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Press Release

D-RIBOSE HELPS PRESERVE HEART FUNCTION FOLLOWING HEART ATTACK

**Unique sugar may delay progression of congestive heart failure
Findings presented at the 2nd Annual Academic Surgical Congress Sponsored by the
Association for Academic Surgery and Society of University Surgeons**

PHOENIX, AZ, FEB 8, 2007—Heart attacks frequently lead to the progressive onset of congestive heart failure, a severely debilitating heart disease reaching epidemic proportions. After a heart attack, the undamaged portions of the heart must work harder to compensate for the loss of damaged tissue. This extra load is not always well tolerated and the function worsens. Eventually, the heart begins to fail and dilates, losing its ability to pump blood effectively.

What causes the undamaged portion to begin to fail is not known. It may be that the extra stress causes the heart muscle itself to fail, or it may be that the energy levels of the heart fall, leading to a progressive loss of heart function. If energy is the key, the developing heart failure would be a consequence of falling adenosine triphosphate (ATP) levels, the primary source of energy for the cells.

The first in a planned series of studies¹ conducted by John Foker, MD, PhD and his team at the University of Minnesota (Minneapolis) found that administering D-ribose, a simple five-carbon sugar, significantly improved heart function following a heart attack. These studies showed that the progressive failure of function following a heart attack begins with a fall in energy levels. The results are highly significant because they begin to determine the mechanism for the important clinical problem of chronic heart failure, and also reveal an effective and safe means of treatment.

Dr. Foker and his colleagues gave an oral presentation at the 2nd Annual Academic Surgical Congress, sponsored by the Association for Academic Surgery and the Society for University Surgeons at the Phoenix Convention Center on Wednesday, February 7 at 1:00 pm.

“We know a great deal about the implications of a heart attack on the future function of the heart, but our current studies are determining the sub-cellular events that control the onset of heart failure,” explained Dr. Foker, the Robert L. and Sharon G. Kaster Professor of Surgery and Pediatric Cardiac and Thoracic Surgeon at the University of Minnesota, Minneapolis, MN. “The energy level of the heart tissue that is not damaged by the heart attack appears to control the beginning events of heart failure. When ATP begins to fall, function will worsen, setting in motion the progression to chronic cardiac failure. Because supplementing with D-ribose is known to increase energy in stressed hearts, the progression to heart failure be greatly slowed, or, in some cases, prevented.”

While this study is an early stage investigation using an animal model of heart failure, cardiovascular surgeon and biochemist Foker is encouraged by the results. “There are more than five million people with congestive heart failure and more than 550,000 cases are added every

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year,” Foker said. “Treating hearts with D-ribose can improve the ATP concentration of the heart and, following a heart attack, it can prevent the loss of energy which appears to be a major contributor to disease progression.” Foker added that further studies are underway and will lead to human trials if future results are similarly encouraging.

D-Ribose is a unique sugar which serves as the foundation for many important compounds, including DNA, RNA, and, most importantly, ATP, the “energy currency” of the cells. ATP is critical to health and maintaining normal energy-dependent body functions. Stressed hearts, muscles, and other tissues lack the metabolic machinery to quickly make D-ribose and overcome progressive energy depletion. D-Ribose will significantly increase energy formation in stressed tissues.

D-Ribose has already been shown to increase functional capacity for patients with congestive heart failure (CHF) by improving diastolic heart function, ventilation, exercise capacity, and oxygen-uptake efficiency. Foker’s is the first study to investigate the effectiveness of D-ribose in delaying or possibly preventing the progression to congestive heart failure following a heart attack.

Foker went on to say that, “The implications of these findings are considerable. We look forward to more investigations into the possible benefits of ribose following a heart attack and in the prevention of chronic cardiac failure.”

More information on the science and clinical implications of D-ribose in heart disease can be obtained from Bioenergy, Inc. (<http://www.bioenergy.com>), a privately held, Minneapolis-based life sciences company whose core technology lies in the development and commercialization of products based on the physiological benefits of D-ribose in health and wellness.

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¹N. Befera, A. Rivard, D. Gatlin, S. Black, J. Zhang, J. Foker, University of Minnesota, Minneapolis, MN, “Ribose Treatment Helps Preserve Function of the Remote Myocardium After Myocardial Infarction,” presented at Academic Surgical Congress, February 2007.