

Instructors:



Dr. Parastoo Azadi - Dr. Parastoo Azadi received her B.Sc. in Chemistry in 1987 from University of North London, UK and her Ph.D. degree in biochemistry in 1991 from Imperial College of Science and Technology, University of London, studying structural characterization of carbohydrates and glycoproteins by mass spectrometry under the supervision of Profs. A. Dell and H.R. Morris. Since 2001, Dr. Parastoo Azadi has been the Technical Director of Analytical Service and Training at the Complex Carbohydrate Research Center. The samples submitted for these types of analyses come from academic, government, non-profit organizations and private companies, throughout the United States and internationally.



Dr. Artur Muszyński - Dr. Artur Muszyński received his Ph.D. degree in Biology in 2004 from the University of Silesia, Poland. He has more than 20 years of study focusing on the microbial glycobiology of bacterial pathogens including isolation and structural analysis.



Dr. Geert-Jan Boons - Dr. Boons received his M.Sc. in Chemistry in 1987 and his Ph.D. in Synthetic Carbohydrate Chemistry in 1991 from the State University of Leiden in The Netherlands. Prior to joining the faculty at the CCRC in 1998, he spent seven years in the United Kingdom, first as a postdoctoral fellow at Imperial College, London, and the University of Cambridge, and then as a lecturer and professor at the University of Birmingham. In addition to multiple awards for his career and research, he has published more than 250 articles. His research program emphasizes the chemical synthesis and biological functions of complex carbohydrates and glycoconjugates.



Dr. Debra Mohnen- Dr. Debra Mohnen received her B.A. in biology from Lawrence University (Wisconsin) and her M.S. in botany and Ph.D. in plant biology from the University of Illinois with Ph.D. research conducted largely at the Friedrich Miescher Institute in Basel, Switzerland. She was appointed to the CCRC faculty in September 1990 and is currently Professor in the Department of Biochemistry and Molecular Biology, adjunct faculty member in the Department of Plant Biology, and member of the Plant Center at UGA. Dr. Mohnen established and continues to direct "CarboSource Services" which provides rare substrates for plant wall polysaccharide synthesis to the research community.



Dr. Breeanna Urbanowicz - Dr. Urbanowicz received her B.S. in Biology in 2001 from Purdue University and her Ph.D. in 2008 from Cornell University. Prior to her junior faculty position at the Complex Carbohydrate Research Center, Dr. Urbanowicz was a Postdoctoral Fellow (2008-2013) in the Department of Biochemistry and Molecular Biology at the University of Georgia. She now serves as an Assistant Professor at the CCRC whose work focuses on understanding the integral steps in the molecular pathways used by plants to synthesize complex polysaccharides.



Dr. Michael Hahn - Dr. Hahn received a B.S. in chemistry and a B.A. in Independent Studies in 1974 from the University of Oregon and his Ph.D. in biochemistry in 1981 from the University of Colorado. A postdoctoral research associate appointment at the University of Wisconsin-Madison in plant pathology followed, after which Dr. Hahn went to the Albert-Ludwigs-Universität (Freiburg, Germany) with the support of an Alexander-von-Humboldt stipend. Following another postdoctoral research associate appointment at the Salk Institute (San Diego, CA), Dr. Hahn joined the CCRC in July 1986.



Dr. Zhirui Wang – Dr. Wang received a B.S. in 1999 and M.S. in 2002 in the area of Biochemistry and Bio-organic chemistry from Jilin University and Ph.D. in medicinal chemistry in 2005 from Peking Union Medical College & Chinese Academy of Medical Sciences. She has been working in Complex Carbohydrate Research Center since 2007. Her research focuses on isolation, purification and structural characterization of poly-, oligo-saccharides and glycol-conjugates. Her research area also involves in compositional and structural profiling of GAGs related pharmaceutical products.



Dr. Stephanie Archer-Hartmann – Dr. Stephanie Archer-Hartmann received her B.Sc. in Chemistry in 2006 and her Ph.D in Analytical Chemistry in 2012 from West Virginia University. She has spent more than 10 years working towards improvements for the analysis of carbohydrates, including the isolation, preparation, and analysis of glycosaminoglycans



Dr. Kelley Moremen - Dr. Moremen received his B.S. in Biology and Chemistry (1978) from Dickinson College and his Ph.D. in Molecular Biology (1984) from Vanderbilt University and a pursued postdoctoral training at the Massachusetts Institute of Technology. In 1991, Dr. Moremen joined the faculty of the Complex Carbohydrate Research Center at the University of Georgia where he is now Professor in the Department of Biochemistry and Molecular Biology. Dr. Moremen has chaired the Glycobiology Gordon Research Conference, served as

President, member of the Board of Directors, and Secretary of the Society for Glycobiology. He presently directs efforts on an NIH funded multi-investigator 'Resource for Integrated Glycotechnology', is a senior investigator on the NIH-funded 'National Center for Biomedical Glycomics', and is a lead Principal Investigator or Senior Investigator on eight additional grants from the NIH and Department of Energy. He has served on editorial boards of Journal of Biological Chemistry, Glycobiology, and Glycoconjugate Journal, numerous NIH grant review panels, and Scientific Advisory Boards of four biotech companies. In 2014 Dr. Moremen was appointed the Distinguished Research Professorship in Biochemistry and Molecular Biology at the University of Georgia and has a total of 10 patents and over 150 peer-reviewed publications. In 2018, he launched the biotech startup, Glyco Expression Technologies, Inc., that is located in the UGA Innovation Gateway.



