



Paul E. Richardson, PhD

Professor of Biochemistry

Coastal Carolina University

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Education

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- | | |
|---------------|--|
| Undergraduate | Lebanon Valley College (1996)
B. S. with a Major in Biochemistry
Mentor: <i>Dr. Stephen Williams</i>
Focus: <i>Phylogenetic analysis with respect to molecular evolution of RBCL II</i> |
| Graduate | University of Southern Maine (1999)
M.S. in Applied Immunology and Molecular Biology
Mentor: <i>Dr. Monroe Duboise</i>
Focus: <i>Apoptosis factors in Murine Herpes Virus-68</i> |
| Graduate | University of Alabama, Birmingham (2004)
PhD in Biochemistry and Molecular Genetics
Mentor: <i>Dr. Stephen Harvey</i>
Focus: <i>Structure/Function analysis of plasma proteins using homology modeling techniques and spectroscopic experiments</i> |

Awards for Excellence

Research

Outstanding student in Applied Immunology and Molecular Biology (**Aug 1999**)

FASEB student presenter award (**Aug. 2003**)

Southeast Lipid Research Conference Poster Award (**Sept. 2003**)

Outstanding Alumnus in Applied Medical Sciences (**May 2009**)

Harry M. Lightsey, Jr. Visiting Scholar for 2012 (**May 2012**)

CCU INBRE Fellow (**Summer 2017**)

CCU INBRE Fellow (**Summer 2018**)

CCU INBRE Fellow (**Summer 2020**)

CCU INBRE Fellow (**Summer 2021**)

Teaching and Student Engagement

Center for Teaching and Learning Instructional Master Coach (May 2013)

CCU Student Engagement Award: Received this award for my efforts to develop, test, and implement a COVID-19 test on campus during the pandemic. (**April 2021**)

Won the award for **University Service Award** based on the work that I did developing a COVID test for the university and the advice I gave, as a virologist, on the COVID Transitional Committee. (**April 2022**)

Voted **Outstanding professor of the month** by ΑΔπ (**April 2022**)

Voted **Best Advice Giver** (**April 2022**)

Accomplishments/Leadership as Chair

Quick philosophy: *As chair I feel that there are two separate goals that you need to embody to be successful. You must be an advocate for the students and the representative for the faculty interest. The students are the reason why we are professors, and their education is of paramount importance to the well-being of the department. It is also important to understand that shared governance is the key to a successful department; all stake holders must have a voice and the chair should be aware of all voices in their department when decisions are made.*

- ⇒ Department has 3 degrees (Biochemistry, Chemistry, and Chem-Engineering)
- ⇒ Managed 13 faculty, 1 adjuncts, and 2 staff members with an operating budget of \$140,000 (not including salary).
- ⇒ Managed department during our furlough process and COVID pandemic.
- ⇒ Managed an interdisciplinary team to develop, test and implement a COVID test to help make campus safe during the initial wave of the COVID pandemic.
- ⇒ Started a yearly faculty evaluation process for the department (Tenure track and Lecturer). Created a document that showed what the expectations were for tenure track faculty and the different means in which they could accomplish that expectation. Created a separate document for lectures, based on their expectations.
- ⇒ Helped my department in the acquisition of an NMR for teaching and research purposes.
- ⇒ Helped my department in the acquisition of a bomb calorimeter for the teaching labs.
- ⇒ Acquired funding for a new HPLC for the department.
- ⇒ Convinced administration to provide us with an administrative assistant to help with the paperwork for all faculty in the department. Recruited and hired an administrative assistant.
- ⇒ Helped the department in the recruiting and hiring of an assistant professor of organic chemistry.
- ⇒ Helped the department in the recruiting and hiring of a lecturer of organic chemistry.
- ⇒ Helped the department in the recruiting and hiring of two lecturer of chemistry.
- ⇒ Voted **most engaging chair** (2022)

Research Publications

1. Flood C, Gustafsson M, Richardson PE, Harvey SC, Segrest JP, Boren J.. *Identification of the Proteoglycan Binding Site in Apolipoprotein B48*. **2002** J Biol Chem Oct. 277(35):32228-32233.
2. Manckekar M, Richardson PE, Forte TM, Datta G, Segrest JP, Dashti N. 2004. *Apolipoprotein B-containing Lipoprotein Particle Assembly: Lipid capacity of the nascent lipoprotein particle*. **2004**. J Biol Chem Sept. 279:39757-66.
3. Smolenaars MM, Kasperaitis MA, Richardson PE, Rodenburg KW, Van der Horst DJ. *Biosynthesis and secretion of insect lipoprotein: involvement of furin in cleavage of the insect apolipoprotein B homologue, apolipophorin-III/I*. **2005**. J. Lipid Res. Mar. 46(3):412-422
4. Richardson PE, Manckekar M, Dashti N, Jones MK, Beigneux A, Young SG, Harvey SC, Segrest JP. *Assembly of lipoprotein particles containing apolipoprotein-B: structural model for the nascent lipoprotein particle*. **2005**. Biophys J. Apr. 88(4):2789-2800
5. Mears JA, Sharma MR, Gutell RR, McCook AS, Richardson PE, Caulfield TR, Agrawal RK, Harvey SC. *A Structural Model for the Large Subunit of the Mammalian Mitochondrial Ribosome*. **2006**. J Mol Biol. Apr. 358(1):193-212
6. Manckekar M, Richardson PE, Sun Z, Liu Y, Segrest JP, Dashti N. *Charged amino acid residues 997-1000 of human apolipoprotein B100 are critical for the initiation of lipoprotein assembly and the formation of a stable lipidated primordial particle in McA-RH7777 cells*. **2008** J Biol Chem. Oct 24; 283(43):29251-65.
7. Galloway SE, Richardson PE, Wertz GW. *Analysis of a structural homology model of the 2'-O-ribose methyltransferase domain within the vesicular stomatitis virus L protein..* **2008**. Virology. Dec 5;382(1):69-82.
8. Liu Y, Manckekar M, Sun Z, Richardson PE, Dashti N. *Apolipoprotein B-containing lipoprotein assembly in microsomal triglyceride transfer protein deficient McA-RH7777 cells*. **2010**. J. Lipid Res. Aug;51(8):2253-64.

