

UMBC
AN HONORS
UNIVERSITY
IN MARYLAND



19th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences

The College of Natural and Mathematical Sciences;

Department of Chemistry and Biochemistry &

Department of Biological Sciences

UMBC

AN HONORS UNIVERSITY IN MARYLAND

Sponsored by:

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

Winners' List

Morning Poster Session

Group A – Biochemical and Molecular Biology

1st Place, Poster #2 **CHARACTERIZATION OF HUMAN OBSCURIN DOMAINS**

Esraa Aldkheil, Dr. Nathan T. Wright

Department of Chemistry and Biochemistry, James Madison University, 901
Carrier Dr., Harrisonburg VA, 22807

2nd Place, Poster #3 **MIMICKING NATURAL PHOTOSYNTHESIS: ULTRAFAST CHARGE
TRANSFER IN PpcA-Ru(bpy)₃ COMPLEXES**

Matthew O'Malley, Coleman Swaim, Daniel Marzolf, Aidan McKenzie, Oleksandr
Kokhan Department of Chemistry and Biochemistry, James Madison University, 901
Carrier Drive, Harrisonburg, VA 22807

Group B – Biochemical and Molecular Biology

1st Place, Poster #13 **MUTATIONAL AND NEOANTIGEN ANALYSES IN NON-SMALL CELL
LUNG CANCER PATIENTS TREATED WITH PD-1 BLOCKADE**

Neha Wali^{1,2}, Valsamo Anagnostou, MD, PhD², and Victor Velculescu, MD, PhD²
¹UMBC, 1000 Hilltop Circle, Baltimore, MD 21250
²The Sidney Kimmel Comprehensive Cancer Center, Johns Hopkins University
School of Medicine, Baltimore, MD 21287

2nd Place, Poster #10 **RNA SEQUENCING ANALYSIS OF THE HUMAN RETINAL
TRANSCRIPTOME**

Andrea Gargiulo Ashton Holub, Melika Rahmani-Mofrad, Dr. Ray Enke
¹Department of Biology, James Madison University, 800 South Main Street,
Harrisonburg, VA 22807

Winners' List

Group C – Biochemical and Molecular Biology

**1st
Place,
Poster
#14** **CRITICAL CONTACT REGION OF HSP70 STABILIZES CROHN'S
DISEASE VARIANTS OF NOD2 *IN VITRO***

Hannah C. Wastyk¹, Catherine L. Grimes^{1,2}, Amy Schaefer¹, Ching-Wen Hou¹,
Mackenzie Lauro¹, Vishnu Mohanan²

¹Department of Chemistry and Biochemistry, University of Delaware, 102 Brown
Laboratory, Newark, DE 19716, ²Department of Biological Sciences, University of
Delaware, 118 Wolf Hall, Newark, DE 19716

**2nd
Place,
Poster
#16** **SIMULATION OF VIRAL TETHERING BY MEMBRANE ANCHORED
ANTI-VIRAL PROTEIN BST-2**

Kadir A. Ozcan¹

Dr. Christopher E. Berndsen¹

¹Department of Chemistry and Biochemistry, James Madison University, 800 S Main
St, Harrisonburg, VA 22807

Group D – Biochemical and Molecular Biology

**1st
Place,
Poster
#24** **AF4-AF9 PROTEIN-PROTEIN INTERACTION INHIBITOR: SYNTHESIS
AND BIOLOGICAL EVALUATION**

Shelby Roseman, Wei Bao, John Koh

Department of Chemistry and Biochemistry, University of Delaware, 102 Brown
Laboratory, Newark, DE 19716

**2nd
Place,
Poster
#22** **CHEMO-ENZYMATIC SYNTHESIS OF BIOORTHOGONAL UDP N-
ACETYLMURAMIC ACID DERIVATIVES TO LABEL THE
PEPTIDOGLYCANS OF *S. AUREUS* AND *B. SUBTILIS***

Zachary Jones¹, Kristen DeMeester¹, Hai Liang¹, Catherine Leimkuhler Grimes²

¹Department of Chemistry and Biochemistry, ²Leimkuhler Grimes Lab, University
of Delaware, 210 South College Ave, Newark, DE 19716

Winners' List

Group E – Biochemical and Molecular Biology

1st Place, Poster #32 **ASSIGNING THE SECONDARY STRUCTURE OF THE HIV-1 5'-LEADER MONOMER-DIMER CONFORMATIONS**
Aishwarya Iyer¹, Joshua Brown¹, Michael Summers, PhD¹

¹Department of Chemistry and Biochemistry, University of Maryland, Baltimore County, Baltimore, MD 21250

2nd Place, Poster #31 **ANALYZING THE STRUCTURAL EFFECT OF 5' START SITE HETEROGENEITY ON THE HIV-1 RNA USING NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY**
Matthew Orellana¹; Dillon Francis²; Joshua Brown¹; and Michael Summers¹, Ph.D.

