



## American Chemical Society Susquehanna Valley Section

### **SECOND 2019-2020 SEASON NEWSLETTER (beginning of November)**

The four hundred and fifty fifth meeting of the American Chemical Society, Susquehanna Valley Section will be the [Wilkes University Catherine Bone Lecture](#). It will be held on Wednesday, November 6<sup>th</sup>, 2019 in Room 101 of the Stark Learning Center on the Wilkes University campus. The meeting will begin at 7:30 PM. A dinner precedes the meeting at 5:30 PM. The speaker will be Dr. Henry J. Pownall of the Houston Methodist Research Institute and Weill Cornell Medicine.

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#### ***“Cardioprotection via High Density Lipoprotein Therapy—From Biophysics to Mouse Models”***



Henry J. Pownall, PhD  
Scientist, Houston Methodist Research Institute  
Houston TX 77030  
Professor of Biochemistry  
Weill Cornell Medicine  
New York NY

The plasma concentration of high density lipoprotein (HDL) is a negative risk factor for human atherosclerotic cardiovascular disease (ASCVD). Nevertheless, clinical trials of HDL-raising drugs have failed to reduce ASCVD, especially on a background of cholesterol-lowering with statins. Moreover, patients with high plasma HDL concentrations (>90 percentile) are as susceptible to ASCVD as those with low concentrations. Lastly, a mouse model in which the HDL-receptor (SCARB1) has been deleted is a mouse model of high plasma HDL concentrations and presents with multiple severe lipid abnormalities, including susceptibility to diet-induced ASCVD, functional and structural derangements in red cells and platelets and absolute infertility among female mice. We discovered that serum opacity factor (SOF), a virulence factor produced by *S. pyogenes*, transfers all of the cholesterol in ~200,000 HDL particles to a new ~500 nm particle containing apolipoprotein E (APOE), a ligand for the LDL receptor, as its sole protein; this particle is a cholesteryl ester-rich microemulsion (CERM). Using chemical kinetics and transition state theory we determined that the rate-limiting step in the SOF-HDL reaction is the displacement of the major HDL-protein (APOA1) from the surface of HDL. We also showed that APOE mediates cellular CERM uptake followed by the conversion of CERM cholesterol to multiple bile acid species. Injection of low-dose SOF into WT mice lowers plasma cholesterol by ~40% within 3 h where it remains for at least 20 h. Adeno-associated virus delivery of SOF (AAV<sub>SOF</sub>) to SCARB1<sup>-/-</sup> mice reduces their very high plasma HDL concentrations to nil and constitutively rescues infertility among female mice with 24 h. Our early evidence is that AAV<sub>SOF</sub> also prevents diet-induced ASCVD among SCARB1<sup>-/-</sup> mice. These findings implicate reduction rather than raising HDL concentrations as a promising therapeutic approach to multiple disorders.

## **BIOGRAPHY OF DR. POWNALL:**

Dr. Henry Pownall is a senior member of The Methodist Hospital Research Institute, Houston, Texas. Pownall holds several degrees in chemistry: a B.S. from Elizabethtown College, an M.S. from Wilkes College, and a Ph.D. from Northeastern University. Dr. Pownall's doctoral training was in physical chemistry with postdoctoral fellowships in molecular spectroscopy at the University of Houston, and biochemistry at Baylor College of Medicine with an emphasis on lipid metabolism. Over time he moved his studies from molecules to in vivo models, studying biophysics, peptide design, lipid synthesis and enzymology, and cell and molecular biology. His work is centered on high density lipoprotein therapeutics, and energy metabolism as it relates to obesity-linked diabetes and human lipid metabolism. A major goal of his research is to determine how alcohol ingestion contributes to enhanced postprandial lipemia, attendant pancreatitis, or alcohol-induced reduction of cardiovascular disease, an effect mediated by increased HDL-cholesterol.

He is a member of three graduate programs at Baylor College of Medicine (Structural Computational Biology and Molecular Biophysics, Cell and Molecular Biology, and Cardiovascular Sciences) in which he teaches classes and serves on graduate advisory and qualifying exams committees. His research is multidisciplinary, with extensive collaboration with structural biologists, endocrinologists, and x-ray crystallographers. Structural biologists provide expertise in lipid and lipoprotein structure by electron cryo microscopy. Endocrinologists have synergistic interests in the lipid disorders found in HIV-positive patients on highly active anti retroviral therapies. X-ray crystallographers help discern the total structure of Streptococcal serum opacity factor (SOF) for determination of structure function relationships.

Pownall serves on numerous editorial boards, scientific review panels, and professional societies, and has published more than 200 peer-reviewed research papers. He has served on the boards of several national public service organizations and is a past president of the Houston Homeowners Association. He has received several service and scientific awards and was named Person of the Year by the Southwest Chamber of Commerce. He is also active in community education, giving lectures on molecular ethics to local groups including several churches, homeowner associations and garden clubs.

