

2008 (January - August)

Student Presentations: *undergraduate; presenter.

Professional Meetings:

C. D. Girten*; J. R. Helton*; H. A. Bullen; K. A. Walters “Continued Synthesis of Surface Modified PAMAM Dendrimers for Use as a Drug Delivery System,” ACS National Conference, New Orleans, LA, April 2008.

C. A. Morris*; J. M. Baumann*; K. A. Walters “New Synthetic Approaches for Development of Fullerene-Transition Metal Supramolecular Systems and Molecular Wire Precursors,” ACS National Conference, New Orleans, LA, April 2008.

J. M. Baumann*; C. A. Morris*; K. A. Walters “NKU Developments in Fullerene-Transition Metal Supramolecular Systems and Molecular Wire Precursors,” ACS National Conference, New Orleans, LA, April 2008.

C. D. Girten*; S. M. Goins*; C. P. Miller*; C. A. Morris*; R. A. Seger*; H. A. Bullen; K. A. Walters “New Methods for SAACS Outreach and Chapter Development at NKU,” ACS National Conference, New Orleans, LA, April 2008.

Drake*, A.L.; Lagadic, I. and Richardson, J. N. "Detection of Lead in Environmental Water Samples Using an Organoclay Attenuated Total Reflectance Sensor" *235th ACS National Meeting*, April 6-10, 2008 – New Orleans, LA (Poster)

C. A. Morris*, G. D. Girten*, S. M. Goins*, C. P. Miller*, R. A. Seger*, H. A. Bullen, K. A. Walters, Sean M.; Miller, Christopher P.; Seger, Rebecca A.; Bullen, Heather A.; Walters, Keith A. “New methods for SAACS outreach and chapter development at NKU.” Abstracts of Papers, 235th ACS National Meeting, New Orleans, LA, United States, April 6-10, 2008 (2008).

C. D. Girten*, J. R. Helton*, H. A. Bullen; K. A. Walters. Continued synthesis of surface-modified PAMAM dendrimers for use as a drug delivery system. Abstracts of Papers, 235th ACS National Meeting, New Orleans, LA, United States, April 6-10, 2008 (2008).

W. Schmidt*, Stephanie Proctor, * H. A. Barton, H. A. Bullen. “Surface analysis of the role of siderophores in biofilm formation.” Pittcon Conference, New Orleans, LA, March 2008. (Poster)

B. Hemmerle*, R. A. Wilson*, H.A. Barton, H. A. Bullen. “Characterization of Potential Biofouling Resistant Surfaces on Medical Grade Stainless Steel.” Pittcon Conference, New Orleans, LA, March 2008. (Poster)

C. Cason*, T. Fabre* D. A. Tomalia, K. H. Martines, H. A. Bullen. “Characterization of functionalized poly(amidoamine) PAMAM dendrimers as potential drug delivery vectors

across the blood brain barrier.” Pittcon Conference, New Orleans, LA, March 2008. (Poster)

S. Wall,* W. L. Schmidt,* H. A. Barton, H. A. Bullen. “Implication of Siderophores in Bacterial Adhesion onto Metal Oxide Surfaces.” Posters at the Capitol, Frankfurt, KY, Feb. 2008. (Poster)

Morris, C. A.,* Baumann, J. M.*, Walters, K. A., "New Synthetic Approaches for Development of Fullerene-Transition Metal Supramolecular Systems and Molecular Wire Precursors," ACS National Conference, New Orleans, LA, April 2008.

Baumann, J. M.*, Morris, C. A.* , Walters, K. A. "NKU Developments in Fullerene-Transition Metal Supramolecular Systems and Molecular Wire Precursors," ACS National Conference, New Orleans, LA, April 2008.

Campus Presentations:

Reis*, N.; Hoffman*, B. and Lagadic, I."Mesoporous Organosilicate-based Carriers for Chemotherapy Drug Delivery: Loading and Release of Doxorubicin" *Merck/AAAS & KBRIN Interdisciplinary Summer Research Celebration*, September 5, 2008 – Northern Kentucky University, Highland Heights, KY (Poster)

Reis*, N.; Hoffman*, B. and Lagadic, I."Mesoporous Organosilicate-based Carriers for Chemotherapy Drug Delivery: Synthesis & Characterization" *Merck/AAAS & KBRIN Interdisciplinary Summer Research Celebration*, September 5, 2008 – Northern Kentucky University, Highland Heights, KY (Poster)

Morgan*, T. and Lagadic, I. "Investigation of the Direct Synthesis of Polyimide-Organoclay Nanocomposites" *Merck/AAAS & KBRIN Interdisciplinary Summer Research Celebration*, September 5, 2008 – Northern Kentucky University, Highland Heights, KY (Poster)

A. Haskamp,* Z. Syed,* H. A. Barton, H. A. Bullen. “Evaluation of functionalized oligo(ethylene glycol) coatings as biofouling resistant surfaces.” Merck/AAAS/KBRIN Interdisciplinary Summer Research Celebration, Highland Heights, KY, Sept. 5, 2008. (Poster)

A. Haskamp,* C. Cason,* M. Hestor, B. Rossow, K. H. Martines, K. Walters, H. A. Bullen. “Developing analytical techniques to investigate dendrimer interactions with the blood brain barrier.” Merck/AAAS/KBRIN Interdisciplinary Summer Research Celebration, Highland Heights, KY, Sept. 5, 2008. (Poster)

S. Wall,* H. Barton, H. A. Bullen. “Impact of Metal/Aqueous Interfaces on Biofilm Formation: Probing the Role of Siderophores.” Merck/AAAS/KBRIN Interdisciplinary Summer Research Celebration, Highland Heights, KY, Sept. 5, 2008. (Poster)

C. Cason,* A. Haskamp,* K. H. Martines, K. Walters, and H. A. Bullen. “Examination of Novel nanomaterials using Langmuir-Blodgett Techniques.” Merck/AAAS/KBRIN Interdisciplinary Summer Research Celebration, Highland Heights, KY, Sept. 5, 2008. (Poster)

W. Schmidt,* H. Barton, H. A. Bullen. “Surface Analysis of the Role of Pyoverdin Siderophores in Biofilm Formation of *Pseudomonas aeruginosa* on Metal Oxide Substrates.” Merck/AAAS/KBRIN Interdisciplinary Summer Research Celebration, Highland Heights, KY, Sept. 5, 2008. (Poster)

H. Urcia,* H. A. Barton, H. A. Bullen. “Surface complexation of hydroxamate siderophores models on metal oxide surfaces.” Merck/AAAS/KBRIN Interdisciplinary Summer Research Celebration, Highland Heights, KY, Sept. 5, 2008. (Poster)

M. Hester,* B. Rossow,* J. Patton, H. A. Bullen, K. H. Martines. “Passage of G4 biotinylated PAMAM dendrimers across an *in vivo* model of the blood-brain barrier.” Merck/AAAS/KBRIN Interdisciplinary Summer Research Celebration, Highland Heights, KY, Sept. 5, 2008. (Poster)

B. Rossow,* M. Hester,* C. Hargrove,* C. Cason,* H. A. Bullen, K. H. Martines. "Analysis of G4 biotinylated PAMAM dendrimer transport through bend.3 endothelial cells with astrocytes." NKU Celebration of Student Research and Creativity April 2008. (Poster)

