

# News

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\*\*\*\*\*Dr. Dan Foster to receive Banting Medal for diabetes research.

DALLAS -- Dr. Dan Foster, professor of Internal Medicine at The University of Texas Health Science Center at Dallas, will receive the Banting Medal from the American Diabetes Association in Las Vegas June 9. He will deliver the Banting Memorial Lecture June 11.

The highest scientific award given by the ADA, the Banting Medal is regarded as one of the most prestigious honors for researchers in metabolic disease. It is named for the late Sir Frederick Banting of Toronto, who with Dr. Charles H. Best discovered insulin in the early 1920s.

The award is given annually for long-term scientific achievement in the area of diabetes. Foster will be the second researcher at UTHSCD so honored. Dr. Roger Unger received the medal in 1975 for his pioneering work on glucagon, a hormone that occurs in excess in diabetes.

Foster has also received notice that he will be awarded the Joslin Medal this fall. The medal is given by the Massachusetts Diabetes Association for high achievement in diabetic research.

Foster's research includes studies of metabolism in the liver and its role in controlling energy metabolism in the body.

"This should have been a joint award," says Foster. "It came about because of my long-term collaboration with Denis McGarry (professor of Internal Medicine and Biochemistry). In my opinion, he deserves more credit for our work than I do.

"Every day people go through periods of anabolic metabolism, that is of building up -- eating and storing food. Between meals and overnight we begin to break down the stores. This is catabolic metabolism.

"McGarry and I were interested in how the processes were controlled, particularly in a life-threatening catabolic state of diabetic ketoacidosis, or coma."

The anabolic state is characterized by high levels of insulin and low levels of glucagon, and the catabolic state, by low insulin and high glucagon levels. The interaction of these two hormones is critical to maintaining a normal state.

"So when you fast, normally the blood sugar begins to fall. The body begins to burn fat. Most tissues use fatty acids directly, but the brain can't. So the liver converts some of the fatty acids into ketone bodies (acetoacetic acid and beta-hydroxybutyric acid) for energy for the brain.

"In normal people during a fast the ketone level is modestly elevated. If it approaches a dangerous concentration, the pancreas responds by releasing insulin, which slows down the transport of fatty acids from the fat stores.

"In an insulin-dependent diabetic, there's no insulin. So the protective mechanism is missing. If they haven't taken enough insulin or insulin is overcome by the stress of illness, they get uncontrolled production of ketone bodies and diabetic coma."

(over)



Banting Medal/aw 2

Foster and McGarry have focused on how the liver is "converted" into an organ that makes ketone bodies. Their critical discovery was that malonyl-coenzyme A blocks fatty oxidation and ketone body formation by inhibiting the enzyme carnitine palmitoyltransferase I (CPTI). CPTI acts by transferring fatty acids into the mitochondria where ketone bodies are made.

"We now know that glucagon initiates the process by causing a fall in malonyl-CoA levels in the liver. This allows incoming fatty acids from the fat stores to be transported into the mitochondria and converted into ketone bodies.

"When I first said fatty acids were not the key to ketoacidosis, it was a very iconoclastic view. I think everybody accepts it now."

Foster received his M.D. from UT Southwestern in 1955, graduating with the highest academic record of the class. Prior to joining the faculty, he was a member of the research staff of the National Institute of Arthritis and Metabolic Diseases.

A former chairman of the Metabolism Study Section of the National Institutes of Health, he is a member of the American Society of Biological Chemists, the American Society for Clinical Investigation, the Association of American Physicians, the American Diabetes Association, the American Federation for Clinical Research and the Southern Society for Clinical Investigation.

President of the Texas Affiliate of the American Diabetes Association, Foster is also a member of the National Diabetes Advisory Board.

He has been editor of Diabetes and associate editor of the Journal of Clinical Investigation. He is editor of Williams' Textbook of Endocrinology and a member of the editorial board of Metabolism, Clinical and Experimental.

In addition to his scientific papers and textbook chapters, he has written the popular book A Layman's Guide to Modern Medicine. For several years he was host of the Public Broadcasting System weekly TV show "Daniel Foster, M.D."

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