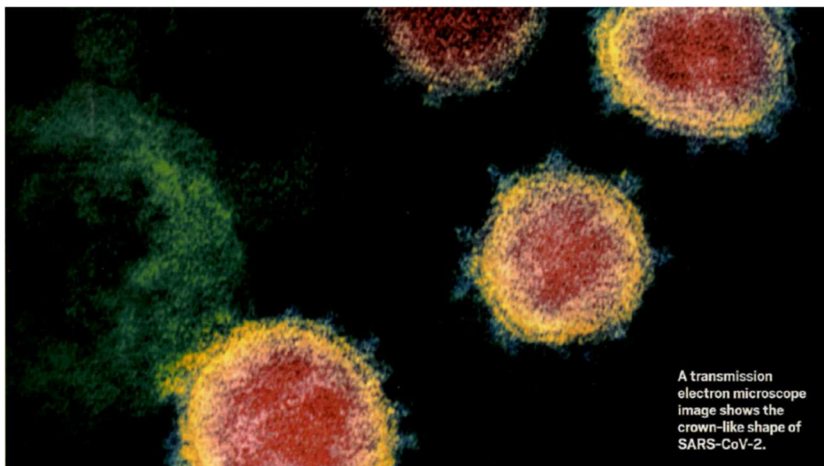
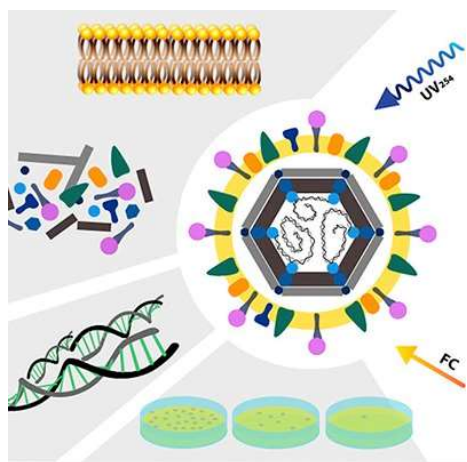


# THE OCTAGON



## WE'LL REACT AGAIN...SOME VIRUS-IMMUNE DAY!



A transmission electron microscope image shows the crown-like shape of SARS-CoV-2.

Your LVACS colleagues have been busy offering online webinars and web conferences to keep the community talking about chemistry and the environment (“Earth Day 50 at home”). Read more about these on pages 3-4 of this issue. More webinars are scheduled in May and will feature Chemists Celebrate Earth Week (CCEW) and other topics. Join us for an at-home dose of LVACS chemistry!

**Thursday, May 21<sup>st</sup>, 12-1 pm:** “Applying CCEW/ED50 thinking to our local area: air, soil and water concerns.” Join John Freeman and Lindsey Welch for a Zoom webinar/discussion about our Lehigh / Schuylkill / Delaware valley area ecological issues and some of the research that is addressing it. Join Zoom Meeting: <https://us02web.zoom.us/j/89193045483?pwd=MnExeklwBxpUzBSR0xKZnJtSWtxUT09> Meeting ID: 891 9304 5483; Password: 010666

ACS Reactions Video has fascinating and useful content on the fight against COVID-19:

“Can Soap REALLY Kill the Coronavirus?” <https://www.acs.org/content/acs/en/pressroom/reactions/videos/2020/can-soap-really-kill-the-coronavirus.html>

“Coronavirus vaccine: Where are we and what's next?”

<https://www.acs.org/content/acs/en/pressroom/reactions/videos/2020/coronavirus-vaccine-where-are-we-and-whats-next.html>

“How Effective are Cloth Masks Against Coronavirus?”

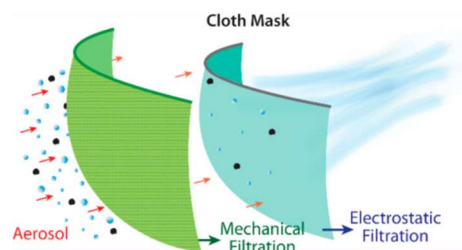
<https://www.acs.org/content/acs/en/pressroom/reactions/videos/2020/how-effective-are-cloth-masks-against-coronavirus.html>

...an ACS webinar on this topic is coming up: **Thursday, May 14<sup>th</sup>, 2 - 3 PM**

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

Many recently-published papers related to the pandemic are available for free download from ACS:

[https://pubs.acs.org/page/vi/chemistry\\_coronavirus\\_research](https://pubs.acs.org/page/vi/chemistry_coronavirus_research)



## Spring/Summer 2020 LVACS Events

**DUE TO THE COVID-19 EMERGENCY, ALL SCHEDULED IN-PERSON LVACS AND RELATED EVENTS HAVE BEEN CANCELLED THROUGH THE END OF JUNE. FOLLOW THE LVACS E-NEWSLETTERS AND SOCIAL MEDIA PAGES FOR ANNOUNCEMENTS OF VIRTUAL EVENTS AND PLANS FOR LATE SUMMER AND FALL.**

### July

*Special Event: Iron Pigs Game vs Durham Bulls*

Friday, July 31<sup>st</sup> 7:05 pm

LVACS will be seated in the Pig Pen (in-seat food/beverage)

Tickets: \$20 (includes \$10 food/beverage credit)

CONTACT: Lindsey Welch [[lawelch@cedarcrest.edu](mailto:lawelch@cedarcrest.edu)]

**AS OF THIS NEWSLETTER, THE GAME IS STILL SCHEDULED BUT WATCH TEAM MEDIA FOR UPDATES.**

### September

Section Meeting

LVACS Awards Night

Da Vinci Science Center, Allentown

Thursday, September 17<sup>th</sup> 5:30 pm

CONTACT: Nigel Sanders [[nigel53.sanders@gmail.com](mailto:nigel53.sanders@gmail.com)]

### **LVACS communications changes coming this summer...**

Volunteer organizations like your Lehigh Valley ACS section have been faced with a rapidly changing member communication environment. A year ago, we lost our website hosting and newsletter editor. Since then, we have been evolving our media use to emphasize e-newsletters and social media for greater responsiveness, with the use of Google Drive for archiving documents. In July, MagnetMail, our bulk email supplier, will cease supporting ACS so we have been informed of the need to migrate to a new email platform. As soon as this decision is made by the LVACS Executive Committee, we will be alerting you to any changes in format and frequency of our e-newsletters. The Octagon will continue to be published about 8 times per year with the next issue of Volume 103 coming out in early September 2020. We always appreciate comments and suggestions regarding LVACS media and ideas for future activities. Drop us a line!

