15th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences

Poster Session I (Morning Session)

(A) Chemical Sciences 1

1st Place INVESTIGATION OF THE RELATIONSHIP BETWEEN TETRADENTATE AMINOSULFOXIDE LIGAND STRUCTURE AND GEOMETRIC ISOMERISM IN THEIR RU(II) DICHLORIDE COMPLEXES
William Nagle¹
Prof. Timothy Brunker¹, Prof. Arnold L Rheingold²
¹Department of Chemistry, Towson University, 8000 York Road, Towson, MD, 21252; ²Department of Chemistry, University of California, San Diego, 9500 Gilman Drive, La Jolla, CA, 92093

2nd Place THEORETICAL DESIGN AND FABRICATION OF SUBSTRATES FOR METAL-ENHANCED FLUORESCENCE
Ronald McNeil, Jan O. Karolin and Chris D. Geddes
Institute of Fluorescence and Department of Chemistry and Biochemistry, University of Maryland Baltimore County, The Columbus Center, 701 East Pratt St., Baltimore, MD, 21202

(B) Chemical Sciences 2

1st Place A NOVEL BISAMINOQUINOLINE AUTOPHAGY INHIBITOR FOR CANCER THERAPY
Samuel M. Levi¹, Quentin McAfee², Zihui Zhang¹, Arabinda Samanta², Xiaohong Ma², Shengfu Piao², John P. Lynch², Takeshi Uhera³, Antonia R. Sepulveda³, Lisa Davis⁴, Jeffrey D. Winkler¹,⁵ and Ravi K. Amaravadi²,⁵
¹Department of Chemistry, University of Pennsylvania, 231 S. 34th Street, Philadelphia, Pennsylvania, 19104; Departments of ²Medicine, ³Pathology, Perelman School of Medicine, ⁴Abramson Cancer Center, ⁵Philadelphia College of Pharmacy, University of the Sciences, Philadelphia, Pennsylvania, 19104

2nd Place MICROWAVE ASSISTED SYNTHESIS OF CYANINE DYSES FOR FLUORESCENCE RESONANCE ENERGY TRANSFER
Grace Nyambura, Dr. Angela Winstead, and Dr. Richard Williams
Department of Chemistry Morgan State University 1700 E. Cold Spring Lane Baltimore MD 21251
INHIBITORS OF BOTULINUM NEUROTOXIN A: SYNTHESIS AND BIOLOGICAL ACTIVITY
Caitlin Opishinski and Luke Berry
Susan M. Ensel
Department of Chemistry and Physics, Hood College, 401 Rosemont Avenue, Frederick, MD 21701

CHARACTERIZATION OF GASOLINE BY USE OF DIRECT SAMPLE ANALYSIS: MASS SPECTROMETRY, AN INNOVATIVE APPROACH
Maggie LaCourse¹, NaTasha M. Carter², Suejane Tan¹, Gregory T. Winter¹, Joshua A. Wilhide¹, William R. LaCourse¹
¹Department of Chemistry, UMBC, 1000 Hilltop Circle, Baltimore, MD 21250
²Department of Chemistry, Jacksonville State University, 700 Pelham Road North, Jacksonville, AL 36265

THE BIOGEOCHEMICAL CHLORINE CYCLE IN FOREST ECOSYSTEMS
Ashley Pirovano
Alessandra C. Leri
Department of Natural Sciences, Marymount Manhattan College, 221 E 71st St., New York, NY 10021

REFLECTANCE ANALYSIS AND THERMOCHROMICITY OF FABRICS DYED WITH INDIGO, 6-BROMOINDIGO, AND 6,6'-DIBROMOINDIGO, COMPONENTS OF THE ANCIENT DYE TYRIAN PURPLE
Irina Mironova¹, Olga Lavinda², Hiroko Ajiki², Lou Massa², Sasan Karimi³, Keith Ramig†¹Department of Natural Sciences, Baruch College, CUNY, New York, NY 10010
²Departments of Chemistry and Physics, Hunter College and the Graduate School, CUNY, New York, NY 10065
³Department of Chemistry, Queensborough Community College, Bayside, NY 11364

