

HMRLignan™ Provides Cardiovascular Protection through Alleviation of Inflammatory Pathways, New Study Reveals

Anaheim, CA – March 9, 2007 – Linnea has announced the results of a new study that shows that 7-hydroxymatairesinol (HMRLignan™, HMR) ingestion may provide cardiovascular protection by depressing a particular inflammatory pathway. The study, concluded in February, was performed by the Department of Clinical Medicine at the University of Insubria in Italy and is under preparation for publication.

Researchers evaluated the anti-inflammatory properties of HMRLignan™, (from Norway Spruce (*Picea abies*)) and its metabolite enterolactone on the production of tumor necrosis factor (TNF)-alpha in a human cell line (THP-1). The effect of HMR was additionally assessed on the production of reactive oxygen species (e.g. free radicals) by polymorphonuclear leukocytes (PMNs). Researchers found that both HMR and enterolactone concentration-dependently reduced TNF-alpha production in THP-1 cells, a known inflammatory pathway. In polymorphonuclear leukocytes, HMR concentration-dependently significantly reduced production of reactive oxygen species.

Commenting on the results, research pharmacologist, Dr. Marco Cosentino, stated, "These results indicate that HMR and enterolactone exert effects that may result in reduction of the inflammatory process, known to be a contributing factor in the etiology of heart disease. Tumor necrosis factor production by monocytes infiltrating atherosclerotic lesions is a key factor in the genesis and progression of vascular damage, and oxidative stress of the vascular wall sustained by circulating activated PMNs is an early step in the cascade leading to cardiovascular pathology in otherwise asymptomatic individuals. This study shows remarkable potential for the inclusion of HMR in a cardiovascular protective regimen."

HMRLignan™ is converted in the gastrointestinal tract directly to enterolactone. Also known as a "mammalian lignan", higher circulating levels of enterolactone have been shown to correlate with lowered risk of hormone-mediated cancers (breast and prostate), as well as symptomatic mediation in menopause.

Donald Brown, N.D, commented, "The results of this study add to existing data suggesting that higher dietary lignan intake and enterolactone levels in the blood stream correlate with reduced risk of coronary heart disease-related and cardiovascular-disease-related mortality¹. HMRLignan™ remains a superior choice for products geared to men and women focused on raising enterolactone to healthy and sustainably viable levels to assist in cardiovascular protection and possibly reducing risk of breast and prostate cancers."

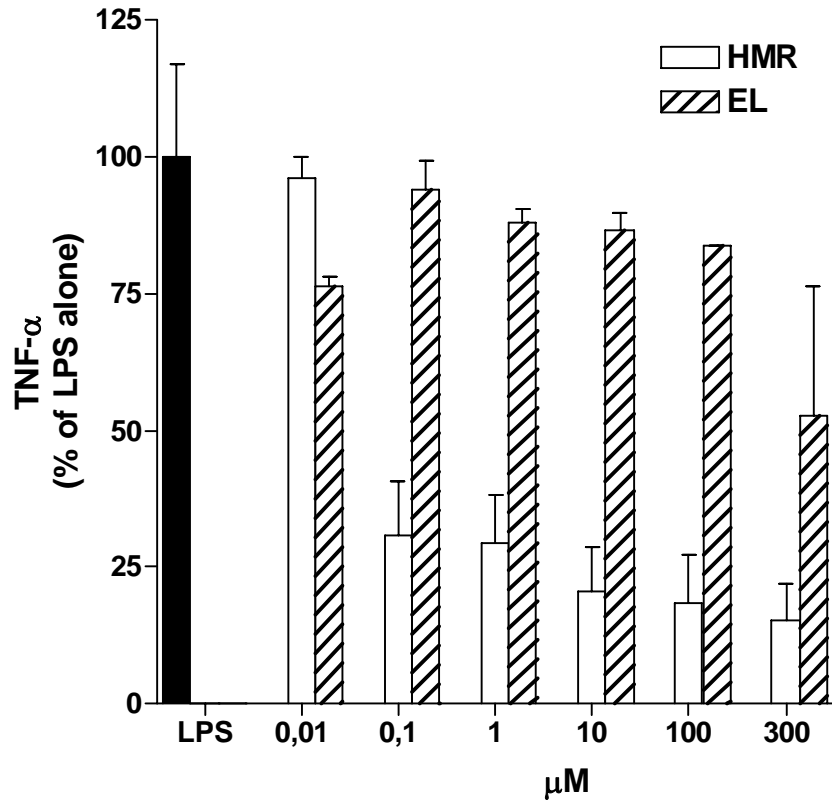
HMRLignan™, available exclusively from Linnea, offers a convenient, low-dose and highly bioavailable solution to supplement dietary lignans intake and boost circulating enterolactone levels. HMRLignan™ is standardized to contain 80,000 mg/100 g of lignans and the daily dosage to raise enterolactone levels is 10 - 30 mg daily.

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 <<http://www.hmrlignan.com/>> or call 1-888-253-0044.

1. *Arch Intern Med* 2003;163:1099–1104.

