SOUTHWESTERN NEWS

Contact: Bridgette Rose McNeill
(214) 648-3404
or e-mail: bridgette.mcneill@email.swmed.edu

MOLECULAR EFFECT OF VITAMIN E ON PLAQUE FORMATION IDENTIFIED

DALLAS – April 9, 1999 – Furthering evidence of the importance of vitamin E, researchers at UT Southwestern Medical Center at Dallas have identified the pathway that may allow the vitamin to block the trigger of arterial plaque formation at the molecular level.

As an antioxidant, vitamin E prevents the oxidation of low-density lipoproteins (LDL), the so-called "bad" cholesterol that contributes to heart disease. But research by Dr. Ishwarlal Jialal, professor of pathology and internal medicine, and Dr. Sridevi Devaraj, pathology instructor at UT Southwestern, also has found it to be a powerful player on the molecular level. Their latest work, published in the April 8th issue of *Arteriosclerosis, Thrombosis and Vascular Biology*, establishes for the first time that vitamin E inhibits the activity of an enyzme, 5-lipoxygenase, which is key to the initiation of plaque formation.

"Mounting evidence suggests that plaque formation is an inflammatory process," Devaraj said. This enzyme, 5-lipozygenase, produces a substance that stimulates the release of the protein interleukin-1beta (IL-1beta), which promotes plaque formation. Studies have shown it stimulates adhesion of white blood cells or monocytes to the arterial lining, promotes uptake of cholesterol by the cells and stimulates smooth-muscle-cell proliferation. Also, increased levels of IL-1beta have been observed in the coronary arteries of patients with heart disease and have been shown to correlate with the severity of the plaque.

(MORE)

"This is the first study showing that vitamin E has a novel biological anti-inflammatory effect on this crucial enzyme in cells that is more than just an antioxidant effect," Jialal said. "This pioneering work sheds more light on the possible prevention of heart disease with this antioxidant supplement, by decreasing not only oxidation of bad cholesterol but also by having important effects on cell function in the plaque."

In a 1996 study, these researchers showed that a supplement of 1,200 International Units (IUs) of vitamin E reduced the secretion of IL-1beta by about 80 percent in patients.

Jialal is also a senior researcher in the Center for Human Nutrition at UT Southwestern.

This work was supported in part by research grants from the American Diabetes Association and the General Clinical Research Center at UT Southwestern.

###

This news release is available on our World Wide Web home page at
http://www.swmed.edu/home_pages/news/

To automatically receive news releases from UT Southwestern via e-mail, send a message to UTSWNEWS-REQUEST@listserv.swmed.edu. Leave the subject line blank and in the text box, type SUB UTSWNEWS