

IN REMEMBRANCE OF DR. KAREN M. RICHARDS



AUGUST 27, 1965-AUGUST 3, 2019
BIOCHEMISTRY 1996 VANDERBILT PH.D.



A GUESTBOOK OF CONDOLENCE NOTES IS AVAILABLE AT
[HTTPS://WWW.MUELLERFUNERALS.COM/OBITUARY/KAREN-RICHARDS](https://www.muellerfunerals.com/obituary/karen-richards)
ALONG WITH THE FAMILY'S WRITTEN OBITUARY

FAMILY CONTACT INFORMATION IS AVAILABLE VIA BIOCHEMISTRY DEPT
J.L.SMITH@VANDERBILT.EDU) IF YOU WISH TO SEND A PRIVATE NOTE



Karen Richards, Ph.D. - Obituary

Karen Richards passed away on Saturday, August 3, at the age of 53. Karen received her Ph.D. in Biochemistry in 1996 under the direction of Larry Marnett. Before moving to Nashville and attending Vanderbilt, she had earned an undergraduate degree in Chemistry from Depauw University and worked for a time at Merrill-Dow in Cincinnati.

Karen worked on the structure, function, and inhibition of leukocyte 12-lipoxygenase (12-LO), an important enzyme of arachidonic acid metabolism in immune cells. She cloned, expressed, and purified the enzyme for the first time in order to study its properties. This was a challenging task because the protein became increasingly sensitive to oxidative inactivation as it was purified. Karen worked out a procedure that provided high quality intact protein suitable for biochemical studies.

The Marnett lab had previously identified 4-(2-oxapentadeca-4-yne) phenylpropanoic acid (OPP) as a highly selective leukocyte-type 12-LO inhibitor with no activity against the platelet-type 12-LO, 5-LO, or 15-LO. OPP induced a long lag phase in enzyme activity and reduced its maximal velocity. Karen used detailed kinetic and single turnover experiments to discover that OPP inhibits the binding of fatty acid hydroperoxides to the ferrous center of the enzyme, thereby preventing oxidative transformation of the inactive ferrous enzyme to the active ferric form. This was a highly unusual finding at the time, and years later the determination of the crystal structure of 12-LO with OPP bound provided a structural basis for the inhibition.

Karen was a smart, focused graduate student who worked hard and got along with everyone. She was a great lab citizen and was a pleasure to be around. She overcame several significant challenges outside the lab including a serious health issue near the end of graduate school.

Karen took a job at Merck after finishing her graduate studies. She started in the drug metabolism group and after a number of years moved into scientific licensing. Karen joined the Bristol-Myers Squibb Research Alliance group in early 2011. She managed a number of important external alliances for Drug Discovery and Early Development in the Immunoscience and Oncology disease areas. Karen ensured that decisions and operational plans were consistent with the aim and strategy of each research partnership. She led resolution of issues between business partners, gaining alignment and consensus. Karen was diplomatic, always acted with the highest integrity, and was deeply trusted.

Karen married her high school sweetheart Lyle Lewis in 1989, and they lived in Glenside (a suburb of Philadelphia) for over 20 years. Karen and Lyle loved to travel, with Nags Head, North Carolina being a favorite spot, and they also frequently traveled back to Mason, Ohio to visit family. Karen and Lyle decorated their historic home with French antiques, Lyle's piano (their first large purchase), and works of original art. Karen was very attached to her dogs and enjoyed taking them to dog parks and walking around the neighborhood. She was gracious, elegant, and kind. Karen will be missed deeply by her family, friends, and colleagues.

Contributed by Dr. Larry Marnett