

Karen Bush, PhD Professor of Practice & Interim Director, Biotechnology Program An Update on β-lactamase Inhibitors

Karen Bush is currently a Professor of Practice and interim Director of the Biotechnology Program at Indiana University. Prior to moving to IU in 2009, she spent 35 years on antibiotic discovery/development teams in the pharmaceutical sector. Her main research focus has been the study of beta-lactamases. Her lab provided the biochemical characterization of some of the first ESBLs in the USA, the second plasmid-encoded AmpC cephalosporinase and the first KPC carbapenemases. Together with George Jacoby and Antone Medeiros, she established a widely-recognized functional nomenclature for beta-lactamases. At Squibb, Lederle, and Johnson & Johnson, she worked on teams that were involved with the discovery and/or development of aztreonam, piperacillin-tazobactam, levofloxacin, ceftobiprole and doripenem. She was the drug discovery team leader or team member associated with the entry of 9 Investigational Drugs into Phase 1 clinical trials

Her lab has recently been tracking carbapenem resistance in Gram-negative bacteria in central Indiana, and has tested investigational antibiotics against these pathogens. She has served as a consultant for more than a dozen biotech companies, has been a reviewer for NIH, IMI, CARB-X and other granting agencies, and was a scientific advisor for the TB Alliance, the Pew Charitable Trust, GARDP, and CARB-X. She has published 225 peer-reviewed publications. In addition to serving on the ICAAC and ASM Microbe Program Committees for a total of nine years, she was an Editor or Associate Editor for Antimicrobial Agents and Chemotherapy, mBio, EcoSal Plus and Antimicrobial Therapeutics Reviews. She received the E. P. Abraham Award for Beta-Lactamase Research in 2007, the CLSI Excellence in Standards Development Award in 2015 and was the first female to receive the ISC Hamao Umezawa Memorial Award in 2017. In 2000 she was elected a Fellow of the American Academy of Microbiology and was named an ISAC Fellow in 2019 by the International Society of Antimicrobial Chemotherapy.