¹Department of Chemistry and Biochemistry, Howard Hughes Medical Institute, UMBC, 1000 Hilltop Circle, Baltimore, MD 21250

²Department of Chemistry, University of West Florida, 11000 University Pkwy, Pensacola, FL 32514

Group F – Biochemical and Molecular Biology

1st Place, Poster #35 **RNA-dependent RNA polymerase-catalyzed Recombination in vitro**
Alexandre Martinez, Andrew Woodman, Craig E. Cameron

Department of Biochemistry and Molecular Biology, The Pennsylvania State University,
201 Althouse Laboratory, University Park, PA, 16802

2nd Place, Poster #34 **THE ROLE OF SCLERAXIS IN NEUTROPHIL FUNCTION**
Olanike Awotunde¹, Andrea Nillas², Samar M. Hammad², Titus A. Reaves²

¹University of Maryland, Baltimore County, 1000 Hilltop Circle, Baltimore, MD 21250

²Medical University of South Carolina, Charleston, SC 29425

Winners' List

Group G – Biological Sciences

1st Place, Poster #41	PARP INHIBITOR SENSITIZES HUMAN TUMORS WITH ALTERATIONS IN THE CHROMATIN REMODELING PATHWAY TO RADIOTHERAPY <u>Dominique Munson</u> ¹ , Youngran Park ² , Dr. Ming-Ie Shih ² , and Dr. Tian-Li Wang ² ¹ Department of Biology, Morgan State University, 1700 E. Cold Spring Lane, Baltimore, MD, 21251 ² Department of GYN Pathology, Johns Hopkins University, School of Medicine, 1550 Orleans Street, Baltimore, MD 21205
2nd Place, Poster #44	DOES L1CAM PROVIDE CHEMOTACTIC SIGNALS THAT INSTRUCT MIGRATING GLIOBLASTOMA CELLS? <u>Alex Stubbolo</u> , Kyle Plusch, Deni Galileo Department of Biology, University of Delaware, 210 S College Ave, Newark, DE 19711

Group H – Biological Sciences

1st Place, Poster #46	POTENTIAL TOXICITY OF AMMONIUM AND ITS EFFECT ON THE ANACOSTIA PHYTOPLANKTON COMMUNITY <u>Kiel Callahan</u> , Ana Salazar, Caroline Solomon, Giovanna Vazquez Gallaudet University, 800 Florida Ave Washington, D.C., 20002
2nd Place, Posters #48	EFFECTS OF AGRICULTURAL RESTORATION PRACTICES ON STREAM HEALTH IN THE SHENANDOAH VALLEY, VIRGINIA <u>Kristianna Bowles</u> , <u>Rhiannon English</u> , Amanda Crandall, Megan Moore, Cole Roberts, Nathan Robinson, Dariia Yehorova, Bruce Wiggins Department of Biology, James Madison University, 800 South Main Street, Harrisonburg, VA 22807

Winners' List

Group I – Biological Sciences

**1st
Place,
Poster
#56** **IDENTIFICATION AND CHARACTERIZATION OF *PUMPKIN*, A
SPONTANEOUS
EYE COLOR MUTATION IN *DROSOPHILA MELANOGASTER***

Elisa Sangriu, James Palmer, and Peter Vos
Biological Sciences Department, Montgomery College-Germantown Campus,
20200 Observation Dr., Germantown, MD 20876

**2nd
Place,
Poster
#51** **IT TAKES TWO TO TANGO: ALGAL AND *AMBYSTOMA* EMBRYO CO-
CULTURE EXPERIMENTS REVEAL HOST-SYMBIONT FIDELITY IN
ENDOSYMBIOTIC INTERACTIONS**

Huanjia Zhang, Elizabeth M. Hill, Ryan Kerney
Department of Biology, Gettysburg College, 300 N. Washington St.,
Gettysburg, PA 17325

Group J – Biological Sciences

**1st
Place,
Poster
#61** **THE ROLE OF APONTIC IN CELL MIGRATION AND STEM CELL
DYNAMICS**

Sylvia Edoigiawerie¹, Dr. Bradford Percy², Dr. Michelle Starz-Gaiano³
^{1,3}Department of Biological Sciences, UMBC, 1000 Hilltop Circle, Baltimore, MD
21250
²Department of Mathematics and Statistics, UMBC, 1000 Hilltop Circle, Baltimore,
MD 21250

**2nd
Place,
Poster
#60** **POLYMERIZATION IS REQUIRED FOR UNC-45A DESTABILIZATION
OF MICROTUBULES IN CANCER CELLS**

Kevin Chen^{1,2}; Ashley Mooneyham³; Yoshie Iizuka³; and Martina Bazzaro³
¹Department of Biology, University of Maryland, Baltimore County, 1000 Hilltop
Circle, Catonsville, MD 21250
²Life Sciences Summer Undergraduate Research Programs, University of Minnesota,
Twin Cities, 123 Snyder Hall, 1475 Gortner Ave, Saint Paul, MN 55108
³Department of Obstetrics, Gynecology and Women's Health, University of
Minnesota, Twin Cities, 515 Delaware St SE, Minneapolis, MN 55455

Winners' List

Group K – Biological Sciences

**1st
Place,
Poster
#64** **CHARACTERIZING THE FUSION OF SPORE-ASSOCIATED PROTEIN A
TO AN ANTIGENIC MARKER IN BACTERIAL EXOSPORES AS A
METHOD OF VACCINE DELIVERY**

Anita Ghosh, Gabriella Pugliese, Carrie Ann Moore, Joseph R. McCormick, Ph.D
Department of Biological Sciences, Duquesne University

**2nd
Place,
Poster
#67** **MAXIMIZING LIPID PRODUCTION IN *FREMYELLA DIPLOSIPHON*
VIA NITROGEN STARVATION**

Afua Adusei, Behnam Tabatabai, Somayeh Gharaie, and Viji Sittther
Department of Biology, Morgan State University, Baltimore, MD 21251

Group L – Biological Sciences

**1st
Place,
Poster
#73** **SEX STEROID HORMONE RECEPTOR EXPRESSION IN GARTER
SNAKE SKIN**

Sydney E. Ashton and M. Rockwell Parker
Department of Biology, James Madison University, 951 Carrier Drive, Harrisonburg,
VA 25414

**2nd
Place,
Poster
#74** **CHARACTERIZING CHROMOSOME REARRANGEMENTS IN
SACCHAROMYCES YEAST USING SINGLE MOLECULE LONG READ
SEQUENCING**

