

***7th ANNUAL UNDERGRADUATE
RESEARCH SYMPOSIUM IN THE
CHEMICAL AND BIOLOGICAL
SCIENCES***

Hosted by

**Department of Chemistry and Biochemistry
Department of Biological Sciences
University of Maryland, Baltimore County**

Saturday, October 16, 2004



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(NIGMS)***

**7th Annual Undergraduate Research Symposium
in the
Chemical and Biological Sciences**

Poster Session I

(A) Chemical Sciences 1

1st Place NANOSCALE FIBEROPTIC PROBES FOR REAL-TIME CHEMICAL IMAGING

Gregory J. Gibson, Mikella E. Hankus, *Brian M. Cullum**
Department of Chemistry and Biochemistry, University of Maryland,
Baltimore County, 1000 Hilltop Road, Baltimore, Maryland 21250

2nd Place HPLC-DAD AND CHEMOMETRIC ANALYSIS OF NINE AMPHETAMINES

Hope P. Bailey
Sarah Graham-Porter and Sarah C. Rutan
Department of Chemistry, Virginia Commonwealth University,
Richmond, Virginia 23284-2006

(B) Chemical Sciences 2

1st Place THE EFFECTS OF NATURAL AND SYNTHETIC IMPURITIES ON URIC ACID CRYSTAL GROWTH

Catherine E. Ford, Ryan E. Sours
Jennifer A. Swift
Chemistry Department, Georgetown University,
37th and O Sts., NW, Washington, DC, 20057

2nd Place SPECTROSCOPIC STUDIES OF LIQUID SOLUTIONS OF PYRIDOXALIDENEASPARGINATE OF EUROPIUM AND SILVER NANOPARTICLE AGGREGATES

Martin Codrington*, C. Davison, G. Zhu, M. Bahoura, *M. A. Noginov*
Center for Materials Research, Norfolk State University
700 Park Avenue, Norfolk, VA 23504
*Department of Chemistry, Morgan State University
1700 E. Coldspring Ln., Baltimore, MD 21251

(C) Chemical Sciences 3

1st Place MÖSSBAUER SPECTROSCOPY OF MODEL COMPLEXES
FOR Fe-HYDROGENASES

DeHont, Raymond*; Chiarella, Gina[#]; Malgarejo, Doris; Koch, Stephen[#];
Popescu, Codrina V.*

Dr. Codrina Popescu

*Department of Chemistry, Ursinus College, 601 E. Main St.,
Collegeville, PA 19464.

[#]Department of Chemistry, SUNY at Stony Brook, Stonybrook, NY
11794

2nd Place RUTHENIUM MEDIATED GUANINE OXIDATION IN REVERSE
MICELLES

Soe Mon

*Veronika Szalai**

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

(D) Chemical Sciences 4

1st Place BINDING SPECIFICITY IN TRANSITION METAL COORDINATED
HETEROCYCLES

Yogesh Surendranath, Hill Harman

Dean Harman

Department of Chemistry, University of Virginia,
Charlottesville, VA 22908

2nd Place EPITAXIAL RELATIONSHIPS BETWEEN URIC ACID CRYSTALS AND
MINERAL SURFACES

Caitlin E. Fogarty, M. Crina Frincu, *Jennifer A. Swift*

Department of Chemistry, Georgetown University
3700 O St NW, Washington DC 20057

(E) Biological Sciences 1

1st Place HEPATIC AND MESENTERIC ADIPOSE 11 β -HYDROXYSTEROID DEHYDROGENASE 1 MRNA IN OBESE AND LEAN ZUCKER RATS

J. Moore, E. Zager, *T.W. CASTONGUAY*
Biology Departmental Honors/Department of Nutrition and Food Science,
University of Maryland College Park, MD 20742

2nd Place IDENTIFICATION AND CHARACTERIZATION OF CADHERINS INVOLVED IN NEURULATION IN *DANIO RERIO*

Oni Mapp, Keisha John, and *Rachel Brewster*
Department of Biological Sciences, University of Maryland Baltimore
County, 1000 Hilltop Circle, Baltimore, MD 21250