C. Girten,* H. A. Bullen, K. A. Walters. "Continued synthesis of poly(amido) amine dendrimers for use as a novel drug delivery system." NKU Celebration of Student Research and Creativity April 2008. (Poster)

M. Hester,* B. Rossow,* C. Hargrove,* C. Cason,* H. A. Bullen, K. H. Martines. "Passage of G5 biotinylated PAMAM dendrimers across an immortalized endothelial cell line model of the blood brain barrier." NKU Celebration of Student Research and Creativity April 2008. (Oral)

W. Schmidt,* S. Wall,* Sara Sadat-Hossieny,† Sabira Sadat-Hossieny,† H. A. Barton, H. A. Bullen. "Surface analysis of the role of siderophores in biofilm formation." NKU Celebration of Student Research and Creativity April 2008. (Poster)

B. Hemmerle,* H.A. Barton, H. A. Bullen. "Characterization of Potential Biofouling Resistant Surfaces on Medical Grade Stainless Steel." NKU Celebration of Student Research and Creativity April 2008. (Poster)

C. Cason,* K. H. Martines, H. A. Bullen. "Characterization of functionalized poly(amidoamine) PAMAM dendrimers as potential drug delivery vectors across the blood brain barrier." NKU Celebration of Student Research and Creativity April 2008. (Poster)

S. Wall,* W. L. Schmidt,* Sara Sadat-Hossieny,† Sabira Sadat-Hossieny,† H. A. Barton, H. A. Bullen. "Implication of Siderophores in Bacterial Adhesion onto Metal Oxide Surfaces." NKU Celebration of Student Research and Creativity April 2008. (Poster)

FACULTY SCHOLARSHIP

PRESENTATIONS:

K. A. Walters "Achieving Inorganic Nirvana at NKU," ACS National Conference, New Orleans, LA, April 2008.

H. A. Bullen. "Utilization of problem-based e-learning modules for undergraduate instruction in analytical chemistry." 20th Biennial Conference on Chemical Education, Bloomington, IN, July 27-31, 2008.

H. A. Bullen and K. A. Walters. "Introducing undergraduates to nanomaterials: Development of a one week intersession course at NKU." 20th Biennial Conference on Chemical Education, Bloomington, IN, July 27-31, 2008.

D. McGill. "Chemical information and writing course: lessons to share" 20th Biennial Conference on Chemical Education, Bloomington, IN, July 27-31, 2008.

Paula, S. "Design of Novel Hydroquinone-Based Inhibitors of the Sarco/Endoplasmic Reticulum Calcium-ATPase," Department of Chemistry, University of Cincinnati, Cincinnati, OH. February, 2008 (Invited Seminar).

PUBLICATIONS: *undergraduate

M. Lape*, C. Elam*, M. Versluis*, R. Kempton, and S. Paula. Molecular determinants of sarco/endoplasmic reticulum calcium ATPase inhibition by hydroquinone-based compounds. *Proteins: Structure, Function, and Bioinformatics* **2008** 70: 639-649.

H. A. Bullen, S. A. Oehrle, A. F. Bennett*, N. M. Taylor* and H. A. Barton "The Use of Attenuated Total Reflectance Fourier Transformed Infrared (ATR-FTIR) Spectroscopy to Identify Microbial Metabolic Products on Carbonate Mineral Surfaces" *Appl. Environ. Microbiol.* **2008** 74: 4553-4559.

J. R. Deye*; A. N. Shiveley*; S. M. Goins*; L. Rizzo*; S. A. Oehrle; K. A. Walters "Synthesis of a New Ligand for Transition-Metal Fullerene Supramolecular Systems," *Inorg. Chem.*, **2008**, 47, 23-25.

M. G. Lauer*; J. W. Leslie*; A. Mynar*; S. A. Stamper*; A. D. Martinez*; A. J. Bray*; S. Negassi*; K. McDonald*; E. Ferraris*; A. Muzny*; S. McAvoy*; E. Wang; B. Nuez; C. Parish; K. A. Walters; K. C. Russell "Synthesis, Spectroscopy, and Theoretical Calculations for a Series of Push-Pull [14]-pyridoannulenes," *J. Org. Chem.*, **2008**, 73, 474-484.

J.R. Deye*, A. N. Shiveley*, S. A. Oehrle, K. A. Walters. "Separation of substituted fullerenes using non-aqueous reversed-phase liquid chromatography-mass spectrometry". *J. Chromatog. A* **2008** 1181:159-161.

C. A. Cason,* S. A. Oehrle, T. Fabre,* C. D. Girten,* K. A. Walters, D. A. Tomalia, K. H. Martines, H. A. Bullen. "Improved Methodology for Monitoring Poly(amidoamine) (PAMAM) Dendrimers Surface Transformations and Product Quality" *J. Nanomaterials* **2008**, 2008, Article ID 456082, 1-7.

K. A. Walters, H. A. Bullen. "Development of a Nanomaterials one Week Intersession Course." *J. Chem. Educ.* **2008**. (in press)

J. Nordling, R. L. Millen, H. A. Bullen, M. Tondra, M. Granger, M. D. Porter "Giant Magnetoresistance Sensors: 1. Internally Calibrated Readout of Scanned Magnetic Arrays" *Analytical Chemistry* **2008**. (in press)

R. L. Millen, J. Nordling, H. A. Bullen, M. Tondra, M. Granger, M. D. Porter "Giant Magnetoresistive Sensors: 2. Detection of Biorecognition Events at Self-Referencing and Magnetically Tagged Arrays." *Analytical Chemistry* **2008**. (in press)

S. Paula. Progress in the discovery of SERCA inhibitors (Review). In: Medicinal Chemistry Research Progress. **2008**. *Nova Science Publishers*. (in press)

I. David Reingold, K. C. Russell, Ron Brisbois, Nancy Mills, Tom Mitzel, Kathleen Mondanaro and Jeffrey Katz "Undergraduate Context Sessions: How to Help Undergraduates Get More Out of Professional Meetings." *CUR Quarterly* **2008** 28: 39-41.

2007

Student Presentations: *undergraduate; presenter.