9. Cannon, Joseph F.; Thurn, Nicholas A.; and Richardson, Paul E. "The Effects of Salinity, pH, Temperature, and Dissolved Oxygen on Sensitivity of PCR Identification of T4 Bacteriophage," 2013. Journal of the South Carolina Academy of Science: Vol. 11: Iss. 2, Article 5.
10. Liu Y, Manchekar M, Sun Z, Richardson PE, Dashti N. "Phospholipid Transfer Protein Plays a Major Role in the Initiation of Apolipoprotein B-containing Lipoprotein Assembly in Mouse Primary Hepatocytes" 2015 J. Biol. Chem.: March 290:8196-8205.
11. Pieterse, Lisa; Powers, Amy; Pride, Derek; van Onselen, Lisha; Leone, Giovanna E.; and Richardson, Paul E. "Investigating the Lytic Staphylococcus aureus Bacteriophage Reservoir Amongst a South Carolina University Population: Discovery, Characterization, and Identification of a Potential Bacteriophage Treatment for Methicillin-Resistant Staphylococcus aureus" (2018) Journal of the South Carolina Academy of Science: Vol. 16 : Iss. 1 , Article 8.
12. Shirley, Olivia; Pieterse, Lisa; and Richardson, Paul E. "Identification of Coliphages in the Aviary at Brookgreen Gardens and the Factors that Might Influence Coliphage Population Dynamics in this Cypress Swamp Environment." (2018) Journal of the South Carolina Academy of Science: Vol. 16 : Iss. 1 , Article 9.
13. Swanson, Korinne M.; Smith, Owen R.; Plank, Madaline N.; and Richardson, Paul E. (2021) "Investigation of Staphylococcus aureus Bacteriophage Population at a South Carolina University: The Disappearance of S. aureus Bacteriophage Population Amidst the COVID-19 Pandemic," Journal of the South Carolina Academy of Science: Vol. 19 : Iss. 2 , Article 4.
14. Gentilo, Madison; Oldfield, Hailey; Ockert, Gavin; and Richardson, Paul E. (2022) "Environmental Bacteriophage Detection on Coastal Carolina University Campus," Journal of the South Carolina Academy of Science: Vol. 20: Iss. 2, Article 4.
15. Swanson, Korinne M.; Smith, Owen R.; and Richardson, Paul E. (2022) "The Effects of Human Behavioral Changes due to the COVID-19 Pandemic on the Reservoir of Lytic Escherichia coli and Staphylococcus aureus Bacteriophage on Humans at a South Carolina University," Journal of the South Carolina Academy of Science: Vol. 20: Iss. 2, Article 7.

* Names in red are undergraduate students *

* Names in Green are high school students *

* Names in Purple are Faculty *

Non-research Publications

1. Paul E. Richardson “***Healthy Hearts***” Progression magazine Spring 2012-2013, Pages 5-6.
2. Paul E. Richardson “***IDeA network of biomedical Research Excellence***” Progression magazine Spring 2014, Pages 9-10.
3. Paul E. Richardson “***iBiochemistry: Labs utilizing modern technology-experiencing the future***” Progression magazine Winter 2015, Pages 37-38.
4. Paul E. Richardson “**Alternative Summer Employment: Biomedical Research on Campus**” Progression Magazine Spring/Summer 2020, Page 30-33

In the news or public service announcements

1. Doug Bell “[Going Viral: Harnessing evil to fight evil](#)” Coastal. Spring/Summer 2012. pg 20-25.
2. WMBF New. “[Interview about food recall due to cantaloupe contamination from Listeria](#)”. Oct. 2011.
3. WPDE news. “[Interview about alcohol based hand sanitizers](#)”. Oct 2014.
4. Coastal Now. “[Interview about my research](#)”. Oct 2015.
5. Coastal Now. “[Faculty profile](#)”. Jan 2016.
6. WBTW “[CCU Freshman from North Myrtle Beach published in science journal](#)” March 2019.
7. Gupta College “[Corona Virus information](#)” April 2020
8. Coastal Now “[COVID-19 Test Development](#)” May 2020
9. WBTW “[CCU, Conway Medical Center partner to develop rapid testing methods for COVID-19](#)” May 2020
10. WMBF “[CCU, Conway Medical Center partner to develop rapid testing method for COVID-19](#)” May 2020
11. Sun News “[CCU, Conway Medical Center creating non-invasive COVID-19 test with results in 90 minutes](#)” May 2020
12. Coastal Now “[The Sentinel project](#)” Sept 2020
13. Zippia “[Job Market Trends in 2020](#)” Oct 2020
14. Coastal Now “[Biomedical Research](#)” July 2021
15. CMC News “[Debunking COVID-19 Myths](#)” Sept 2021
16. Pandemic Ethics Series “[Public Health and Vaccines](#): Sept 2021

Invited Lectures

1. Modeling haptoglobin and haptoglobin-related protein. *Lebanon Valley College biology club lecture series.* Lebanon Valley College (Oct. 2001).
2. What is bioinformatics and what can it do? *Macon State Biology Lecture Series.* Macon State College (Mar. 2003).
3. Designing your next generations of medications. *Science for Coastal's community.* Coastal Carolina University (Spring 2005).
4. Ebola and the effects viruses have had on society: Horry county schools (2008-2012) Give a talk every year for a large group of science students
5. Homology modeling. *Building collaborations.* Coker College (Spring 2008).
6. Bacteriophages: Using viruses to tackle bacterial infections. *Sir Professor E. R. Walrond Scientific Medical Symposium.* University of the West Indies at Cave Hill, Barbados. (July 2013)
7. Bacteriophages: Using a virus to tackle problems that face mankind. Research Talk. USC Aiken (March 2018).