(F) Biological Sciences 2

1st Place THE COMBINED EFFECTS OF D-GLUCOSE AND SUBDIAPHRAGMATIC VAGOTOMY ON RAT PERFORMANCE IN THE 8-ARM RADIAL MAZE

Mary Guldin, Stephen Albers, Cobbina Benson, Lesia Denysyk, Marie Neyer, Melissa Rutsch, *Dr. Cheryl Talley, PhD*
School of Psychology, MSC 7401, James Madison University,
Harrisonburg, VA 22801

2nd Place A BIOINFORMATICS APPROACH TO TEST SERUM BIOMARKERS FOR THE DIAGNOSIS OF ECTOPIC PREGNANCIES

A. Amoako,^a *G. L. Gerton*,^{b,c} *X. J. Fan*,^b *A. Hummel*,^{c,d} *Strauss J. F.*^{b,c} and *K. T Barnhart*.^{b,c,d} Center for Research on Reproduction and Women's Health, , University of Pennsylvania Medical Center, Philadelphia, PA.
^a *Delaware State University*
^b *Center for Research on Reproduction and Women's Health*
^c *Department of Obstetrics and Gynecology, and*
^d *Center for Clinical Epidemiology and Biostatistics, University of Pennsylvania Medical Center, Philadelphia, Pennsylvania 19104-6080, USA*

(G) Biological Sciences 3

1st Place GAP JUNCTIONAL INTERCELLULAR COMMUNICATION AND HUMAN MESENCHYMAL STEM CELL DIFFERENTIATION

Josh Olsen*
Ryan C. Riddle[#], *Henry J. Donahue*[#]
*Department of Chemistry and Biochemistry, Messiah College, Grantham, PA [#]Department of Orthopaedics and Rehabilitation, Pennsylvania State University College of Medicine, Hershey, PA

2nd Place ESTRADIOL UPREGULATED ESTROGEN RECEPTOR ALPHA IN MURINE SPLENOCYTES

Ryan Lenhart, Brett Scipioni, Hestia Mellert, Derese Getnet, and *Rebecca A. Roberts*

Department of Biology, Ursinus College, Collegeville PA 19426

(H) Biological Sciences 4

1st Place TIME LAPSE MICROSCOPY AND MOTION ANALYSIS OF GLIOMA TUMOR CELLS

Joseph S. Fotos

Deni S. Galileo

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

2nd Place THE INTERACTION OF *cdk-1* AND *spd-1* IN C.ELEGANS EMBRYOS

Victoria N. Mdoe¹, Koen Verbrugghe², and *John White*²

Delaware State University, Dover DE 19901¹, University of Wisconsin-Madison² 1525 Linden Drive 227 Bock Labs Madison, WI 53706

(I) Biological Sciences 5

1st Place HLH-29 AFFECTS NORMAL VULVA DEVELOPMENT IN C. ELEGANS

Denise N. Sims, *Casonya Johnson*

Department of Biology, Morgan State University, 1700 E. Coldspring Lane, Baltimore, MD 21251

2nd Place SYSTEMATIC REVISION OF THE COSSULINAE (LEPIDOPTERA: COSSIDAE) OF COSTA RICA

S. Davis, *C. Mitter*, *P. Gentili-Poole*

University of Maryland, College Park, MD, 20742

(J) Biological Sciences 6

1st Place CD4⁺ AND CD8⁺ T CELLS RESPONDING TO DENDRITIC CELLS TRANSFECTED WITH *in vitro* TRANSCRIBED (IVT)-RNA ENCODING MELANOMA ANTIGEN Melan-A/MART-1

Seth M. Miller^{1,2}, Tuan N. Truong³, David W. O'Neill³, and *Nina Bhardwaj*³

¹Department of Biological Sciences, University of Maryland, Baltimore County (UMBC), 1000 Hilltop Circle, Baltimore, MD 21250, ²New York University School of Medicine- Sackler Institute- Summer Undergraduate Research Program (SURP), ³New York University Cancer Institute Tumor Vaccine Center, New York University School of Medicine, 550 First Avenue, New York, NY 10016

2nd Place 2-METHOXYESTRADIOL-INDUCED APOPTOSIS OF HUMAN LEUKEMIA CELLS

Charles Lin
Carthene R. Bazemore-Walker

Department of Chemistry, University of Virginia, McCormick Road, PO Box 400319, Charlottesville, Virginia 22904