Professional Meetings:

J. R. Deye*; R. A. Wilson*; M. Lauer*; R. A. Seger*; C. A. Morris*; H. A. Bullen; K. A. Walters "New Methods of Membership Recruitment for SAACS at Northern Kentucky University," ACS National Conference, Chicago, IL, March 2007. (Poster)

J. R. Deye*; K. A. Walters "Synthesis of a Novel Fullerene-Bipyridine Ligand for Photoelectric Applications," ACS National Conference, Chicago, IL, March 2007. (Poster)

W. L. Schmidt*, H. A. Bullen. "Catechol siderophore complexation on metal oxide surfaces." ACS National Meeting, Chicago, IL, March 2007. (Poster)

R. A. Wilson*, H. A. Bullen. "Surface modification of stainless steel medical implants for biofouling prevention." ACS National Meeting, Chicago, IL, March 2007. (Poster)

S. Proctor*, H. A. Barton, H. A. Bullen. "Impact of pyoverdinin siderophores extracted from *Pseudomonas aeruginosa* on bacterial adhesion to metal oxides." ACS National Meeting, Chicago, IL, March 2007. (Poster)

C. A. Morris*; K. A. Walters "Developments in Fullerene-Transition Metal Supramolecular Systems and Molecular Wire Precursors," ACS National Conference, Chicago, IL, March 2007. (Poster)

R. A. Seger*; K. A. Walters "Synthesis of a New Isocyanide Ligand for Efficient Photo-induced Charge Transfer Processes Within an Octahedral W(0) Compound," ACS National Conference, Chicago, IL, March 2007. (Poster)

J. D. Hogan*; T. Fabre*; K. A. Walters; K. H. Martines; D. A. Tomalia; H. A. Bullen "ATR-FTIR Analysis of the Interaction of Biotinylated Dendrimers with Blood Brain Barrier Models," ACS National Conference, Chicago, IL, March 2007. (Poster)

Matthew Lauer*, Areej Saqr*, Kristi Martines, Dom Tomalia, K.C. Russell, "Couplings of Surface Groups to Dendrimers Enabling Passage Through the Blood Brain Barrier." 233rd ACS National Meeting. Chicago, IL, March 2007. (Poster)

R. Baldrige, A. Ketron, J. Walter, J. Ledford, D. McGill, K. Martines, and P. Schultheis. Sub-Cellular localization of two P-Type ATPases, Atp13a1 and Atp13a2. National American Chemical Society Meeting, Chicago, March 2007 (Poster)

Mark Seger* and KC Russell, "Synthesis and Properties of Soluble Flavobenzocyclines." 233rd ACS National Meeting. Chicago, IL, March 2007. (Poster)

S. M. Goins*; K. A. Walters "Continued Synthesis of Symmetric and Asymmetric Ligation Points for Organometallic Supramolecular Systems," ACS National Conference, Chicago, IL, March 2007. (Poster)

M. Versluis*, M. Lape, C. Elam, R., and S. Paula. 2007. Synthesis and Evaluation of Novel Hydroquinone Analogues as Inhibitors of the Sarco/Endoplasmic Reticulum Calcium ATPase. National Meeting of the American Chemical Society, Chicago, IL. (Poster)

M. Versluis*, M. Lape, C. Elam, R. Kempton, and S. Paula. 2007. Synthesis and Evaluation of Novel Hydroquinone Analogues as Inhibitors of the Sarco/Endoplasmic Reticulum Calcium ATPase. National Meeting of the American Chemical Society, Chicago, IL. (Poster)

C. D. Girten*; J. R. Helton*; D. A. Tomalia; K. H. Martines; H. A. Bullen; K. A. Walters "Surface Modification of G4 and G5 PAMAM Dendrimers," ACS National Conference, Chicago, IL, March 2007. (Poster)

J. R. Deye*; K. A. Walters "Synthesis of a Novel Fullerene-Bipyridine Ligand for Photoelectric Applications," 39th Central ACS Regional Meeting, Covington, KY, May 2007. (Poster)

C. A. Morris*; K. A. Walters "Developments in Fullerene-Transition Metal Supramolecular Systems and Molecular Wire Precursors," 39th Central ACS Regional Meeting, Covington, KY, May 2007. (Poster)

C. D. Girten*; J. R. Helton*; D. A. Tomalia; K. H. Martines; H. A. Bullen; K. A. Walters "Surface Modification of G4 and G5 PAMAM Dendrimers," 39th Central ACS Regional Meeting, Covington, KY, May 2007. (Poster)

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S. M. O'Connell*, H. A. Barton, H. A. Bullen. "Use of a continuous-flow chamber to evaluate *Pseudomonas aeruginosa* biofilm formation on metal oxide surfaces." ACS Central Regional Meeting, Covington, KY, May 2007. (Poster)

B. Hemmerle*, H. A. Bullen. "Characterization of self assembled monolayers as potential nonbiofouling surfaces." ACS Central Regional Meeting, Covington, KY, May 2007. (Poster)

C. Cason*, J. D. Hogan*, K. H. Martines, H. A. Bullen. "Quantification of PAMAM functionalized dendrimer passage across the blood brain barrier." ACS Central

Regional Meeting, Covington, KY, May 2007. (Poster)

W. L. Schmidt,* H. A. Bullen. "Catecholate siderophore complexation on metal oxide surfaces." ACS Central Regional Meeting, Covington, KY, May 2007. (Poster)

Christopher P. Miller*; (Mentor: K.C. Russell) "Synthesis of electron rich dehydrobenzoannulenes for incorporation into multi-components devices." Kentucky Academy of Science Meeting, Louisville, KY, November 8-10, 2007. (talk: **First Place ~ Undergraduate Research Competition.**)

C. Girten*; K. A. Walters "Surface Modification of PAMAM Dendrimers for Drug Delivery," Kentucky Academy of Science Annual Meeting, Louisville, KY, November 2007. (Poster)

E. Banks* H. A. Bullen and H.A. Barton. "The Potential Role of Carbonic Anhydrase in the Precipitation of Calcite by Microbial Metabolic Activity." Kentucky Academy of Science, 93rd Annual Meeting, University of Louisville, Louisville KY. November 9th 2007.

Jason Beck*, Brice Dunlap, Sara Hitchcock, Kevin McDonald and K.C. Russell; "Synthesis of Novel Asymmetric [14]-pyridoannulenes." Kentucky Academy of Science Meeting, Louisville, KY, November 8-10, 2007

R. Ratliff*, P. Schultheis, and S. Paula. Homology modeling of a P5-type ATPase. Annual Meeting of the Kentucky Academy of Science, Louisville, KY.

K. Evans* and S. Paula. 2007. Preparation of Proteoliposomes for the Study of Ion Transport by P-type ATPases. Annual Meeting of the Kentucky Academy of Science, Louisville, KY.

C. Cason,* K. H. Martines, K. A. Walters, H. A. Bullen. "Characterization of functionalized poly(amidoamine) PAMAM dendrimers as potential drug delivery vectors across the blood brain barrier." Kentucky EPSCOR Conference: Building Team Science, Lexington, KY, October 2, 2007. (Poster)

W. Schmidt,* H. A. Barton, H. A. Bullen. "Surface analysis of the role of siderophores in biofilm formation." Kentucky EPSCOR Conference: Building Team Science, Lexington, KY, October 2, 2007. (Poster)

K. H. Martines, H. A. Bullen, D. Tomalia, M. Hester,* C. Cason,* C. Hargrove.* "Passage of Biotinylated G4 PAMAM Dendrimer Nanoparticles Across an In Vitro Mouse Model of the Blood Brain Barrier. Kentucky EPSCOR Conference: Building Team Science, Lexington, KY, October 2, 2007. (Poster)

R. Wilson,* H. A. Bullen. "Surface Modification of Stainless Steel Medical Implants to Prevent Biofouling." Posters at the Capitol, Frankfort, KY, Feb. 2007. (Poster)

R. Baldrige*, A. Ketron*, J. Walter*, J. Ledford*, D. McGill, K. Martines, and P. Schultheis. Sub-Cellular localization of two P-Type ATPases, Atp13a1 and Atp13a2. Posters at the Capital, Frankfort, KY February 2007 (Poster)

Campus Presentations:

Matthew Lauer, Areej Saqr (Mentor: K.C. Russell) "Coupling Surface Groups to Dendrimers to Enable Passage Through the Blood Brain Barrier." Northern Kentucky University Celebration of Student Research and Creativity, Highland Heights, KY; April 2007 (talk)

Mark Seger and KC Russell, "Synthesis and Characterization of Soluble Flavobenzocyclines." Northern Kentucky University Celebration of Student Research and Creativity, Highland Heights, KY; April 2007.