Nigel Sanders, secretary and newsletter editor, [nigel53.sanders@gmail.com](mailto:nigel53.sanders@gmail.com)

## In This Issue...

3-5. April CCEW Webinar Reports

6. April 15 LVACS Student Virtual Poster Session Report

7. Undergraduate Senior Awardees

8. Foundation in Chemistry 2020 Awardee; ACS Career Consultants

9. Chemistry Olympiad and Project SEED Updates; Science Coaches

10. Chemagination Competition update; LVACS teaching awards nominations still open!

11. Iron Pigs Game July 31<sup>st</sup> still planned. Sign up now!

12. 2020 Executive Committee

Appendix: High School and Small College Teacher of the Year Award Nomination Forms

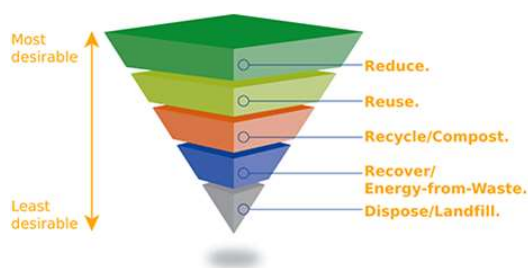
## APRIL WEBINARS FOCUS ON CCEW AND Earth Day 50

Lehigh Valley section celebrated Earth Week remotely this year with several webinars co-sponsored by the National ACS CCEW office.



### “Earth Day 50 years on: What has changed?”

On April 9<sup>th</sup>, Nigel Sanders, George Ruger and Lindsey Welch led a CCEW/ED50 ‘Teach-In’ entitled: “Earth Day 50 years on: What has changed?” A group of 10 attendees took a look back to 1970 and reviewed some of the progress and the new challenges the world is facing using the ACS Celebrating Chemistry booklet as a guide. Some of the topics covered were: The UN Global Sustainable Development Goals, Plastic Pollution and Biodegradability, Water Recycling and Waste Treatment, Renewable Resources and Processes and Climate Action: Clean Energy Sources. The group focused on the theme ‘What Can Chemistry Do to Help?’ – thinking about sustainability globally and in our regional ecosystems, the Lehigh/Schuylkill/Delaware Valleys. Points that were raised included using environmentally balanced strategies for products/services and applying a global waste hierarchy.



### GLOBAL CONCERNS/IDEAS

- Need to educate everyone about how chemistry can help our daily lives (e.g. why soap is one of our best defenses against SARS-CoV-2/COVID-19).
- How to address deep skepticism of some towards scientific results.
- No concept among populace of simple concepts like ‘discard dates.’
- Back to first Earth Day: “Organic” vs “Chemical” – demonstrate that these are not opposites!
- UN Sustainability Goal #14 (Life below water) – good example of bio-plastics (alginates).
- A lot of what is in the UN Goals is also in the so-called ‘Green New Deal’ of AOC, et al.
- On a recent trip to the UK, my students were struck by lesser amount of plastic wrappings.
- Make rational choices (single-use plastic bags vs multi-use; note regression with COVID-19!)

### REGIONAL CONCERNS/IDEAS

- Palmerton, PA superfund site (since 1983; former NJ Zinc plant): site is only just now recovering from extreme heavy metal (Zn, Cd and Pb) contamination after closure in 1980.
- Other superfund sites locally are the former paper mills along the Delaware.
- Airshed: 55th worst metro area in the country for smog (American Lung Assn.)
- Impact of rapid growth of warehousing/truck traffic on particulates and ozone emissions.
- Airborne Pb (2 areas in Berks)
- Land use change from agricultural (highways, warehouses, ‘McMansions,’ PennEast pipeline).
- Local energy production field trips or talks (solar/wind farms; nuclear; fossil)
- Growth of “Community Solar” installations?
- Lehigh, Schuylkill and Delaware river ecosystems: run-off, disposal issues

The entire webinar recording and slide set is posted on our Facebook page:

<https://www.facebook.com/events/2573301746267641/>

***Online activities and future events are being planned around the concerns raised and ideas to learn more about them. Stay tuned for announcements in LVACS media.***

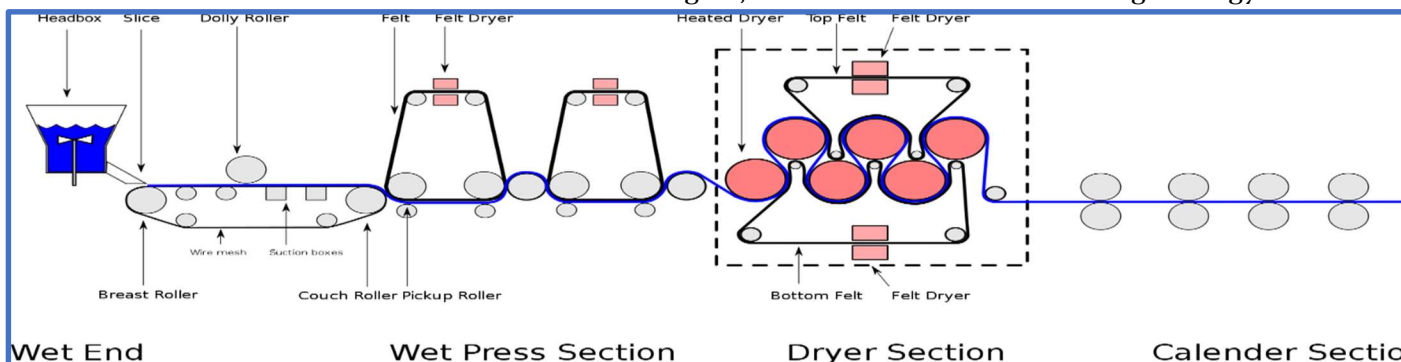
## “Plants, Perfect Planet Protectors & more!”