(K) Biochemistry and Molecular Biology 1

1st Place MUTATIONAL ANALYSIS OF THE SH3 DOMAIN OF BRUTONS TYROSINE KINASE

Christine M. Colton and Carol Caballero (*Rosa E. Rivera-Hainaj*),
Department of Chemistry, James Madison University, Harrisonburg, VA 22807

2nd Place HUNT FOR MUTANTS THAT REVERT THE SLOW GROWTH PHENOTYPE OF E. COLI SEQA MUTANTS

Kimberly A. McDowell
Therese Brendler

Lycoming College, 700 College Place, Williamsport, PA 17701

(L) Biochemistry and Molecular Biology 2

1st Place THE DEVELOPMENT OF A REAL-TIME REVERSE TRANSCRIPTION POLYMERASE CHAIN REACTION ASSAY TO DISTINGUISH BETWEEN THE DWARFING AND YELLOWING STRAINS OF THE SOYBEAN DWARF VIRUS

Cavita K. Chotoo, Oney P. Smith, *Ph.D.*
Department of Biology · Hood College
401 Rosemont Avenue · Frederick, MD 21701

2nd Place THE STUDY OF THE PROTEIN POP4 INTERACTION WITH RNASE MRP PURIFICATION OF POP4 FROM ESCHERICHIA COLI

Bryan R. Zuniga, Lasse Lindahl, Sephorah Zaman, Janice M. Zengel
Department of Biology, University of Maryland Baltimore County, 1000 Hilltop Circle, Baltimore, MD, 21250

(M) Biochemistry and Molecular Biology 3

1st Place ENGINEERING THE CHEMOKINE RECEPTOR PROTEIN, CXCR2, ONTO THE HUMAN NK CELL LINE

Ashwin Singh
Howard A. Young
National Cancer Institute, Center for Cancer Research, Laboratory of Experimental Immunology, Frederick, MD 21702

2nd Place *SOX21* AND *SOX18* EXPRESSION IN THE EARLY DEVELOPMENTAL STAGES OF *XENOPUS LAEVIS*

Sabrina Walborn¹, Chi Zhang², & *M.W. Klymkowsky*²
¹University of Maryland, Baltimore County, 1000 Hilltop Circle, Baltimore, MD 21250
²Molecular, Cellular, and Developmental Biology, University of Colorado, Boulder, Boulder, CO 80309

(N) Biochemistry and Molecular Biology 4

1st Place DEVELOPMENT OF COMPUTATIONAL TOOLS FOR PREDICTING G-QUADRUPLEX FORMING MOTIFS IN MAMMALIAN TRANSCRIPTS

Rumen Kostadinov, Lawrence D'Antonio and Paramjeet Bagga
TAS-Bioinformatics, Ramapo College of New Jersey, Mahwah, NJ, 07430

2nd Place **HOMOLOGY MODELING OF MELATONIN RECEPTORS**

Andrew S. Kohlway^{1,2}, *Jeffry D. Madura*³

¹Bioengineering and Bioinformatics Summer Institute, Center for Computational Biology and Bioinformatics, University of Pittsburgh, Pittsburgh, PA 15261

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

³Department of Chemistry and Biochemistry, Center for Computational Sciences, Duquesne University, Pittsburgh PA 15282

(O) Biochemistry and Molecular Biology 5

1st Place **THE EFFECTS OF REMOVING THE AMMONIA-GENERATING GAT DOMAIN FROM *E. COLI* GMP SYNTHETASE**

Jessica L. Abbott*, Melanie A. Weller* and Mary E. Olanich*
*Sidney Pollack** and *Walter A. Patton*[#]

Departments of Biology* and Chemistry[#], Lebanon Valley College,
101 N. College, Ave., Annville, PA 17003-1400

2nd Place **DEVELOPMENT OF A NEW CELL LINE USED TO SCREEN FOR UPSTREAM STIMULATORY FACTOR (USF) MODULATING PROTEINS**

Sarah R. Dryer

Dwayne W. Boucaud, Ph.D.

