

Winners List

***15th ANNUAL UNDERGRADUATE
RESEARCH SYMPOSIUM IN THE
CHEMICAL AND BIOLOGICAL
SCIENCES***

Hosted by

**The College of Natural and Mathematical Sciences,
The Department of Chemistry and Biochemistry, and
The Department of Biological Sciences of the
University of Maryland, Baltimore County**

Saturday, October 20, 2012



***Sponsored by
National Institute of General Medical Sciences of
the National Institutes of Health
(NIGMS/NIH)***

**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, Xiao-hong Ma², Shengfu Piao², John P. Lynch², Takeshi Uhera³, Antonia R. Sepulveda³, Lisa Davis⁴, Jeffrey D. Winkler^{1,5}, and Ravi K. Amaravadi^{2,5}

¹Department of Chemistry, University of Pennsylvania, 231 S. 34th Street, Philadelphia, Pennsylvania, 19104

Departments of ²Medicine, ³Pathology, Perelman School of Medicine, ⁵Abramson Cancer Center, ⁴Philadelphia College of Pharmacy, University of the Sciences, Philadelphia, Pennsylvania, 19104

2nd Place MICROWAVE ASSISTED SYNTHESIS OF CYANINE DYES 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

(C) Chemical Sciences 3

1st Place 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

2nd Place 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

(D) Chemical Sciences 4

1st Place 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

2nd Place 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 Lavinda¹, Hiroko Ajiki², Lou Massa², Sasan Karimi³, Keith Ramig¹
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

(E) Chemical Sciences 5

1st Place 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

2nd Place LANTHANUM 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

(F) Biological Sciences 1

1st Place EXPRESSION OF G-PROTEIN $\beta\gamma$ 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

(G) Biological Sciences 2

1st Place CHARACTERIZATION OF A NOVEL KINASE (NK) EXPRESSED IN NOCICEPTIVE NEURONS THAT ENHANCES GPCR SIGNALING WHEN OVEREXPRESSED IN HEK293 CELLS
Joyce C. Ohiri¹, Joseph Rittiner, Bonnie Taylor-Blake
Mark Zylka²
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
Allison L. Arai, Christian L. Eberly, Andre DeSouza, Jonathan T. Luke, Nathan C. Zimnik, Ricardo C. Araneda
Department of Biology, University of Maryland, College Park, MD 20742

(H) 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 Stonko^{1,2}, 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 ANGIOSPERNS 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

(N) Biochemistry and Molecular Biology 1

1st Place 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

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

(O) Biochemistry and Molecular Biology 2

1st Place 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

2nd Place 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

(P) Biochemistry & Molecular Biology 3

1st Place 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

2nd Place 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

(Q) Biochemistry & Molecular Biology 4

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 Nash^{1,2} and David Dancho²

Mentors: Dr. Dexian Ye² and Dr. Joseph Reiner²

¹The Honors College, and

²Department of Physics

Virginia Commonwealth University, Richmond, VA 23284

(R) Biochemistry & Molecular Biology 5

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

(D) Chemical Sciences 4

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

(E) Chemical Sciences 5

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

(F) Biological Sciences 1

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 Eisenberger^{1,3}, Angelo M. De Marzo^{1,2,3} and Srinivasan Yegnasubramanian¹

¹ Sidney Kimmel Comprehensive Cancer Center, ² Department 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

(I) Biological Sciences 4

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

(J) Biological Sciences 5

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

(K) Biochemistry and Molecular Biology 1

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. Paul³ and Andrew Mesecar²
¹Department of Natural Sciences, University of Maryland Eastern Shore, Princess
Anne, MD 21853
²Center for Cancer Research, Purdue University, West Lafayette, IN 47906
³Bindley 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 III¹, Jacob Neal¹, Christopher Switzer², David A. Wink²,
Elsa Garcin¹
¹ Department of Chemistry and Biochemistry, UMBC
²Radiation 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 Buck¹ and Dr. Patricia Hatch²
¹Department 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

(N) Biochemistry and Molecular Biology 4

- 1st Place** DETECTION OF PATHOLOGICAL TAU CONFORMERS IN CEREBROSPINAL FLUID
Zachary M. March¹, Sharad Gupta^{2,3}, 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 Prabakaran, 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

(O) Biochemistry and Molecular Biology 5

- 1st Place** PURIFICATION AND MOLECULAR STRUCTURE DETERMINATION OF FLEXIRUBINS FROM CHRYSOEBACTERIA
Jordan Krebs^{1,2}, 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, Ellebin 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