Binghamton University’s School of Pharmacy and Pharmaceutical Sciences is reinventing pharmacy education for the next generation. We are a research-intensive school that is on the leading edge of pharmacy education, with opportunities for students to work with faculty discovering advancements in drug discovery, cancer, Lyme disease, opioid use syndrome and muscular dystrophy. Our school’s research is growing and we have garnered millions of dollars in federal and private industry funding. The school has developed three centers: the Opioid Research Center for Central New York, the Binghamton Lyme and Other Tick-borne Disease Research Center, and the Muscular Dystrophy Center.

This 2018-2019 annual report is a comprehensive account of the achievements of our faculty, including their presentations and publications for the 2018-2019 academic year.
**Our Presentations**

**Aaron M. Beedle, PhD**

**Platform Presentation:** Beedle AM. “Mechanistic discovery in glycosylation-deficient muscular dystrophy to inform novel therapeutic intervention.” Binghamton University Department of Pharmaceutical Sciences Seminar Series. Johnson City, N.Y.


**Poster Presentation:** Beedle AM. “Preclinical testing of mTORC1 inhibition in dystroglycanopathy muscular dystrophy.” Muscular Dystrophy Association. Scholars Networking Session. Orlando, Fla.

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**Leon E. Cosler, PhD**

**Poster Presentation:** Shabnam SS, Atav AS, Cosler LE, and Sabounchi NS. “Factors Influencing Emergency Health Care Providers to Prescribe Opioids for Dental Related Conditions in Emergency Departments.” Binghamton University Research Days. Binghamton, N.Y.

**Poster Presentation:** Cosler LE. “Health Outcomes Research: Trends in Management of Urinary Health UHS/BU Research Presentation Series.” Vestal, N.Y.


**Poster Presentation:** Sabounchi SS, Sabounchi NS, Cosler LE and Atav AS. “Using Machine Learning to Investigate Factors Predicting Dental Opioid Prescribing Patterns in U.S. Emergency Departments.” NorthEast Regional Conference on Complex Systems (NERCSS). Binghamton, N.Y.

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**Utkarsh J. Dang, PhD**


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**Bennett Doughty, PharmD**

**Platform Presentation:** Doughty B. “The Opioid Epidemic: Updates in Treatment.” Continuing Education, 1 credit hour; Lourdes Hospital, Binghamton, N.Y.

**Platform Presentation:** Doughty B. “The Opioid Epidemic: Searching for Solutions.” Continuing Education, 1 credit hour; Binghamton, N.Y.


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**Samantha Benjamin, Research technician**


**Poster Presentation:** Jackson CP, Benjamin SR, Guo Z and Tumey LN. “Catabolism and Stability of Site-Specific Antibody-Drug Conjugates.” Binghamton University Research Days, Binghamton University. Binghamton, N.Y.
**Poster Presentation:** Doughty B, Leppien E and Eggleston W. “Walking the Tight Rope: Managing Pain in the Context of the Opioid Epidemic.” Continuing Education, 2 credit hours; Guthrie Hospital. Sayre, Pa.

**Katie Edwards, PhD**

**Poster Presentation:** Edwards K. “Duchenne Muscular Dystrophy: Combination Drug Therapy & Bioanalytical Assay Development. School of Pharmacy and Pharmaceutical Sciences Annual Retreat, Binghamton University. Johnson City, N.Y.

**Educational Lecture:** Edwards K. “Development of technologies using periplasmic binding proteins for the detection of challenging analytes.” Biological Sciences Department Seminar Series, Binghamton University. Binghamton, N.Y.

**William Eggleston, PharmD**

**Platform Presentation:** Eggleston W. “Marijuana Use and Toxicities.” Continuing Education, 2 credit hours. Pharmacists Society of the State of New York. Tarrytown, N.Y.

**Platform Presentation:** Eggleston W. “The Green Revolution: Marijuana in the Age of Legalization.” Continuing Education, 1 credit hour; American Society of Consultant Pharmacists, New York State Chapter. Syracuse, N.Y.

**Platform Presentation:** Eggleston W. “Responding to Emerging Drug Threats.” Continuing Education, 1 credit hour; EMS/Emergency Medicine Trauma Teaching Day. Binghamton, N.Y.


**Platform Presentation:** Eggleston W. “Synthetic Drugs of Abuse for the Community Pharmacist.” Continuing Education, 1 credit hour. Pharmacists Society of the State of New York, Central Chapter. Cicero, N.Y.