Dr. Robert Haltiwanger - Dr. Haltiwanger received his B.S. in Biology (1980) and Ph.D. in Biochemistry (1986) from Duke University. He went on to do postdoctoral work at Johns Hopkins University School of Medicine, and took his first independent position as an Assistant Professor in the Department of Biochemistry and Cell Biology at Stony Brook University (1991). He rose through the ranks to full Professor and served as Chair of that Department for 8 years. He moved to the CCRC in 2015 as the GRA Eminent Scholar in Biomedical Glycosciences. He has served as President

of the Society for Glycobiology, Chair of the Glycobiology Gordon Conference, and currently serves as Editor-in-Chief of the journal *Glycobiology*.



Dr. Michael Tiemeyer - Dr. Tiemeyer received his B.A. in biology in 1982 and his Ph.D. in neuroscience in 1989 from The Johns Hopkins University. He was a Helen Hay Whitney postdoctoral fellow in developmental neurobiology at the University of California at Berkeley. Prior to joining the CCRC faculty, Dr. Tiemeyer was a faculty member in cell biology at Yale University School of Medicine and Director of Biochemical and Clinical Analytics and New Methods Development at Glyko/Biomarin, Inc.



Dr. Christine Szymanski - Dr. Szymanski has been exploring bacterial glycomics for more than two decades, working on food pathogens since the early 1990s, with a particular emphasis on *Campylobacter jejuni*. She combines her expertise in food safety and animal health with novel therapeutic diagnostic platforms developed during her postdoctoral fellowship at the Naval Medical Research Center vaccine program (1996-2000), the key findings while employed at the National Research Council of Canada (2000-2008), and the translational advances during her tenure as an Alberta Innovates Technology Futures Scholar at the University of Alberta (2008-2016). She was the first to demonstrate that bacteria are capable of N-glycosylating proteins and is now exploiting these systems to create glycoconjugate vaccines and oral therapeutics through recombinant expression in *Escherichia coli*. Dr. Szymanski was also the first to demonstrate that viruses specific for bacteria express proteins that can be used as novel therapeutics in addition to their recognized diagnostic value. These viruses (bacteriophages) are the most abundant biological entity on earth (10³¹) and are therefore a limitless resource for exploitation, especially in the area of glycomics.



Dr. Lance Wells - Dr. Wells received his B.S. in Chemistry, with a minor in Psychology, in 1991 from the Georgia Institute of Technology, and after spending two years working at the Microchemical Facility, his Ph.D. in Biochemistry and Molecular Biology in 1998 from the Emory University School of Medicine. A postdoctoral research fellowship at the Johns Hopkins School of Medicine in Biological Chemistry followed, which was supported by a National Research Service Award from the National Cancer Institute of the NIH. Dr. Wells joined the CCRC in August of 2003.



Dr. Christian Heiss – Dr. Christian Heiss received his B.Sc. in Chemistry in 1991 from the University of Erlangen, Germany, and his Ph.D. in Organic Chemistry in 1999 from the University of Georgia. He serves as the Assistant Technical Director of Analytical Service and Training at the Complex Carbohydrate Center. He has written multiple papers on the analysis of carbohydrates, and established the expansion of the CCRC's analysis to glycosaminoglycans in 2006.



Dr. Franklin Earl Leach – Dr. Franklin Leach received his B.Sc. in Chemistry in 2001 from Mississippi State University, and his Ph.D. in Analytical Chemistry in 2011. He currently serves as an Assistant Professor at the CCRC.



Dr. Anne Gleinich – Dr. Anne Gleinich received her M.Sc. equivalent in Biochemistry in 2014 from the Goethe University Frankfurt am Main, Germany, with a focus on Biophysical Chemistry. The Ph.D. in Medical Sciences – including extensive work via Surface Plasmon Resonance (SPR) technique – was conferred on her by the University of Warwick, United Kingdom, in 2019 and she joined the Analytical Service and Training at the Complex Carbohydrate Research Center in the same year. Her research centers around the glycomic and glycoproteomic characterization of N- and O-linked glycans using mass spectrometry techniques.



Dr. Asif Shajahan - Dr. Shajahan has about 10 years of experience in the structural characterization of glycoproteins using state-of-the-art high-resolution mass spectrometry (MS). He completed his Ph.D. in 2014 where he worked in the interface of chemistry and biology by developing glycoconjugates for the glycoengineering of brain glycans (across BBB) in mice models. He joined CCRC, University of Georgia, in 2015 and have been doing characterization of glycoproteins by both glycomics and glycoproteomics. He has contributed to over 80 projects on the structural characterization of mammalian, plant, algal, insect and bacterial origin glycoconjugates from both academic and industrial researchers. He is also performing research for the development of novel methods which enables rapid but comprehensive glycosylation profiling. He is training and mentoring undergraduate students and other junior postdoctoral trainees at CCRC and also involved as an instructor for the annual hand-on training courses held at CCRC on MS based glycomics and glycoproteomics. He is currently working as an Assistant Research Scientist at CCRC.