Kaitlynn-Marie Cendaña¹, Lamia Rhymee¹, Frederick Tan² & Susan Parrish¹
¹Department of Biology, McDaniel College, 2 College Hill, Westminster, MD,
21157

²Department of Embryology, Carnegie Institution for Science, 3520 San Martin
Drive, Baltimore, MD 21218

Winners' List

Group M– Biological Sciences

**1st
Place,
Poster
#76** **PRO-INFLAMMATORY EFFECT OF DENGUE VIRUS NS1 AND
ENVELOPE PROTEIN IN CULTURED HUMAN ARTICULAR
CHONDROCYTES**

Taylor Derby, Tori Callahan, Marta Bechtel, Ph.D.
Department of Biology, James Madison University, 800 South Main St.,
Harrisonburg, VA 22807

**2nd
Place,
Poster
#80** **ASSOCIATIONS BETWEEN EUROPEAN MITOCHONDRIAL
HAPLOGROUPS AND RISK OF CHRONIC OBSTRUCTIVE PULMONARY
DISEASE**

Hayley Richardson^{1,2}, Larry N. Singh², Ruth J. Mayer³, Matthew Allinder³, William
Rumsey³, and Douglas C. Wallace^{2,4}

¹Department of Mathematics and Statistics, UMBC, 1000 Hilltop Circle, Baltimore,
MD 21250

²Center of Mitochondrial and Epigenomic Medicine, Children's Hospital of
Philadelphia, 3501 Civic Center Boulevard, Philadelphia, PA 19104-4302

³Stress & Repair DPU, RD Respiratory R&D, GlaxoSmithKline, 709 Swedeland
Road, UW2531, King of Prussia, PA 19406

⁴Department of Pathology and Laboratory Medicine, University of Pennsylvania,
3501 Civic Center Boulevard, Philadelphia, PA 19104-4302

Group N– Biological Sciences

**1st
Place,
Poster
#85** **INTRACRANIAL DRUG DELIVERY AND BEHAVIORAL TESTING OF
MOLECULES THAT MODULATE LEARNING AND MEMORY**

Asuma Jalloh¹, Matthew Regier², Kim Allen^{1,2}, A. Iván Hernández²

¹ Research Initiative for Scientific Enhancement (RISE), Department of Biology,
School of Science Health and Technology, Medgar Evers College- CUNY, 1638
Bedford Avenue, Brooklyn, New York 11225

²Department of Pathology, SUNY Downstate Medical Center, Brooklyn, NY 11203

**2nd
Place,
Poster
#84** **IRON DEFICIENCY ALTERS ADENOSINE 2A AND DOPAMINE 2
RECEPTOR LEVELS IN PC12 CELLS AND RAT STRIATUM**

Morgan N. Webb, Nicholas P. Scullin, Erica L. Unger
Department of Biology, Lebanon Valley College, 101 North College Avenue,
Annville, PA 17003

Winners' List

Group O– Biological Sciences

**1st
Place,
Poster
#91** **MOTHER-INFANT INTERACTIONS: THE EFFECTS OF SEROTONIN
DEFICIENCY ON ULTRASONIC VOCALIZATIONS IN NEONATAL *PET-*
1 KNOCKOUT MICE**

Sapna Shah¹ and Dr. Jeffery Erickson¹

¹Department of Biology, The College of New Jersey, 2000 Pennington Road,
Ewing, NJ 07922

**2nd
Place,
Poster
#93** **DETERMINING THE RELATIONSHIP BETWEEN L1CAM AND
MALIGNANT GLIOBLASTOMA STEM CELLS**

Kyle Plusch¹, Alexander Stubbolo¹, Deni Galileo, PhD¹

¹Department of Biological Sciences, University of Delaware, 248 Wolf Hall,
Newark, DE 19716

Group P– Biological Sciences

**1ST
Place,
Poster
#98** **ISOLATION AND CHARACTERIZATION OF BACTERIOPHAGES USING
BACILLUS THURINGIENSIS HOST BACTERIA**

Aleem Mohamed¹, Temiloluwa Okusolubo¹, Racheal Spruill¹, Robert Nunn²,
Dr. Steven Caruso²

¹STEM BUILD, University of Maryland, Baltimore County, 1000 Hilltop Circle,
Baltimore, MD 21250

²Department of Biological Sciences, University of Maryland, Baltimore County,
1000 Hilltop Circle, Baltimore, MD 21250

**2nd
Place,
Poster
#94** **CELLULAR INTERNALIZATION OF G3 PEGYLATED POLY-L-LYSINE
DENDRIMER WITH DOXORUBICIN**

Joanna Lum¹, Yewon Park², Peter W. Swaan²

¹UMBC, University of Maryland Baltimore County, 1000 Hilltop Circle, Baltimore
MD 21250

²Department of Pharmaceutical Sciences, Bio- and Nanotechnology Center,
University of Maryland, Baltimore, MD 21201

Winners' List

Group Q– Chemical Sciences

1st Place, Poster #103	DETERMINATION OF COCOA LIQUOR PROVENANCE USING TRACE ELEMENTAL SIGNATURES <u>Paige E. Sudol</u> ¹ , <u>Luke Monroe</u> ¹ , Sara E. Maloney ¹ , Ravleenkaur Khalsa ¹ , Dr. Ryan E. Sours ¹ , Dr. Shannon E. Stitzel ¹ ¹ Department of Chemistry, Towson University, 8000 York Road, Towson, MD 21252
2nd Place, Poster #104	APPLICATIONS OF HIGHLY SENSITIVE, MASS SPECTROMETRY- BASED, ANALYTICAL TOOLS FOR PROTEOMIC ANALYSIS IN SINGLE CELL NEURONS <u>Reem Al Shabeeb</u> ¹ , Sam Choi ¹ , Marta Zamarbide ² , M. Chiara Manzini ² , and Peter Nemes ¹ ¹ Department of Chemistry, The George Washington University, 800 22nd St NW, Washington, DC, 20052 ² Department of Pharmacology and Physiology, The George Washington University, 2300 I St NW, Washington, DC, 20052

