

Rebecca P. Hughey



Current Position: Professor of Medicine, and Cell Biology and Physiology, and Microbiology and Molecular Genetics at the University of Pittsburgh School of Medicine

Education: Ph.D. in Biochemistry (1976) from University of Pittsburgh School of Medicine

Non-scientific Interests: Relaxing at home with family, friends and collies; swimming and walking for exercise; and finally, hiking in Telluride at the annual "ENaC meetings"

Beginning with my Ph.D. thesis, I have had a continued interest throughout my career in the structure, function, and membrane trafficking of glycoproteins in epithelial cells. Under the mentorship of Norman Curthoys, we determined that the microvillar gamma-glutamyltranspeptidase was a single-pass transmembrane protein—at a time when very little was understood about membrane-anchored proteins. When Olivera Finn arrived in Pittsburgh, she introduced me to the tethered mucin MUC1, and my group has had an ongoing investigation of the features that regulate MUC1 membrane trafficking, including glycans, galectins, palmitoylation and cytoplasmic peptide motifs. I have also had the good fortune to have two dedicated technicians, Carol Kinlough and Paul Poland, working with me for almost 20 years.

My most productive and exciting research began as a collaboration with Tom Kleyman when he joined the Renal Division as Chief in 2000. Combining Tom's expertise on ENaC and renal electrophysiology and my expertise in glycoprotein biochemistry, we made the novel discovery that ENaC is activated by proteolytic cleavage. Our subsequent work has shown that activation is due to proteolytic release of inhibitory peptides. We have had a lot of help from our colleagues in Pittsburgh on this work, including Marcelo Carattino, Gunhild Mueller, Shaohu Sheng, Jim Bruns, Ossama Kashlan, Chris Passero, Nick Johnson, Ora Weisz, Bob Edinger, Ray Frizzell, Mike Butterworth, Mike Myerburg, and Joe Pilewski. The story continues.

Read Dr. Hughey's article entitled: ENaC at the Cutting Edge: Regulation of Epithelial Sodium Channels by Proteases

<http://www.jbc.org/cgi/content/full/284/31/20447>