Twelve participants tuned into this April 16<sup>th</sup> webinar where Jeanne Berk of Cedar Crest College explained why plants are the perfect planet protectors and about the oldest chemical process that uses wood, making paper. Jeanne described the industrial process of manufacturing paper and highlighted the chemistry involved. For a CCEW hands-on activity, she showed the attendees how to make their own recycled paper at home.

Plants (using trees as the main example) have a tight connection with planet Earth through their roots (soil/water) and leaves (air). Trees will be affected by all changes in the environment and can also respond to it in many ways. The leaves absorb CO<sub>2</sub> and release O<sub>2</sub> during their photosynthetic process which may buffer climate change. Plants in general are known as *phytoremediators* since their roots control erosion and remove environmental toxins. The active photosynthetic center in plants, chlorophyll, a green porphyrin dye (EU E140i), takes light, water and CO<sub>2</sub> and produces cellulose, a carbohydrate polymer which is the main building material of the plant and, as wood, an important bioproduct for human uses (fuel and shelter). Today, these uses are still widespread and other products from wood have been developed, such as paper, the next topic of the webinar.



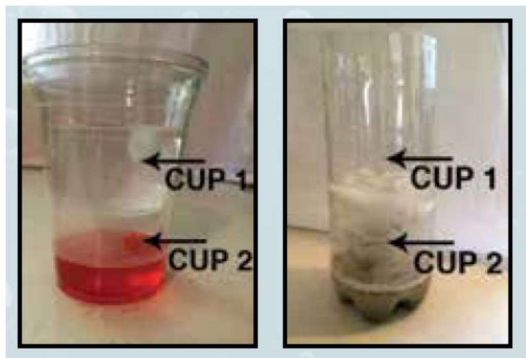
The manufacture of paper was invented in China over two millennia ago with the first paper for writing credited to Cai Lun in 105 CE. The modern process for papermaking starts with wood pulp from either softwood or hardwood trees (more typically both and generally sourced from plantations). The wood is composed of cellulose, a 3D polymer water-insoluble phenolic polymer called lignin and minor amounts of rosins (softwoods) and fatty acids (hardwoods). The simplest approach to converting wood to cellulosic fibers for paper manufacture is by mechanical pulping which involves only grinding operations, often carried out with steam and minor alkali additions. This kind of pulp, called ‘high yield pulp’ because it contains both cellulose and lignin, is used for making newsprint paper. Another kind of pulp, chemical pulp, is made by ‘cooking’ the wood chips with a hot concentrated solution of chemicals, usually a combination of lye and sodium sulfide to partially solubilize the cellulose and allow it to be separated from the lignin. For economic and environmental reasons, the chemicals used in this sort of pulping are largely recovered and reused. The lignin is used as fuel for steam generation. Chemical pulp has longer fibers and yields stronger papers useful for printing/writing papers and packaging papers. The original ‘hand’ papermaking process is still used today and we’ll use it to recycle paper fibers into new paper later. Most paper, however, is made in mills employing huge paper machines which have automated the processes of fiber preparation, sheet forming, draining, wet pressing, drying and sheet consolidation (calendering) [see below]. The largest footprint of papermaking is water use as the sheet is formed at <1% solids and then must be dried to about 97% solids. Again, water is recovered but at a high energy cost.



The entire webinar recording is posted on our Facebook page:

<https://www.facebook.com/188914467805550/videos/268516547496010/>

## “(Re)Cycling Water”



On Saturday, April 18<sup>th</sup>, Greglynn Gibbs of Penn State/Berks told us about the Earth’s water cycle and investigated the basic principles of water recycling. She showed how pure water can be separated from polluted water by simple distillation. Just put a ‘polluted’ sample of hot tap water in one cup (#2) and suspend an ice-cold water cup (#1) above it. Point out the formation of droplets of pure water on the surface of cup #1. A very engaging demonstration of how you can create your own water recycling system!

## “Earth-Friendly Plastics”

The next Saturday, April 25<sup>th</sup>, Greglynn showed how to use green chemistry principles to make a type of plastic which breaks down into harmless chemicals once it enters the environment: in fact, these plastics are edible! Just add a drop of colored sodium alginate solution to a calcium lactate solution to create an ‘aquapod’ with a calcium alginate skin (see picture). The materials are food grade additives sold in food supplement stores and the cool chemistry is courtesy of the saccharide biopolymer algin found in brown seaweed. Commercial versions of these edible water bottles, brand-named Ooho! Are marketed by Skipping Rocks Lab. Oohos were used during the 2019 London Marathon, preventing the need for 200,000 plastic water bottles!