Group R– Chemical Sciences

1st Place, Poster #110	SYNTHESIS AND CHARACTERIZATION OF POLYMERIZABLE DAPOXYL DYES FOR LUMINESCENCE-BASED SENSING <u>Christopher A. Ryan</u> , Stephanie N. Kramer, Kristi A. Kneas, James A. MacKay Department of Chemistry and Biochemistry, Elizabethtown College, 1 Alpha Dr. Elizabethtown, PA 17022
2nd Place, Poster #107	SYNTHESIS AND ANALYSIS OF BIOORTHOGONAL PHOTOLABILE LINKERS CAPABLE OF TWO-PHOTON UPCONVERSION <u>Jasmine Olvany</u> ¹ , Dr. Gergely Cserép ² , Dr. Péter Kele ² ¹ Department of Chemistry, Lebanon Valley College, 101 North College Ave, Annville, PA, 17003 ² Department of Organic Chemistry, Research Centre for Natural Sciences, Hungarian Academy of Sciences, Magyar tudósok körúja 2., 1117, Budapest, Hungary

Winners' List

Group S— Chemical Sciences

**1st
Place,
Poster
#114** **THE EFFECT OF QUANTUM DOT CORE CHEMISTRY ON THE
INDUCTION OF APOPTOSIS ON EMBRYONIC ZEBRAFISH
(*DANIO RERIO*)**

April Jay Laranang¹; Melissa Richardson²; Zeev Rosenzweig, Ph.D.¹

¹Department of Chemistry and Biochemistry, University of Maryland, Baltimore
County, 1000 Hilltop Circle, Baltimore, MD 21250

² Department of Toxicology, University of Maryland, Baltimore,
620 W Lexington St, Baltimore, MD 21201

**2nd
Place,
Poster
#116** **THE EFFECT OF REACTION TIME AND SOLVENT SYSTEM ON MoS₂
EXFOLIATION**

Christopher Mbochwa¹, Dr. P. Sabila*¹, Dr. H.Snyder*¹, Dr. T. Huber²,
and Dr. S. Johnson³

¹Biology, Chemistry & Physics, Department of Math, Science, & Technology,
Gallaudet University, Washington, DC , 20002,

²Howard University, Washington DC, 20059

³Prince George's Community College, MD, 20774

Group T— Chemical Sciences

**1st
Place,
Poster
#121** **DESIGN AND SYNTHESIS OF A 2,5-OXAZOLE NUCLEOBASE FOR
TRIPLEX FORMATION WITH WATSON-CRICK A-U BASE PAIRS IN
DOUBLE STRANDED RNA**

Holly A. Sofka¹; James A. MacKay¹

¹Department of Chemistry and Biochemistry, Elizabethtown College, 1 Alpha
Drive, Elizabethtown, PA 17022

**2nd
Place,
Poster
#119** **TOTAL SYNTHESIS OF CLEROBUNGIN A**

James Mease , Dr. Keith P. Reber

Department of Chemistry, Towson University, 8000 York Road,
Towson, MD 21252

Winners' List

Group U– Chemical Sciences

**1st
Place,
Poster
#125** **EFFECT OF SUBSTITUENT POSITION ON QUINONE METHIDE DNA
ALKYLATION**

Isabelle Engelberg, Blessing Deeyaa, Shane Byrne, Steven Rokita
Department of Chemistry, Johns Hopkins University, 3400 N. Charles St,
Baltimore, MD 21218

**2nd
Place,
Poster
#123** **SYNTHESIS AND REACTIONS OF SOME 1,2-DIACYLDIAZIRIDINES**

Ivanny Jacome Ottati, Steven Bonser
Department of Chemistry, Millersville University, 1 S George St,
Millersville, PA 17551

Group V– Chemical Sciences

**1st
Place,
Poster
#128** **THE EFFECTS OF OSMOLYTES ON CAFFEINE PARTITIONING
THERMODYNAMICS AND AQUEOUS INTERACTIONS**

Tye Thompson¹, Tony Allsbrook¹, Yanjie Zhang¹
¹Department of Chemistry and Biochemistry, James Madison University, 901
Carrier Drive, Harrisonburg, VA 22807

**2nd
Place,
Poster
#129** **TEMPERATURE DEPENDENT PXRD ANALYSIS OF TUTTON'S SALTS
K₂M(SO₄)₂ · 6 H₂O (M = Zn, Cu, Ni, Co, and Mg)**

Ana Morales¹, Dr. Thomas C. Devore²
¹Dept. of Chemistry, Towson University, 8000 York Rd, Towson, MD 21212
²Dr. Thomas C. Devore, Dept. of Chemistry and Biochemistry, James Madison
University, 901 Carrier Drive, Harrisonburg, VA 22807

Winners' List

Group W– Chemical Sciences

**1st
Place,
Poster
#135** **EXPANDING STUDENT ACCESS TO INSTRUMENTATION THROUGH
THE INCORPORATION OF PORTABLE INFRARED SPECTROSCOPY
INTO THE CURRICULUM**

