Nitric oxide (NO) was discovered to be the principal neurotransmitter mediating erectile function (EF) in 1990. At that time, the mechanism of EF/erectile dysfunction (ED) was not understood and there were no orally administered drugs to treat ED. The discovery that NO released from neurons and vascular endothelium mediates EF led to the development and marketing of sildenafil (Viagra) in 1998 as the first orally effective drug to treat ED. NO stimulates EF by increasing cyclic GMP levels in vascular and nonvascular smooth muscle in the corpus cavernosum, thereby causing smooth muscle relaxation, local vasodilation, increased blood flow, and blood engorgement. After neurotransmitter NO initiates these effects, the increased local blood flow triggers the vascular endothelium to produce more NO, which further promotes EF. ED is characterized by NO deficiency (neurons and endothelium) and, therefore, inadequate cyclic GMP. Sildenafil promotes EF by preventing the enzymatic (PDE-5) inactivation of cyclic GMP, thereby increasing cyclic GMP levels to promote EF. Increasing NO production should also prompt EF but no such drugs are yet available. However, oral supplements of L-arginine and L-citrulline have been reported to enhance EF. Moderate aerobic exercise, which increases NO and cyclic GMP, has been reported to enhance EF, especially in conjunction with PDE-5 inhibitors. Interestingly, more recent studies show that hydrogen sulfide (H₂S) is an important mediator of human EF, which works at least in part as a PDE-5 inhibitor. Therefore, in vivo, H₂S may work in conjunction with NO by enhancing the cyclic GMP accumulation provoked by NO. H₂S drugs are currently under development by drug industry.

In 1998, Dr. Louis Ignarro won the Nobel Prize for Medicine, (along with Robert F. Furchgott and Ferid Murad), for his research discoveries showing the powerful ability of nitric oxide (or NO) to improve cardiovascular health and prevent heart disease. His ground-breaking work—the basis for his 2005 best-selling book, NO More Heart Disease—established Dr. Ignarro as perhaps the world’s leading authority on the nutritional approach to cardiac wellness along with making possible the development of Viagra. He holds a Ph.D. in pharmacology, is a distinguished professor of pharmacology at UCLA, and is a part-time professor at King Saud University in Riyadh, Saudi Arabia. Dr. Ignarro has spent more than 30 years as a research scientist: seeking to understand the incredible role that nitric oxide plays in fostering optimal human health. One of his most important discoveries was that antioxidants, which reduce cell damage from free radicals, also increase nitric oxide levels by protecting blood vessel walls—which secrete nitric oxide—from damage.

He has received countless awards in addition to his Nobel Prize, including the 2008 Distinguished Scientist Award from the American Heart Association and the 2007 Medal of Merit from the International Academy of Cardiovascular Sciences. He edits the journal Nitric Oxide: Biology and Chemistry, sits on numerous scientific advisory boards, and travels the world speaking to professional and lay audiences about the incredible power of nitric oxide.