Research Posters

1. A Cladistic Analysis of the Genus Carya (Hickory). *Pennsylvania Academy of Science*. Penn. State. (Mar. 1996)
2. The Distribution of 5-Hydroxy-1,4 Naphthoquinone (Juglone) in the Juglandaceae with an Emphasis on the Genus Carya (Hickory). *Pennsylvania Academy of Science*. Penn State. (Mar. 1996).
3. Homology models for Haptoglobin. *Applying bioinformatics: From Gene to system*. Georgia State University (Oct. 2002).
4. All Atom Molecular Model for Residues 1-1000 of Apolipoprotein B. *FASEB Summer Research Conference; Molecular biology of intestinal lipids and metabolism*. Snowmass, Colorado (Aug. 2003).
5. Structural model for ApoB-22: insights regarding initiation of lipid binding. *South East Lipid Research Conference*. Calloway gardens, Georgia (Sept. 2003)
6. Apolipoprotein B-containing Particle Self Assembly: Capacity of the "Lipid Pocket" Formed by the N-terminal 1000 Residues of Apolipoprotein B. *American Heart Association*. Orlando, Florida (Oct. 2003).
7. Structural Model for Human Haptoglobin. *Biophysical Society 48th annual meeting*. Baltimore, Maryland (Feb. 2004).
8. All Atom Molecular Model for Residues 1-1000 of Apolipoprotein B. *Bud Suddath Bioscience Symposium*. Atlanta, Georgia (Mar. 2004).
9. A Structural Model for the Large Subunit of the Mammalian Mitochondrial Ribosome. *Biophysical Society 49th annual meeting*. Long Beach, California (Feb. 2005).
10. Identification of the N-terminal domain of apoB-100 critical for the initiation of lipoprotein assembly. *6th Annual Conference on Arteriosclerosis, Thrombosis and Vascular Biology*. Washington, DC (April 2005).

Conference Presentations

1. All Atom Molecular Model for Residues 1-1000 of Apolipoprotein B. *FASEB Summer Research Conference; Molecular biology of intestinal lipids and metabolism.* Snowmass, Colorado (**Aug. 2003**).
2. Structural model for ApoB-22: insights regarding initiation of lipid binding. *South East Lipid Research Conference.* Calloway gardens, Georgia (**Sept. 2003**)
3. Designing your next generations of medications. *Science for Coastal's community.* Coastal Carolina University (**Spring 2005**).
4. The changing face of the influenza pandemic. *Celebration of Inquiry* Coastal Carolina University (**Feb 2006**)
5. Theoretical characterization of Apolipoprotein E in the lipid bound state and the implications on lipoprotein clearance. *3rd Bioinformatics Research Symposium* Clemson University (**Jan. 2007**).
6. A virus has done what! *Virus and Human Health minisymposium: Celebration of Inquiry* Coastal Carolina University (**Feb 2009**)
7. How do we find a cure? *Virus and Human Health minisymposium: Celebration of Inquiry* Coastal Carolina University (**Feb 2009**)
8. Viral reemergence: Look what is popping back up. *Medical Professional mini symposium.* Coastal Carolina University (**March 2012**)
9. "Anti-Bacterial Drug Discovery Laboratory", at the Hobcaw Barony Research Symposium (**May 2014**).

Student Publications

Research based

1. Tomlinson, Sherri *The Effect of UV Irradiation On Bacteriophage Survival* . (2011) Bridges (5); 90-98.
2. Cannon, Joesph F.; Thurn, Nicholas A.; and Richardson, Paul E. "*The Effects of Salinity, pH, Temperature, and Dissolved Oxygen on Sensitivity of PCR Identification of T4 Bacteriophage,*" (2013) Journal of the South Carolina Academy of Science: Vol. 11: Iss. 2, Article 5.
3. Pieterse, Lisa; Powers, Amy; Pride, Derek; van Onselen, Lisha; Leone, Giovanna E.; and Richardson, Paul E. "*Investigating the Lytic Staphylococcus aureus Bacteriophage Reservoir Amongst a South Carolina University Population: Discovery, Characterization, and Identification of a Potential Bacteriophage Treatment for Methicillin-Resistant Staphylococcus aureus*" (2018) Journal of the South Carolina Academy of Science: Vol. 16 : Iss. 1 , Article 8.
4. Shirley, Olivia; Pieterse, Lisa; and Richardson, Paul E. "*Identification of Coliphages in the Aviary at Brookgreen Gardens and the Factors that Might Influence Coliphage Population Dynamics in this Cypress Swamp Environment.*" (2018) Journal of the South Carolina Academy of Science: Vol. 16 : Iss. 1 , Article 9.
5. Swanson, Korinne M.; Smith, Owen R.; Plank, Madaline N.; and Richardson, Paul E. (2021) "**Investigation of Staphylococcus aureus Bacteriophage Population at a South Carolina University: The Disappearance of S. aureus Bacteriophage Population Amidst the COVID-19 Pandemic,**" Journal of the South Carolina Academy of Science: Vol. 19 : Iss. 2 , Article 4.
6. Gentilo, Madison; Oldfield, Hailey; Ockert, Gavin; and Richardson, Paul E. (2022) "**Environmental Bacteriophage Detection on Coastal Carolina University Campus,**" Journal of the South Carolina Academy of Science: Vol. 20: Iss. 2, Article 4.
7. Swanson, Korinne M.; Smith, Owen R.; and Richardson, Paul E. (2022) "**The Effects of Human Behavioral Changes due to the COVID-19 Pandemic on the Reservoir of Lytic Escherichia coli and Staphylococcus aureus Bacteriophage on Humans at a South Carolina University,**" Journal of the South Carolina Academy of Science: Vol. 20: Iss. 2, Article 7.

Non-research based student publications

1. Ina Troutman and Riane Petersman, “*Paving the Way for Better Antibiotics*”. Progression magazine Spring 2012-2013, Pages 7-8.
2. Joe Cannon and Nick Thurn, “*the good virus*” Progression magazine Spring 2013, Pages 27-28.
3. Ina Troutman and Jordan Wesel. “*Unnatural Amino acids*” Progression magazine Winter 2013, Page 38.
4. Klea Hoxha “*SCoRE! Realizing the American dream*” Progression magazine Winter 2017, Pages 15-16.