For more details, see the CCEW 2020 issue of *Celebrating Chemistry*:

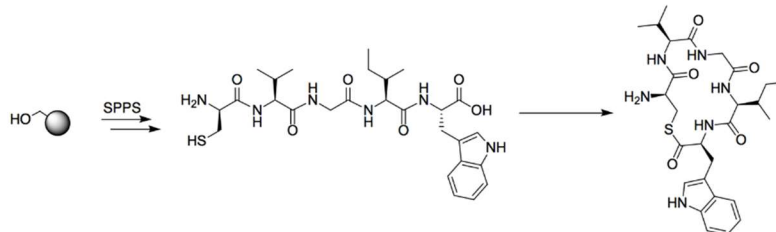
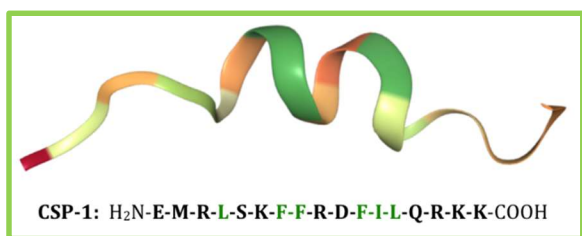
<https://www.acs.org/content/acs/en/education/outreach/celebrating-chemistry-editions.html>



# ANNUAL UNDERGRADUATE RESEARCH POSTER SESSION GOES VIR(TU)AL IN 2020

In place of the usual in-person meeting, LVACS got a flavor of some of the research that's going on in our local colleges and universities with an online Zoom poster session held Wednesday, April 15<sup>th</sup>.

The members of the Michael Bertucci Group at Moravian College are conducting research to better understand the chemical factors that influence a density-dependent bacterial communication known as quorum sensing. Alec Buttner, Emilee Engler, Fadi Hanna, Liz Hutnick and Naomi Rieth are studying this phenomenon in the opportunist pathogen *Streptococcus pneumoniae* and the commensal microbe *Lactobacillus plantarum* through the synthesis of peptides containing non-natural amino acids. They told us about their experiences spanning from chemistry to microbiology and even genetics in their quest to uncover how bacterial quorum sensing impacts human health.



Read their abstracts at: <https://drive.google.com/open?id=157x761BWzdHlsgkv0E375EDALXdEaUGe>

The full recording of the session is available on our Facebook page:  
<https://www.facebook.com/188914467805550/videos/282009556129293/>

The Bertucci Group Website: <https://www.moravian.edu/bertucci-group>

**MORAVIAN COLLEGE**

### Synthesis of an inhibitory peptide for the *Streptococcus pneumoniae* quorum-sensing circuit through optimization of the hydrophobic binding face using non-natural amino acids and substitution of key activating residue

Alec Buttner  
Advisor: Dr. Michael Bertucci

**Introduction**

*Streptococcus pneumoniae* is the cause of many illnesses such as pneumonia, meningitis, and sepsis due to its pathogenic nature. However, the effects of these illnesses extend beyond an individual basis. In 2004 alone, there were a total of over 4 million illness episodes caused by *S. pneumoniae* and 4.1 million outpatient antibiotic prescriptions, which led to a total direct medical cost of approximately \$5.3 billion.<sup>1</sup> One of the ways *S. pneumoniae* becomes virulent and shares antibiotic resistance is through quorum sensing. Quorum sensing is a cell-density dependent form of intercellular communication where bacteria release an external pheromone to transmit signals between cells once a specific cell density is reached. Through finding ways to inhibit *S. pneumoniae*'s ability to infect its host organism (i.e. humans), we can limit the negative effects of this bacteria.

The premise behind this research is to limit quorum sensing in *S. pneumoniae* by synthesizing inhibitory derivatives of CSP1 with optimized binding to ComD1. In Figure 1, CSP1 is outlined with its hydrophobic binding face highlighted. This face binds to ComD1, the cognate receptor of *S. pneumoniae*, which leads to the activation of quorum sensing. If we substituted the amino acid sidechains in CSP1 to make it bind better, we can pair that with an E→A substitution in position 1 to make it an inhibitory peptide that will outcompete the native peptide and limit *S. pneumoniae* quorum sensing. We hypothesize that making substitutions of cyclohexylalanine (Cha) and homoleucine (Hleu) in select positions will optimize binding due to better steric occupation of the ComD1 binding pocket. An example of this optimized binding is shown in Figure 2.

**Experimental Method**

This project uses Solid Phase Peptide Synthesis (SPPS) to synthesize our CSP1 derivatives. Our peptides are loaded on a Wang Resin and synthesized from C-Terminal to N-Terminal. We synthesize our peptides by removing protecting groups, adding a coupling solution to add on the next amino acid, and then cleaving the synthesized peptide off of the resin with an acidic solution. The general synthesis mechanism is outlined in Figure 3.

Following this, our peptides are purified using Reverse-Phase High Performance Liquid Chromatography (RP-HPLC), the peptide mass is confirmed via MALDI-TOF Mass Spectrometry, and their % purity is measured through an analytical HPLC run. Peptides are purified until they reach >95% purity and then they undergo β-galactosidase bioassays.

For activating peptides, we get an EC50 value, which tells us how effective it is at binding to the cognate ComD1 receptor. Once we have confirmed that there is more effective binding to ComD1, we make the inhibitory forms of these peptides, which include a substitution of Alanine for Glutamic Acid at position one. Through more bioassays, obtain an EC50 value to tell us how good it is at outcompeting the native CSP1 peptides and inhibiting quorum sensing. Mechanism is shown in Figure 2.

**CSP-1:** H<sub>2</sub>N-E-M-R-L-S-K-F-F-R-D-F-I-L-Q-R-K-K-COOH

**Figure 1.** The native sequence of the Competence Stimulating Peptide 1 (CSP1). Residues involved in the hydrophobic binding face are highlighted in green.

