

2006 Esselen Award Winner

RICHARD D. DIMARCHI

**Linda & Jack Gill Chair in Biomolecular Sciences and Professor of Chemistry
Indiana University
Chairman of the Board of Ambrx, Inc.**

Richard DiMarchi received his baccalaureate degree in Chemistry from Florida Atlantic University in 1974 and his Ph.D. in biochemistry from Indiana University in 1978. After a postdoctoral fellowship with Bruce Merrifield at Rockefeller University, he joined Lilly Research Labs where he remained until 2003. He has returned to Indiana University where he now occupies the Gill Distinguished Chair in Biomolecular Sciences.

Dr. DiMarchi has produced 55 patents and over 95 research papers. He has presented the Karolinska Research Lecture at the Nobel forum in Stockholm in 1996, and is the recipient of both the 1998 ACS Award in Biotechnology and the 2006 ACS Barnes Award for Leadership in Chemical Research Management. He is co-founder and Board Chairman of Ambrx, Inc., is a member of the board of Isis Pharmaceuticals, and is scientific advisor to a number of pharmaceutical and biotechnology companies.

Dr. DiMarchi was a leading force in the discovery, development, and commercialization of Eli Lilly's recombinant human insulin (Humulin) in the early 1980's, overcoming the need to extract this important protein from beef or pork pancreas. Dr. DiMarchi then had the boldness to postulate that a chemically modified insulin might be more effective pharmacologically than the natural protein. Given that our body's proteins are the product of centuries of natural selection, there was a great deal of skepticism in the scientific community about the possibility of improving upon them by laboratory methods. Indeed, there was considerable opinion that modifications might produce clinically dangerous drugs. Against this background, Dr. DiMarchi's laboratory developed Humalog, a structurally modified insulin molecule, and he led the team that developed this protein through its clinical testing to an approved drug in 1996. Humalog has proven to be a more controllable form of insulin that frees diabetics from some of the regimen of testing required with natural insulin. Following this success, Dr. DiMarchi assumed the leadership of the Lilly Pharmaceutical Delivery Systems organization and undertook the development of new delivery technologies that resulted in Lilly's global leadership in insulin therapy.

Subsequently, the techniques Dr. DiMarchi developed have led to the production of other important therapeutic proteins such as the growth stimulant, Humatrope, rGlucagon for hypoglycemia, Xigris for bacterial sepsis, and Forteo for osteoporosis. The goal of his current research and commercial endeavors is to develop proteins with enhanced therapeutic properties through biochemical optimization with non-natural amino acids, an approach he has termed chemical-biotechnology.