**Platform Presentation:** Eggleston W. “Opioid Safety for EMS Providers.” Harpur’s Ferry. Binghamton, N.Y.

**Platform Presentation:** Eggleston W. “Pharmacy Quiz Bowl.” New York State Chapter of the American College of Clinical Pharmacy. Cooperstown, N.Y.


**Platform Presentation:** Eggleston W. “A ‘Growing’ Industry: Natural Products of Abuse.” North American Congress of Clinical Toxicology. Chicago, Ill.

**Platform Presentation:** Eggleston W. “Performing Peer Review.” Pharmacy Residency Program. SUNY Upstate Medical University. Syracuse, N.Y.

**Platform Presentation:** Eggleston W. “Antithrombotic Toxicity.” Core content lecture. University at Buffalo Emergency Medicine Residency Program. Buffalo, N.Y.
Platform Presentation: Eggleston W. “Electrolyte Emergencies.” March into Residency lecture series. SUNY Upstate Medical University, College of Medicine. Syracuse, N.Y.

Platform Presentation: Eggleston W. “Managing Cardiac Toxins in the Emergency Department.” SUNY Upstate Medical University, Department of Emergency Medicine. Syracuse, N.Y.

Platform Presentation: Eggleston W. “How to Write an Effective Grant.” Pharmacy Residency Program. SUNY Upstate Medical University. Syracuse, N.Y.


Eric P. Hoffman, PhD

Platform Presentation: Hoffman EP. “Pathway targeted therapeutics in DMD.” Schneider Children’s Hospital. Tel Aviv, Israel.


Platform Presentation: Hoffman EP. “Vamorolone in DMD.” University of Texas Southwestern Medical Center muscular dystrophy meeting. Dallas, Texas.


Platform Presentation: Hoffman EP. “Vamorolone in DMD.” Muscular Dystrophy Therapeutics. Tel Aviv, Israel.
Platform Presentation: Hoffman EP. “Drugs targeting pathophysiology in DMD.” University of Padova. Padova, Italy.


Wesley D. Kufel, PharmD


Poster Presentation: Gilotra T, Kufel WD, and Eranki A. “Successful Treatment of Cytomegalovirus Pneumonia with Adjunctive Intravenous Immune Globulin in a Seronegative Autologous Hematopoietic Stem Cell Transplant Patient.” American Society of Transplantation. Detroit, Mi.


Platform Presentation: Kufel WD. “Little Tick – Big Problem: Update on Lyme Disease.” Continuing Education, 1 credit hour; Pharmacist Association of the Southern Tier Meeting. Binghamton, N.Y.

Poster Presentation: Kufel WD. “Infectious Diseases Clinical Pearls.” Section of Clinical Specialists and Scientists Infectious Diseases Network Facilitator Session. ASHP Midyear Clinical Meeting. Anaheim, Calif.

Poster Presentation: Maciuleqicz T, Kufel WD, Tumey LN, Miller CD, Darko W, Probst LA, Bradley J and Seabury RW. “Chemical Stability of a 50 mg/mL Solution of Ampicillin and 0.9% Sodium Chloride in an Elastomeric Pump Intended for 24-Hour Administration.” Vizient Consortium Pharmacy Network. Anaheim, Calif.


Poster Presentation: Robinson R, Seabury RW, Kufel WD, Darko W, Probst LA, Miller CE and Tumey LN. “Determining the Chemical Stability of a Combination Antibiotic Bag with Vancomycin 1.5 mg/mL or 2 mg/mL and Cefepime 2 mg/mL in Sodium Chloride 0.9%.” Vizient Consortium Pharmacy Network. Anaheim, Calif.


Emily Leppien, PharmD


Platform Presentation: Leppien E. “Impact of Ramadan Fasting on Risk of Acute Adverse Events following Initiation of Psychotropic Medications for Psychiatric Stabilization.” College of Psychiatric and Neurologic Pharmacists. Salt Lake City, Utah.

Platform Presentation: Leppien E. “Newly Approved Drugs to Treat Neuropsychiatric Conditions Continuing Education, 2 credit hours; St. Joseph’s Hospital. Syracuse, N.Y.

Sarah Lynch, PharmD

Platform Presentation: Lynch S. “Development of an Advocacy Toolkit to advance CMM within your state: Alone we can do so little, together we can do so much (Helen Keller).” Minnesota Pharmacists Association, Pharmaceutical Care Lyceum Meeting. Hackensack, Minn.