**Figure 2.** An example of an unnatural amino acid substitution that optimized occupation of the hydrophobic binding pocket of the ComD1 receptor through extension of residue side chain.<sup>1</sup>

**Figure 3.** The general mechanism for peptide purification (SPPS), purification (RP-HPLC), and BioAssay (β-galactosidase Assay).<sup>1</sup>

**Results and Discussion**

Table 1 outlines the results for all peptides synthesized in this research project. Our research has shown a decrease in EC50 values when using substitutions including cyclohexylalanine (Cha) and homoleucine (Hleu), which shows optimization of positions 7 and 12 of the hydrophobic binding face. When these substitutions were paired with the E1A mutation, more effective inhibition was observed for all except E1A12Cha. This further suggests that we have optimized the hydrophobic binding face and that our activating peptides can be effectively converted to inhibitors.

Although the exact reasoning behind the success of these substitutions is not definitively known, we hypothesize that loss of aromaticity in position 7 allows for more flexibility of the side chain to adopt favorable conformations to optimize binding, and that the extension of the side chain in the 12<sup>th</sup> position allows for more efficient occupation of the binding pocket.

**Table 1. Results from the unnatural amino acid substitutions, CSP1 native and E1A peptides included for reference.**

| Substitution | EC50 (nM) | IC50 (nM) |
|--------------|-----------|-----------|
| CSP1         | 16.3      | -         |
| L42Cha       | 16.8      | -         |
| PP2Cha       | 147       | -         |
| 122Cha       | 2.1       | -         |
| L42M12Hleu   | 42.2      | -         |
| 122M40       | 8.15      | -         |
| E1A          | -         | 65.7      |
| E1A72Cha     | -         | 36.8      |
| E1A122Cha    | -         | 714       |
| E1A122Hleu   | -         | 40.8      |

**Acknowledgements**

I would like to thank my advisor, Dr. Michael Bertucci for his guidance throughout the research. I would also like to thank Emilee Engler, Katrina Mills, Dr. Yuhai Tai-Guo, Robert Hillman, and Kyle Chuchra for their significant research contributions to the project that made this research project possible.

**Key References**

[1] Kishida, B., Hillman, R. A., Trivitt, E. K., Bonacci, M. A., Tai-Guo, Y. (2019) Defining the hydrophobic interactions that drive competence stimulating peptide (CSP) ComD binding in *Streptococcus pneumoniae*. *Antonie van Leeuwenhoek* 116:1777.

[2] Huang, S.; Johnson, K.; Ray, T.; Wong, P.; Liu, T.; Moore, M.; Zill, E.; Linder, J.; Grijpma, C.; Meloy, J.; Finkbeiner, J. (2011) Healthcare antibiotic use and cost of pneumococcal disease in the United States. *Antonie van Leeuwenhoek* 100:361-372.

[3] Diagram made through BioRender: <https://app.biorender.com/gallery>

## UNDERGRADUATE SENIOR AWARDS 2020

Although we were not able to honor the top graduating seniors in chemistry and chemical engineering from our Lehigh Valley section's 4-year colleges in person this year, the selections were made by their respective faculty and the list of our Chemistry 'BEST AND BRIGHTEST' for 2020 appears below. Their selection is accompanied by a framed certificate and special prize. As well as recognition in this newsletter, the awardees are being featured this month in our social media.

Albright College

Alvernia College

Cedar Crest College

DeSales University

East Stroudsburg University

Kutztown University

Lafayette College - Chemistry

- Chemical Engineering

Lehigh University - Chemistry

- Chemical Engineering

Moravian College

Muhlenberg College

Jieyu Zhang

Julian Stetzler

Alexandra Kuchinos

Victoria Dahm

Conrad Richman

Theresa Buckley

Daisy Grace

Xiaoyu Xu

Giorgos Hiotis

Kenneth Honer

Jessica McCormick

Giulia Nicolai

Hearty congratulations to our senior scholars and best wishes for their future chemistry-inspired careers from the Senior Awards Committee (Pamela Kistler, Chair)!



## 2020 Foundation in Chemistry Award to Abigail Stocker

The Awards Committee of the Lehigh Valley ACS section is pleased to award the Foundation in Chemistry scholarship for 2020 to Abigail Stocker of Easton, PA and Freedom High School. Abby will attend DeSales University in the fall, majoring in chemistry. In addition to her academic achievements, Abby participated in the FHS Patriot Band, cheerleading and as the goalie of their lacrosse team. A member of Aevium (a service club that offers peer tutoring to FHS students), Abby is also a Girl Scout who has earned the Silver Award for service to her community.



In her essay, Abby explained why she has chosen to study the chemical sciences in college: “I have always wanted to go into a profession working with people to make their lives better. Chemistry is so fundamental to our world; it plays a role in everyone's lives and touches almost every aspect of our existence in some way. Chemistry is essential for meeting our basic needs of food, clothing, shelter, health, energy, and clean air, water, and soil. Chemical technologies enrich our quality of life in numerous ways by providing new solutions to problems in health, materials, and energy usage. Thus, studying chemistry is useful in preparing us for the real world. I've always been excited by the limitless potential of the chemical sciences. The chemical sciences are what I love to do, learn, and make advancements in. In college, I plan to pursue research in chemistry, specifically organic chemistry in a pharmaceutical setting. I want to be able to influence other scientists, industries, and the general public. Pharmaceutical chemistry explores the components of drugs, analyzes their effects and uses this data to create or improve upon medications. To continue studying chemistry in a pharmaceutical setting allows me to contribute to life itself-saving remedies, enhance the speed of delivery of new medications, and help others.”

Our sincere congratulations to Abby on her outstanding academic record in high school and wish her much success as she begins her college career at DeSales next fall! John Freeman, Awards Chair

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## AND NOW A WORD ABOUT...ACS CAREER CONSULTANTS

Career Consultants and ACS members work together in developing career plans. A consultant can stimulate your thinking, ask important career planning questions to help clarify goals, provide encouragement, teach strategies for making meaningful career decisions, and aid you in your job search. Career Consultants are at National Meetings, Regional Meetings, Career Events and online.

