

THE CAPITAL CHEMIST

A Publication of the Chemical Society of Washington Section of the American Chemical Society

Join Us At the Next CSW Dinner Meeting on 2/13

On 2/13, Willie F. Vann, Ph.D. Chief, Laboratory of Bacterial Polysaccharides at the U.S. Food & Drug Administration will present “*Capsular Polysaccharide Synthesis in Bacterial Pathogens – A tool box for vaccine development*”. We will also present the college achievement awards at this meeting.



Biography

Dr. Vann joined CBER as a research chemist in 1979, after several years as a von Humboldt Fellow at the Max-Planck Institute in Freiburg, Germany, where he determined the structure of capsular polysaccharides of pathogenic *Escherichia coli*. Since his appointment at CBER, he has served as the primary expert in polysaccharide chemistry and, as such, has made major contributions to the development and licensure of polysaccharide based vaccines. He was appointed to the position of Chief of the Laboratory of Bacterial Toxins in 1996, where he was responsible for supervising the research and review responsibilities for products related to diphtheria, tetanus, and botulinum toxins. In 2006 he was appointed as Chief of Laboratory of Bacterial Polysaccharides. As Chief of the Laboratory of Bacterial Polysaccharides, he has supervisory responsibility for the scientific and regulatory work of several principal investigators that is related to encapsulated pathogens. He is also a principal investigator in the Laboratory and manages a research program on the glycobiology of pathogenic bacteria.

Dr. Vann is interested in Glycobiology of bacterial pathogens and is interested in understanding how pathogenic bacteria assemble capsular polysaccharides. His group uses polysialic acid capsule synthesis as a model for this project. They use the knowledge gained in this endeavor as a toolbox in the design of well characterized polysaccharide – protein conjugate vaccines.

Abstract

Many pathogenic bacteria are encapsulated with a polysaccharide that is part of the defense mechanism of the bacteria against the host immune system. These polysaccharides define the serotype of the pathogens and are important in describing the prevalence of bacteria in a disease. Antibodies raised against the polysaccharide capsules are often protective and consequently, make the capsule a frequent target of vaccine development. Glycoconjugate vaccines based on capsular polysaccharides have been very effective at preventing diseases caused by specific serotypes of encapsulated pathogens. Current technology for producing and regulating glycoconjugate vaccines based on capsular polysaccharides are complex and highly dependent on process control. We propose that this complexity could be reduced by developing glycoconjugate vaccines that have clearly defined structures. To aid in moving toward this goal, as model a system, our laboratory is investigating the mechanism of synthesis of polysialic acid capsular polysaccharides in *Escherichia coli* and *Neisseria meningitidis*. We are characterizing the enzymes required for initiation and polymerization of sialic acid. Our goal is to develop technologies useful for preparing glycoconjugate vaccines using enzymes required in biosynthetic pathways for polysaccharides.

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Inside this issue:

- Join us for the next dinner meeting
- Learn how to participate in the Chemistry Olympiad
- Attend the ACS Career Day DC Metro area event
- Read articles that feature two of our local members

Meeting Logistics

Date: Thursday, February 13, 2020

Time: 6:00 p.m. Check-in/Social Hour

6:30 p.m. Dinner

7:00 p.m. Presentation of College Achievement Awards

7:30 p.m. Speaker Presentation

Location: ACS Headquarters – Marvel Hall
1155 16th St., N.W., Washington, DC

Menu: Meal will be catered by Everfresh Catering and will feature Stir Fried Chicken & Beef tossed with Asian vegetables as the meat entrée and Vegetarian Asian Tofu Entrée with roasted vegetable & rice as the vegetarian option. Sides include mixed green salad with dinner rolls. Dessert includes assorted cookies and brownies. Beverages will be provided.

Cost: \$20

\$10 (Students and High School Teachers)

RSVP by noon Tuesday, February 11, to csw@acs.org (preferred) or by phone (messages only: 202.659.2650). Please provide the names in your party as well as your contact information when you RSVP, and please advise if you wish to have the meat or vegetarian option. The public is invited to attend. You may attend the talk only at no charge, but reservations are appreciated. If you need any further information or would like to make a reservation, please contact the CSW office by email at csw@acs.org (preferred) or by voicemail at 202.659.2650.

Parking: Parking is available in nearby commercial parking garages. Please be aware that garage closing times vary. Parking is also available on the street after 6:30 pm, but be aware that most parking meters are in effect until 10:00 pm and may be limited to 2 hours. You should check the individual meters for details and payment methods as some are no longer coin-operated.

Metro:

Blue/Orange/Silver Line: McPherson Square or Farragut West.

Red Line: Farragut North

2020 High School Chemistry Olympiad

The CSW High School Chemistry Olympiad for 2020 will begin in early February. The letter introducing the Olympiad will be emailed to those high school chemistry teachers for whom we have an email address. This letter will ask for student nominations to take the Local Section Examination at their school during the first two weeks of March. If you are a high school chemistry teacher who wishes to participate in this Olympiad and did not receive the letter in 2019 or participate in past Olympiads, please send an email with your name, your email address, and the name of your high school to cswolympiad@gmail.com. The CSW Co-Coordinators of the Chemistry Olympiad Committee are India James and Regina Cody.

Online registration: https://docs.google.com/forms/d/e/1FAIpQLSdSvRO_GDpJnjgKS75ggdE4lmsabj1d1coxS-Nwf-FVWXF01w/viewform?vc=0&c=0&w=1

Results and information from the 2019 High School Olympiad: <https://capitalchemist.org/wp-content/uploads/2020/01/Capital-Chemist-2019-Chemistry-Olympiad.pdf>

ACS Navigator LIVE! Career Day for the DC Metro Area on February 8th: Washington Plaza Hotel

Career Navigator Live presents ACS Career Day DC Metro Area – Feb. 8, 2020. This is an exciting one-day event filled with career-changing workshops and networking opportunities for chemistry professionals. This free career day is designed to help job seekers reach their career goals.

Saturday, Feb. 8, 2020, Time: 8:00 AM – 4:00 PM

Washington Plaza Hotel - Grand Ballroom: 10 Thomas Circle, NW , Washington, DC 20005

<https://chemistryjobs.acs.org/careerfair/28718/career-navigator-live-presents-ac-s-career-day-dc-metro-area/>

CSW Chemist Corina McClure Featured in C&E News

Congratulations to Corina McClure, ACS Scholar (2012-2014), FDA analytical chemist, and current CSW YCC chair on her interview in the January C&E News!

<https://cen.acs.org/acs-news/programs/ACS-Scholar-alumna-Corina-McClure/98/i3>

CSW Chemist Bree Taylor Featured in ACS Industry Matters

Congratulations to CSW chemist and current CSW Budget Chair, Bree Taylor, on a great interview with ACS *Industry Matters*. Check out the recent article profiling Bree's work as a data quality analyst at Decernis.

<https://www.acs.org/content/acs/en/industry/industry-matters/early-career-chemist/bree-taylor.html>

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www.facebook.com/ACSCSW.

CSW Calendar of Events

February 8: ACS Navigator Live! Career Day

February 13: CSW Dinner Meeting