Student Research Oral Presentations

1. **Kelly, Erin:** Is our environment fighting viruses? 1st Undergraduate Research Competition at Coastal Carolina University (**Feb 2009**)
2. **Gilroy, Sean; Walling, David,** “Genetic fingerprinting of T4 bacteriophage”, at the Fourth Annual Undergraduate Research Competition at Coastal Carolina University (**March 2012**).
3. **Troutman, Ina; Petersman, Riane,** “Searching for prophylactic bacteriophage that infect and lyse *Staphylococcus aureus* or *Escherichia coli*”, at the Fourth Annual Undergraduate Research Competition at Coastal Carolina University (**March 2012**).
4. **Cannon, Joe;** “The Effects of Salinity, pH and Dissolved Oxygen on the Sensitivity of PCR”, at the Fourth Annual Undergraduate Research Competition at Coastal Carolina University (**March 2012**).
5. **Joe Cannon and Nick Thurn** presented their research, “The Effects of Salinity, pH, Temperature, and Dissolved Oxygen on Sensitivity of PCR Identification of T4 Bacteriophage”, at the Fifth Annual Undergraduate Research Competition at Coastal Carolina University. (**April 2013**)
6. **Derek Pride** presented his research project, “The search for lytic bacteriophages within the population of Coastal Carolina University” at the South Carolina Academy of Science at Furman University (**April 2015**).
7. **Nick Thurn** presented his research project, “Application of HPLC Monolithic Columns for Concentration, Separation, and Screening of Viruses in Environmental Waters” at the Seventh Annual Undergraduate Research Competition at Coastal Carolina University (**April 2015**).
8. **Liz Christmas** and Alexis Setta presented their research project, “Comparison of bacteriophages found at residential and commercial environments”, at the South Carolina branch of the American Society for Microbiology meeting at USC Upstate. (**October 2016**).

9. **Amy Powers**, Lisa Pieterse, and Derek Pride submitted abstract for a talk but was rejected, “Investigating phage activity in Coastal Carolina University’s student population”, at the South Carolina branch of the American Society for Microbiology meeting at USC Upstate. (October 2016).
10. **Lisa Pieterse** presented an oral talk on her research project, “Investigating Phage Activity in Coastal Carolina Students” at the Ninth Annual Undergraduate Research Competition at Coastal Carolina University (April 2017).
11. **McGough FM, Bell L, Richardson P**, Bensch E, Gentilo M, Shirley O, Barthet MM. “Using the health belief model (HBM to predict COVID-19 risk-reduction behaviors at a college located in a tourist destination”. American Public Health Association. (October 2021).
12. **Gavin Ockerts** presented an oral talk on his research project “Detection and Identification of Environmental Bacteriophages on Coastal Carolina University’s Campus” at the 13th SCINBRE Science Symposium (Virtual Conference) (January 2022).
13. **Mr Ryan Carter** presented an oral talk on his research project “Detection and Identification of Environmental Bacteriophages on Coastal Carolina University’s Campus” at the 13th SCINBRE Science Symposium (Virtual Conference) (January 2022).
14. **Kori Swanson** presented an oral talk on her research project, “The effects of human behavior on *Staphylococcus* and *Escherichia* bacteriophage presence at Coastal Carolina University” at 94th annual South Carolina Academy of Science (April 2022). *Winner of the Dwight Camper Award 2022 for Best Overall Research.*

Key to oral presentations

Green Highlight- High School Student at time of presentation

Black Highlight- Undergraduate Student at time of presentation

Orange Highlight- High School Teacher at time of presentation

Purple Highlight- Faculty at time of presentation

Blue Highlight- Award winning presentation

Student Research Posters

1. **Margaret Danielle Maggard:** Underlying Factors for Mortality Rates Caused by Hypertension in South Carolina. *Big SURS (Mar. 2007).*
2. **Erin Kelly:** Is our environment fighting viruses? *Virus and Human Health minisymposium: Celebration of Inquiry (Feb 2009).*
3. **Erin Kelly:** Is our environment fighting viruses? *South Carolina Academy of Science (April 2009).*
4. **Sherri Tomlinson, Erin Kelly:** UV irradiation on bacteriophage survival. *South Carolina Academy of Science (April 2010).*
5. **Erin Kelly, Sherri Tomlinson:** Is the cure for Staphylococcus infections right before our noses? *South Carolina Academy of Science (April 2010).*
6. **Sean Gilroy and David Walling,** “Genetic fingerprinting of T4 bacteriophage”, at the South Carolina Academy of (April 2012).
7. **Ina Troutman and Riane Petersman,** “Searching for prophylactic bacteriophage that infect and lyse *Staphylococcus aureus* or *Escherichia coli*”, at the South Carolina Academy of Science (April 2012).
8. **Joe Cannon,** “The Effects of Salinity, pH and Dissolved Oxygen on the Sensitivity of PCR”, at the South Carolina Academy of Science (April 2012).
9. **Kayla Liland** presented her research, “d-amino acid inhibitory properties on bacterial growth”, at the South Carolina Academy of Science (April 2013).
10. **Joe Cannon and Nick Thurn** presented their research, “The Effects of Salinity, pH, Temperature, and Dissolved Oxygen on Sensitivity of PCR Identification of T4 Bacteriophage”, at the South Carolina Academy of Science (April 2013). **1st place in Biochemistry and Chemistry poster presentation!**
11. **Ina Troutman and Jordan Wesel** presented their research project, “Searching for bacteriophages in the collegiate population”, at the South Carolina Academy of Science (April 2013).
12. **Kayla Liland** presented her research, “d-amino acid inhibitory properties on bacterial growth”, at the Fifth Annual Undergraduate Research Competition at Coastal Carolina University. (April 2013)