Mark Yagodzinski, Ian Barnes, Chelsea Bond, Chris Miller and KC Russell, "The Role of Connectivity and Conjugation on the Solid-State and Spectroscopic Characteristics of Novel Push-Pull Benzoannulenes." Northern Kentucky University Celebration of Student Research and Creativity, Highland Heights, KY; April 2007.

Jason Ferayornj, Matthew Lauer, Jackie Bowman and KC Russell, "The Synthesis and Spectroscopy of Pyridoannulenes." Northern Kentucky University Celebration of Student Research and Creativity, Highland Heights, KY; April 2007.

J. R. Deye*; K. A. Walters “Synthesis of a Novel Fullerene-Bipyridine Ligand for Photoelectric Applications,” NKU Celebration of Research and Creativity, Highland Heights, KY, April 2007.

C. A. Morris*; K. A. Walters “Developments in Fullerene-Transition Metal Supramolecular Systems and Molecular Wire Precursors,” NKU Celebration of Research and Creativity, Highland Heights, KY, April 2007.

R. A. Seger*; K. A. Walters “Synthesis of a New Isocyanide Ligand for Efficient Photo-induced Charge Transfer Processes Within an Octahedral W(0) Compound,” NKU Celebration of Research and Creativity, Highland Heights, KY, April 2007.

S. M. Goins*; K. A. Walters “Continued Synthesis of Symmetric and Asymmetric Ligation Points for Organometallic Supramolecular Systems,” NKU Celebration of Research and Creativity, Highland Heights, KY, April 2007.

C. D. Girten*; J. R. Helton*; D. A. Tomalia; K. H. Martines; H. A. Bullen; K. A. Walters “Surface Modification of G4 and G5 PAMAM Dendrimers,” NKU Celebration of Research and Creativity, Highland Heights, KY, April 2007.

J. D. Hogan*; T. Fabre*; K. A. Walters; K. H. Martines; D. A. Tomalia; H. A. Bullen “ATR-FTIR Analysis of the Interaction of Biotinylated Dendrimers with Blood Brain Barrier Models,” NKU Celebration of Research and Creativity, Highland Heights, KY, April 2007.

M. Leist,* H. A. Bullen. “Probing Bacterial Adhesion: Analysis of the Interaction of Hydroxamate Siderophores with Aqueous-Metal oxide Interfaces.” NKU Celebration of Student Research and Creativity April 2007. (Poster)

W. L. Schmidt,* H. A. Bullen. “Catecholate siderophore complexation on metal oxide surfaces.” NKU Celebration of Student Research and Creativity April 2007. (Poster)

R. A Wilson*, H. A. Bullen. “Characterization of Self Assembled Monolayers as Potential Nonbiofouling Surfaces.” NKU Celebration of Student Research and Creativity April 2007. (Poster)

J. Hogan,* K. H. Martines, H. A. Bullen. “ATR-FTIR analysis of the interaction of biotinylated dendrimers with blood brain barrier models.” NKU Celebration of Student Research and Creativity April 2007. (Poster)

S. Proctor,* H. A. Barton, H. A. Bullen. “Impact of pyoverdine siderophores extracted from *Pseudomonas aeruginosa* on bacterial adhesion to metal oxides.” NKU Celebration of Student Research and Creativity April 2007. (Poster)

S. M. O’Connell,* H. A. Barton, H. A. Bullen. “Use of a continuous-flow chamber to evaluate *Pseudomonas aeruginosa* biofilm formation on metal oxide surfaces.” NKU Celebration of Student Research and Creativity April 2007. (Poster)

B. Hemmerle,* H. A. Bullen. “Characterization of self assembled monolayers as

potential nonbiofouling surfaces.” NKU Celebration of Student Research and Creativity April 2007. (Poster)

C. Cason,* J. D. Hogan,* K. H. Martines, H. A. Bullen. “Quantification of PAMAM functionalized dendrimer passage across in vitro blood brain barrier models.” NKU Celebration of Student Research and Creativity April 2007. (Poster)

C. Elam, M. Lape, and S. Paula. 2007. Development of an Enzyme Assay Using a Multi-well Plate Reader for the Rapid Screening of Novel ATPase Inhibitors. Celebration of Student Research and Creativity: Northern Kentucky University, Highland Heights, KY.

M. Lape* and S. Paula. 2007. Computational Analysis of Interactions Between Cocaine and an Anti-cocaine Antibody for Immunotherapy of Cocaine Addiction. Celebration of Student Research and Creativity: Northern Kentucky University, Highland Heights, KY.

K. Evans* and S. Paula. 2007. Preparation of Proteoliposomes for the Study of Ion Transport by P-type ATPase Celebration of Student Research and Creativity. Celebration of Student Research and Creativity: Northern Kentucky University, Highland Heights, KY.

J. Baumann*; C. A. Morris*; K. A. Walters “The Molecular Wire Concept Continued,” Merck/AAAS and KBRIN Interdisciplinary Summer Research Celebration, Highland Heights, KY, August 2007.

C. Girten*; K. A. Walters “Surface Modification of PAMAM Dendrimers for Drug Delivery,” Merck/AAAS and KBRIN Interdisciplinary Summer Research Celebration, Highland Heights, KY, August 2007.

L. Rizzo*; J. R. Deye*; K. A. Walters “Synthesis of a Novel Fullerene-Bipyridine Ligand for Photoelectric Applications,” Merck/AAAS and KBRIN Interdisciplinary Summer Research Celebration, Highland Heights, KY, August 2007.

R. A. Seger*; D. Mazor*; K. A. Walters “Continued Synthesis of a New Isocyanide Ligand for Efficient Photo-Induced Charge Transfer Processes Within an Octahedral W(0) Compound,” Merck/AAAS and KBRIN Interdisciplinary Summer Research Celebration, Highland Heights, KY, August 2007.