RUTHENIUM TRIS-BIPYRIDINE OLIGOMERS AS HOST SYSTEMS FOR ALKALI AND ALKALINE EARTH GUESTS
Stephanie Velardo and Marc Harris
Department of Chemistry, Lebanon Valley College, 101 N. College Ave, Annville, PA 17601

LANTAHNUM AND TERBIUM CATALYZED PHOSPHODIESTER HYDROLYSIS UNDER AQUEOUS CONDITIONS
Yukari Ueda, Dillon Feigenbaum, and Stephen Silva
Adam Cassano
Drew University, Dept. of Chemistry, 36 Madison Avenue, Madison, NJ, 07940
Biological Sciences 1

1st Place  
EXPRESSION OF G-PROTEIN βγ SUBUNITS IN MOUSE VOMERONASAL ORGAN  
Akua Nimarko, Aaron Sathyanesan  
Weihong Lin  
Department of Biological Sciences, University of Maryland, Baltimore County  
1000 Hilltop Circle, Baltimore, MD 21250

2nd Place  
FURTHER STUDIES ON THE SENSORY MOTOR INTEGRATION OF GILL LATERAL CILIA IN THE BIVALVE MOLLUSC, CRASSOSTREA VIRGINICA  
Patrick Akande, Patricka Williams,  
Edward J. Catapane, and Margaret A. Carroll  
Department of Biology, Medgar Evers College, Brooklyn, NY 11225

Biological Sciences 2

1st Place  
CHARACTERIZATION OF A NOVEL KINASE (NK) EXPRESSED IN NOCICEPTIVENEURONS THAT ENHANCES GPCR SIGNALING WHEN OVEREXPRESSED IN HEK293 CELLS  
Joyce C. Ohiri, Joseph Rittiner, Bonnie Taylor-Blake  
Mark Zylka  
1Department of Biological Sciences, University of Maryland, Baltimore County,  
1000 Hilltop Circle, Baltimore, MD 21250  
2UNC Neuroscience Center, University of North Carolina at Chapel Hill,  
5109D Neuroscience Research Building, Campus Box 7545, Chapel Hill, NC 27599

2nd Place  
NORADRENERGIC MODULATION OF DENDRODENDRITIC SYNAPTIC ACTIVITY IN THE OLFACTORY BULB  
Department of Biology, University of Maryland, College Park, MD 20742

Biological Sciences 3

1st Place  
ENZYME-ALTERING ANTI-EPILEPTIC DRUGS INFLUENCE AFFECTIVE AND LEARNING AND MEMORY PROCESSES OF MALE RATS  
Laura Barbour, Oliver Avaritt, Joe Camlin  
Madeline E. Rhodes  
Department of Psychology, McDaniel College, 2 College Hill, Westminster, MD 21157
2nd Place  CHANGES IN THE ACTIVITY-REGULATED CYTOSKELETAL PROTEIN ARC ACCOMPANY TRAUMATIC BRAIN INJURY IN FEMALE RATS
Mary Ene Omakwu, Mary Ene Omakwu, Kalpana Subedi1, M.S., Wei Wei Le, M.D.1, Courtney Robertson, M.D.2, Gloria E. Hoffman, Ph.D.1
1Morgan State University, Baltimore, MD, 21251
2Johns Hopkins University, Baltimore, MD, 21201

(I) Biological Sciences 4

1st Place  THE ROLE OF THE SMALL GTPASE ARF6 AND ITS POTENTIAL REGULATION BY MICRORNA-31 DURING EARLY EMBRYOGENESIS
Megan Dumas, Nadezda Stepicheva, and Jia L. Song
Department of Biological Sciences, University of Delaware, Newark, Delaware 19716

2nd Place  CHARACTERIZATION OF SMALL MAF REGULATORS IN MAMMALIAN LENS DEVELOPMENT AND CATARACTS
Christine Dang1, Smirti A. Agrawal1, Stephanie M. Waters1, Hozumi Motohashi2
Salil A. Lachke1
1Department of Biological Sciences, University of Delaware, Newark, DE, 19717
2Tohoku University Graduate School of Medicine, Aoba-ku, Sendai, 980-8575, Japan

