

Katheryn A. H. Resing: November 1, 1944–January 8, 2009

Our friend and colleague, Katheryn Resing, died January 8, after a year-long battle with metastatic breast cancer.

Katheryn was born in Garden City, KS, to Alfred Hartman and Betty Pelnar. She grew up in Wichita, where she attended North High School, and married John Resing in 1964. She obtained a Bachelor's degree in Biology and teaching certificate from Washburn University, Topeka, then taught high school biology for two years. Afterwards, she obtained a Master's in Botany from Washburn University, where she studied plant cytogenetics. In 1969, Katheryn accompanied her husband to Seattle, WA, where she gave birth to two sons and raised them while taking university courses. She enrolled in the Biochemistry graduate program at the University of Washington, Seattle, graduating with a Ph.D. degree in 1984. She divorced in 1981.

Katheryn carried out her Ph.D. and postdoctoral work with protein chemist Kenneth Walsh and skin biologist Beverly Dale, where she studied the chemistry and enzymatic processing of the intermediate filament aggregating protein, profilaggrin. In Walsh's lab, Katheryn and her close colleague, Richard Johnson, carried out one of the first studies applying mass spectrometry to map protein phosphorylation sites. The 400 sites they

mapped on profilaggrin remained a record for the number of sites identified on a single protein by mass spectrometry for many years.

In 1992, Katheryn moved to Colorado, where she became Research Associate Professor of Chemistry and Biochemistry at the University of Colorado at Boulder. She created the campus protein mass spectrometry facility, designing it into one of the first training labs in this technology for graduate students. She became Director of the Central Analytical Facility, and guided its integration of biomolecular work with small molecule analyses. She published many papers applying proteomics to screen and validate targets of signal transduction pathways in human cells. She optimized methods for hydrogen exchange mass spectrometry and set new standards for reducing back-exchange rates.

In 2001, Katheryn and her students began developing new methods for analyzing product-ion spectra obtained in MS/MS experiments. She showed that the accuracy of peptide identification could be improved by evaluating consensus between search programs, and integrating scores based on peptide chemical properties. She developed a peptide-centric algorithm for resolving protein variants with identical peptides, and a

manual analysis emulator, which automated her knowledge of peptide fragmentation into rules for prioritizing fragment ions. In collaboration with Zhongqi Zhang, she showed that scoring could be improved by using spectra simulated from models of chemical fragmentation, and that libraries of simulated spectra could expand spectrum-to-spectrum searching while enabling error estimation.

Katheryn loved life and lived it with zest. She was an empathetic listener and deep thinker, always brimming with new ideas. She had a broad sense of humor, and saw problems as opportunities for change. She trained her students rigorously and worked hard to further their careers. Her passion was solving puzzles of any kind, and her favorite pastime was manually analyzing

peptide assignments against product-ion spectra, which she could deconstruct with exceptional logic. She generously shared her vast expertise in protein chemistry and mass spectrometry with anyone who asked. She was an active member of ABRF, and her creative ideas and answers to queries were sprinkled widely across the listserv. She enjoyed participating in many ASMS annual conferences, and she served as an insightful reviewer for JASMS. We will all miss Katheryn very much.

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