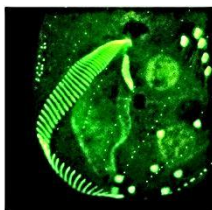
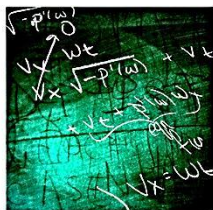
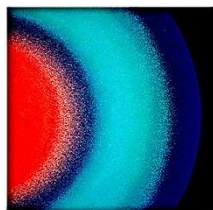


UMBC
AN HONORS
UNIVERSITY
IN MARYLAND



**17th Annual Undergraduate Research Symposium
in the
Chemical and Biological Sciences**

*The College of Natural and Mathematical Sciences;
The Department of Chemistry and Biochemistry &
The 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 - Biological Sciences

1st

Place

OVEREXPRESSION OF CAH1 IN CHLAMYDOMONAS REINHARDTII

Nicholas Often¹, Rudolph Park², Amrita Madabushi¹, and Stephen M. Miller²

¹Baltimore City Community College, 2901 Liberty Heights Avenue, Baltimore, MD 21215

²Department of Biological Sciences, UMBC, 1000 Hilltop Circle, Baltimore, MD 21250

2nd

Place

TESTING AFFINITY OF COMPUTATIONALLY-DESIGNED HUMANIZED ANTIBODIES TO A TUMOR ANTIGEN

Hannah C. Wastyk¹, Margie E. Ackerman, Ph.D.^{2,3,4}, Yoonjoo Choi⁵, Chris Bailey-Kellogg⁵,

Ming-Ru Wu^{3,4}, Albert Gacerez^{3,4}, Charles Sentman^{3,4}, and Casey K. Hua²

¹Department of Chemistry and Biochemistry, University of Delaware,
102 Brown Laboratory, Newark, DE 19716

²Department of Cellular and Molecular Biology, Dartmouth College,
7560 Renssen Building, Hanover, NH, 03755

³Thayer School of Engineering, Dartmouth College, 14 Engineering Drive, Hanover, NH 03755

⁴Department of Microbiology and Immunology, Geisel School of Medicine,
1 Rope Ferry Rd, Hanover, NH 03755

⁵Department of Computer Science, Dartmouth College, 6211 Sudikoff Lab, Hanover, NH 03755

Group B - Biological Sciences

1st

Place

DIFFERENTIAL EFFECTS OF INHIBITORS AND ANTIBODIES ON MOTILITY AND PROLIFERATION OF L1-POSITIVE VS. L1-NEGATIVE GLIOBLASTOMA CELLS

Hannah Anderson and Deni Galileo

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

2nd

Place

DIFFERENTIAL METHYLATION OF GNG7 IN NORMAL B6 MOUSE TISSUES

Jeffrey Dailey, Ali Hussain, and William F. Schwindinger

Department of Biological and Allied Health Sciences, Bloomsburg University,
400 E. Second Street, Bloomsburg, PA 17815

Group C - Biological Sciences

1st

Place

HISTONE MODIFICATION AS A POTENTIAL REGULATOR OF THE TISSUE-SPECIFIC IMPRINTING OF *RASGRF1*

Carolyne Face and Dr. Tamara Davis

Department of Biology, Bryn Mawr College, 101 N. Merion Avenue, Bryn Mawr, PA 19010

2nd

Place

CHARACTERIZATION OF STARCH DEGRADATION IN *CELLVIBRIO JAPONICUS*

Gisele Toumi and Jeffrey Gardner

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

Winners' List

Group D - Biological Sciences

1st Place **A GAIN OF FUNCTION SCREEN TO IDENTIFY TRANSCRIPTIONAL REGULATORS OF AXON GUIDANCE IN *DROSOPHILA***

Akua Nimarko¹, Celine Santiago², and Greg J. Bashaw²

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

²Department of Neuroscience, Perelman School of Medicine at the University of Pennsylvania, 415 Curie Boulevard, Philadelphia, PA 19104