Department of Natural Sciences, University of Maryland Eastern Shore,
1 Backbone Rd., Princess Anne, Md, 21853

(P) Biochemistry and Molecular Biology 6

1st Place **PROGRESS TOWARDS ROUS SARCOMA VIRUS GENOME PACKAGING**

Yogita Tailor¹, Jing Zhou¹, Kyle McAllen¹, and Chad McCormick¹.
Dr. Michael Summers.¹

¹Howard Hughes Medical Institute and Department of Chemistry and Biochemistry, University of Maryland, Baltimore County (UMBC).
1000 Hilltop Circle Baltimore, MD 21250

2nd Place

DEVELOPMENTAL EXPRESSION PATTERN OF JUNCTIONAL
ADHESION MOLECULE-A (JAM-A): EXPRESSION DURING EARLY
ORGANOGENESIS

James J. Parris¹, Vesselina G. Cooke¹, William C. Skarnes², Melinda K.
Duncan¹, and *Ulhas P. Naik*¹

¹Department of Biological Sciences, University of Delaware, Newark, DE
19716

²The Wellcome Trust Sanger Institute, Hinxton, Cambridge, UK

**7th Annual Undergraduate Research Symposium
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Poster Session II

(A) Chemical Sciences 1

1st Place SYNTHESIS OF MINIMAL ANALOGS OF UK-1. STRUCTURE-ACTIVITY RELATIONSHIPS FOR TOPOISOMERASE II INHIBITORS

Nguyen K. Nguyen, *Paul J. Smith*, and David Gerrish
Department of Chemistry and Biochemistry, University of Maryland,
Baltimore County, 1000 Hilltop Circle, Baltimore, MD 21250, USA

2nd Place COMPARISON OF METHODS FOR THE SYNTHESIS OF CIS-SUBSTITUTED ALKENES

T. Grove, D. DiLella, *E. J. Volker*,
Department of Chemistry, Shepherd College
Shepherdstown, WV 25443

(B) Chemical Sciences 2

1st Place CARBOCYCLIC "FLEXIMERS": THE DESIGN AND SYNTHESIS OF A NEW CLASS OF SHAPE-MODIFIED NUCLEOSIDES.

Alexandra Clark, Sylvester L. Mosley, Samer Salim, *Dr. Katherine Seley*
Department of Chemistry and Biochemistry, University of Maryland,
Baltimore County, 1000 Hilltop Circle, Baltimore, MD 21250

2nd Place REGIOSELECTIVITY OF ORGANOZINC-BROMOQUINONE ALKYLATIONS

Johanna M. Scarino
Carl T. Wigal
Department of Chemistry, Lebanon Valley College, Annville, PA 17003

(C) Chemical Sciences 3

1st Place SYNTHESIS AND STRUCTURAL DETERMINATION OF NOVEL LANTHANUM AND COPPER PHOSPHONATES

Brent Toland

Barbara Reisner

Department of Chemistry, James Madison University, 800 South Main Street, Harrisonburg, Va, 22807

2nd Place A MOLECULAR BEAD-BASED METHOD FOR IDENTIFYING PARASITIC WASPS

Elizabeth Ferry

Mary Lowe

Department of Physics, Loyola College in Maryland
4501 N Charles St, Baltimore, Maryland 21210

(D) Biological Sciences 1

1st Place DETECTION OF CLASS 1 INTEGRONS FROM *ESCHERICHIA COLI* ISOLATES FROM KNOWN FECAL SOURCES

Richard Swao

Dr. James B. Herrick

Department of Biology, James Madison University,
MSC 7801, Harrisonburg, Virginia 22807

2nd Place CLASSIFICATION VARIABILITY BETWEEN ENTEROCOCCI FROM THE CHENANGO WATERSHED IN N.Y. AND A REGIONAL MULTI-WATERSHED LIBRARY.

John Weeks

Dr. Bruce Wiggins

Biology, James Madison University
800 S. Main Street Harrisonburg, VA 22807

(E) Biological Sciences 2

1st Place OPIATE MODULATION OF GUSTATORY ANALGESIA IN NEONATES SUBMITTED TO ACUTE AND CHRONIC PAIN MODELS

Andrew Aladi¹, Ke Ren², Ronald Dubner², Vanessa C. Z. Anseloni²

¹Department of Biological Sciences, UMBC, Baltimore, MD 21250;

²Department of Biomedical Sciences, Dental School, Program in Neuroscience, University of Maryland, Baltimore, MD, 21201

2nd Place THE EFFECT OF THE PERCEPTION OF BLOOD ON LEECH BEHAVIORAL RESPONSIVENESS

Ghazal Zekavat, Maureen Convery, and *Peter D. Brodfuehrer*
Department of Biology, Bryn Mawr College, Bryn Mawr, PA 19010