B. Hemmerle,* H. A. Barton, H. A. Bullen. “Characterization of potential biofouling resistant surfaces on medical grade stainless steel.” Merck/AAAS/KBRIN Interdisciplinary Summer Research Celebration, Highland Heights, KY, Aug. 29, 2007. (Poster)

W. Schmidt,* H. A. Barton, H. A. Bullen. “Surface analysis of the role of siderophores in biofilm formation.” Merck/AAAS/KBRIN Interdisciplinary Summer Research Celebration, Highland Heights, KY, Aug. 29, 2007. (Poster)

M. Hester,* C. Hargrove,* H. A. Bullen, K. H. Martines. “Testing the passage of biotinylated G4 PAMAM dendrimer nanoparticles across a viable in vitro model of the blood brain barrier.” Merck/AAAS/KBRIN Interdisciplinary Summer Research Celebration, Highland Heights, KY, Aug. 29, 2007. (Poster)

FACULTY SCHOLARSHIP

PRESENTATIONS:

KC Russell "The Resonance of Annulenes." REU Consortium Meeting at the National Organic Symposium, Durham, NC; June 2007. (talk)

K. A. Walters "Wikis, Podcasts, and Screencasts (oh my!) in Undergraduate Chemistry Coursework and Research," ACS National Conference, Chicago, IL, March 2007. (talk)

S. Paula. 2007. Virtual Screening for Novel Calcium ATPase Inhibitors by Computational Docking. Meeting of the Cincinnati Chapter of the American Chemical Society. Xavier University, Cincinnati, OH. (talk)

S. Paula. 2007. Virtual Screening for Novel Calcium ATPase Inhibitors by Computational Docking. Annual Meeting of the Kentucky Academy of Science, Louisville, KY. (talk)

H. A. Bullen; K. A. Walters "Development of a Nanomaterials One Week Intersession Course at NKU," ACS National Conference, Chicago, IL, March 2007. (talk)

H. A. Bullen. "Open access peer review port for communicating chemistry: Analytical Sciences Digital Library." ACS National Meeting, Chicago, IL, March 2007. (Talk)

H. A. Bullen, R. A. Wilson*, S. Proctor*, W. Schmidt*, P. J. Hogan*, H. J. Stahl*, M. Shields.* "Probing biofilm formation: spectroscopic and scanning probe microscopy characterization of bacterial adhesion onto metal oxide surfaces." Pittcon Conference, Chicago, IL, February 2007. (Poster)

H. A. Bullen, R. S. Kelly, A. Scheeline. "Online Articles in the Analytical Sciences Digital Library: Open Access Teaching, Learning, and Publishing" Pittcon Conference, Chicago, IL, February 2007. (Poster)

Hicks, W.V., Tyler, R., and Thurston, C. "Potpourri of Secondary Science". KSTA Fall Conference. November 1, 2007 (talk)

Hicks, W.V. "The Use of Molecular Modeling in the High School Classroom". CERMACS Teacher's Program. May 20, 2007. (talk)

Hicks, W.V. "Integrating Outreach into a Career". Final Friday, Northern Kentucky University. April, 27, 2007. (invited poster)

K.C. Russell, Amber Bisch*, Lindsey Easthon*, Matthew Lauer*, Ashley Mynar*, James Leslie*, Senai Negassi*, Jason Ferayorni*, Jackie Bowman* and Ashley Tepe* "Synthesis and Spectroscopy of Push-Pull [14]-Pyridoannulenes". National Organic Symposium, Durham, NC; June 2007. (poster)

Oehrle, S; "Analysis of Explosives by LC/MS"; Presented at the NKU CSI Camps for Middle and High School Students (summers of 2003-2007)

PUBLICATIONS

J. H. Niewahner; K. A. Walters "Laboratory Instruction of an Experiment Using a Glove Box: Synthesis of Bis(1,2-dimethylimidazole)copper(I) hexafluorophosphate," *J. Chem. Ed.*, **2007**, *84*, 702-703.

J. H. Niewahner; K. A. Walters; A. Wagner* "Improved Synthesis of Geodken's Macrocycle and the Synthesis of its Dichloride Salt," *J. Chem. Ed.*, **2007**, *84*, 477-479.

Robert A. Wilson* and H. A. Bullen. "E-Learning Module: Introduction to Scanning Probe Microscopy" *Analytical Sciences Digital Library* (<http://asdl.org/onlineArticles/ecourseware/Bullen/SPMModule.htm>) **2007**.

H. A. Bullen. "Teaching Surface Characterization to Undergraduates." *Anal. Bioanal. Chem.* **2007**, *387*, 1579-1581.

J. R. Deye*; K. A. Walters "Photoluminescence and Electroluminescence, Solid State," in *Application of Physical Methods to Inorganic and Bioinorganic Chemistry*, R. A. Scott and C. M. Lukehart (Editors), John Wiley & Sons, **2007**, 461-468.

D. Stanton, J. Ankenbauer*, D. Rothgeb*, M. Draper*, and S. Paula. **2007**. Identification and Characterization of Novel Sodium/Potassium-ATPase Inhibitors by Virtual Screening of a Compound Database. *Bioorganic and Medicinal Chemistry*. *15*: 6062-6070.

S. M. Proctor,* H. A. Barton, and H. A. Bullen. "Impact of Pyoverdine Siderophores extracted from *Pseudomonas aeruginosa* on Biofilm Adhesion to Metal Oxide Surfaces. *Norse Scientist*, **2007**.

C. A. Cason,* S. A. Oehle, T. Fabre,* C. D. Girten,* K. A. Walters, D. A. Tomalia, K. H. Martines, H. A. Bullen. "Improved Liquid Chromatographic Analysis of Poly(amidoamine) PAMAM Dendrimers: From High Performance to Ultra Performance" *J. Chromatog. A* 2007 (submitted)

K. A. Walters, H. A. Bullen. "Development of a Nanomaterials one Week Intersession Course." *J. Chem. Educ.* 2007. (submitted)

J. Nordling, R. L. Millen, H. A. Bullen, M. D. Porter, M. Tondra "Giant Magnetoresistance Sensors: 1. Internally Calibrated Readout of Scanned Magnetic Arrays" *Analytical Chemistry* 2007. (submitted)

R. L. Millen, J. Nordling, H. A. Bullen, M. D. Porter, M. Tondra "Giant Magnetoresistive Sensors: 2. Detection of Biorecognition Events at Self-Referencing and Magnetically Tagged Arrays." *Analytical Chemistry* 2007 (submitted).

2006

STUDENT PRESENTATIONS

T. Fabre,* P. Hogan,* B. Holcomb,* J. Leslie,* S. Proctor,* S. Schumacher,* M. Seger,* R. Wilson,* and H. A. Bullen. "Caffeine Analysis of Decaffeinate Coffee Samples within the Tri-State Area." NKU Celebration of Student Research and Creativity April 2006. (Poster) – part of a class project for Channel 5 News

H. J. Gulley,* D. Downing,* M. Lauer,* K. A. Walters, and H. A. Bullen. "Key to a successful SAACS chapter at Northern Kentucky University: Outreach." ACS National Meeting, Atlanta, GA, March 2006. (Poster)

A. DiBello* and S. Paula. "Cation Permeation Mechanisms in Artificial Lipid Bilayers."

Posters at the Capitol Presentation, Frankfort, KY. February, 2006 (poster)
NKU Celebration of Student Research and Creativity April 2006. (Poster)

D. Rothgeb* and S. Paula "Quantitative Structure-Activity Relationship Models of Sodium/Potassium ATPase Inhibition by Digitoxigenin Analogues" ACS National Meeting, Atlanta, GA, March 2006. (Poster)

D. Rothgeb* and S. Paula "Computational and Experimental Structure-Activity Relationships of Digoxin Analogues". Posters at the Capitol Presentation, Frankfort, KY. February, 2006 (poster)

D. Rothgeb* and S. Paula "Development of Quantitative Structure-Activity Relationship Models of Sodium/Potassium ATPase Inhibition by Cardiac Glucosides" NKU Celebration of Student Research and Creativity April 2006. (Poster)