2nd Place **EXAMINING O-XYLOSYLTRANSFERASE SHEDDING IN *DROSOPHILA***

Brooke Palus and Erica M. Selva

Department of Biology, University of Delaware, Newark, DE 19716

Group E - Biological Sciences

1st Place **ANALYSIS OF THE STABILITY OF A TYPE III SECRETION SYSTEM CONTAINING PATHOGENICITY ISLAND IN THE HUMAN PATHOGEN *VIBRIO CHOLERA*E.**

Molly C. Peters, Megan R. Carpenter, and E. Fidelma Boyd

Department of Biological Sciences, University of Delaware, 118 Wolf Hall, Newark, DE 19716

2nd Place **USING NUCLEAR INTRONS TO INFER THE EVOLUTIONARY HISTORY OF AN UNDERSTUDIED GENUS, *PETROICA***

John Malloy¹, Anna Kearns^{1,2}, Matthias Gobbert³, Amy Driskell⁴, and Kevin Omland¹

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

²Natural History Museum, University of Oslo, P.O. Box 1172, Blindern, Oslo, Norway

³Department of Mathematics and Statistics, UMBC, 1000 Hilltop Circle, Baltimore MD 21250

⁴Smithsonian Institution, Laboratories of Analytical Biology,

National Museum of Natural History, P.O. Box 37012 MRC 183, Washington DC

Group F - Biological Sciences

1st Place **CONFOUNDS IN THE THIONIN-BASED ASSAY OF CHLORINATION ACTIVITY IN COMMON GREENSHIELD LICHEN**

Marisa Dunigan and Alessandra Leri

Department of Natural Sciences, Marymount Manhattan College
221 East 71st Street, New York, NY 10021

2nd Place **ORANGE PEEL DEPOSITION ON CATTLE PASTURES AS A METHOD FOR CATALYZING TROPICAL FOREST SUCCESSION AND RESTORATION**

Jonathan Choi¹, Tim Treuer¹, Daniel Perez Aviles², Leland Werden²,

Jennifer Powers², and David Wilcove^{1,3}

¹ Department of Ecology and Evolutionary Biology, Princeton University,
106A Guyot Hall, Princeton, NJ 08541

²Department of Ecology, Evolution and Behavior, University of Minnesota, 100 Ecology Building,
1987 Upper Buford Circle, Saint Paul, MN 55108

³ Woodrow Wilson School of Public and International Affairs, Princeton University,
Robertson Hall, Princeton, NJ 08541

Winners' List

Group G - Biological Sciences

1st Place ANALYSIS OF MODIFIED HISTONE DISTRIBUTION AT THE TISSUE-SPECIFIC IMPRINTED RASGRF1 LOCUS USING ALLELE-SPECIFIC QPCR FOLLOWING CHIP
Nicole Hamagami and Tamara L. Davis
Department of Biology, Bryn Mawr College, 101 North Merion Avenue, Bryn Mawr, PA 19010

2nd Place DOMINANCE OF OLD END GROWTH IS INHERITED IN FISSION YEAST
Julie Rich, Bin Wei, and Maitreyi Das
Department of Biochemistry and Cellular and Molecular Biology,
University of Tennessee, Knoxville, TN 37996

Group H - Chemical Sciences

1st Place AN EVALUATION OF THE CHEMISTRY OF RuCl₂(PPh₃)₃ WITH NITRILES
Santina S. Cruz¹, John W. Gilje¹, Donna S. Amenta¹, and Glenn P.A. Yap²
¹Department of Chemistry and Biochemistry, James Madison University,
800 S. Main Street, Harrisonburg, VA 22807
²Department of Chemistry and Biochemistry, University of Delaware, Newark, DE 19716

2nd Place SYNTHESIS AND CHARACTERIZATION OF A NOVEL TRIPODAL NITROXIDE TITANIUM(IV) FLUORIDE COMPLEX AND ITS SELECTIVE FLUORINATION CHEMISTRY
Michael A. Boreen, Justin A. Bogart, Patrick J. Carroll, and Eric J. Schelter
Department of Chemistry, University of Pennsylvania, 231 South 34th Street, Philadelphia, PA 19104