13. **Ina Troutman** and **Jordan Wesel** presented their research project, “*Searching for bacteriophages in the collegiate population*” at the Fifth Annual Undergraduate Research Competition at Coastal Carolina University. (**April 2013**)
14. **Jordan Wesel** and **Ina Troutman** presented their research project, “*D-amino Acid Inhibitory Properties on Staphylococcus aureus and Escherichia coli Growth*” at the Sixth Annual Undergraduate Research Competition at Coastal Carolina University. (**April 2014.**)
15. **Caitlin Baker** and Nick Thurn presented their research project, “*Development of a DNA Fingerprinting Protocol for Differentiation between Bacteriophages in Aquatic Environments*” at the Sixth Annual Undergraduate Research Competition at Coastal Carolina University. **April 2014.**
16. **Riane Petersman** and Derek Pride presented their research project, “*The Quest for a Bacteriophage Lytic to Staphylococcus aureus and Escherichia coli*” at the Sixth Annual Undergraduate Research Competition at Coastal Carolina University. (**April 2014**).
17. **Jordan Wesel** and Ina Troutman presented their research project, “*D-amino Acid Inhibitory Properties on Staphylococcus aureus and Escherichia coli Growth*” at the South Carolina Academy of Science at Trident Technical College. (**April 2014**).
18. **Derek Pride** and Riane Petersman presented their research project, “*The Quest for a Bacteriophage Lytic to Staphylococcus aureus and Escherichia coli*” at the South Carolina Academy of Science at Trident Technical College. (**April 2014**).
19. **Nick Thurn** presented his research project, “*Development and optimization of a PCR protocol to rapidly detect bacteriophages infecting Staphylococcus aureus*” at the South Carolina Academy of Science at Trident Technical College. (**April 2014**).
20. **Ina Troutman** and Jordan Wesel presented their research project, “*D-amino Acid Inhibitory Properties on Staphylococcus aureus and Escherichia coli Growth*” at the American Chemical Society Honor Reception at Claflin University. (**April 2014**).
21. **Nick Thurn** and Joe Cannon presented their research poster, “*The Effects of Salinity, pH, Temperature, and Dissolved Oxygen on Sensitivity of PCR Identification of T4 Bacteriophage*”, at the Hobcaw Barony Research Symposium (**May 2014**).
22. **Amy Powers** and Derek Pride presented their research project, “*Investigating the Student Population at Coastal Carolina University for Lytic Viruses*” at the South Carolina Academy of Science at Furman University (**April 2015**)
23. **Nick Thurn** presented his research project, “*Application of HPLC Monolithic Columns for Concentration, Separation, and Screening of Viruses in Environmental Waters*” at the Big Surs Conference at Campbell University (**April 2015**).

24. **Amy Powers** and **Derek Pride** presented their research project, “*Investigating the Student Population at Coastal Carolina University for Lytic Viruses*” at the Seventh Annual Undergraduate Research Competition at Coastal Carolina University (**April 2015**).
25. **Amy Powers** and Derek Pride presented their research project, “*Investigating the Student Population at Coastal Carolina University for Lytic Viruses*” at the Eighth Annual Undergraduate Research Competition at Coastal Carolina University (**April 2016**).
26. **Derek Pride** and Amy Powers presented their research project, “*Can bacteriophages offer an alternative to antibiotics*” at the South Carolina Branch meeting of the American Society for Microbiology at the Medical University of South Carolina (**April 2016**).
27. **Amy Powers** and Derek Pride presented their research project, “*Investigating the Student Population at Coastal Carolina University for Lytic Viruses*” at the 89th annual South Carolina Academy of Science at Winthrop University (**April 2016**).
28. **Alexis Setta** and Elizabeth Christmas presented their research project, “*Bacteriophage population observed in Commercial and residential retention ponds located in Horry county*” at the 90th annual South Carolina Academy of Science at Coastal Carolina University (**March 2017**).
29. **Amy Powers** and Lisa Pieterse presented their research project, “*Investigating Phage Activity in Coastal Carolina Students*” at the 90th annual South Carolina Academy of Science at Coastal Carolina University (**March 2017**).
30. **Elizabeth Christmas** and Alexis Setta presented their research project, “*Bacteriophage population observed in Commercial and residential retention ponds located in Horry county*” at the Ninth Annual Undergraduate Research Competition at Coastal Carolina University (**April 2017**).
31. **Lisa Pieterse** presented their research project, “*Viral Genomic Fingerprinting: A method for characterizing bacteriophage*” at the 2nd annual CCU summer research symposium (August 2017).
32. **Klea Hoxha**, **Olivia Shirley**, and Lisa Pieterse presented their research project, “*Determining if there is an epidemic of bacteriophages hiding on the campus of Coastal Carolina University?*” at the 2nd annual CCU summer research symposium (**August 2017**).
33. **Olivia Shirley**, and Lisa Pieterse presented their research project, “*Finding bacteriophages in the aviary at Brookgreen Gardens*” at the 2nd annual CCU summer research symposium (**August 2017**).
34. **Lisa Pieterse** presented their research project, “*Viral Genomic Fingerprinting: A method for characterizing bacteriophage*” at the 2nd annual INBRE research symposium (**October 2017**).