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## **DINNER:**

The lecture will be preceded by dinner at 5:30 PM held at the [The Mary Stegmaier Mansion](#) 156 South Franklin Street, Wilkes-Barre, PA 18701. Dinner attendees may park on Wilkes University surface lots in addition to Mansion parking (see directions below). Please specify your choice of entrée when you RSVP: chicken francaise, Stegmaier surf and turf, or vegetarian. Dinner also includes crudité platter, Stegmaier house salad, roasted spring vegetables, potatoes Anna "Gratin", petite dessert display, coffee, tea, iced tea and soda. There will also be a cash bar. Cost will be \$20. Please RSVP to Gennie Singer ([genevieve.singer@wilkes.edu](mailto:genevieve.singer@wilkes.edu)) or 570.408.4750 by 4 p.m. Monday 28 Oct. 2019.

## DIRECTIONS TO WILKES UNIVERSITY:

Detailed directions can be found at

<http://www.wilkes.edu/about-wilkes/campus/directions-to-campus.aspx>

Take Exit 3 (River Street Exit), from PA Route 309N then make a left at traffic light. You are now on River Street. Immediately after turning left onto River Street you will encounter the first of 8 traffic lights. Continue on River Street to the 8th light where you will turn left (east) onto W. Northampton Street. Continue on Northampton until you reach Main St. and turn right. You can park in the Parking #12 141 S. Main St. (next to the Karambelas Media and Communication Center/Sordoni Art Gallery)

## The Mary Stegmaier Mansion



The full map above can be found at

<https://www.wilkes.edu/about-wilkes/campus/map/assets/campus-map-1019.pdf>

## SECTION NEWS:



### IMPORTANT REMINDER:

The third SVS meeting of the academic year will be held the week after the Catherine Bone Lecture on Wednesday, Oct 13<sup>th</sup> at Lycoming College.

### 2019 LOCAL SECTION ELECTIONS:

Nominations, including self-nominations, are due for the position of Chair-elect. If interested, please contact Dr. Ron Supkowski at [ronaldsupkowski@kings.edu](mailto:ronaldsupkowski@kings.edu) or 570-208-5900x5733.

### MARM2020:

MARM 20/20



Save The Date

The 48<sup>th</sup> Mid Atlantic Regional Meeting (MARM) will be held June 12, 2020. The meeting is hosted by the New York Local Section of the American Chemical Society. Check the website, <http://marm2020.org>, for more information.

### NATIONAL CHEMISTRY WEEK:



During 2019's International Year of the Periodic Table, NCW will be celebrated October 20-26, 2019 with the theme, "Marvelous Metals." The Susquehanna Valley Section is once again collecting posters for this year's event. For further details, see the [website](#).

### LOCAL STEM COMPETITIONS:



A list of all STEM competitions for high school students is posted on our [website](#). If you have any questions about the contests or have suggestions for others, please contact either the person indicated on the site or the section webmaster, Ron Supkowski at [ronaldsupkowski@kings.edu](mailto:ronaldsupkowski@kings.edu) or 570-208-5900 x5733

## NATIONAL ACS NEWS:

### ACS LEGISLATIVE ACTION NETWORK:

Legislation that may impact the chemical enterprise comes before Congress on a regular basis, and the ACS is committed to keeping its members informed and encouraging them to weigh in on high-priority issues. To see the position of the ACS on many legislative issues visit the ACS LAN website:

<https://www.acs.org/content/acs/en/policy.html>

To find out how to become more active in ACS advocacy activities, see the website:

<https://www.acs.org/content/acs/en/policy/memberadvocacy/advocacy-tools.html>

To join ACS' grassroots legislative advocacy network, ACT4CHEMISTRY, which will allow you to stay up to date on policy issues and contact legislators on behalf of chemistry and chemists, go to their website, follow the [Act4Chemistry Twitter](#) account, or email [advocacy@acs.org](mailto:advocacy@acs.org).

### JOIN THE ACS:

If you know of anyone who would benefit from being a member of the American Chemical Society, please direct them to the membership website:

<https://www.acs.org/content/acs/en/membership-and-networks/acs/join.html>

### NATIONAL MEETINGS:

#### *Spring 2020 ACS National Meeting*

The 2020 spring national meeting with the theme "Macromolecular Chemistry: The Second Century" will be held in Philadelphia, PA from March 22 – 26. See the [website](#) for details.

The fall 2020 national meeting, "Moving Chemistry from Bench to Market" will be held in San Francisco, CA from August 16 – 20.

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Susquehanna Valley Section Web Page: <http://departments.kings.edu/SusquehannaValleyACS>

Please send any comments about the monthly newsletter to Ron Supkowski, Section Secretary  
King's College 131 N River St Wilkes-Barre PA 18711 [ronaldsupkowski@kings.edu](mailto:ronaldsupkowski@kings.edu)

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