Group I - Chemical Sciences

1st Place SYNTHESIS OF HALOGENATED THIENO[3,2-*d*] PYRIMIDINES AS POTENTIAL ANTICANCER AGENTS
Matthew Shin, Brian Cawrse, and Katherine Seley-Radtke
Department of Chemistry and Biochemistry, UMBC, 1000 Hilltop Circle, Baltimore, MD 21250

2nd Place SYNTHESIS OF PRELIMINARY HETEROCYCLIC SALTS FOR CYANINE DYES
Dominique Munson and Dr. Angela Winstead
Department of Chemistry, Morgan State University, 1700 E. Cold Spring Lane, Baltimore, MD 20774

Group J - Chemical Sciences

1st Place SYNTHESIS AND STUDY OF NOVEL AMPHIPHILES AS POTENT ANTISEPTICS
Brenna J. C. Walsh¹, Kirstie Thompson¹, John N. Marafino^{1,2}, Kristin McKenna¹, Louis Damiano¹,
Tara M. Gallagher², Kyle Seifert², and Kevin L. Caran¹
¹Department of Chemistry and Biochemistry, James Madison University,
901 Carrier Drive, MSC 4501, Harrisonburg, VA 22807
²Department of Biology, 820 Madison Drive, MSC 7801, Harrisonburg, VA 22807

2nd Place THEORETICAL STUDIES OF THE EFFECT OF ISOSTERIC SUBSTITUTION ON THE GARRATT-BRAVERMAN CYCLIZATION
Jade Marino Creto, Mikey Kwon and Dr. Edyta Greer
Department of Natural Sciences, Baruch College, 17 Lexington Avenue, New York, NY 10010

Winners' List

Group O – Biochemical & Molecular Biology

1st Place **PHOSPHORYLATION OF PTP1B REGULATES CATALYSIS BY MODULATING ACID-LOOP DYNAMICS**

Sean Haynie^{1,2}, Kelly Bird^{1,2}, Dr. Patrick Loria², and Dr. James Lipchock^{1,2}

¹Department of Chemistry, Washington College, 300 Washington Avenue, Chestertown, MD 21620

²Department of Chemistry, Yale University, 225 Prospect Street, New Haven, CT 0651

2nd Place **STRUCTURAL AND FUNCTIONAL ANALYSIS OF DISEASE CAUSING MUTATIONS IN THE M10 DOMAIN OF TITIN**

Michael W. Rudloff and Nathan T. Wright

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

Group P – Biochemical & Molecular Biology

1st Place **TARGETING AND BINDING OF THE FELINE IMMUNODEFICIENCY VIRUS MATRIX PROTEIN TO PLASMA MEMBRANE ASSEMBLY SITES**

Morgan B. Moser, Janae L. Baptiste, and Michael F. Summers

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

2nd Place **SEMIQUINONE STABILIZATION VIA *DE NOVO* DESIGN PROTEIN SCAFFOLD**

Ivan Sokirniy¹, Christen Biernat¹, Gözde Ulas², William F DeGrado², and Amanda J Reig¹

¹Department of Biochemistry and Molecular Biology, Ursinus College,
601 E. Main Street, Collegeville, PA 19426

²Department of Pharmaceutical Chemistry, 555 Mission Bay Boulevard South, San Francisco, CA 94158

Group Q – Biochemical & Molecular Biology

1st Place **CLONING OF THE HIGHLY ALTERNATIVELY-SPLICED *NEUREXIN* cDNAs IN *DANIO RERIO***

Majesta Kitts and Cheng Huang

Department of Biology, McDaniel College, 2 College Hill, Westminster, MD 21157

2nd Place **INVESTIGATION OF DIMERIZATION MECHANISMS IN THE 5'-UNTRANSLATED REGION IN SIMIAN IMMUNODEFICIENCY VIRUS IN CHIMPANZEES**

Ae Lim (Ally) Yang, Jessica Zaki, Michelle Seu, Thao Tran, and Dr. Michael F. Summers