35. **Olivia Shirley**, and Lisa Pieterse presented their research project, “Finding bacteriophages in the aviary at Brookgreen Gardens” at the 2nd annual INBRE research symposium (**October 2017**).
36. **Lisa Pieterse, Lisha Van Onselen, and Giovanna Leone** presented their research project, “Investigating the student population at Coastal Carolina University for lytic viruses” at SERMACS (**November 2017**).
37. **Kaeli Day and Alyssa LeClaire** presented their research project, “Understanding the bacteriophage population in the ponds and streams on the campus of Coastal Carolina University” at the 2018 Association of Southeastern Biologist (**March 2018**)
38. **Lisa Pieterse, Lisha Van Onselen, and Giovanna Leone** presented their research project, “The viral hunt for bacteriophages: The cure for antibiotic-resistant bacteria may be found on students on campus at Coastal Carolina University” at 91st annual South Carolina Academy of Science (**April 2018**). **1st place in Biochemistry, Cell biology, and Microbiology poster presentation!**
39. **Alyssa LeClaire and Kaeli Day** presented their research project, “Understanding the bacteriophage population in the ponds and streams on the campus of Coastal Carolina University” at 91st annual South Carolina Academy of Science (**April 2018**).
40. **Olivia Shirley** and **Lisa Pieterse** presented their research project, “Coliphages in the aviary at Brookgreen Gardens and the environmental factors that influence viral population dynamics” at 91st annual South Carolina Academy of Science (**April 2018**). **2nd place in Environmental Science poster presentation!**
41. **Lisha Van Onselen, Giovanna Leone, and Lisa Pieterse** presented their research project, “The search for bacteriophages: the cure for antibiotic resistant bacteria might be on the students at the campus of Coastal Carolina University” at the Tenth Annual Undergraduate Research Competition at Coastal Carolina University (**April 2018**).
42. **Giovanna Leone, Lisha Van Onselen and Lisa Pieterse** presented their research project, “Understanding the long-term population dynamics of bacteriophages found on students” at the Tenth Annual Undergraduate Research Competition at Coastal Carolina University (**April 2018**).
43. **Brooke Lane and Erica Evans** presented their research project, “Investigating the population of naturally occurring Bacteriophages from individuals on CCU’s campus that might be used to treat antibiotic resistant bacteria” at the 3rd annual CCU summer research symposium (**August 2018**).
44. **Erica Evans and Brooke Lane** presented their research project, “Designing an effective and cost-efficient mosquito trap for use in arbovirus identification in Horry county” at the 3rd annual CCU summer research symposium (**August 2018**).
45. **Marcos Mann** presented his research project, “Understanding the Bacteriophage Population in the Ponds and Streams on the Campus of Coastal Carolina University” at the 3rd annual CCU summer research symposium (**August 2018**).

46. **Brooke Lane and Erica Evans** presented their research project, “Investigating the population of naturally occurring Bacteriophages from individuals on CCU’s campus that might be used to treat antibiotic resistant bacteria” at the 3rd annual INBRE research symposium (**August 2018**).
47. **Erica Evans and Brooke Lane** presented their research project, “Designing an effective and cost-efficient mosquito trap for use in arbovirus identification in Horry county” at the 3rd annual INBRE research symposium (**August 2018**).
48. **Marcos Mann** presented his research project, “Understanding the Bacteriophage Population in the Ponds and Streams on the Campus of Coastal Carolina University”. at the 3rd annual INBRE research symposium (**August 2018**).
49. **Ryan Covington** presented his research project, “Bacteriophage detection in the waterways and runoffs of our community” at 92nd annual South Carolina Academy of Science (**March 2019**). **2nd place in Environmental Science poster presentation!**
50. **Olivia Shirley** presented her research project, “Testing designs for the most efficient and effective mosquito trap” at 92nd annual South Carolina Academy of Science (**March 2019**).
51. **Chase Cortese** presented his research project, “Bacteriophage detection in the waterways and runoffs of our community” at eleventh annual Undergraduate Research Competition at Coastal Carolina University (**April 2019**).
52. **Zahra Slimani** presented her research project, “Testing designs for the most efficient and effective mosquito trap” at eleventh annual Undergraduate Research Competition at Coastal Carolina University (**April 2019**).
53. **Madison Gentilo** presented her research project, “The COVID-19 Sentinel Project: Monitoring the incident rate of COVID-19 on campus” at 93rd annual South Carolina Academy of Science (**April 2021**).
54. **Kori Swanson** presented her research project, “Perceived Stress Levels and Bacteriophage Presence on the Campus of Coastal Carolina University” at 93rd annual South Carolina Academy of Science (**April 2021**). **2nd place in FIELD BIOLOGY, CLIMATOLOGY, PHARMACOLOGY, & PHYSIOLOGY poster presentation!**
55. **Madison Gentilo** presented her research project, “The COVID-19 Sentinel Project: Monitoring the incident rate of COVID-19 on campus” at the twelfth annual Undergraduate Research Competition at Coastal Carolina University (**April 2021**). **1st place Poster Presentation overall.**
56. **Kori Swanson** presented her research project, “Perceived Stress Levels and Bacteriophage Presence on the Campus of Coastal Carolina University” at the twelfth annual Undergraduate Research Competition at Coastal Carolina University (**April 2021**).
57. **Madison Gentilo** presented her research project, “Human Papillomavirus Project” at the 13th SCINBRE Science Symposium (Virtual Conference) (**January 2022**).

58. **Olivia Shirley** presented her research project, “The Identification of Human and Other DNA in the Blood Meals Eaten by Mosquitoes” at the 13th SCINBRE Science Symposium (Virtual Conference) (**January 2022**).
59. **Madison Gentilo** presented her research project “Environmental bacteriophage detection on Costal Carolina University” at the 94th annual South Carolina Academy of Science (**April 2022**). **2nd place in FIELD BIOLOGY poster presentation!**
60. **Olivia Shirley** presented her research “A Step in the Search for Arboviruses: Determining Blood Meals Eaten by Mosquitoes” at the 94th annual South Carolina Academy of Science (**April 2022**).
61. **Owen Smith** presented an oral talk on her research project, “The effects of human behavior on *Staphylococcus* and *Escherichia* bacteriophage presence at Coastal Carolina University” at the 13th Undergraduate Research Competition at Coastal Carolina University (**April 2022**).
62. **Hailey Oldfield** presented her research project “Environmental bacteriophage detection on Costal Carolina University” at the 13th Undergraduate Research Competition at Coastal Carolina University (**April 2022**).
63. **Carson Mickey** presented his research “A Step in the Search for Arboviruses: Determining Blood Meals Eaten by Mosquitoes” at the 13th Undergraduate Research Competition at Coastal Carolina University (**April 2022**).