Angela Mansfield, Sarah Meyer, Kevin Bennett, Christopher Stromberg¹

¹Department of Chemistry, Hood College, 401 Rosemont Ave.,
Frederick, MD 21701

**2nd
Place,
Poster
#136** **ENHANCING UNDERGRADUATE EDUCATION WITH RAMAN,
INFRARED, AND ULTRAVIOLET SPECTROSCOPY**

Aaron Criner¹, Robin Carroll², Perry Wood¹, Emily Boward¹, Wen Nellis¹, Debra Ellis¹, Perry Wood¹

¹ Department of Science, Frederick Community College, 7932 Opossumtown Pike,
Frederick, MD 21702

²Department of Chemistry, Towson University, 8000 York Road,
Towson, MD 21252

Group X– Chemical Sciences

**1st
Place,
Poster
#142** **RUTHENIUM TRIS-BIPYRIDINE CAGE COMPLEXES AS HOST
SYSTEMS FOR ALKALI AND ALKALINE EARTH GUESTS**

Alyssa Smale, Adam Thomas, Marc Harris

Department of Chemistry, Lebanon Valley College, 101 N. College Ave.,
Annville, PA 17003

**2nd
Place,
Poster
#141** **LUMINESCENT METAL-ORGANIC FRAMEWORKS CONTAINING
OSMIUM AND RHENIUM CARBONYL METAL COMPLEXES:
FRAMEWORK STRUCTURE AND SOLVENT DEPENDENT
PHOTOPHYSICAL PROPERTIES**

Kayla A. Hess¹, Jeffrey A. Rood¹, and Kristi A. Kneas¹

¹Department of Chemistry & Biochemistry, Elizabethtown College, 1 Alpha Drive,
Elizabethtown, PA, 17022

Winners' List

Afternoon Poster Session

Group Y– Biochemical and Molecular Biology

**1st
Place,
Poster
#144** **THE REGULATORY ROLE OF β -ARRESTIN-1 AND β -ARRESTIN-2 IN PROSTATE CANCER CELL PROLIFERATION**
Rahim Hirani¹, Georgios Kallifatidis², James J. Hoy², Bal L. Lokeshwar²

¹School of Natural Science, Hampshire College, 893 West St. Amherst, MA 01002

² Cancer Center and Department of Medicine, Augusta University
1410 Laney Walker Blvd., Augusta, GA 30912

**2nd
Place,
Poster
#148** **EFFICACY OF ANTISENSE GUIDED PRE-MRNA *TRANS*-SPLICING ON EPIDERMAL GROWTH FACTOR RECEPTOR EXPRESSION IN HUMAN GLIOBLASTOMA CELLS**

Nicole Sivetz¹, Sarah C. Falotico¹, Peter Nekrasov², Martin J. Hicks¹

¹Department of Biology, Monmouth University, 400 Cedar Ave, West Long Branch, NJ 07764

²Biotechnology High School, 5000 Kozloski Road, Freehold, NJ 07728^{1,2}

Group Z– Biochemical and Molecular Biology

**1st
Place,
Poster
#150** **INVESTIGATION OF ATPASE ACTIVITY IN NOD2 AND NOD2 WALKER MUTANTS**

Matthew Hurlock, Amy Schaefer, Catherine Leimkuhler Grimes

Department of Chemistry and Biochemistry, University of Delaware, Brown Lab,
Newark, DE 19717

**2nd
Place,
Poster
#151** **WHAT IS THE TRUE ENZYME KINETICS INSIDE THE CELL?**
Timothy Legenzoff¹, Julia Bury¹, Elisha Ronzio¹, Minsoo Kim¹, Dr. Chloe Rowland²

¹Department of Biochemistry, University of Pittsburgh-Greensburg, 150 Finoli Drive, Greensburg, PA 15601

²Department of Biochemistry, University of Pittsburgh-Greensburg, 150 Finoli Drive, Greensburg, PA 15601

Winners' List

Group AA– Biochemical and Molecular Biology

**1st
Place,
Poster
#157** **SOX17 TRANSGENIC MICE REVEAL FUNCTIONAL SUPPRESSION OF
BETA-CATENIN IN NEUROPROTECTION**

Kimberly Cruz¹, Cynthia A. Deboy¹, Xiaotian Ming², Vittorio Gallo²,
and Li-Jin Chew²

¹Department of Biology, Trinity Washington University,
125 Michigan Avenue NE, Washington, DC 20017

²Center for Neuroscience Research, Children's Research Institute,
Children's National Medical Center,
111 Michigan Avenue NW, Washington, DC 20010

**2nd
Place,
Poster
#159** **CANONICAL WNT/ β -CATENIN SIGNALING IN THE DEVELOPING
EYE**

Priyha Mahesh, Yichen Wang, Melinda K. Duncan
Department of Biological Sciences, University of Delaware,
Wolf Hall, The Green, Newark, DE 19716

Group BB– Biochemical and Molecular Biology

**1st
Place,
Poster
#167** **DEVELOPMENT OF A NOVEL SYBR GREEN-BASED REAL-TIME
PCR ASSAY FOR QUANTIFYING CCK2R VERSUS CCK2_{i4sv}R IN
HUMAN PANCREATIC CANCER CELLS**

Sung Bo Yoon, John F. Harms
Department of Biological Sciences, Messiah College,
1 College Avenue, Mechanicsburg, PA 17055

**2nd
Place,
Poster
#162** **PROBING INTRAMOLECULAR INTERACTIONS IN THE HIV-1 5'-
LEADER DIMERIC CONFORMATION**

Hannah Carter, Joshua Brown, Michael Summers
Department of Chemistry and Biochemistry, Howard Hughes Medical Institute,
University of Maryland, Baltimore County, 1000 Hilltop Circle, Baltimore, MD
21250

Winners' List

Group CC– Biochemical and Molecular Biology

**1st Place,
Poster
#173**

**HYDROPORPHYRIN DYADS AS SINGLET OXYGEN
PHOTOSENSITIZERS AND FLUOROPHORES WITH SOLVENT
POLARITY-DEPENDENT PHOTOCHEMICAL PROPERTIES**