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

Winners' List

Group R – Biochemical & Molecular Biology

1st Place **STRUCTURE AND MOLECULAR DYNAMICS OF THE IG58/59 DOMAINS OF OBSCURIN**
Tracy A. Caldwell and Nathan T. Wright
Department of Chemistry and Biochemistry, James Madison University,
901 Carrier Drive, MSC 4501, Harrisonburg, VA 22807

2nd Place **CTL REACTIVITY AGAINST POTE-DERIVED PEPTIDES IN PROSTATE CANCER PATIENTS**
Yi Liu¹, Masaki Terabe², Lauren V. Wood², and Jay A. *Berzofsky*²
¹ Department of Biological Science, UMBC, 1000 Hilltop Circle, Baltimore, MD 21250
²Vaccine Branch, Center for Cancer Research, National Cancer Institute,
National Institutes of Health, Bethesda, MD 20892

Afternoon Poster Session

Group S - Biological Sciences

1st Place **COMPETITIVE INHIBITION DRIVES UNIQUE CARBOHYDRATE METABOLISM AND MOTILITY OF *ESCHERICHIA COLI* WITHIN THE INTESTINE**
Ryan N. Montalvo, Cassandra Black, E.D. Richards, and Andrew J. Fabich
Department of Biology and Chemistry Liberty University,
1971 University Boulevard, Lynchburg, VA 24502

2nd Place **ISOLATION OF NOVEL ARTHROBACTER SP. PHAGES WITH A ROBUST NEW METHOD**
Dylan Chudoff and David Dunbar Ph.D.
Department of Biological Sciences, Immaculata University, 1145 King Road, Immaculata, PA 19345

Group T - Biological Sciences

1st Place **ANALYSIS OF THE ROLE OF RPS9 IN RIBOSOME ASSEMBLY AND rRNA PROCESSING IN *SACCHAROMYCES CEREVISIAE***
Alana Lescure, Brian Gregory, and Lasse Lindahl
Department of Biology, UMBC, 1000 Hilltop Circle, Baltimore, MD 21250

2nd Place **INTERPLAY BETWEEN *E. COLI* HSP90 AND A TUBULIN HOMOLOG DURING CELL DIVISION**
Robyn Jasper^{1,2}, Monica Markovski², and Sue Wickner²
¹Department of Biological Sciences, UMBC, 1000 Hilltop Circle, Baltimore, MD
²Laboratory of Molecular Biology, National Cancer Institute,
National Institutes of Health, 37 Convent Drive, Bethesda, MD

Winners' List

Group U - Biological Sciences

1st Place **DETERMINING THE GENOTYPE-PHENOTYPE RELATIONSHIP OF *ATG18* MUTANTS**
Matthew Fischer and Erica Selva
Department of Biological Sciences, University of Delaware,
210 South College Avenue, Newark, DE 19711

2nd Place **GESTATIONAL AND LACTATIONAL IRON DEFICIENCY ALTERS BEHAVIOR IN RATS**
Emily N. Spurlin, Timothy R. Monko, and Erica L. Unger
Department of Biology, Lebanon Valley College, 101 North College Avenue, Annville, PA 17003

Group V - Biological Sciences

1st Place **BEHAVIORAL AGGREGATION, SEX PREFERENCE AND LEARNING AND MEMORY IN FEMALE *GROMPHADORHINA PORTENTOSA***
Victoria E. Meadows and Kenneth G. Sossa Ph.D.
Department of Biology, Notre Dame of Maryland University,
4701 North Charles Street, Baltimore, MD 21210

2nd Place **A MATHEMATICAL MODEL OF MELANOPsin PHOTOTRANSDUCTION**
Abigail Jackson¹, Jessica Ortega^{1,2}, Phyllis Robinson¹, and Kathleen Hoffman²
¹Department of Biological Sciences, UMBC, 1000 Hilltop Circle, Baltimore, MD 21250
²Department of Mathematics and Statistics, UMBC, 1000 Hilltop Circle, Baltimore, MD 21250

