



---

## Ralph A. DeFronzo, MD

---

### **Titles & Roles**

1. Professor of Medicine
2. Chief, Diabetes Division
3. Deputy Director, Texas Diabetes Institute (TDI)

### **Education**

- 1969 - MS - Medicine (Cum Laude) - Boston College Graduate School of Biology
- 1969 - MD - Medicine (Cum Laude) - Harvard Medical School
- 1967 - BMS - Medicine - Dartmouth Medical School
- 1964 - BS - Biology/Biochemistry - Yale University
- Postdoctoral Fellowship - Renal - Hospital of the University of Pennsylvania
- Postdoctoral Fellowship - Endocrinology - Gerontology Research Center, NIMHCD and Baltimore City Hospital
- Internship - Johns Hopkins Hospital
- Internship - Johns Hopkins Hospital

## About

Dr. Ralph DeFronzo graduated from Yale University with a degree in biology and biochemistry before going on to Harvard Medical School. Following internal medicine training at Johns Hopkins, he completed fellowships in Endocrinology (NIH, Baltimore City Hospital) and Nephrology (Hospital of the University of Pennsylvania). He holds the Joe R. & Teresa Lozano Long Distinguished Chair in Diabetes in the Long School of Medicine at UT Health San Antonio, where he has been on the faculty since 1988. Dr. DeFronzo is directly responsible for many seminal advances achieved in diabetes over the last 50 years. He was a leader in developing the concept of insulin resistance, the defining characteristic of Type 2 diabetes, resulting in novel ideas about the development and progression of diabetes.

Dr. DeFronzo led the U.S. development of metformin, the first-line medication for treatment of diabetes and ushered it through FDA approval in 1995. More recently, he discovered a new approach to diabetes treatment and invented the SGLT2 inhibitor class of drugs that target glucose reabsorption in the kidneys. This work led to the development and approval of dapagliflozin, empagliflozin and canagliflozin. His most recent work, along with Dr. Bruno Doiron, has led to a possible cure for type 1 diabetes and is being developed by studies in large animals.

In 1987, Dr. DeFronzo received the Lilly Award from the American Diabetes Association (ADA) as the outstanding young investigator. In 2002, he received the Albert Renold Award from the ADA for the training of more than 200 young diabetes investigators. In 2005, he received the Novartis Award at the Annual Scientific Meeting of the American Diabetes Association as the outstanding clinical investigator worldwide. In 2008, he won the Banting Award from the ADA and the Claude Bernard Award from the European Association for the Study of Diabetes (EASD). This represents the highest lifetime scientific awards given by the ADA and EASD. In 2017, Dr. DeFronzo won the Harold Hamm International Prize for Biomedical Research in Diabetes. Dr. DeFronzo is the recipient of the Prince Mahidol Award (2022), which is given to an individual in medicine who has displayed transformative leadership and has made major innovative discoveries that have improved health care globally. His ominous Octet Banting Lecture, presented at the 2008 ADA summarized 45 years of transformative clinical investigation and is used worldwide by physicians to describe the whole body, organ, cellular, and molecular etiology of type 2 diabetes.

His six-year EDICT study led the American Diabetes Association to alter its 2022 Standards of Care to recommend, for the first time, the initial combination therapy for newly diagnosed type 2 diabetes patients. He is also the author of over 850 publications in esteemed peer reviewed journals and is the editor of the International Textbook of Diabetes Mellitus. He has an H-index of 1.85.

Dr. Ralph DeFronzo's major interests focus on the pathogenesis and treatment of type 2 diabetes mellitus and the central role of insulin resistance in the metabolic-cardiovascular cluster of disorders known collectively as the Insulin Resistance Syndrome. Using the euglycemic insulin clamp technique in combination with radioisotope turnover methodology, limb catheterization, indirect calorimetry and muscle biopsy, he has helped to define the biochemical and molecular disturbances responsible for insulin resistance and impaired glucose metabolism. Dr. DeFronzo is the longest consecutively funded investigator by the NIDDK/NIH – from 1975 to 2028 (53 years). He currently is the PI on two five-year NIH grants and the Co-PI on two other five-year NIH grants in type 2 diabetes mellitus.