(J) Biological Sciences 5

1st Place  FUNCTION OF THE CONSERVED NUCLEAR RECEPTOR NHR-239 IN CAENORHABDITIS ELEGANS
Emily Bayer and Bruce Wightman
Department of Biology, Muhlenberg College, 2400 Chew St, Allentown, PA 18104

2nd Place  THE ROLE OF N-LINKED GLYCOSYLATION DURING DROSOPHILA DEVELOPMENT
Allison McCague and Erica M. Selva
Dept. of Biological Sciences, University of Delaware, 118 Wolf Hall, Newark, DE 19716

(K) Biological Sciences 6

1st Place  MODELING CELL FATE DETERMINATION AND CELLULAR MIGRATION IN DROSOPHILA: MATHEMATICS INFORMS A BIOLOGICAL UNDERSTANDING
David Stonko1,2, Dr. Michelle Starz-Gaiano1, Dr. Bradford Peercy2
1Department of Mathematics and Statistics, UMBC, 1000 Hilltop Circle, Baltimore, MD 21250
2Department of Biological Sciences, UMBC, 1000 Hilltop Circle, Baltimore, MD 21250
2nd Place  A MATHEMATICAL MODEL OF MELANOPSIN ACTIVATION
Kevin Herold¹, Drew Thatcher², & Devyani Ujla¹
Dr. Phyllis Robinson¹ & Dr. Kathleen Hoffman²
¹Department of Biological Sciences, UMBC, 1000 Hilltop Circle, Baltimore, MD 21250
²Department of Mathematics & Statistics, UMBC, 1000 Hilltop Circle, Baltimore, MD 21250

L) Biological Sciences 7

1st Place  PHYLOGENETIC CLASSIFICATION OF NEMATODES
Sarah Marzec and Daniel Browne
Dr. Theresa Grana
Department of Biological Sciences, University of Mary Washington, 1701 College Avenue, Fredericksburg, VA 22401

2nd Place  SELAGINELLA MOELLENDORFFII HAS A REDUCED AND HIGHLY CONSERVED EXPANSIN SUPERFAMILY WITH GENES MORE CLOSELY RELATED TO ANGIOSPERMS THAN BRYOPHYTES
Nathan K. Hepler¹, Daniel J. Cosgrove², and Robert E. Carey³
¹Program in Biochemistry and Molecular Biology, Lebanon Valley College, 101 N. College Ave., Annville, PA 17003, ²Department of Biology, The Pennsylvania State University, 208 Mueller Lab, University Park, PA 16802, ³Department of Biology, Lebanon Valley College, 101 N. College Ave., Annville, PA 17003

M) Biological Sciences 8

1st Place  AN EXPANSION OF NEMATODE PHYLOGENY
Daniel Browne, Sarah Marzec, Dr. Theresa Grana
Department of Biology, University of Mary Washington, 1701 College Avenue, Fredericksburg, VA 22401

2nd Place  SYNERGISM OF PESTICIDE TOXICITY BY IN-HIVE MEDICATIONS AND AGROCHEMICALS IN HONEY BEES
Alex J Guseman, Julius N Goldberg, David J Hawthorne,
Department of Entomology, University of Maryland College Park, College Park, Maryland 20740
THE ROLE OF DYNAMIN IN B CELL RECEPTOR MEDIATED SIGNALLING AND INTERNALIZATION
Lisa Liu¹, Margaret Fallen, Wenxia Song²
¹Department of Chemical and Biomolecular Engineering, University of Maryland at College Park, 2119B Montgomery Hall, College Park, MD 20742
²Department of Cell Biology and Molecular Genetics, University of Maryland at College Park, 1133 Microbiology Building, College Park, MD 20742

ASSESSING AMYLOIDOGENICITY WITH COMPUTER PREDICTION PROGRAMS
Peter Merkel
Melanie Nilsson
Department of Chemistry, McDaniel College, 2 College Hill, Westminster, MD 21157

DEVELOPMENT OF A FLUORESCENT BAR-CODING SYSTEM FOR CELL-BASED PROTEOMIC LIBRARIES
Seth Ritter, Erin Aho, David Colby Ph.D.
Department of Chemical and Biomolecular Engineering, University of Delaware, 150 Academy St, Newark, DE 19716