Group W - Biological Sciences

1st Place **OPTIMIZATION OF AN IMMUNOHISTOCHEMICAL FLUORESCENT STAINING PROTOCOL FOR USE ON CHIMERIC TISSUE**
Nimasha Fernando^{1,2}, Holly Hewitt³, and Walter Low³
¹Department of Interdisciplinary Studies, UMBC, 1000 Hilltop Circle, Baltimore, MD 21250
²Life Sciences Summer Undergraduate Research Program (LSSURP), University of Minnesota,
1475 Gortner Avenue, Saint Paul, MN 55108
³Department of Neurosurgery, University of Minnesota, 2001 6th Street SE,
Minneapolis, MN 55455

2nd Place **IDENTIFICATION AND CHARACTERIZATION OF MUTANTS RELATED TO *LRS1* IN *ARABIDOPSIS THALIANA***
Heather Yerecic, Patti Erickson, and F. Les Erickson
Department of Biological Sciences, Salisbury University,
1101 Camden Avenue, Salisbury, MD 21801

Winners' List

Group X - Biological Sciences

1st Place **ANALYSIS OF DNA METHYLATION AT THE UDMR LOCUS OF THE IMPRINTED *RASGRF1* IN MOUSE EMBRYONIC DEVELOPMENT**
Rachel Shields and Dr. Tamara Davis
Department of Biology, Bryn Mawr College, 101 N. Merion Avenue, Bryn Mawr, PA 19010

2nd Place **IDENTIFYING POTENTIAL TRANSCRIPTION FACTOR BINDING SITES IN SYNTHESIZED DNA**
Grace Chandler², Jacob O'Bott¹, Ivan Erill², and DoHwan Park¹
¹Department of Mathematics and Statistics, UMBC, 1000 Hilltop Circle, Baltimore, MD 21250
²Department of Bioinformatics, UMBC, 1000 Hilltop Circle, Baltimore, MD 21250

Group Y - Chemical Sciences

1st Place **TRANSITION METAL CATALYSTS FOR THE ELECTROCHEMICAL CONVERSION OF CO₂ TO CO**
Thomas Keane, Jonnathan Medina Ramos, John DiMeglio, and Joel Rosenthal
Department of Chemistry and Biochemistry, University of Delaware,
102 Brown Laboratory, Newark, DE 19716

2nd Place **THE CHEMISTRY AND SPECTROSCOPY OF OH RADICALS IN O₂, N₂, AND CO SOLID MATRICES**
Derek Dwyer and Dr. Paul Cooper
Department of Chemistry and Biochemistry, George Mason University, Fairfax, VA 22030

Group Z - Chemical Sciences

1st Place **A G4-K+ HYDROGEL STABILIZED BY AN ANION**
Luke P. Skala, Gretchen Marie Peters, and Jeffery T. Davis
Department of Chemistry and Biochemistry, University of Maryland, College Park, MD 20742

2nd Place **A NOVEL APPROACH TO INCORPORATE CARBON NANOTUBES IN CARBON FIBER**
Bradley Baker¹, Jimmy Mays², and Benjamin Ripy²
¹Department of Chemistry, King University, King College Road, Bristol, TN 37620
²Department of Chemistry, University of Tennessee, Knoxville, TN 37996-0230

Group AA - Chemical Sciences

1st Place **EEM CHARACTERIZATION OF SURFACE WATERS ALONG A RURAL-TO-URBAN GRADIENT IN BALTIMORE**
Nicholas Rogers, and Lee Blaney
Department of Chemical, Biochemical and Environmental Engineering, UMBC,
1000 Hilltop Circle ECS 314, Baltimore, MD 21250

2nd Place **VISIBLE-LIGHT MEDIATED SYNTHESIS OF CONSTRAINED CYCLIC-PEPTIDES FROM PHENACYL PROTECTED CYSTEINE RESIDUES**
Rory C. McAtee¹, Timothy M. Monos², and Corey R. J. Stephenson²
¹Department of Chemistry, Lycoming College, Williamsport, PA 17701
²Department of Chemistry, University of Michigan, Ann Arbor, MI 48109