D. Lies* and S. Paula. "Lipid Permeability of Potassium". NKU Celebration of Student Research and Creativity April 2006. (Poster)

M. Lape*, C. Elam*, and S. Paula. "Development of Hydroquinone-based Inhibitors of the Sarco-Endoplasmic Reticulum Ca^{2+} ATPase".
NKU Celebration of Student Research and Creativity April 2006. (Poster)
Merck/AAAS/KBRIN Interdisciplinary Summer Research Celebration,
Highland Heights, KY, Aug. 30, 2006. (Poster)

M. Lape*, C. Elam*, M. Versluis*, R. Kempton, and S. Paula. "Molecular Determinants of Sarco/Endoplasmic Reticulum Calcium ATPase inhibition by Hydroquinone-Based Compounds".
CINSAM Summer Research Poster Presentation, Highland Heights, KY.
September 2006. (poster)

M. Lape*, C. Elam*, M. Versluis*, R. Kempton, and S. Paula. "Development of Hydroquinone-based Inhibitors of the Sarco-Endoplasmic Reticulum Ca²⁺ ATPase". KAS Meeting, Morehead, KY, November 2006. (poster)

C. D. Girten, * J. R. Helton,* H. A. Bullen, K. Martines, K. Walters. "Surface Modification of the G4 and G5 PAMAM Dendrimers" KAS Meeting, Morehead, KY, Nov. 10, 2006. (Poster)

T. Fabre,* J. D. Hogan, * K. Walters, K. Martines, and H. A. Bullen. "Design and Characterization of Drug Delivery Systems Across the Blood Brain Barrier" KAS Meeting, Morehead, KY, Nov. 10, 2006. (Poster)

R. Wilson,* H. A. Bullen. "Characterization of Self Assembled Monolayers as Potential Nonbiofouling Surfaces" KAS Meeting, Morehead, KY, Nov. 10, 2006. (Poster)

R. Wilson,* H. A. Bullen. "Characterization of Self Assembled Monolayers as Potential Nonbiofouling Surfaces" 2006 Ralph and Helen Oesper Poster Symposium, University of Cincinnati, Cincinnati, OH, Oct. 27, 2006. (Poster)

W. Schmidt,* H. A. Bullen. "Surface Complexation of Catecholate Siderophore Models on Metal Oxide Surfaces" 2006 Ralph and Helen Oesper Poster Symposium, University of Cincinnati, Cincinnati, OH, Oct. 27, 2006. (Poster)

W. Schmidt,* H. A. Bullen. "Surface Complexation of Catecholate Siderophore Models on Metal Oxide Surfaces" Merck/AAAS/KBRIN Interdisciplinary Summer Research Celebration, Highland Heights, KY, Aug. 30, 2006. (Poster)

T. Fabre,* J. D. Hogan, * K. Walters, K. Martines, and H. A. Bullen. "Design and Characterization of Drug Delivery Systems Across the Blood Brain Barrier" Merck/AAAS/KBRIN Interdisciplinary Summer Research Celebration, Highland Heights, KY, Aug. 30, 2006. (Poster)

J. D. Hogan,* T. Fabre,* K. Walters, K. Martines, and H. A. Bullen. "ATR-FTIR Analysis of the Interaction of Biotinylated Dendrimers with Lipid Bilayers" Merck/AAAS/KBRIN Interdisciplinary Summer Research Celebration, Highland Heights, KY, Aug. 30, 2006. (Poster)

S. Proctor,* H. Barton, and H. A. Bullen. "Impact of Pyoverdine Siderophores Extracted from *Pseudomonas aeruginosa* on Biofilm Adhesion to Metal Oxide Surfaces" Merck/AAAS/KBRIN Interdisciplinary Summer Research Celebration, Highland Heights, KY, Aug. 30, 2006. (Poster)

R. Wilson* and H. A. Bullen. "Characterization of Self Assembled Monolayers as Potential Nonbiofouling Surfaces" Merck/AAAS/KBRIN Interdisciplinary Summer Research Celebration, Highland Heights, KY, Aug. 30, 2006. (Poster)

A. F. Bennett,* H. A. Bullen, T. M. Hoehler, and H. A. Barton. "The Combined Approach of Using Analytical Geochemistry and Molecular Phylogenetics to Determine Possible Energetics in Extremely Starved Subterranean Environments." Merck/AAAS/KBRIN Interdisciplinary Summer Research Celebration, Highland Heights, KY, Aug. 30, 2006. (Poster)

C. D. Girten, * J. R. Helton,* H. A. Bullen, K. Martines, K. Walters. "Surface Modification of the G4 and G5 PAMAM Dendrimers" Merck/AAAS/KBRIN Interdisciplinary Summer Research Celebration, Highland Heights, KY, Aug. 30, 2006. (Poster)

M. Humphries,* K. Clark,* Areej Saqr,* D. A. Tomalia, H. A. Bullen, and K. Martines. "Intrastriatal injections of fluorescently-labeled dendrimers." Kentucky EPSCOR Conference: Exploring Shared Interests with National Labs, Lexington, KY, May 15, 2006. (Poster)

A. Buhrlage,* J. Minch,* D. A. Tomalia, K. H. Martines, and H. A. Bullen. "Analysis of drug delivery systems across the blood brain barrier." Kentucky EPSCOR Conference: Exploring Shared Interests with National Labs, Lexington, KY, May 15, 2006. (Poster)

H. Gulley* H. A. Bullen. "Impact of Catecholate Siderophores/Metal Oxide Interfaces in Bacterial Adhesion" Kentucky EPSCOR Conference: Exploring Shared Interests with National Labs, Lexington, KY, May 15, 2006. (Poster)

A. Bennett* H. A. Bullen, Stuart Oehrle, and H. A. Barton. "The use of ATR-FTIR to Relate Metabolic Activities to Biogeochemical Signatures in Rock." Kentucky EPSCOR Conference, Lexington, KY, May 15, 2006. (Poster)

A. Bennett* H. A. Bullen, and H. A. Barton. "Improved Methods to Relate Metabolic Activities to Biogeochemical Signatures in Carbonate Rock." CUR Posters at the Hill, Washington D. C., April 2006. (Poster)

A. Buhrlage,* K. H. Martines, and H. A. Bullen. "Characterization of dendrimers as potential drug delivery systems across the blood brain barrier." NKU Celebration of Student Research and Creativity April 2006. (Poster)

H. J. Gulley* and H. A. Bullen. "ATR-FTIR investigation of the interaction of catecholate siderophores with aqueous-metal oxide interfaces: Probing bacterial adhesion." NKU Celebration of Student Research and Creativity April 2006. (Poster)

P. Hogan II* and H. A. Bullen. "Investigation of the interaction of model siderophore compounds with metal oxide surfaces: Dissolution and adsorption

experiments.” NKU Celebration of Student Research and Creativity April 2006. (Poster)

R. Wilson,* and H. A. Bullen. “Characterization of Self Assembled Monolayers as Potential Nonbiofouling Surfaces” NKU Celebration of Student Research and Creativity April 2006. (Poster)