METABOLIC SENSOR FOR CANCER DEVELOPMENT
Sarah Russell, Minjoung Kyoung, Songon An
Department of Chemistry and Biochemistry, University of Maryland, Baltimore County, 1000 Hilltop Circle, Baltimore, MD 21250

UNDERSTANDING THE ROLE OF TIPE3 IN GUT INFLAMMATION
Royce Onyimba¹, Honghong Sun, Youhai Chen²
¹Department of Chemistry and Biochemistry, University of Maryland, Baltimore County, 1000 Hilltop Circle, Baltimore, MD 21250
²Department of Pathology and Laboratory Medicine, University of Pennsylvania School of Medicine 713 Stellar-Chance Labs, 422 Curie Blvd., Philadelphia, PA 19104-6160

BINDING STUDIES OF T4 GENE 32 PROTEIN WITH dsDNA AND A SLIDING MODEL OF INTERACTION
Ajay Vaghasia, Divya Patel, Richard L. Karpel
Department of Chemistry and Biochemistry, University of Maryland Baltimore County, Baltimore, Maryland 21250
1st Place  IONIC INTERACTIONS BETWEEN KINESIN HEAD AND TAIL DOMAINS DUE TO PHOSPHORYLATION
Grace Soloff¹, and David Hackney²
¹Department of Chemistry, Ursinus College, 601 E. Main Street, Collegeville, PA 19426
²Department of Biological Sciences, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, PA 15213

2nd Place  INVESTIGATION OF THE MORPHOLOGY OF ALPHA-SYNUCLEIN AGGREGATIONS VIA NANOPORE BIOSENSING AND ATOMIC FORCE MICROSCOPY
Ariel Nash¹,² and David Dancho²
Mentors: Dr. Dexian Ye² and Dr. Joseph Reiner²
¹The Honors College, and
²Department of Physics
Virginia Commonwealth University, Richmond, VA 23284

1st Place  A NOVEL METHOD FOR IDENTIFYING POLYUBIQUITIN BINDING PARTNERS
Andrew Timmons, David Fushman
Department of Chemistry and Biochemistry, Center for Biomolecular Structure and Organization, University of Maryland, College Park, MD, 20742

2nd Place  BIOTINYLATION OF BOVINE INSULIN AMYLOID FIBRILS
Eric Liggins & Melanie R. Nilsson
Department of Chemistry, McDaniel College, 2 College Hill, Westminster, MD 21157
Poster Session II (Afternoon)

(A) Chemical Sciences 1

1st Place  SYNTHESIS OF A PHOTOCROMIC NITROXYL DELIVERY SYSTEM
David Spivey, Kevin Schultz, Ph.D.
Department of Chemistry, Goucher College, 1021 Dulaney Valley Road,
Baltimore, MD 21204

2nd Place  MICROWAVE SYNTHESIS OF SULFOINDOCYANINE DYES.
Rachael Matthews, Dr. Angela Winstead
Department of Chemistry, Morgan State University, 1700 E Cold Spring Lane,
Baltimore, MD 21251

(B) Chemical Sciences 2

1st Place  RHENIUM PLATFORMS SUPPORTING ANCILLARY BODIPY
CHROMOPHORES FOR CONVERSION OF CO₂ TO FUELS
Justin Teesdale, Allen Pistner, and Joel Rosenthal
Department of Chemistry and Biochemistry, University of Delaware, Newark, DE
19716

2nd Place  SYNTHESIS OF WATER-SOLUBLE TETRAPYRROLIC DERIVATIVES VIA
“CLICK CHEMISTRY”
Melanie Ehudin, Dalia Akkad, Rafael Arias, Christian Toonstra, Marcin Ptaszek
Department of Chemistry and Biochemistry, University of Maryland, Baltimore
County, 1000 Hilltop Circle, Baltimore, MD 21250

