Norway spruce (*Picea abies*). Clinical research has shown HMRlignan to be a highly efficient enterolactone precursor. In addition to raising enterolactone levels HMRlignan also provides significant blood plasma levels of the strong antioxidant and free radical scavenger HMR.

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. HMRlignan™ is a proprietary, patent protected, product manufactured by Linnea SA. The company's U.S. office, Linnea Inc., is located in Easton, Pennsylvania. For more information about HMRlignan, visit our Web site at www.hmrlignan.com or call 1-888-253-0044.

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