LVACS' **Greglynn Gibbs** is an ACS Career Consultant. She is a research support technician and manager of the chemistry labs at Penn State Berks. She is very involved with ACS volunteer programs and enjoys reaching the younger chemists' community, sharing her expertise in the chemical workforce. Greglynn looks at career development in terms of facing challenge: “every challenge you overcome in life can get you closer to the person you want to be. Despite what some might say, there is no ‘easy button’. Anything worth having is worth fighting for.”



<https://www.acs.org/content/acs/en/careers/personal-career-consulting/consultants/greglynn-gibbs.html>





## 2020 CHEMISTRY OLYMPIAD CONTEST MOVES TO REMOTE MODE

After being forced to cancel our section Chemistry Olympiad exams due to COVID-19 restrictions our coordinator, Gail Marsella of Muhlenberg College, received word that online examinations had been designed and would be offered in lieu of the usual ones. 22 of the 55 original high school students agreed to participate in the local section phase under these new rules and took the 90-minute test April 19<sup>th</sup>. The top 10 finishers from that week had a second chance the following Sunday, April 26<sup>th</sup> in the first of two National level exams. Unfortunately, none of our students qualified for the final round exam May 3<sup>rd</sup>. Oh well...next year. **Thanks to Gail for coordinating!**

### LVACS 2020 CHEMISTRY OLYMPIAD PARTICIPANTS: (\*finalists competed in National Exam 1)

|                          |                                                                                                                                                                                                    |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Freedom High School      | Alex Sologub, Belinda Yeung*, Katie Marakovits, Lleyton Herb*                                                                                                                                      |
| Parkland High School     | Dharshan Tharumia*, Farid Shahid*, Janam Patel, Krishna Narramneni, Pranav Balabhadra, Prathysha Kothare, Prince Patel, Sam Oxfeld, Shlok Dholakia, Suchir Agarwal, Tanya Mehta, Taran Anantasagar |
| Hackettstown High School | Grace DeCostanza*                                                                                                                                                                                  |
| Wilson High School       | Liang Dong*                                                                                                                                                                                        |
| Reach Cyber School       | Logan Pachulski*                                                                                                                                                                                   |
| Wyomissing High School   | Rachel Dick*                                                                                                                                                                                       |
| Wilson High School       | Sarah Creveling*                                                                                                                                                                                   |
| Gov. Mifflin High School | Steven Van Pelt*                                                                                                                                                                                   |



## ACS PROJECT SEED: VIRTUAL SUMMER CAMP ANNOUNCED

Jeremy Heyman, LVACS SEED coordinator, reports that after much consideration, the American Chemical Society has decided to cancel all Project SEED research for Summer 2020. In place of the traditional research model, ACS will curate and host a 4-week virtual summer camp. The application deadline is now extended to May 15<sup>th</sup>. Jeremy will be working with high school teachers in our seven-county area to see which students identified for SEED wish to opt into the new program.

## SCIENCE COACHES: APPLICATIONS NOW OPEN UNTIL SEPTEMBER 1<sup>ST</sup>

ACS and AACT co-sponsor a program called Science Coaches which matches ACS chemists with AACT K-12 teachers for a year. Coaches may: provide advice on real-world applications of lessons, demos, or experiments; help develop or enhance lesson plans; serve as a science mentor; promote inquiry-based learning; support classroom-based experiments. Teachers receive \$500 toward classroom material costs. Coaches and Teachers meet at least 6 times per year.

Interested? Apply today!

View a 30-minute webinar: <https://teachchemistry.org/professional-development/webinars/science-coaches-2020>

Webinar slides pdf: <https://drive.google.com/open?id=1EiQdwZXAxP9beFWlxItYRYVvCFiarhy2>

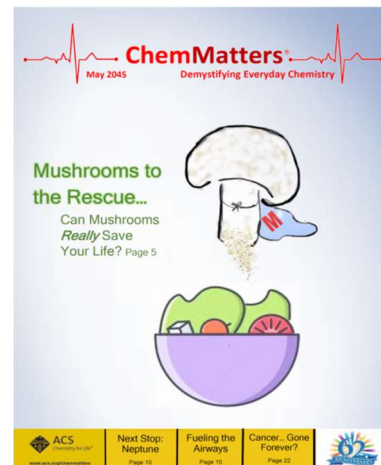
Apply online: <https://fs11.formsite.com/AACT/mpomso7vlp/index.html>



## Lehigh Valley Chemagination Competition

The committee received 19 team submissions across all 4 categories (Alternative Energy, Environment, Medicine/Health, New Materials) and have chosen the top 2 in each category for the regional MARM virtual competition. These high school student teams were asked to imagine that they are living 25 years in the future, 2045, and are writing for ChemMatters, a magazine for high school students that focuses on the role of chemistry in everyday life. The editor chooses them to them to write the cover article for the next issue of the magazine describing a recent breakthrough or innovation in chemistry and its applications that improve the lives of those living in 2045. Along with the article they have the honor of designing the magazine's cover. The subject of the article is: "Describe a recent breakthrough or innovation in chemistry (and/or its applications) that has improved the quality of people's lives today." The titles of their articles ranged from "Mushrooms to the Rescue...Can Mushrooms Really Save Your Life?" to "The Need for Green: Changing the World One Battery at a time" to "Nanobots: Doctors of the Future" to "Shade Balls: Cleansing the Waters."

*More details of the winning articles will be released soon but let's congratulate our budding science writers and thank the committee (John Freeman, Chair) for reviewing their entries!*



## LV Section 2020 Awards: Last Call for Nominations!

LVACS has rescheduled its annual awards and the ACS 50/60-year awards until the Thursday, September 17th section meeting scheduled to be held at The Da Vinci Science Center.