Keri Mastro, PharmD student


Educational Lecture: Lynch S. “Updates from the Binghamton University Lyme Disease Research Center.” Southern Tier Lyme Support, Inc. Vestal, N.Y.

Amanda Mogul, PharmD


Platform Presentation: Mogul A. “Updates in ASCVD Prevention: Aspirin and Statin Use.” Continuing Education, 1 credit hour; Lourdes Hospital. Binghamton, N.Y.

Kanneboyina Nagaraju, PhD


Platform Presentation: Nagaraju K. “Inflammation and immune response in muscle diseases.” School of Human Sciences, University of Western Australia. Perth, Australia.


Platform Presentation: Nagaraju K. “Pathogenesis of idiopathic inflammatory myopathies.” Centre for Muscle Research, Department of Physiology, School of Biomedical Sciences, University of Melbourne. Melbourne, Australia.

(with a focus on Duchenne Muscular Dystrophy).” Children’s Health Queensland Hospital and Health Service, Lady Cilento Children’s Hospital. Brisbane, Australia.

**Platform Presentation:** Nagaraju K. “Potential therapies and biomarkers for LAMA2-CMD: does the microRNA hype deliver?” Faculty of Medicine, Lund University. Lund, Sweden.

**Platform Presentation:** Nagaraju K. “Update of RNA-Based NMD Therapies.” 15th International Congress on Neuromuscular Diseases. Vienna, Austria.


**Platform Presentation:** Nagaraju K. “Lessons learned from mouse models of NMD.” Cure Calpain3 meeting. Alexandria, Va.

**Platform Presentation:** Nagaraju K. “Mechanisms of muscle fiber damage and dysfunction in myositis.” Joint Meeting of the International Myositis Assessment and Clinical Studies Group (IMACS) and Juvenile dermamyositis working groups. Chicago, Ill.


**Poster Presentation:** Morales M, Alayi TD, Hathout Y, Rider LG, Miller FW and Nagaraju K. “Urine protein biomarker discovery in Juvenile Dermatomyositis using mass spectrometry-based proteomics.” International Myositis Assessment & Clinical Studies (IMACS) group meeting. Chicago, Ill.


**Michael Ogundele, Doctoral student**


**Erin Pauling, PharmD**


**Platform Presentation:** Pauling E. “Diabetes Update.” Continuing Education, 1 credit hour; Lourdes Learning Lunch. Our Lady of Lourdes Memorial Hospital. Binghamton, N.Y.

**Platform Presentation:** Pauling E. “Practically Precepting the Pharmacists’ Patient Care Process.” Continuing Education, 1 credit hour; New York State Council of Health-system Pharmacists. Endicott, N.Y.

**Gail B. Rattinger, PharmD, PhD**


**Poster Presentation:** Matyi JM, West N, Rattinger GB, Vernon E, Buhusi M and Tschanz JT. “Reproductive Window and Moderating Factors Associated with Risk for Alzheimer’s Disease: The Cache County Study.” Alzheimer’s Association International. Chicago, Ill.

**Poster Presentation:** Vernon E, Behrens S, Rattinger GB, Schwartz S and Tschanz JT. “Use of Sleep Medications is Associated with Poorer Cognition in Older Male Adults.” Alzheimer’s Association International. Chicago, Ill.

**Platform Presentation:** Rattinger GB. “Evolution of Pharmacy – Pharmacy Present and Past – Not Your Pill Counters Now.” University of California at Davis. Davis, Calif.
**Platform Presentation:** Rizzo V, Rouhana N and Rattinger GB. “Building a University-Wide Interprofessional Education Initiative Successes and Lessons Learned Following Year One.” Council on Social Work Education 64th Annual Program Meeting; Interprofessional Education Summit: Doing Justice to Interprofessional Education and Collaborative Practices. Orlando, Fla.

**Platform Presentation:** Rizzo V, Rouhana N and Rattinger GB. “Building a University-Wide Interprofessional Education Initiative: Successes and Lessons Learned Following Year One.” Interprofessional Education Collaborative Faculty Development Institute. Washington, D.C.

**Angela C. Riley, PharmD**

**Educational Lecture:** Riley AC. “Assessing Experiential Workflow & Effectiveness.” Empire Experiential Education Consortium. Rochester, N.Y.