(C) Chemical Sciences 3

1st Place  ALKALI METAL-ORGANIC FRAMEWORKS DERIVED FROM THE
HYDROTRIS (1,2,4-TRIAZOLYL)BORATE LIGAND
Matthew R. Dent¹, Caroline J. Campbell¹, Michal Sabat², Barbara A. Reisner¹
¹Department of Chemistry and Biochemistry, James Madison University, 901
Carrier Dr., Harrisonburg, VA 22801
²Department of Materials Science, University of Virginia, 395 McCormick Rd.,
Charlottesville, VA 22904

2nd Place  INTRAMOLECULAR CYCLIZATIONS OF ALKENES WITH
ISOCYANATES ACTIVATED BY NUCLEOPHILIC CATALYSTS
Lydia E. Whipple
James A. MacKay
Department of Chemistry and Biochemistry, Elizabethtown College,
1 Alpha Drive, Elizabethtown, Pennsylvania 17022
1st Place  CARLSON’S TROPHIC STATE INDEX (TSI) OF VIRGINIA RESERVOIRS  Brandon McMillan¹, David Cardona², Dr. Daniel J. Lundberg¹ ¹Department of Sciences, Technology, & Mathematics, Gallaudet University, 800 Florida Avenue NE, Washington, DC 20002 ²Department of Laboratory Science and Technology, RIT/NTID, 52 Lomb Memorial Drive, Rochester, NY 14623

2nd Place  GREEN ICE IN MY FREEZER! IS OUR DRINKING WATER SAFE? A QUALITATIVE AND QUANTITATIVE STUDY OF COPPER CONTAMINANTS IN NYC PUBLIC WATER SUPPLY  Anna Patruno  Benedetta A. Sampoli Benitez, PhD  Department of Natural Sciences, Marymount Manhattan College, 221 E 71st Street, NY, NY 10021

1st Place  A THEORETICAL INVESTIGATION OF THE EFFECT OF QUANTUM TUNNELING IN THE BERGMAN CYCLIZATION OF THE 10 CARBON CYCLIC ENEDIYNE (CYCLODEC-3-ENE-1,5-DIYNE) UTILIZING VARIATIONAL TRANSITION STATE THEORY COUPLED WITH MODIFIED BLYP/6-31G*  Christopher V. Cosgriff¹, Charles Doubleday², Edyta M. Greer¹ ¹Department of Natural Sciences, Baruch College City University of New York, 17 Lexington Avenue, New York, NY 10010 ²Department of Chemistry, Columbia University, 3000 Broadway, New York, NY 10027

2nd Place  THE STUDIES OF THE REACTIVITY AND BEHAVIOR OF MOLYBDENUM PTERIN COFACTOR MODELING COMPLEXES  Yichun Fu, Dr. Sharon J. Nieter Burgmayer  Department of Chemistry, Bryn Mawr College, 101 North Merion Avenue, Bryn Mawr, PA 19010

1st Place  EXPLORING THE INNATE IMMUNE SYSTEM AND MICROBIOTA OF ANOPHELES GAMBIAE AND Aedes Aegypti.  Nathan Fastman¹, Ben Blumberg², April Clayton², George Dimopoulos² ¹Department of Chemistry and Biochemistry, UMBC, 1000 Hilltop Circle, Catonsville, MD 21250 ²Department of Molecular Microbiology and Immunology, Johns Hopkins Bloomberg School of Public Health, 615 N Wolfe St, Baltimore, MD 21205
2nd Place  FUNCTIONAL CHARACTERIZATION OF SOYBEAN DEFENSE GENES IN ARABIDOPSIS THALIANA
Dominique Alvis, Arianne Tremblay, Adib Majlaton, Gina Ng
Dr. Hua Lu
Department of Biology, University of Maryland Baltimore County, 1000 Hilltop Circle, Baltimore, MD 21250

(G) Biological Sciences 2

1st Place  EFFECT OF BLOCK AGE OF FORMALIN-FIXED PARAFFIN EMBEDDED PROSTATE TISSUE BLOCKS ON GENE EXPRESSION MEASURES
Ajay Vaghasia¹, Philipp Nuhn¹, Martin Aryee¹, Mario Eisenberger¹,3, Angelo M.
De Marzo¹,2,3 and Srinivasan Yegnasubramanian¹
¹Sidney Kimmel Comprehensive Cancer Center, ²Department of Pathology, ³
Brady Urological Institute Johns Hopkins University, Baltimore, Maryland 21205