The awards for Excellence in High School Teaching, Excellence in Small College Teaching, Volunteer Service, Advancing Diversity and The Foundations in Chemistry Award for a High School Senior matriculating to a Lehigh Valley area college will be presented to five outstanding members of our chemistry community. The chairs for the event, John Freeman and Lorena Tribe, *continue to seek nominations for the following two awards:*

**ACS LEHIGH VALLEY LOCAL SECTION AWARD FOR EXCELLENCE IN HIGH SCHOOL TEACHING**

**ACS LEHIGH VALLEY LOCAL SECTION AWARD FOR EXCELLENCE IN SMALL COLLEGE TEACHING**

*The nomination forms for these three awards are attached in an Appendix the back of this newsletter. Please follow the instructions and submit the completed forms to the designated email address listed on the form.*

***The deadline for nominations has been extended to Friday, May 15<sup>th</sup>.*** Our teachers have been going 'above and beyond' during this crisis *so recognition of this type is needed now more than ever!*

**CONTACTS: John Freeman [jcf2@rcn.com]; Lorena Tribe [lut1@psu.edu]**



## 2020 LVACS NIGHT AT THE BALLPARK

Friday, July 31<sup>st</sup> @ 7:05 pm

Lehigh Valley Iron Pigs vs Durham Bulls

Celebrate Summer with LVACS in the Coca-Cola Park Pig Pen!

[In-Seat Food & Beverage Service]



**Reserve your seats now!**

Tickets \$20

(includes \$10 food/beverage credit)



*If the game is cancelled due to continuing restrictions, refunds will be available.*

CONTACT: Lindsey Welch [[lawelch@cedarcrest.edu](mailto:lawelch@cedarcrest.edu)]

LEHIGH VALLEY SECTION OF THE AMERICAN CHEMICAL SOCIETY  
2020 EXECUTIVE COMMITTEE

OFFICERS

Chair:  
George Ruger  
[gruger04@yahoo.com](mailto:gruger04@yahoo.com)



Chair Elect:  
Roger Egolf  
[rae4@psu.edu](mailto:rae4@psu.edu)



Immediate Past Chair:  
Denise Beautreau  
[deedewwo@yahoo.com](mailto:deedewwo@yahoo.com)



Secretary/Newsletter Editor:  
Nigel Sanders  
[nigel53.sanders@gmail.com](mailto:nigel53.sanders@gmail.com)  
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Treasurer:  
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[tvc212@lehigh.edu](mailto:tvc212@lehigh.edu)



COUNCILORS

Jeanne Berk (term ends 12/31/21)  
[jrberk@cedarcrest.edu](mailto:jrberk@cedarcrest.edu)



Kelley Caflin (term ends 12/31/20)  
[caflinacs@yahoo.com](mailto:caflinacs@yahoo.com)



ALTERNATE COUNCILORS

Lorena Tribe (term ends 12/31/20)  
[lut1@psu.edu](mailto:lut1@psu.edu)



Celia Williams (term ends 12/31/21)  
[lvacscma@gmail.com](mailto:lvacscma@gmail.com)



APPENDICES:  
LVACS AWARD  
NOMINATION  
FORMS

# THE ACS LEHIGH VALLEY LOCAL SECTION AWARD FOR EXCELLENCE IN HIGH SCHOOL TEACHING AWARD PROGRAM FOR 2020

**Purpose:** To recognize, encourage, and stimulate outstanding teachers of high school chemistry in the Lehigh Valley Section of the American Chemical Society

**Nature:** The Section Award consists of a cash award and a certificate. The meal at the September 17<sup>th</sup> meeting of the Lehigh Valley section of the ACS at which the award will be presented will be paid. A certificate will may also be provided to the recipient's institution for display. The Winner's Application will be forwarded to the Mid Atlantic Regional ACS Division of Chemical Education Award for Excellence in High School Teaching

**Who May Nominate?** Any individual, except a member of the award selection committee or currently enrolled student of the nominee, may submit one nomination or support form in any given year.

**Who is Eligible?** The nominee must be actively engaged in the teaching of chemistry or a chemical science in a high school (grades 9-12) on at least a half-time basis in Berks, Schuylkill, Carbon, Lehigh, Northampton or Monroe counties in PA and Warren County NJ. The nomination should clearly demonstrate as many of the following attributes as possible:

- The quality of the nominee's teaching; unusually effective methods of presentation should be emphasized;
- The nominee's ability to challenge and inspire students;
- Extracurricular work in chemistry or a chemical science by the nominee, including science fairs, science clubs, and activities that stimulate the interest of young people in chemistry and related sciences;
- A willingness to keep up-to-date in the field, as evidenced by the pursuit of a higher degree in chemistry or a chemical science, enrollment in refresher courses and summer institutes, regular attendance at scientific meetings, membership in professional organizations, and other means of self-improvement;
- Evidence of leadership and/or active involvement within the profession.

### **Required components of Nomination Portfolio:**

- The Awards Committee will consider only **complete** nomination portfolios.
- A complete portfolio shall consist of
  - A Nomination Portfolio Check List (see Page 3), which shall serve as the Portfolio Cover Sheet;
  - Nominator Information Form (see page 5);
  - Nominee Information Form (see page 6);
  - Nominator Recommendation of not more than 750 words submitted by the nominator according to the guidelines outlined on the Recommendation Form (see page 7);
  - A current 2 page curriculum vitae or resume that includes a list of the nominee's honors, professional activities, and additional evidence of service to the profession; **NOTE: Limited to no more than two pages and the activities listed must have occurred within the past five years.**
  - A statement by the nominee of not more than 500 words that describes the nominee's teaching philosophy or commitment to the profession;
  - At least one, but not more than three, letters of support. One letter, of no more than 400 words, must be from the teacher's current principal or supervisor. Additional letters of support, of no more than 400 words, may be sent by colleagues, members of the American Chemical Society, who are familiar with the nominee's achievements, or former students and parents of former students.
  - **NOTE: Some commentary on student reaction to the work of the nominee in either the nominating letter or that of the current principal or supervisor is essential for a well-rounded portfolio.**