Winners' List

Group BB - Chemical Sciences

1st Place **THE SYNTHESIS, CHARACTERIZATION, AND POLYMERIZATION OF THIENYL PHOSPHINE DERIVATIVE PALLADIUM(II) COMPLEXES**
Jessica L. Shott, Brian J. Reeves, and Brycelyn M. Boardman
Department of Chemistry and Biochemistry, James Madison University, Harrisonburg, VA 22807

2nd Place **SYNTHETIC FLUORESCHEIN-BASED CHEMOSENSORS FOR PALLADIUM AND HUMAN SERUM ALBUMIN QUANTIFICATION AND THE DISCOVERY OF AN UNPRECEDENTED RED SHIFT**
Jessica M. Williams and Kazunori Koide
Department of Chemistry, University of Pittsburgh, 219 Parkman Avenue, Pittsburgh, PA 15260

Group CC - Chemical Sciences

1st Place **QUANTIFICATION OF NEUROTRANSMITTERS USING HILIC LC-MS/MS**
Timothy R. Monko¹, Emily N. Spurlin¹, Timothy J. Peelen², and Erica L. Unger¹
¹Department of Biology Lebanon Valley College, 101 N. College Avenue, Annville, PA 17003
²Department of Chemistry, Lebanon Valley College, 101 N. College Avenue, Annville, PA 17003

2nd Place **IMPROVED METHODOLOGY FOR ION PROFILING IN AQUARIUM WATER**
Margaret E. LaCourse, Ian W. Shaffer, Joshua A. Wilhide, William R. LaCourse
Molecular Characterization and Analysis Complex, UMBC, 1000 Hilltop Circle, Baltimore MD 21250

Group DD - Chemical Sciences

1st Place **ELECTRONIC CIGARETTE AEROSOL ANALYSIS: INSTRUMENTATION AND METHOD DEVELOPMENT**
Jonathan P. Jopse and Ellen Hondrogiannis Ph.D.
Department of Chemistry, Towson University, 8000 York Road, Towson, MD 21252

2nd Place **FUELING THE INTERDISCIPLINARY FLAME: EXPLORING PLANT-BASED ALTERNATIVE FUELS IN THE UNDERGRADUATE LABORATORY**
Gabriel Gregorzak¹, Mark Baillie¹, Alenka Hlousek-Radojicic², and Jacqueline Fajardo¹
¹Department of Chemistry & Biochemistry, University of Delaware, 102 Brown Laboratory, Newark, DE 19717
²Department of Biological Sciences, University of Delaware, 118 Wolf Hall, Newark, DE 19717

Winners' List

Group EE – Biochemical & Molecular Biology

1st Place **EXPRESSION OF NEURONAL NITRIC OXIDE SYNTHASE (NNOS) IN THE EXTRATESTICULAR PATHWAY AND ITS ROLE IN MURINE SPERM MATURATION**
Rebecca Pollak and Patricia A. Martin-DeLeon
Department of Biological Sciences, University of Delaware, 118 Wolf Hall, Newark, DE 19716

2nd Place **A PATHWAY TO UNDERSTANDING SCHIZOPHRENIA: IDENTIFICATION OF SUBSTRATES OF THE E3 LIGASE, UFL1**
Brenda Gutierrez¹, Lydia Emerson², Ellen Vieux³, and Jon M. Madison⁴
¹Department of Chemistry and Biochemistry, UMBC, 1000 Hilltop Circle, Baltimore, MD 21250
^{2,3,4}Stanley Center for Psychiatric Research, Broad Institute of MIT and Harvard, 75 Ames Street, Cambridge, MA 02142

Group FF – Biochemical & Molecular Biology

1st Place **STRUCTURAL CHARACTERIZATION OF THE CHEMOKINE RECEPTOR CXCR4 IN COMPLEX WITH SDF-1**
Joshua Temple¹, Lauren Holden², and Tracy Handel²
¹Department of Chemistry and Biochemistry, James Madison University, 901 Carrier Drive, Harrisonburg, VA 22807
²Skaggs School of Pharmacy and Pharmaceutical Sciences, University of California, San Diego, 9500 Gilman Drive, La Jolla, CA 92092