2nd Place  THE PHOSPHORYLATION OF RAD9 AND ITS INTERACTIONS WITH BRCA1, BRCA2, AND DNA2 IN REPAIRING DOUBLE STRAND BREAKS TO MAINTAIN GENOMIC STABILITY
Victoria Ng¹, Min Hwa Shin, Mihoko Kai²
¹University of Maryland, Baltimore County, 1000 Hilltop Circle, Baltimore, MD 21250, ²Department of Radiation Oncology & Molecular Radiation Sciences, The Johns Hopkins University School of Medicine, 1550 Orleans Street CRBII 404, Baltimore, MD 21231

(H) Biological Sciences 3

1st Place  THE 35DELG AND 167DELT MUTATIONS IN CONNEXIN 26, RESPONSIBLE FOR GENETIC DEAFNESS, ORIGINATED IN FOUNDERS
Brienna Herold¹, Elizabeth A. Craft¹, Kathleen S. Arnos¹, Mustafa Tekin², Arti Pandya³, Walter E. Nance³, Derek C. Braun¹
¹Molecular Genetics Laboratory, Gallaudet University, Washington, D.C.
²John T. Macdonald Foundation Department of Human Genetics, University of Miami Miller School of Medicine, Miami, Florida
³Department of Human Genetics, Virginia Commonwealth University, Richmond, Virginia

2nd Place  EXPLORING DNA POLYMERASE FROM MARINE SSDNA VIRUSES
Helen Schmidt¹, Eric Sakowski, Rachel Marine, Shawn Polson, K. Eric Wommack²
¹Department of Chemistry & Biochemistry, University of Delaware, Newark, DE 19716, ²Delaware Biotechnology Institute, Department of Biological Sciences, Department of Plant & Soil Sciences, Department of Biological Sciences, and College of Earth, Ocean, & Environment, University of Delaware, Newark, DE 19716
1st Place  
DEVELOPING AN ANIMAL MODEL FOR INJECTION MEDIATED INSULIN AMYLOID DEPOSITS  
Rebecca A. Shuford¹, 
Madeline E. Rhodes² and Melanie R. Nilsson³  
¹McDaniel College, 2 College Hill, Westminster, MD 21157  
²Department of Psychology, McDaniel College, 2 College Hill, Westminster, MD 21157, ³Department of Chemistry, McDaniel College, 2 College Hill, Westminster, MD 21157

2nd Place  
TRANSCUTANEOUS DELIVERY OF ANTIBACTERIAL MICROCRYSTALS VIA PAA MICRONEEDLES  
Kwadwo Owusu-Boaitey¹, Peter C. DeMuth² 
Darrell J. Irvine²  
¹Department of Biological Sciences, University of Maryland, Baltimore County, 1000 Hilltop Circle, Baltimore, MD 21250  
²Department of Biological Engineering, and Department of Materials Science & Engineering, Koch Institute at MIT, 500 Main Street, Cambridge, MA 02139

1st Place  
3D ENCAPSULATION OF AORTIC ADVENTITIAL FIBROBLASTS IN RESILIN-BASED HYDROGELS  
Kevin W. Chang, Christopher L. McGann, Kristi L. Kiick  
Department of Material Science & Engineering, 201 DuPont Hall, Newark, DE 19716

2nd Place  
INVESTIGATING THE PUTATIVE TUMOR SUPPRESSIVE ROLE OF PERIOD 2 IN LUNG CANCER  
Danielle Adekunle¹, Thales Papagiannakopoulos², Tyler Jacks²  
¹Department of Biological Sciences, University of Maryland, Baltimore County, 1000 Hilltop Circle, Baltimore, MD 21250  
²Department of Biology, Massachusetts Institute of Technology, 77 Massachusetts Avenue, 68-132, Cambridge, MA 02139