Submit nominations to **John Freeman**) by e-mail attachment to [LVACSTOTY@gmail.com](mailto:LVACSTOTY@gmail.com) by **May 15<sup>th</sup> 2020**

\*\*\*Please state award title in subject line, and the candidates name \*\*\*

**THE ACS LEHIGH VALLEY LOCAL SECTION AWARD FOR  
EXCELLENCE IN HIGH SCHOOL TEACHING  
2020 Nomination Portfolio Check List**

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The following items are required components for a Nomination Portfolio. Please check each item contained in the portfolio. This list, submitted by the nominator, will serve as the cover to every submitted portfolio.

Nominator Information Form;

Nominee Information Form;

Nominator Recommendation Letter of no more than 750 words send as email by Nominator with nominees name in subject line.

Nominee's Statement on Teaching Philosophy of no more than 500 words;

Nominee's Current CV:

A curriculum vitae or resume that includes a list of the nominee's honors, professional activities, and additional evidence of service to the profession. This must be limited to no more than two pages and the activities listed must have occurred within the past five years.

Letters of Support (no more than 400 words) sent separately as email by principal with nominees name in subject line:

**One must** be from the teacher's current principal or supervisor.

**Up to two** additional letters of support may be sent by colleagues, members of the American Chemical Society who are familiar with the nominee's achievements, or former students and parents of former students.

Nominator's

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## NOMINATION FORM

# THE ACS LEHIGH VALLEY LOCAL SECTION AWARD FOR EXCELLENCE IN HIGH SCHOOL TEACHING

**Deadline: *MAY 15, 2020***

Any individual, except a member of the award selection committee or current students of the nominee, may nominate or support *only* one nominee during any given award year. Submit to **JOHN FREEMAN** via e-mail at [LVACSTOTY@gmail.com](mailto:LVACSTOTY@gmail.com) by May 15, 2020 Please state award title in the subject line.

The award will be presented at the September 17<sup>th</sup> Meeting of the Lehigh Valley Section of the American Chemical Society.

### NOMINATOR INFORMATION

|                                       |  |
|---------------------------------------|--|
| Name:                                 |  |
| Company or Institutional Affiliation: |  |
| Present Position (Exact Title):       |  |
| Address:                              |  |
| City:                                 |  |
| State and Zip:                        |  |
| Telephone:                            |  |
| Fax:                                  |  |
| e-mail:                               |  |
| Relationship to Nominee               |  |



## NOMINATION FORM

### THE ACS LEHIGH VALLEY LOCAL SECTION AWARD FOR EXCELLENCE IN HIGH SCHOOL TEACHING

**Deadline: *May 15, 2020***

### NOMINEE INFORMATION

|                                 |  |
|---------------------------------|--|
| Name:                           |  |
| Present Position (Exact Title): |  |
| School:                         |  |
| Address:                        |  |
| City:                           |  |
| State and Zip:                  |  |
| Telephone:                      |  |
| Fax:                            |  |
| e-mail:                         |  |
| Website:<br>if appropriate      |  |

- Give your current teaching assignment including course titles and grade levels. What is your involvement in extracurricular activities
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
- On a separate sheet, provide a statement of not more than 500 words in which you present your teaching philosophy or otherwise describe your commitment to the profession.

## NOMINATION FORM

### THE ACS LEHIGH VALLEY LOCAL SECTION AWARD FOR EXCELLENCE IN HIGH SCHOOL TEACHING

**Deadline: *MAY 15, 2020***

#### RECOMMENDATION STATEMENT OF NOMINATOR

Submit a narrative statement of no more than 750 words that describes and comments upon the following:

- The quality of the nominee's teaching. Unusually effective methods of presentation should be emphasized;
  - **NOTE: Some commentary on student reaction to the work of the nominee in either the nominating letter or that of the current principal or supervisor is essential for a well-rounded portfolio.**
- The nominee's ability to challenge and inspire students;
- Extracurricular work in chemistry or a chemical science by the nominee, including science fairs, science clubs, and activities that stimulate the interest of young people in chemistry and related sciences;
- A willingness to keep up-to-date in the field, as evidenced by the pursuit of a higher degree in chemistry or a chemical science, enrollment in refresher courses and summer institutes, regular attendance at scientific meetings, membership in professional organizations, and other means of self-improvement;
- Evidence of leadership and/or active involvement within the profession.

## **ACS LEHIGH VALLEY LOCAL SECTION AWARD FOR EXCELLENCE IN TEACHING AT SMALL COLLEGES**

You are cordially invited to nominate a colleague to be recognized at the annual awards program of the Lehigh Valley Section of the American Chemical Society (LVACS) to be held on Thursday September 17, 2020. The event will feature dinner followed by a keynote speaker and the award recognition program.

We are seeking to recognize, encourage, and stimulate high quality teaching and research at small colleges. Please send the nominee's short curriculum vitae, list of publications, and evaluation of the nominee's achievements as a teacher in a small college. This document should clearly demonstrate the candidate's attributes: the quality of the candidate's teaching; organization and efficiency of lab work; research and/or development work; ability to challenge and inspire students; extra-curricular work in chemistry; courses, meetings, presentations, awards, etc. Seconding letters are not essential but as many as three may be included with each nomination. Letters may include careful evaluations of the teacher's abilities by their superiors, associates, or by local section members.

Please contact Lorena Tribe at [lut1@psu.edu](mailto:lut1@psu.edu) for any questions pertaining to the nomination for this award. The deadline for reception of your emailed application is **May 15, 2020**.