Linda Wiratan¹, Nopondo N. Esemoto¹, Zhanqian Yu¹, Marcin Ptaszek^{1*}
¹ Department of Chemistry and Biochemistry, University of Maryland Baltimore
County, 1000 Hilltop Circle, Baltimore, MD 21250

**2nd Place,
Poster#
170**

**CREATION AND CHARACTERIZATION OF RUBRERYTHRIN AND
SYMERYTHRIN MODEL PROTEINS**

Jenna Pellegrino¹, Katherine Bell¹, Rachel Z. Polinski¹, Sabrina N. Cimerol¹, Ari
Jacobs², Edward I. Solomon², and Dr. Amanda J. Reig¹
¹Department of Chemistry, Ursinus College, 601 E. Main Street,
Collegeville, PA 19426
²Department of Chemistry, 450 Serra Mall, Stanford, CA 94305

Group DD– Biochemical and Molecular Biology

**1st Place,
Poster#
176**

ISOLATION AND SEQUENCING OF AN APTAMER

Krima Patel, Jonathan Ouellet
Department of Chemistry and Physics, Monmouth University, 400 Cedar Ave,
West Long Branch, NJ 07764

**2nd Place,
Poster#
179**

DETERMINING THE ELASTICITY OF CLOFAZIMINE CRYSTALS

Benjamin A. Frey¹, Rahul K. Keswani², Robert Javonillo¹, Gus R. Rosania²
¹Department of Biology, Morgan State University, 1700 E. Cold Spring Ln.,
Baltimore, MD 21251
²Department of Pharmaceutical Sciences, University of Michigan, 428 Church
Street, Ann Arbor, MI 48109-1065

Winners' List

Group EE– Biological Sciences

**1st Place,
Poster#
184** **OVEREXPRESSION OF SPECIFIC PROTEINS IN A PANCREATIC
CANCER CELL LINE**

Blessing Akobundu, *Jamiu Giwa-Otusajo, Kaisha Hazel and
Simon Nyaga (PhD)
Department of Biology, Morgan State University, 1700 East Cold Spring Lane,
Baltimore, MD 21251

**2nd Place,
Poster#
185** **BEHAVIORAL EXAMINATION OF THE ROLE OF MOUSE
OLFACTORY MICROVILLUS CELLS**

Julianna Sun, Kenechukwu Mbonu, Kayla Lemons, Weihong Lin
Department of Biological Sciences, University of Maryland, Baltimore County,
1000 Hilltop Circle, Baltimore, MD 21250

Group FF– Biological Sciences

**1st Place,
Poster#
192** ***ARABISOPSIS THALIANA* β -AMYLASE2 IS A TETRAMER WITH A
SALT REQUIREMENT AND PUTATIVE SECONDARY BINDING SITE**

Jillian Breault¹, Dr. Amanda Storm¹, Dr. Christopher Berndsen², Dr.
Jonathan Monroe¹
¹Dept. of Biology, James Madison University, 800 S Main Street, Harrisonburg,
VA 22807
²Dept. of Chemistry and Biochemistry, James Madison University, 800 S
Main Street, Harrisonburg, VA 22807

**2nd Place,
Poster#
190** **SUNSCREEN NEGATIVELY AFFECTS THE DEVELOPMENT AND
BEHAVIOR OF THE ATLANTIC HORSESHOE CRAB,
*Limulus Polyphemus***

Megan Cain, Paul Leingang, Danielle Dixon¹
¹Department of Marine Science, University of Delaware, 700 Pilottown Rd.
Lewes, De 19958

Winners' List

Group GG– Biological Sciences

**1st Place,
Poster#
193**

EVOLUTION OF A POLYPHENISM

Erin Bonner, Emily Spiegel, Greg Davis
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Mawr, PA 19010

**2nd Place,
Poster#
198**

UNDERSTANDING TUMOR SUB-CLONAL DYNAMICS USING A COMPUTATIONAL FRAMEWORK

Caroline Larkin and Daniel Lobo
Department of Biological Sciences, University of Maryland, Baltimore County
1000 Hilltop Circle, Baltimore, MD 21250

Group HH– Biological Sciences

**1st Place,
Poster#
200**

IDENTIFICATION OF THE CELL WALL-ASSOCIATED PNEUMOCOCCAL PROTEIN AMINOPEPTIDASE N AS A POTENTIAL TARGET DEGRADED BY THE NEUTROPHIL-DERIVED SERINE PROTEASE, NEUTROPHIL ELASTASE

Charmaine Nganje¹, Scott Haynes¹, Mara G. Shainheit¹ PhD
¹Department of Biological Sciences, Towson University, 8000 York Road,
Towson, MD 21252

**2nd Place,
Poster#
202**

FUNCTIONAL CHARACTERIZATION OF GLYCOSIDE HYDROLASE FAMILY 43 BY PLANT CELL WALL DEGRADING BACTERIA

Da'Kuawn Johnson and Jeffrey G. Gardner
Department of Biological Sciences, University of Maryland – Baltimore County,
1000 Hilltop Circle, Baltimore, MD 21250

Group II– Biological Sciences

**1st Place,
Poster#
211**

FUNCTIONAL SIGNIFICANCE OF RIBOSOMAL PROTEIN S2 (Rps2) PHOSPHORYLATION DURING TRANSLATION

Allison Sanphillipo, Kartikeya Joshi, Philip J. Farabaugh
Department of Biological Sciences, University of Maryland, Baltimore County,
1000 Hilltop Circle Baltimore, MD 21250