M. Shields* and H. A. Bullen. “Probing Bacterial Adhesion: Analysis of the Interaction of Hydroxamate Siderophores with Aqueous-Metal Oxide Interfaces” NKU Celebration of Student Research and Creativity April 2006. (Poster)

A. Bennett* H. A. Bullen, and H. A. Barton. “The use of ATR-FTIR Spectroscopy to Relate Metabolic Activities to Biogeochemical Signature in Rock.” NKU Celebration of Student Research and Creativity April 2006. (Poster)

A. Buhrlage,* J. Minch,* D. A. Tomalia, K. H. Martines, and H. A. Bullen. “Characterization of dendrimers as potential drug delivery systems across the blood brain barrier.” ACS National Meeting, Atlanta, GA, March 2006. (Poster)

H. J. Gulley* and H. A. Bullen. “ATR-FTIR investigation of the interaction of catecholate siderophores with aqueous-metal oxide interfaces: Probing bacterial adhesion.” ACS National Meeting, Atlanta, GA, March 2006. (Poster)

P. Hogan II* and H. A. Bullen. “Investigation of the interaction of model siderophore compounds with metal oxide surfaces: Dissolution and adsorption experiments.” ACS National Meeting, Atlanta, GA, March 2006. (Poster)

H. J. Gulley* and H. A. Bullen. “Comparative surface reactivity study of metal oxide sol-gels utilizing attenuated total reflectance infrared spectroscopy (ATR-FTIR).” ACS National Meeting, Atlanta, GA, March 2006. (Poster)

A. Bennett* H. A. Bullen, and H. A. Barton. “The use of ATR-FTIR Spectroscopy to Relate Metabolic Activities to Biogeochemical Signature in Rock.” Astrobiology Conference, Washington D. C., March 2006. (Poster)

M. Shields*, H. J. Gulley,* H. A. Bullen. “Probing Bacterial Adhesion: Analysis of the Interaction of Siderophores with Aqueous-Metal Oxide Interfaces” Posters at the Capitol, Frankfurt, KY, Feb. 2006.(Poster)

R. Baldrige*, A. Ketron*, J. Walter*, J. Ledford*, D. McGill, K. Martines, and P. Schultheis. Sub-Cellular localization of two P-Type ATPases, Atp13a1 and Atp13a2. (Poster)

Kentucky Academy of Sciences Meeting, Morehead, KY November 2006

R. Baldrige*, A. Ketron*, and J. Ledford*. (D. McGill and P. Schultheis, mentors). Intracellular localization of the P5 subfamily of P-Type ATPases in Mammalian

Cells by Transfection, Fluorescence Microscopy, Subcellular Fractionation and Immunoblotting. (Poster)

Merck Summer Celebration, NKU, August 2006.

A. Ketron* and D. McGill. Determination of Haloperidol Levels in Rat Serum by High-Performance Liquid Chromatography: A Collaborative Study. (Poster)

Posters at the Capital, Frankfort, KY February 2006

National American Chemical Society Meeting, Atlanta, March 2006 (abstract # 190)

Celebration of Student Research and Creativity, NKU, April, 2006.

D. Downing* and D. McGill. Quantification of Inhibitor Studies of Na⁺, K⁺-ATPase and H⁺, K⁺-ATPase Chimera. (posters)

Posters at the Capital, Frankfort, KY February 2006

National American Chemical Society Meeting, Atlanta, March 2006 (abstract # 770)

Celebration of Student Research and Creativity, NKU, April, 2006.

J. Deye*, T. Tanner*, NL King,* A. Shively*, and KA Walters. "Continued Synthesis of a Fulleren-Bipyridine Ligand for Photoelectric Applications" (Poster)

National American Chemical Society Meeting, Atlanta, March 2006

Celebration of Student Research and Creativity, NKU, April, 2006.

S. Conrad*, SA Beetem*, KJ Lawson-Ferguson*, KA Walters. "Synthesis of a New Ligand for Linear Multi-Metallic Chains". (Poster)

National American Chemical Society Meeting, Atlanta, March 2006

Celebration of Student Research and Creativity, NKU, April, 2006.

C. Morris*, KA Walters. "Developments in Fullerene-Transition Metal Supramolecular System Testing and Synthesis" Celebration of Student Research and Creativity, NKU, April, 2006. (Poster)

R. Seger*, KA Walters. "Synthesis of a New Isocyanide Ligand for Efficient Photoinduced Charge Transfer Processes with an Octahedral W(O) Compound" Celebration of Student Research and Creativity, NKU, April, 2006. (Poster)

J Kareth*, KA Walters. "Synthesis of Asymmetric Fullerene Bipyridine Transition Metal Applications", Merck/AAAS/KBRIN Interdisciplinary Summer Research Celebration, Highland Heights, KY, Aug. 30, 2006. (Poster)

J. Deye*, KA Walters. "Synthesis of a Novel Fullerene-Bipyridine Ligand for Photoelectric Applications". Merck/AAAS/KBRIN Interdisciplinary Summer Research Celebration, Highland Heights, KY, Aug. 30, 2006. (Poster)

S. Goins*, C. Morris*, SM Conrad*, T. Tanner*, KA Walters. "The Molecular Wire Concept and Development"

Merck/AAAS/KBRIN Interdisciplinary Summer Research Celebration, Aug. 30, 2006. (Poster)

Kentucky Academy of Sciences Meeting, Morehead, KY November 2006

RA Seger*, L. Whitehead*, KA Walters. "Continued Synthesis of a New Isocyanide Ligand for Efficient Photoinduced Charge Transfer Processes within and Octahedral W(O) Compound". Merck/AAAS/KBRIN Interdisciplinary Summer Research Celebration, Highland Heights, KY, Aug. 30, 2006. (Poster)

Mark Seger* and KC Russell "Synthesis of Soluble Flavobenzocyclines". Northern Kentucky University Celebration of Student Research and Creativity, Highland Heights, KY; April 2006.

Jason Ferayorni* and KC Russell " Synthesis and Characteristics of Ortho-Benzocyclines Precursors." Northern Kentucky University Celebration of Student Research and Creativity, Highland Heights, KY; April 2006.

Matt Lauer,* Areej Saqr*, Kristi Martines and KC Russell, " Synthesis and Analysis of Dendrimer Conjugates Enabling Passage through the Blood Brain Barrier." Northern Kentucky University Celebration of Student Research and Creativity, Highland Heights, KY; April 2006.

Mark Seger* and KC Russell "Progress in the Synthesis of Soluble Flavobenzocyclines". Northern Kentucky University Merck Celebration, Highland Heights, KY; September 2006.

Jason Ferayorni* and KC Russell "Synthesis and Characteristics of Arenediynes and Their Differently Protected Precursors." Kentucky Academy of Science Meeting, Morehead KY, November 2006.

Matt Lauer,* Areej Saqr, Kristi Martines and KC Russell, "Couplings of Surface Groups to Dendrimers Enabling Passage Through the Blood Brain Barrier." Kentucky Academy of Science Meeting, Morehead KY, November 2006.