2nd Place **USING NMR SPECTROSCOPY TO RESOLVE THE STRUCTURE OF HIV-1 RRE**
Roald Teuben¹, Lindsay Glang¹, Andy DeLaitsch², Yuanyuan Liu¹, Jan Marchant¹, and Michael F. Summers¹
¹Department of Chemistry and Biochemistry, UMBC, 1000 Hilltop Circle, Baltimore, MD 21250
²Department of Biochemistry, University of Wisconsin-Madison, 433 Babcock Drive, Madison, WI 53706

Group GG – Biochemical & Molecular Biology

1st Place **STRUCTURAL BASIS OF HIV-1 GENOME RECOGNITION VIA VIRAL RNA-PROTEIN INTERACTION**
Alyssa Florwick, Greg Carter, Justin Santos, Sarah Keane, and Michael Summers
Department of Chemistry and Biochemistry, Howard Hughes Medical Institute, UMBC, 1000 Hilltop Circle, Baltimore, MD 21250

2nd Place **STRUCTURAL ANALYSIS OF THE ECTODOMAIN OF THE ANTI-VIRAL PROTEIN BST-2**
Kelly Du Pont, Aidan McKenzie, Samantha Chinn, Dr. Christopher Berndsen
Department of Chemistry and Biochemistry, James Madison University, 901 Carrier Drive, MSC 4501, Harrisonburg, VA 22807

Winners' List

Group HH – Biochemical & Molecular Biology

1st Place **STUDYING THE INTOXICATION PATHWAY OF RECOMBINANT IMMUNOTOXINS BASED ON *PSEUDOMONAS* EXOTOXIN A USING INHIBITORS OF ELONGATION FACTOR 2 KINASE AND FURIN**

Jamy Therres¹ and John E. Weldon, Ph.D.^{1,2}

¹Molecular Biology, Biochemistry, and Bioinformatics Program Towson University, 8000 York Road, Towson, MD 21252

²Department of Biological Sciences, Towson University, 8000 York Road, Towson, MD 21252

2nd Place **IDENTIFYING INTERACTION PARTNERS AMONG MEMBRANE-ASSOCIATED PROTEINS OF THE BMP SIGNALING PATHWAY IN *CAENORHABDITIS ELEGANS***

Neta Shwartz¹, Herong Shi², and Jun Kelly Liu²

¹Department of Biological Sciences, Towson University, 8000 York Road, Towson, MD 21252

²Department of Molecular Biology and Genetics, Cornell University, Ithaca, NY 14853

Group II – Biochemical & Molecular Biology

1st Place **INVESTIGATING THE MECHANISM OF CALCIUM METAL ION CATALYZED RNA PHOSPHODIESTER CLEAVAGE**

Saif Yasin, Kyle Messina, and Dr. Adam Cassano

Department of Biochemistry and Molecular Biology, Drew University,

36 Madison Avenue, Madison, NJ 07005

2nd Place **EXPRESSION AND PURIFICATION OF *DICTYOSTELIUM DISCOIDEUM* DDB_G0278957 PROTEIN, A PUTATIVE MRNA DECAPPING ENZYME**

Anna Kokubu, Caitlin Pozmanter, and Susan Parrish

Department of Biology, McDaniel College, 2 College Hill, Westminster, MD 21157

Group JJ – Biochemical & Molecular Biology

1st Place **DEVELOPMENT OF A MONOCLONAL ANTIBODY AGAINST THE CHOLECYSTOKININ-2 RECEPTOR**

Evan Shirey and John F. Harms

Department of Biological Sciences, Messiah College, Mechanicsburg, PA 17055

2nd Place **STRUCTURAL ELUCIDATION OF THE IG59 DOMAIN OF OBSCURIN**

Rachel Policke, Matt Oehler, Tracy Caldwell, Dr. Chris Berndsen, and Dr. Nathan Wright

Department of Chemistry and Biochemistry, James Madison University,

800 South Main Street, Harrisonburg, VA 22801