1st Place  
CHARACTERIZATION OF THE DIMERIZATION DOMAIN OF E. COLI GMPS  
Travis Bicher¹, Walter Patton²  
¹Department of Biology; ²Department of Chemistry and Program in Biochemistry and Molecular Biology, Lebanon Valley College, 101 N College Ave, Annville, PA 17003
**2nd Place**  
EXPRESSION AND CHARACTERIZATION OF THE UBIQUITIN-SPECIFIC PROTEASE, USP28  
Blessing Aroh, 1 Katrina Molland, 2 Lake N. Paul 3 and Andrew Mesecar 2  
1 Department of Natural Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853  
2 Center for Cancer Research, Purdue University, West Lafayette, IN 47906  
3 Bindley Bioscience Center, Purdue University, West Lafayette, IN 47906

(L)  
Biochemistry and Molecular Biology 2

**1st Place**  
DETERMINING THE EFFECT OF DITHIOLETHIONE COMPOUNDS ON THE ACTIVITY OF HUMAN GLYCERALDEHYDE-3-PHOSPHATE DEHYDROGENASE  
John T. Chavis III 1, Jacob Neal 1, Christopher Switzer 2, David A. Wink 2, Elsa Garcin 1  
1 Department of Chemistry and Biochemistry, UMBC  
2 Radiation Biology Branch, National Cancer Institute, National Institute of Health

**2nd Place**  
COMPARISON OF THREE NON-TOXIC TYPE 2 RIPS AS A POTENTIAL SURROGATE FOR RICIN  
Charmeyce Buck 1 and Dr. Patricia Hatch 2  
1 Department of Chemistry, Hampton University, 201 East Queen Street Hampton, VA 23668, 2 Department of Biology, The College of William and Mary, 102 Richmond Road Williamsburg, VA 23185

(M)  
Biochemistry and Molecular Biology 3

**1st Place**  
INSULIN DYSREGULATION AND NEURODEGENERATION: A POSSIBLE ROLE FOR CDK5  
Daniel Emerson Khost, Ann Aguanno, PhD  
Department of Natural Sciences, Marymount Manhattan College, NYC 10021

**2nd Place**  
SPECTROSCOPIC STUDIES OF THE INFLUENCE OF pH AND BUFFERS ON THE UNFOLDING AND THERMAL STABILITY OF THE DNA REPAIR PROTEIN RECA  
Michael Metrick  
Dr. Gina MacDonald  
Department of Chemistry and Biochemistry, James Madison University, 901 Carrier Drive, Harrisonburg, Virginia 22807
1st Place  DETECTION OF PATHOLOGICAL TAU CONFORMERS IN CEREBROSPINAL FLUID
Zachary M. March¹, Sharad Gupta²,³, and David W. Colby³
¹Department of Chemistry and Biochemistry, University of Delaware, Newark, DE 19716
²Current Affiliation: Department of Biological Engineering, Indian Institute of Technology Gandhinagar, Ahmedabad, Gujarat, India 382424
³Department of Chemical and Biomolecular Engineering, University of Delaware, Newark, DE 19716

2nd Place  IDENTIFYING A MAXI-K INTERACTOME THAT MAY CONTRIBUTE TO PRETERM BIRTH
Chinwendu Amazu¹, Monali Prabagaran, PhD²
Sarah England, PhD²
¹Department of Chemistry and Biochemistry, University of Maryland, Baltimore County, 1000 Hilltop Circle, Baltimore, MD 21250
²Department of Obstetrics and Gynecology, The Washington University School of Medicine in St. Louis, 660 S. Euclid Ave., St. Louis, MO 63110

1st Place  PURIFICATION AND MOLECULAR STRUCTURE DETERMINATION OF FLEXIRUBINS FROM CHRYSEOBACTERIA
Jordan Krebs¹,², Dave Sampsell², Dr. Chriss McDonald², Dr. Jeffrey Newman¹
¹Biology Department, Lycoming College, 700 College Place, Williamsport, PA 17701
²Chemistry Department, Lycoming College, 700 College Place, Williamsport, PA 17701

2nd Place  WHOOPING CRANE PHOTOPIGMENTS
Ifeolu Akinnola, Elelbin Ortiz, Devyani Ujla, Alexandra Kingston, Megan Porter PhD, Phyllis Robinson PhD
Department of Biological Sciences, University of Maryland, Baltimore County, 1000 Hilltop Circle, Baltimore, MD 21250