

One of the most distinguished graduates from the University of Rochester is Dr. Alejandro “Alex” Zaffaroni, who earned his PhD in 1949 from the Department of Biochemistry, and completed his NIH Fellowship (FLW) here in 1951. When people use “the patch” or “the Pill” or if they use any “controlled-release” medications, they are using innovations that Dr. Zaffaroni invented or helped create.

Dr. Zaffaroni attended the University of Rochester on a Fulbright Scholarship, where he invented a paper chromatography technique to separate and track steroids – a technique that became widely used in the synthesis of steroids. This work uniquely prepared him in 1951 to join a Mexican company named Syntex, which had recently succeeded in synthesizing the steroid cortisone. Dr. Zaffaroni’s focus at Syntex was extracting the plant steroid diosgenin from Mexican yams for conversion into human steroid hormones. Not only was he successful in this endeavor, but he dramatically improved the process for collecting the raw materials. As Dr. Arthur Kornberg (M.D., 1941, University of Rochester) reflected in his book *The Golden Helix*, “Alex had recruited local laborers and imbued them with the team spirit to advance the technology by their efforts. By applying the scientific insights acquired in his graduate research at Rochester, he had made a real impact on a practical problem.”

Dr. Zaffaroni became President of Syntex in 1962, and led the development of a steroid cream called Synalar, which became the leading topical anti-inflammatory product of its day. The realization that the medication worked better when the treated area was wrapped in Saran Wrap was the inspiration for Zaffaroni’s later discovery of a new class of controlled drug-delivery systems, such as the transdermal patch. Reflecting back to his work at the University of Rochester, Dr. Zaffaroni had the idea to explore delivering drugs within the body in a way that more closely resembled how glands disperse hormones within the body.

Because the Syntex board of directors did not support this research direction, Dr. Zaffaroni left the company and started his own company, ALZA, in 1968, using much of his own money. Despite several setbacks over the course of many years, in collaboration with the Swiss pharmaceutical giant Ciba-Geigy (now Novartis), ALZA introduced a new product in 1982 called Transderm-Nitro, a nitroglycerin patch for the prevention and treatment of angina-pectoris. The market-share for this product would grow to a value of more than \$1 billion. This led to ALZA collaborating with other companies to incorporate the concept of controlled drug-delivery into their products. ALZA helped Pfizer create Procardia XL for angina and hypertension, which became Pfizer’s first-ever billion-dollar product.

What contributed to Dr. Zaffaroni’s successes was not just his talent to imagine new processes, coupled with his indefatigable dedication, but his gift for seeing how new processes might be developed and applied. He went on to found and co-found numerous businesses that merged different disciplines. One such company was DNAX, co-founded with Dr. Kornberg and two others in 1980, where they combined genetic engineering and immunobiology technologies for discoveries that could correct problems in the immune and blood-forming systems.

In 1995 President Clinton presented Dr. Zaffaroni with the National Medal of Technology, the highest award given by the president for technological innovation. In 2012, he was inducted into the National Inventors Hall of Fame. These are two of dozens of honors and awards received from around the world.

Dr. Zaffaroni said, “As far as career, the thing I am most proud of is the creation of a large number of companies that have added value for the world and not just products that produced financial gains.”

The University of Rochester, and especially the Department of Biochemistry and Biophysics, is most proud to have Dr. Zaffaroni among its list of distinguished graduates. To read more:

[*The Inventors Hall of Fame Honors the Greatest Living Innovators*](#)

[*Dream Job*](#)

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