**Educational Lecture:** Riley AC. “Advances in Parkinson’s Disease.” Southern Tier Parkinson’s Support Group. Endicott, N.Y.


**Sarah Spinler, PharmD**

**Keynote Speaker:** Spinler S. “Antithrombotic Therapy Quiz Bowl.” Pharmacists Invitational. Anaheim, Calif.

**Keynote Speaker:** Spinler S. “Managing Direct Oral Anticoagulant Bleeding in the Era of Reversal Agents.” American College of Cardiology. New York, N.Y.

**Platform Presentation:** Spinler S. “Oral Anticoagulant Bleeding Management.” Continuing Education, 1.5 credit hours; New York Health-system Pharmacists. Sayre, Pa.

**Shefa Tawalbeh, Doctoral student**

**Poster Presentation:** Tawalbeh SM, Samsel AM, Gordish-Dressman H, Hathout Y and Dang UJ. “Comparison of Serum Pharmacodynamic Biomarkers in Prednisone Versus Deflazacort Treated DMD Patients. Muscular Dystrophy Association.” Orlando, Fla.

**L. Nathan Tumey, PhD**

**Poster Presentation:** Demestichas B, Chio TI, Bane S and Tumey LN. “Investigating Non-Canonical Transglutaminase Substrates for Bioconjugate Formation.” Binghamton University Department of Chemistry Undergraduate Research. Binghamton, N.Y.

**Platform Presentation:** Tumey LN. “Bioanalysis on a Budget.” Antibody-Drug Conjugate World Summit. San Diego, Calif.

**Poster Presentation:** Chio TI, Gu H, Mukherjee K, Tumey LN and Bane S. “Novel chemistry for site-specific antibody bioconjugates.” 256th American Chemical Society. Boston, Mass.
Our publications


Chio T, Gu H, Mukherjee K, Tumey LN and Bane S. Novel chemistry for site-specific antibody bioconjugates. Abstracts of Papers of the American Chemical Society. 256.


Our funding

Total research expenditures: $1,484,232

Aaron Beedle
$234,998 Total expenditures
$100,000
Is MTOR inhibition a valid therapy for dystroglycan muscular dystrophy
Muscular Dystrophy Association of America
$134,998
SBIR Phase I: Building an Evidentiary Case for Circulating GHBP as a Biomarker for Drug Associated Stunting of Growth
ReveraGen Biopharma, Inc.

Tracy Brooks
$15,000 Total expenditures
Silencing the MYC Oncogene to Stop Tumor Growth
Binghamton University, State University of New York

Utkarsh Dang
$31,000 Total expenditures
Defining Serum Biomarkers of Early-Age Severity for DMD – Statistical Research Using Vamorolone 002 Data
Foundation to Eradicate Duchenne

Katie Edwards
$72,800 Total expenditures
A Non-invasive Point-Of-Care Assay for Monitoring Titin Levels in the Urine of DMD Patients
Children’s Research Institute

William Eggleston
$48,009 Total expenditures
The Opioid Research Center for Central New York
The State University of New York (SUNY)

Yetrib Hathout
$256,239 Total expenditures
U54 Bridging Pharmacodynamic Biomarkers to Clinical Outcomes in Pediatric Inflammatory Diseases
Children’s Research Institute

Sarah Lynch
$62,500 Total expenditures
$7,500
Into the Lyme Light: Raising Awareness and Education in Broome County
Stephen David Ross Foundation
$55,000
ePatient: Educational Programs Advancing Training in Interprofessional Networked Treatment
The State University of New York (SUNY)

Kanneboyina Nagaraju
$501,327 Total expenditures
$329,005
Effect of Immunomodulatory Treatments on Immune Response After Gene Correction in DMD
Parent Project for Muscular Dystrophy Research, Inc.
$100,000
Role of Innate Immune and Metabolic Pathways in Mediating Muscle Weakness in Myositis
Myositis Association
$22,322
Understanding the Mechanism and Role of Cell Membrane Repair in Miyoshi Myopathy – Year 2
Children’s Research Institute
$50,000
Unrestricted Research: DB Therapeutics in the area of radiotherapeutic bandage
DB Therapeutics, Inc.

L. Nathan Tumey
$262,359 Total expenditures
The Identification of Lysosomal Selective Proteolytically Cleavable Linkers Takeda agreement #CW2510332
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