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**New Research Establishes EC50 Values for Norwegian Spruce Lignans
(HMRLignan) Efficacy In Managing Menopause**
Study confirms 10mg - 30 mg dose for lignan supplement

ANAHEIM, CA – March 24, 2006 – New research performed by the clinical medicine faculty at the University of Insubria in Italy has added to the body of evidence supporting the use of lignan phytoestrogens to help women manage menopause. In the study, designed to establish the effective median concentration value (EC50) of Norway spruce-derived lignan, hydroxymatairesinol and its human metabolite enterolactone in comparison to estradiol, experiments confirmed a daily dosage 10 mg – 30 mg as sufficient to raise circulating enterolactone to estrogenically active levels.

In the study, in which all three compounds displayed estrogenic activity in the MCF-7 breast cell model, estradiol displayed the highest potency in the pM concentration range whilst enterolactone exerted activity in the same concentration range as estradiol but with far less efficacy (about 2/5 that of estradiol). Hydroxymatairesinol exhibited a significantly lower efficacy (about 7/10 that of estradiol) but only in the microM concentration range.

The study concluded that both hydroxymatairesinol and its metabolite enterolactone are endowed with estrogenic activity, which is likely to be exerted through estrogen receptors and to target the same intracellular mechanisms acted upon by estradiol. The estrogenicity of hydroxymatairesinol and enterolactone is however milder than that of estradiol, as indicated by the lower potencies and efficacies of both lignans.

Commenting on the significance of the study the lead research pharmacologist, Dr. Marco Cosentino, stated, ‘The present results support the notion that dietary supplementation with

Norway spruce lignans provides a suitable source for endogenous enterolactone which in turn is likely beneficial for several conditions related to estrogen insufficiency (e.g., bone, and cardiovascular disturbances, as well as menopause-associated symptoms), and at the same time devoid of the adverse effects induced by stronger estrogenic agents. Bioavailability studies in humans show that, after oral supplementation with Norway spruce lignans, plasma concentrations of hydroxymatairesinol and enterolactone occur in the sub-microM range, which are below the observed in vitro EC50 (effective median concentration) of hydroxymatairesinol but well above the EC50 of enterolactone. Therefore, in humans, hydroxymatairesinol at the currently recommended doses represent mainly a source of enterolactone, which in turn exerts a mild estrogenic activity.

“This is great news for women offering a soft phytoestrogen alternative to help manage menopause,” adds Don Stanek, Director of Sales for Linnea Inc. “HMRLignan™ offers a highly bioavailable and efficient method to boost enterolactone levels. In human pharmacokinetic studies just 10 mg - 30 mg of HMRLignan™ has been demonstrated to maintain enterolactone above the EC50 levels established in this study.”

Derived from Norway spruce (*Picea abies*) HMRLignan™ is a direct enterolactone precursor dietary supplement standardized to contain 80,000 mg/100 g of lignans. It is a proprietary and patent protected product developed in Finland by Hormos Medical Corporation, and manufactured and marketed worldwide under license by Linnea, Switzerland.

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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