

Computational Molecular Design in Plant Biotechnology at Bayer Crop Science

Dr. Christy Taylor

*The Computational Protein Design Lead and Science Fellow at Bayer Crop Science
St. Louis, MO*



**Chemistry
Colloquium on
Computational
Molecular
Design**

**4:00 p.m.
Friday
Jan 26 in 126
Schrenk Hall**

**Please contact Dr.
Amitava Choudhury at
choudhurya@mst.edu
for more information**

**MISSOURI
S&T**

Abstract: The world faces many challenges. A growing population, as well as climate change, creates challenges to our food supply. In my talk, I will discuss how we are addressing these challenges at Bayer Crop Science. Specifically, I will discuss how we are driving innovation and new products in the Computational Molecular Design Team in the Data Science and Analytics Group. The Computational Molecular Design Team designs proteins for the insect control and herbicide tolerance pipeline, designs synthetic elements for expression, and works with the Biotransformation Group. Highlights from projects in each of these areas and Bayer's external involvement in the Open Molecular Software Foundation will be discussed during the talk.

About the speaker: Christy Taylor is the Computational Protein Design Lead and Science Fellow at Bayer Crop Science in St. Louis, MO. Christy graduated summa cum laude from Missouri University of Science and Technology with a B.S. degree in Chemistry. Christy received the NSF Predoctoral Fellowship and the Anna Fuller Cancer Research Predoctoral Fellowship for her Ph.D. studies. Christy received a Ph.D. in Biology at MIT with Dr. Amy Keating with her doctoral thesis titled "Redesigning Specificity in Miniproteins".

Christy did her postdoctoral studies at Washington University in St. Louis with Dr. Garland Marshall. While in Dr. Marshall's lab, Christy focused on computational chemistry projects around GPCRs. Christy was awarded the NIH National Research Service Award Postdoctoral Fellowship, W.M. Keck Postdoctoral Fellowship in Molecular Medicine, and the NIH National Research Service Award Postdoctoral Fellowship for her post-doctoral work.

Wanting to learn more about computational biology, Christy took a staff scientist position at the Genome Institute at Washington University School of Medicine where she did comparative genomics of nematodes. Christy joined Monsanto in 2012 in the Chemistry Division where she did bioinformatics and small molecule research. In 2018, Christy transitioned over to the Computational Protein Design Team in the Biotechnology organization. Christy's team designs proteins for insect control and herbicide tolerance in the major row crops and designs synthetic expression elements and optimizes protein expression.

Christy has 19 publications and 6 patents in the areas of bioinformatics, computational chemistry, protein design, agrochemicals and insect control. At Monsanto and Bayer, she has received several awards including the Bayer Eclipse Award, Bayer Life Science Collaboration Competition Winner, Bayer Impact Award, Monsanto ICE (Inspire, Communicate, Execute) Award, and the 2023 Distinguished Women in Data Science Award. She was also recently promoted to Bayer Senior Science Fellow.