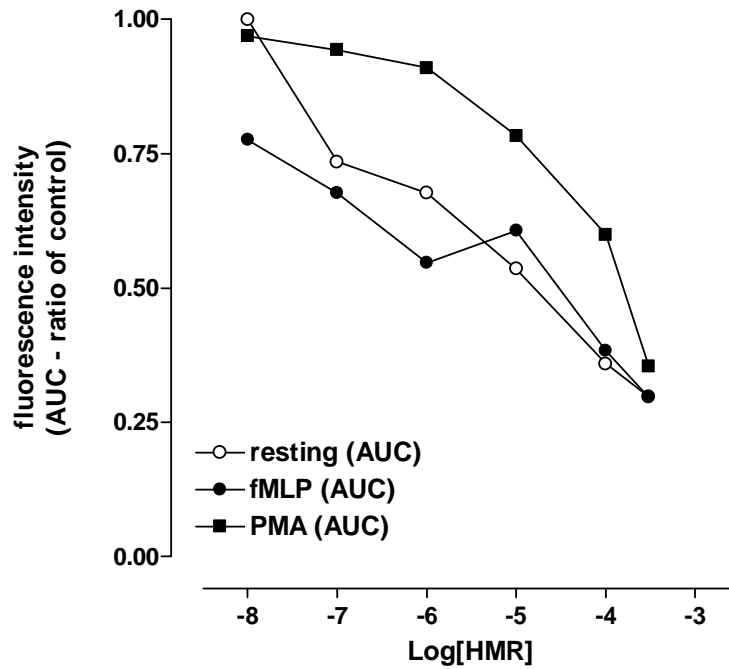
Effect of HMR and EL on LPS-induced TNF α production in THP-1 cells



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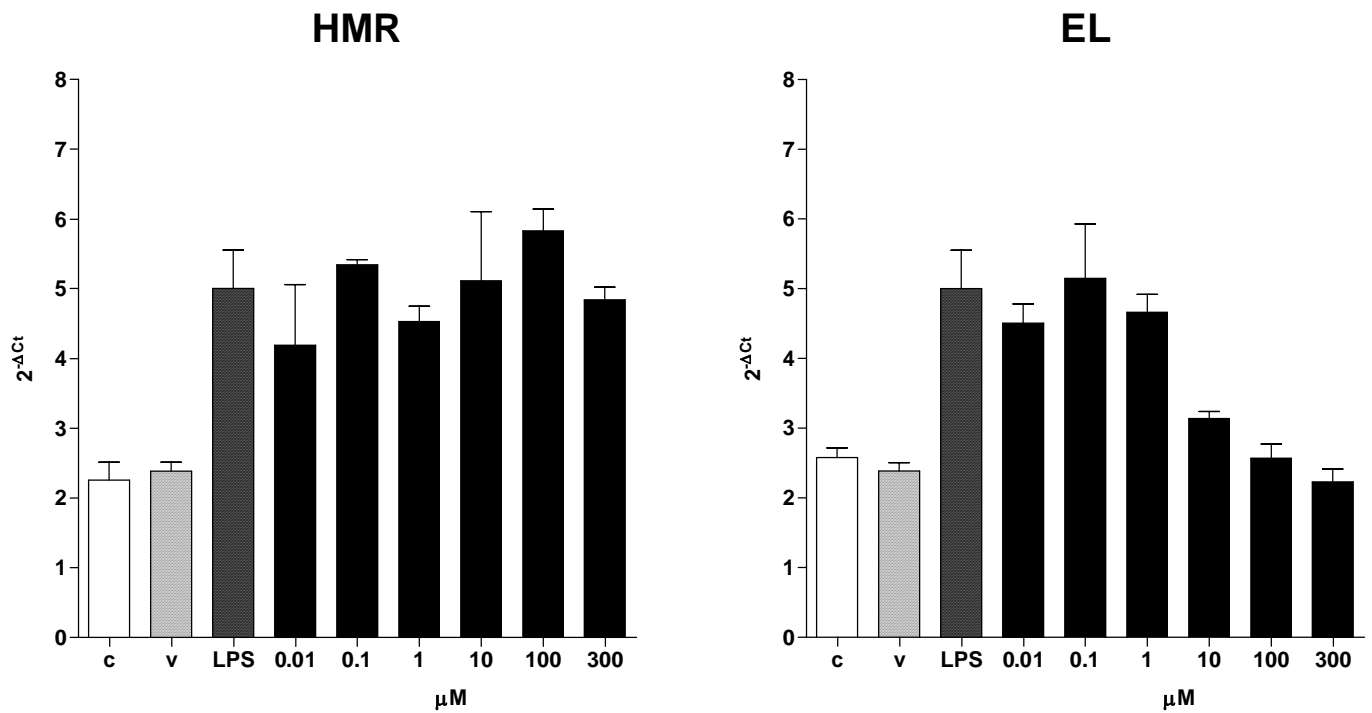
Effect of HMR on ROS generation in human PMNs



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Effect of HMR and EL on LPS-induced TNF α mRNA expression in THP-1 cells



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