Dr. Kuehn completed her Chemistry B.S. at the University of Washington in Seattle, and her doctorate at Washington University in St. Louis, Missouri. For her PhD training under Dr. Scott Hultgren, she investigated the molecular basis for chaperone-mediated P pilus assembly, and structure in uropathogenic E. coli. She was a Damon Runyon-Walter Winchell postdoctoral Fellow in the University of California-Berkeley lab of Nobel Laureate, Dr. Randy Schekman, where she investigated protein cargo incorporation by the COPII-mediated endoplasmic reticulum secretory vesicle pathway in S. cerevisiae.

In 1997, Dr. Kuehn received the Burroughs Wellcome Career Award and began her faculty position at Duke University's Department of Biochemistry, with a secondary appointment in the Department of Molecular Genetics and Microbiology. She was subsequently named a Burroughs Wellcome Investigator in 2002 for her research on the Pathogenesis of Infectious Diseases.

Dr. Kuehn has been the Director of Graduate Studies for Duke's Cell and Molecular Biology Program and the Biochemistry Department. She has been a co-leader of the Duke Summer Research Opportunities Program for over 20 years, where she promotes the inclusion and training of underrepresented minorities in STEM.

Dr. Kuehn's research team at Duke University has generated seminal understanding of the genetic, biochemical and functional characterization of bacterial extracellular vesicles (BEVs). Her group studies fundamental and molecular aspects of BEV biogenesis, composition, and function in disease and inflammation. She has uncovered mechanistic rules of cargo inclusion into BEVs; measured how BEVs impact bacterial biofilms and most recently studied significant surface properties of BEVs that promote their role in the environment.