(F) Biological Sciences 3

1st Place THE DEVELOPMENT OF MICROSATELLITE DNA MARKERS IN SILVER HAKE (*MERLUCCIOUS BILINEARIS*) AND TAUTOG (*TAUTOGA ONITIS*)

Coleman, Claire, Immaculata University 1145 King Road, Immaculata, PA 19345
Mary L. Higham, The Wetlands Institute, William C. Phoel, Undersea Research Foundation Inc., and *Peter F. Straub*, Richard Stockton College of NJ

2nd Place CROWDING IN EARLY LIFE CAUSES DEFORMITIES IN INSECTS

Alexander Bohorquez, Christopher Wells, *Dr. Frank Hanson*
Department of Biological Sciences
University of Maryland, Baltimore County
1000 Hilltop Circle
Baltimore, MD 21250

(G) Biological Sciences 4

1st Place INVESTIGATING THE ROLE OF TRANSPOSONS IN LATERAL GENE TRANSFER AMONGST HYPERTHERMOPHILES

Sulagna Ghosh
Jocelyne DiRuggiero
Cell Biology and Molecular Genetics, College Of Life Sciences
University of Maryland, College Park, MD 20742, USA 301.405.1000

2nd Place OXIDATIVE STRESS DURING INTESTINE REMODELING IN INTESTINE OF ANURAN TADPOLES, *XENOPUS LAEVIS*.

Frank Militello, Darci Gresko and *Jaishri Menon*
Department of Biology, William Paterson University of New Jersey,
Wayne, NJ

(H) Biological Sciences 5

1st Place THE ROLE OF OLFACTION IN INSECT FEEDING BEHAVIOR

Carlos Uquillas, Marc Rowley, *Frank Hanson*
Department of Biological Sciences, UMBC

2nd Place TEMPORAL TRENDS OF TRACE ELEMENT LEVELS IN
MACROINVERTEBRATES FROM STORMWATER RETENTION PONDS

Stephanie N. Atueyi¹, Judith A. Simon², Joel W. Snodgrass², Ryan E.
Casey¹
¹Department of Chemistry, ²Department of Biological Sciences, Towson
University, Towson, MD 21252

(I) Biological Sciences 6

1st Place ANALYSIS OF TUBULIN ACETYLTATION AND ITS EFFECT ON
ASYMMETRIC DIVISION IN *V. carteri*

Eric M. Balzer¹, *Stephen M. Miller*¹
Department of Biological Sciences, University of Maryland, Baltimore
County, Baltimore, MD 21250

2nd Place LOCAL ADAPTATION IN SERPENTINE AND NON-SERPENTINE
POPULATIONS OF THE LYRE-LEAVED ROCK CRESS: EARLY LIFE
HISTORY TRAITS.

Michael Lloyd
Bernadette Roche
Biology Department, Loyola College, 4501 N. Charles Street, Baltimore,
MD 21210

(J) Biochemistry and Molecular Biology 1

1st Place CYCLIZATION OF DIUBIQUITIN

Bryan Dickinson, Ranjani Varadan and *David Fushman*
Department of Chemistry and Biochemistry, Center of Biomolecular
Structure and Organization, University of Maryland, College Park, MD
20740

2nd Place ANALYSIS OF THE HUMAN PRP18 AND SLU7 SPLICING FACTORS IN *SACCHAROMYCES CEREVISIAE*

Patrice N. Cook
Beate Schwer

Department of Microbiology and Immunology, Weill Medical College of
Cornell University, 1300 York Avenue New York, NY 10021

(K) Biochemistry and Molecular Biology 2

1st Place STRUCTURAL ORGANIZATION IN *E. COLI* GMP SYNTHETASE

Jordan M. Newell*, Danielle T. Loughlin[#]
Walter A. Patton[#]

Departments of Biology* and Chemistry[#], Lebanon Valley College
101 N. College, Ave., Annville, PA 17003-1400

2nd Place INVESTIGATING INTERACTIONS BETWEEN THE BLOOD-CLOTTING
ENZYME THROMBIN AND FIBRINOPEPTIDE B-LIKE MODELS BY
KINETIC AND NMR METHODS