**2nd Place,
Poster#
206**

DNA METHYLATION PATTERNS AT *SNRPN*

Julianna Nechin¹ and Dr. Tamara Davis¹
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Winners' List

Group JJ– Biological Sciences

1st Place,
Poster#
213

**DEVELOPING A SWITCHABLE SYSTEM TO INDUCE
SYNCHRONOUS MEIOSIS IN *S. CEREVISIAE***

Aaron Pinninti¹, Elizabeth Walton¹, Archana Ganta¹, Brendan Dougherty¹, Krista Vadaketh¹, Edward Winter² and Aikaterini Skokotas¹

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²Department of Biochemistry and Molecular Biology, Thomas Jefferson
University, Philadelphia, PA 19107

2nd Place,
Poster#
214

**INVESTIGATING SURFACE-ASSOCIATED CHOLINE BINDING
PROTEINS ON *STREPTOCOCCUS PNEUMONIAE* AS POTENTIAL
TARGETS THAT ARE DEGRADED BY NEUTROPHIL SERINE
PROTEASES.**

Rachel Lent¹, Dr. Mara Shainheit²

¹Department of Molecular Biology, Biochemistry, and Bioinformatics (MB3),
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²Department of Biology, Towson University, 8000 York Rd, Towson, MD 21252

Group KK– Biological Sciences

1st Place,
Poster#
219

**BIOLOGICAL SEMICONDUCTORS: STRUCTURAL CONTROL OF
HEME REDOX POTENTIALS IN PPCA, A 3-HEME CYTOCHROME**

Coleman Swaim and Oleksandr Kokhan

Department of Chemistry and Biochemistry, James Madison University, 901
Carrier Drive, Harrisonburg, VA 22807

2nd
Place,
Poster#
222

A STUDY OF TOXOPLASMA GONDII IN A 3D MICROENVIRONMENT

Eliana Crentsil^{1,2}, Nicolas Perez², Evelyn Chiu², Kyu Sang Han², Joan Golding²,
Denis Wirtz²

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² Department of Chemical and Biomolecular Engineering, Johns Hopkins
University Institute for NanoBioTechnology, 3900 North Charles Street,
Baltimore, MD 21218

Winners' List

Group LL– Biological Sciences

1st Place, Poster# 229 **INVESTIGATING TSC1 AND TS2 MUTATIONS IN CORTICAL ORGANOIDs**

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¹Department of Biological Sciences, UMBC, 1000 Hilltop Circle,
Baltimore, MD 21250

²Department of Molecular and Cell Biology, University of California, Berkeley,
142 Life Sciences Addition Berkeley, CA, 94720

2nd Place, Poster# 226 **ANALYSIS OF TYROSINE HYDROXYLASE EXPRESSION IN PINK1 KNOCKOUT RATS OF THE SUBSTANTIA NIGRA AND STRIATUM**

Joshua Ross¹; Kelley J. Murphy¹, Craig Ferris², Mary S. Lange¹, Michael Koban^{1*}
and Gloria E. Hoffman^{1*}

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²Department of Psychology Northeastern University, 360 Huntington Ave, Boston,
MA 02115

Group MM– Biological Sciences

1st Place, Poster# 231 **THE STRUCTURE OF THE RECURRENT LARYNGEAL NERVE IN THE RAT**

Oluwatobi Olufeko^{1,2}, Inna Rozenberg², Joshua B. Silverman³,
Krishnamurthi Sundaram³,

Mark Stewart^{4,5}, Richard Kollmar^{2,3}

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Evers College, 1650 Bedford Ave., Brooklyn, NY 11225

Departments of ²Cell Biology, ³Otolaryngology, ⁴Physiology & Pharmacology,
and ⁵Neurology, SUNY Downstate Medical Center, 450 Clarkson Ave., Brooklyn,
NY 11203

2nd Place, Poster# 236 **THE EFFECT OF OSCILLATORY FLUID SHEAR ON PROSTATE CANCER ATTACHMENT TO BONE MARROW ENDOTHELIAL CELLS**

Shannon Marshall¹, Mary Boggs, PhD¹, Randall Duncan, PhD^{1,2} and Carlton
Cooper, PhD¹

¹Dept. of Biological Sciences, University of Delaware, Newark, DE 19716

²Dept. of Biomedical Engineering, University of Delaware, Newark, DE 19716

Winners' List

Group ZZ –Biological Sciences

**1st Place,
Poster#
66**

**PRODUCTION OF AN ANTIBIOTIC-LIKE COMPOUND BY A
BROOKLYN NY SOIL BACTERIUM**

Steven Lawrence¹; Lissette Guzman¹; Danielle Maragh¹; Tony Nicolas²;
and Carolle Bolnet¹

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²New York City College of Technology 300 Jay St, Brooklyn, NY 11201

**2nd
Place,
Poster#
88**

**SEGREGATION AND OVERLAP BETWEEN AMYGDALA NEURONS
TARGETING THE PRE-FRONTAL CORTEX, NUCLEUS ACCUMBENS
AND BED NUCLEUS OF THE STRIA TERMINALIS**

Jhamellia Livingston^{1,2}, Seung-Chan Lee², Denis Paré²

¹Department of Biology, Medgar Evers College, 1650 Bedford Avenue Brooklyn
NY 11225,

²Department of Molecular and Behavioral Neuroscience, Rutgers University, 197
University Avenue Newark, NJ 07102.