Key to Poster Presentations

Green Highlight- High School Student at time of presentation

Black Highlight- Undergraduate Student at time of presentation

Orange Highlight- High School Teacher at time of presentation

Blue Highlight- Award winning presentation

Grants

- (2004) Structure and functional characterization of all proteins in the Murine Herpes Virus-68 genome. *Coastal Carolina Research Enhancement Grant*. **\$3,750**
- (2005) Molecular Mechanisms of Biogenesis of Apolipoprotein B-containing Lipoproteins. *National Institute of Health*. PI on AIM 4 of the grant **\$700,000**
- (2006) Isolation and purification of bacteriophages in water and soil samples from Horry County. *Coastal Carolina Research Enhancement Grant*. **\$3,607**
- (2009) The Role of Apolipoprotein E in The Assembly of Very Low-Density Lipoproteins. *National Institute of Health* **Rejected**
- (2009) Support for the new Swain building and health-related faculty at the Coastal Carolina University *National Institute of Health* **Rejected**
- (2010) Assessing scientific communication skills in Chemistry. *Coastal Carolina Research Enhancement Grant* **\$6,000**
- (2010) An assessment of the maternal health status of rural pregnant women, or those planning to become pregnant in rural Horry County, South Carolina. *Coastal Carolina Research Enhancement Grant* **\$6,000**
- (2011) Molecular Mechanisms of Biogenesis of Apolipoprotein B-containing Lipoproteins *National Institute of Health* PI on one AIM **\$700,000**
- (2011) Is the cure for Staph infections right before our noses. *Coastal Carolina Research Enhancement Grant* **\$3,646**
- (2012) The Effects of Salinity, pH, and Dissolved Oxygen on the Sensitivity of PCR Identification of the T4 Bacteriophage in Estuarine Water. *Harry M. Lightsey, Jr. Visiting Scholar Fellowship* **\$4,891**
- (2012) Molecular Simulations: An Interdisciplinary Tool in Undergraduate STEM Education *National Science Foundation* **Rejected**
- (2013) *iBiochemistry: The digital biochemistry lab; using technology to improve the laboratory experience*". Coastal Carolina University **\$6,356.**
- (2013) Characterizing the bacteriophages in South Carolina's coastal estuaries and how environmental factors (pH, salinity, dissolved O₂ and rainfall) influence bacteriophage population diversity. ii-iv Foundation **Rejected**
- (2014) "Identification and characterization of naturally occurring bacteriophages in Horry and Georgetown's coastal communities." *Coastal Carolina Research Enhancement Grant* **\$3,100**

Curriculum Vitae for Prof. Paul E. Richardson

- (2015) Summer research program to enhance undergraduate research at Coastal Carolina University. *South Carolina’s IDeA Networks of Biomedical Research Excellence (INBRE)* ~\$750,000
- (2016) INBRE Research Experience for Teachers (RET) Program. **Rejected**
- (2016) “*The viruses that silently live among us; understanding bacteriophage population at Coastal Carolina University.*” Coastal Carolina University Professional Enhancement Grant \$4,873
- (2016) *SEA-PHAGES (Science Education Alliance-Phage Hunters Advancing Genomics and Evolutionary Science)* HHMI Science Education Alliance \$0.00
- (2017) *SCoRE Fellows Program. South Carolina’s IDeA Networks of Biomedical Research Excellence (INBRE).* \$21,000
- (2017) INBRE Research Experience for Teachers (RET) Program. \$5,500
- (2018) SCoRE Fellows Program. *South Carolina’s IDeA Networks of Biomedical Research Excellence (INBRE).* \$21,000
- (2018) “*THE SILENT THREAT: Development of a viral monitoring program in Horry county for the detection of arboviruses in mosquitoes*”. Coastal Carolina University Professional Enhancement Grant. \$5,214
- (2020) SCoRE Fellows Program. *South Carolina’s IDeA Networks of Biomedical Research Excellence (INBRE).* \$3,000
- (2020) The COVID-19 Sentinel Project. Horry County Higher Education Committee (HCHCEC). **Rejected**
- (2021) “*Perceived stress levels and its impact on bacteriophage presence in the human population at Coastal Carolina University.*” Coastal Carolina University Professional Enhancement Grant \$5,603
- (2021) SCoRE Fellows Program. *South Carolina’s IDeA Networks of Biomedical Research Excellence (INBRE).* \$21,000
- (2021) INBRE Research Experience for Teachers (RET) Program. \$2,000
- (2022) Faculty Research Award *Provost office* **Rejected**

Research dollars acquired:	\$2,306,540
# Successful Grants:	21
# Rejected Grants:	7
Success Rate:	75%

Professional Reviewer for Textbooks and Journals

Asked to help revise *General Chemistry: The Science in Context 3/e* for its fourth edition by WW Norton.

Asked to be an editor for *Fundamentals of Biochemistry* by Voet/Voet/Pratt. I was asked to edit the sixth chapter in the book covering structural biochemistry and proteins. I was acknowledged as a reviewer in the preface of the 4th edition.

Asked to be an editor for *Viruses and Human Disease* by Strauss and Strauss. I did a comprehensive review of the entire book with feedback on content and teaching pedagogy.

Courses Taught

Chem 111- (**Lecture** and **Lab**) Basic introductory chemistry for science majors

Chem 299- Introduction to research for chemistry majors

Chem 301- Chemistry workshop, how to teach chemistry

Chem 351- (**Lecture** and **Lab**) Biochemistry I (Biomolecules)

Chem 352- (**Lecture** and **Lab**) Biochemistry II (Metabolism)

Chem 353- (**Lecture** and **Lab**) Physical Biochemistry

Chem 399- Introduction to research

Chem 499- Viral research (Many types)

Chem 450L- Biochemistry lab (condensed course)

Biol 411- (**Lecture** and **Lab**) Virology

Biol 499- Viral research (Many types)

Biol 511- Medical Virology (*Graduate level class*)

College and University Committees

Current Committee Assignments

Biochemistry Library representative (2011-**present**) I am responsible for keeping the library material current and relevant for the students and staff.