Sheila M. Hovi¹, Lindsay L. Baglini¹, *Giulia Isetti²*, *Muriel C. Maurer²*
and *Toni A. Trumbo¹*

¹Department of Chemistry, Bloomsburg University of Pennsylvania,
Bloomsburg PA 17815

²Department of Chemistry, University of Louisville, Louisville KY 40292

(L) Biochemistry and Molecular Biology 3

1st Place MONITORING THE EFFECTS OF MUTATIONS IN CONSERVED REGION
IV OF RNASE MRP IN *SACCHROMYCES CEREVISIAE*

Adrienne K. Jones¹
Dr. Janice M. Zengel² and *Dr. Lasse Lindahl²*

¹Department of Natural Sciences, University of Maryland Eastern Shore,
1 Backbone Road, Princess Anne, Maryland 21853

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

2nd Place THE EFFECTS OF MUTATIONS IN CONSERVED REGION IV OF RNA OF RNASE MRP WITHIN *SACCHAROMYCES CEREVISIAE*

Miriam Khan

Lasse Lindahl, Jan Zengel

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

(M) Biochemistry and Molecular Biology 4

1st Place INITIAL STAGES OF AMYLOID- β AGGREGATION REVEALED BY ELECTRON PARAMAGNETIC RESONANCE SPECTROSCOPY

Olusegun Williams, Veronika A. Szalai*

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

2nd Place THE EFFECT OF HEAT SHOCK ON MATRIX METALLOPROTEINASE-2 INDUCTION IN HUMAN GLIOMA CELL LINES

Stephanie Harris and Alissa Maul

Valerie M. Kish, Ph.D.

Department of Biology, University of Richmond
28 Westhampton Way, Richmond, VA 23173

(N) Biochemistry and Molecular Biology 5

1st Place BIOCHEMICAL PROPERTIES OF *N*-ACETYLGLUTAMATE SYNTHASE IN PATIENTS WITH LATE-ONSET *N*-ACETYLGLUTAMATE DEFICIENCY

Giselle Y. López,¹ Ljubica Caldovic,² Hiroki Morizono,² Maria G. Panglao,² Mendel Tuchman,² and *Norma Allewell*¹

¹College of Life Sciences, University of Maryland, College Park, MD;

²Children's Research Institute, Children's National Medical Center, the George Washington University, Washington, D.C.

2nd Place PROFILING KINASE ACTIVITY IN PROSTATE TUMOR CELL LINES BY IN-GEL KINASE ASSAY

Vera Wubah¹, Xiang Li², *Charles J. Bieberich*²

¹James Madison University, Harrisonburg, VA,

²University of Maryland, Baltimore County, Baltimore, MD

(O) Biochemistry and Molecular Biology 6

1st Place AN ENZYME-COUPLED CONTINUOUS SPECTROPHOTOMETRIC ASSAY FOR S-ADENOSYLHOMOCYSTEINE/5'-METHYLTHIOADENOSINE NUCLEOSIDASE

Erin L. Karschner, Lycoming College; DonRaphael P. Wynn, and *Zhaohui Sunny Zhou*,
Washington State University, Summer Undergraduate Research Fellowship in Pharmacology and Toxicology
Department of Chemistry and School of Molecular Biosciences
Washington State University, Pullman, WA 99164

2nd Place USING A NEW GLUTAMINE AMIDOTRANSFERASE ASSAY TO STUDY THE CONFORMATIVE RESPONSE IN *E. COLI* GMP SYNTHETASE

Yun K. Kwon
Owen A. Moe
Department of Chemistry, Lebanon Valley College, Annville, PA 17003

(P) Biochemistry and Molecular Biology 7

1st Place TARGETED PROTEIN DEGRADATION IN MAMMALIAN CELLS

Oladapo Yeku¹, *Michael Frohman* ² and Guangwei Du².
¹Department of Biology Medgar Evers College, Brooklyn, NY, USA,
²SUNY at Stony Brook, Stony Brook, NY, USA.

2nd Place UNDERSTANDING TRANSCRIPTIONAL CHANGES IN THE NITRIC OXIDE SYNTHASE I GENE USING A PC12 CELL MODEL

Amir Abyaneh, Angela Kelley
Dr. Terrie Rife
Biology Department, James Madison University
MSC 7801, Harrisonburg, VA 22807