Group NN– Chemical Sciences

**1st Place,
Poster#
241**

SYNTHESIS OF RUTHENIUM MACROCYCLES

Corine Mendenhall¹, Marc Harris¹

¹Department of Chemistry, Lebanon Valley College, 101 N. College Ave,
Annville, PA 17003

**2nd
Place,
Poster#
238**

**SYNTHESIS AND CHARACTERIZATION OF NEW METAL-ORGANIC
MATERIALS INCORPORATING THE
[HYDROTRIS(3-5,DIMETHYL-1,2,4-TRIAZOLYL)BORATE] LIGAND**

Elijah T. Roberts, Barbara A. Reisner

Department of Chemistry and Biochemistry, James Madison University, 901
Carrier Dr., MSC 4501, Harrisonburg, VA 22807

Winners' List

Group OO– Chemical Sciences

1st Place, Poster# 246	MICROWAVE MEASUREMENT OF MICELLES IN NONPOLAR SOLVENTS <u>Sarah Bonson</u> ^{1,2} , Cully Little ^{2,3} , Isaac Hanemann ^{2,4} , Jim Booth ² , Nate Orloff ² , Patricia Kreke ¹ ¹ Mount St. Mary's University, School of Natural Science and Mathematics, Emmitsburg, MD 21727 ² National Institute of Standards and Technology, CTL RF Technology Division (672), 325 Broadway, Boulder, CO 80305 ³ University of Colorado Boulder, Mechanical Engineering, Boulder, CO 80309 ⁴ University of Colorado Boulder, Physics, Boulder, CO 80309
2nd Place, Poster# 245	SECOND-GENERATION METABOLITE SAMPLING BY MICROASPIRATION <u>David O. Plotnick</u> ¹ , Rosemary M. Onjiko ¹ , Peter Nemes ¹ ¹ Department of Chemistry, The George Washington University, 800 22 nd Street NW Suite 4000 Washington, DC 20052

Group PP– Chemical Sciences

1st Place, Poster# 248	TRACING MARINE PARTICULATE ORGANIC CARBON FROM PRIMARY PRODUCTION TO SEDIMENTATION <u>Rosie Wenrich</u> ¹ and Alessandra Leri ¹ ¹ Department of Natural Sciences, Marymount Manhattan College, 221 E 71 st St., New York, NY 10021
2nd Place, Poster# 250	MACROPOROUS RESINS FOR ANTHOCYANIN EXTRACTION FROM ARONIA MITSCHURINII BERRIES <u>Esereoghene Mowoe</u> ¹ , <u>Heather Goldsborough</u> ¹ , Adaobi Egwuagu ¹ , Taiwo Ola ¹ , Andrew Ristvey ² , Victoria Volkis ¹ ¹ Department of Natural Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21835 ² University of Maryland Extension, Wye Research & Education Center, P.O. Box 169, Queenstown, MD 21658-0169

Winners' List

Group QQ– Chemical Sciences

1st Place, Poster# 256 **UNDERSTANDING A FUNDAMENTAL FORCE IN PROTEIN FOLDING: TUNING THE n [Symbol] π^* INTERACTION IN DESIGNED PEPTIDES**

Nicole A. Wenzell, Himal K. Ganguly, Anil K. Pandey, Glenn P.A. Yap,
and Neal J. Zondlo*

Department of Chemistry and Biochemistry, University of Delaware, 339 Brown
Laboratory, Newark DE 19716

2nd Place, Poster# 259 **SOLID STATE CHARACTERIZATION OF HYBRID COPOLYMERS WITH PHOTOVOLTAIC APPLICATIONS**

Daniel A. Corbin and Dr. Brycelyn M. Boardman
Dept. of Chemistry and Biochemistry, James Madison University,
Harrisonburg, VA 22807

Group RR– Chemical Sciences

1st Place, Poster# 260 **A COMPUTATIONAL INVESTIGATION INTO THE MECHANISM OF THE HISTONE ACETYLTRANSFERASE, GCN5**

R. Hunter Wilson and Isaiah Sumner
Department of Chemistry and Biochemistry, James Madison University, 800 S
Main St, Harrisonburg, VA 22807

2nd Place, Poster# 261 **HOMOCHIRALITY IN METAL AMINO ACID COMPLEXES**

Desirae Stewart¹, Greg Brewer², Cynthia Brewer²
¹Department of Chemistry, Trinity Washington University, 125 Michigan Ave.
NE, Washington, DC 20017
²Department of Organic Chemistry, Catholic University of America,
620 Michigan Ave NE, Washington, DC 20064

Winners' List

Group SS– Chemical Sciences

**1st Place,
Poster#
264**

TOWARDS A TOTAL SYNTHESIS OF CLADOSIN C

Hannah Burdge¹, James Mease¹, Dr. Keith Reber¹

¹Towson University Department of Chemistry, 8000 York Road,
Towson, MD, 21252

2nd

**Place,
Poster#
267**

DESIGN, SYNTHESIS OF AND EVALUATION OF SELECTIVE INHIBITORS OF THE MONO- (ADP-RIBOSYL)TRANSFERASE, PARP-14

Jacob Holechek and Evan Callahan, Dr. Ann-Gerd Thorsell, Dr. Tobias Karlberg,
Dr. Herwig Schuler, Dr. Dana Ferraris
Department of Chemistry, McDaniel College, 2 College HL,
Westminster, MD 21157

Group TT– Chemical Sciences

**1st Place,
Poster#
275**

ORGANIC SYNTHESIS OF FLUORESCENT CYANINE DYES AND THEIR PRECURSORS

Jahnn Drigo¹, Angela Winstead, Ph.D²

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Baltimore, MD 21251

2nd

**Place,
Poster#
271**

SYNTHESIS AND CHARACTERIZATION OF COMPOUNDS TO STUDY CONCERTED PROTON-ELECTRON TRANSFER

Fretz, Nathan

Ian Rhile, Ph.D.

Department of Chemistry, Albright College, 13th & Bern Streets,
Reading, PA, 19604