Public Health Practices and Personal Protective Equipment Working Group (2019 – **Present**) This group is provide the advice on the best practices in public health and protective equipment. I was selected for my work with infectious diseases.

Chairs Council (2020 – **present**) This is a meeting of all Chairs in the Gupta College of Science and the Dean of the College. Our focus is the management of the college and issues that are happening in the college.

Provost Council (2020 – **present**) This is a meeting of all chairs, deans, and other administrators in the University. The focus of this meeting is to discuss the current issues facing the University and group discussion on handling issues within the departments.

Petition Committee (2020 – **Present**) This group meets every two weeks to discuss and vote on all the petitions within the Gupta College of Science.

Swain Scholar Selection Committee (2020 – **Present**) This group meets and reviews the Swain scholar applications, interviews candidates and ranks applicants for the award.

Infectious Disease Early Action Committee (2022 – **Present**) This is a collaborative group that addresses the risk of communicable disease outbreak that may affect the Coastal Carolina University campus community and region.

Previously Served Committee Assignments

Core curriculum (2006-2009). Charged with maintaining and evaluating the university's core curriculum with the goals of the university.

Assessment of core (2007-2008). I was the chair of this group that was charged with assessing the core goal for science and development of an assessment that will evaluate that goal.

Premed advisory board (2007–2020). This group advises and writes letter of recommendations for all students interested in medical/professional/graduate school. I am the founding member of this board.

Biochemistry program (2007-2010). I was the chair of the group that worked towards setting up a biochemistry degree for the university and getting it approved by CHE. The degree was approved and begun in 2010.

Viruses and Human Health Mini symposium (2008-2009). I chaired the group that created a symposium on campus to recruit and get speakers on human health and viruses. Over four hundred

students attended the symposium over the course of a day.

Biochemistry Assessment coordinator (2010-2014) I was responsible for writing the plan, coordinating the assessment material for the Biochemistry degree, and writing reports to administration on those efforts and evaluation.

Human Health Mini symposium (2011 – 2012). I chaired the group that created a symposium on campus to recruit and get speakers on human health. The symposium is late March.

Child Development Center (2011 – 2012). I am a member of a group charged with trying to develop a plan to build a child development center and the curriculum for such a program.

Science buildings (2010 – 2016). I am the departmental representative that helped plan and design the two new Science buildings. The first building, Swain, was designed 2010-2012 and was completed in 2013. The second building, Science Annex 2, was designed 2013-2015 and built in 2016. Both buildings added about 400,000 square feet of lab space to campus.

Faculty Associates program (2012 – 2014) I was the faculty advisor for the women's soccer team in a pilot program to strengthen the connection between the academic and athletics.

Faculty Development (2015 – 2018) I was the chair of the committee (2015-2016) which responsibilities include selection faculty for the Professional enhancement grants and Scholarly reassignment. We also develop programs to help in the professional development of the faculty.

Strategic Planning Committee (2015 – 2016) Develop the strategic plan for the university for the next 5-10 years. I was selected since I was the chair of Faculty Development and had many years of experience as a faculty member.

Fulbright Council (2016 – 2020) We assist students and faculty as they apply for their Fulbright scholarships. Our main function was to review applications and interview applicants to provide feedback for their application (before the deadline).

COVID-19 Transition Advisory Group (2020 – 2022) I am part of the COVID-19 advisory board for the campus, using my expertise in virology to help guide the university through the pandemic. Our main function was to provide a detailed report on risk to the campus community, standard procedures for dealing with COVID risks and report to the Executive council on the current operational status the University should take.

Dean Search Committee (2021 – 2022) This group was selected by the Provost to interview and determine a new dean for the Gupta college of Science. We were successful and hired a new dean March 2022.

Student Leadership Awards Committee (2022). This committee was selected to review the nominations to select the best students in eleven categories. Students will be given the awards at the Student Leadership Convocation in April 2022.

Membership in Professional Organizations

South Carolina Academy of Science	2006 - Present
South Carolina INBRE Steering Committee	2014 - 2020
American Society of Microbiology	2014 - 2019
South Carolina Branch- American Society of Microbiology	2014 – 2019

Work Experience

1996-1997	Quality control for Bayer Pharmaceuticals
1997-1999	Graduate student (Masters Student) of Applied Medical Immunology and Molecular Biology at the University of Southern Maine
1999-2004	Graduate student (Doctoral Student) of Biochemistry and Molecular Genetics at the University of Alabama, Birmingham
2004-2010	Assistant Professor at Coastal Carolina University.
2010-2016	Associate Professor at Coastal Carolina University.
2015-2020	Program director for CCU INBRE
2016 - Present	Professor at Coastal Carolina University.
2020 - Present	Chair of Chemistry at Coastal Carolina University.

Community Involvement

- 2013 – 2015 Member of the Board of Directors for the **Coastal Youth Ballet Theatre**. This is a non-profit group that helps promote and organize ballet production and a professional dance program for our region of South Carolina. Vice chairman of the board (2014-2015).
- 2013 – 2015 Started and helped organize the **Eureka Science Club**. This is an afterschool program that exposes elementary school children to science. I go every two weeks to the school and help run the program.
- 2017 – 2018 Member of the **Honduras mission trip** advisory board. We raised money to send a team of people to help fix a school and provide a water purification system.
- 2018 – 2021 Member of the **steering committee for CCC's Newman Student Center**. We were tasked with the planning and fund raising to create a Newman center on the campus of Coastal Carolina University.
- 2019 – 2020 I was elected to the **St James Middle School improvement board**. The task of this group was to help improve St James Middle School.
- 2021 – 2022 I was elected co-chair of the **St James Middle School PTA**. This group raises funds to help improve St James Middle School.
- 2021 – 2022 I am a member of the **St James Middle School improvement board**. The task of this group was to help improve St James Middle School.

Research and Educational Websites

[My research website](#)

[CCU INBRE website](#)

[Google Scholar](#)

[ResearchGate](#)

[LinkedIn](#)

[Educational YouTube Page](#)