Mark Seger* and KC Russell " Synthesis of Soluble Falvobenzocyclines". Kentucky Academy of Science Meeting, Morehead KY, November 2006

FACULTY PRESENTATIONS

H. A. Bullen and K. A. Walters. "Balancing the "triad" at NKU: Perspectives from "novice optimist" and "seasoned realist" junior faculty." ACS National Meeting, Atlanta, GA, March 2006. (Talk-contributed)

KA Walters. "Teaching the History of Chemistry as a Study Abroad Course in Great Britain", ACS National Conference, Atlanta GA, March 2006 (talk-contributed) (also presented at the 19th Biennial Conference on Chemical Education, West Lafayette, IN, July 2006)

KA Walters. "Evolution of the NKU 'Modern' Upperclass Inorganic Chemistry Course", 19th Biennial Conference on Chemical Education, West Lafayette, IN, July 2006 (talk-contributed)

KA Walters. "Using Polling Systems in General Chemistry: Do You Get it Yet?", 19th Biennial Conference on Chemical Education, West Lafayette, IN, July 2006 (talk-contributed)

KC Russell "Annulenes Galore." REU Consortium Meeting at the Roche Symposium on Organic Chemistry, Boulder, CO; June 2006. (talk-contributed)

KC Russell, Senai Negassi*, Matthew Lauer*, James Leslie*, Shelley A. Stamper*, Ashely Mynar*, Arron Muzny* "Synthesis of series of Push-Pull Pyridoannulenes". Roche Symposium on Organic Chemistry, Boulder, CO; June 2006. (poster)

D. McGill. "Teacher as the Model Learner". BCCE Meeting, July 30-August 3, 2006. Purdue University. (poster)

V. Kumar. "Chemistry for Education Majors – CHE 105", ACS Workshop on Developing a Chemistry Course for Pre-Service Teachers", July 2006 (invited presenter)

S. Paula, C. Elam*, M. Lape*, and R. Kempton, "Development of novel hydroquinone-based SERCA Inhibitor" 12th Annual Kentucky EPSCoR conference, Louisville, KY. May 2006.

KC Russell "Progress in the Synthesis of a Soluble Falvobenzocyclyne."
Northern Kentucky University Fifth Friday Celebration, Highland Heights, KY;
September 2006. (poster)

KA Walters "Progress Photochemical Studies" Northern Kentucky University Fifth
Friday Celebration, Highland Heights, KY; September 2006. (poster)

KC Russell "Research in synthetic Organic Chemistry", NKU SAACS Meeting,
October, 2006 (talk-contributed)

H Bullen "Materials Chemistry Research", NKU SAACS Meeting, October, 2006
(talk-contributed)

S Paula "Computational and Biophysical Research, NKU SAACS Meeting,
October, 2006 (talk-contributed)

KA Walters "Supramolecular Photochemistry at NKU", NKU SAACS Meeting,
March, October, 2006 (talk-contributed)

D. McGill. "The Nobel Prize in Chemistry: 2006" Fifth Annual Nobel Prize
Symposium, NKU, (talk-invited) November, 2006.

PUBLICATIONS

Edwards, G. A.; Bergren, A. J.; Porter, M. D.; "Chapter 8: Chemically Modified
Electrodes" in Handbook of Electrochemistry, Zoski, C. G. ed., Elsevier, 2006.

H. J. Gulley,* P. A. Hogan,* and H. A. Bullen. "Investigation of the Interaction of
Catecholates with Metal Oxide Surfaces: Attenuated Total Reflectance Infrared
Spectroscopy, Adsorption, and Dissolution Experiments" *Norse Scientist*, 2006, 4,
85.

2005

STUDENT PRESENTATIONS

S. A. Beetem*; K. Kinman*; K. A. Walters “Synthesis of a New Ligand to Facilitate Multi-metallic Chains,” Posters at the Capitol, Frankfort, KY, February 2005.

S. M. Conrad*; S. A. Beetem*; K. J. Lawson-Ferguson*; K. A. Walters “Synthesis of a New Ligand for Linear Multi-Metallic Chains,” Merck/AAAS Interdisciplinary Summer Research Celebration, Highland Heights, KY, September 2005. [Also presented at the Kentucky Academy of Science Annual Meeting, Richmond, KY, November 2005]

S. A. Beetem*; K. Kinman*; K. A. Walters “Continued Synthesis of a New Ligand to Facilitate Multi-metallic Chains,” ACS National Conference, San Diego, CA, March 2005. [Also presented at the NKU Celebration of Research and Creativity, Highland Heights, KY, April 2005.]

N. King*; A. Shiveley*; N. Moore*; K. A. Walters “Synthesis of a Fullerene/Transition Metal Supramolecular System,” Posters at the Capitol, Frankfort, KY, February 2005.

N. King*; A. Shiveley*; N. Moore*; K. A. Walters “Continued Synthesis of a Fullerene/Transition Metal Supramolecular System,” ACS National Conference, San Diego, CA, March 2005. [Also presented at the NKU Celebration of Research and Creativity, Highland Heights, KY, April 2005.]

M. E. Wiggers*; S. A. Beetem*; E. Ferraris*; S. Stamper*; K. A. Walters “2004 NCW Demonstrations Presented by the NKU Student Affiliates,” ACS National Conference, San Diego, CA, March 2005.

H. J. Gulley,* H. A. Bullen. “Impact of Aqueous-Metal Oxide Interfaces on Biofilm Formation: ATR-FTIR as an In-Situ Approach to Probe Bacterial Adhesion”
Merck/AAAS Interdisciplinary Summer Research Celebration, Highland Heights, KY, Sept. 2005. (Poster)
KAS Meeting, Richmond, KY, Nov. 2005. (Poster)

P. Hogan,* A. Buhrlage,* and H. A. Bullen. “Investigation of the Interaction of Model Siderophore Compounds with Metal Oxide Surface: Dissolution and Adsorption

Experiments” Merck/AAAS Interdisciplinary Summer Research Celebration, Highland Heights, KY, Sept. 2005. (Poster)

KAS Meeting, Richmond, KY, Nov. 2005. (Poster)

J. Minch,* K. H. Martines, and H. A. Bullen “Characterization of Dendrimers as Potential Drug Delivery Systems Across the Blood Brain Barrier” Merck/AAAS Interdisciplinary Summer Research Celebration, Highland Heights, KY, Sept. 2005. (Poster)

A. Buhrlage,* J. Minch,* K. H. Martines, and H. A. Bullen “Characterization of Dendrimers as Potential Drug Delivery Systems Across the Blood Brain Barrier” KAS Meeting, Richmond, KY, Nov. 2005. (Poster)

K. Clark,* M. Humphries,* H. A. Bullen, and K. H. Martines. “Visualization of Fluorescently-labeled De Novo Dendrimers In Vivo” Merck/AAAS Interdisciplinary Summer Research Celebration, Highland Heights, KY, Sept. 2005. (Poster)
KAS Meeting, Richmond, KY, Nov. 2005. (Poster)

A. Bennett,* H. A. Bullen, and H. A. Barton. “Improved Methods to Relate Metabolic Activities to Biogeochemical Signatures in Carbonate Rock” Merck/AAAS Interdisciplinary Summer Research Celebration, Highland Heights, KY, Sept. 2005. (Poster)

KAS Meeting, Richmond, KY, Nov. 2005. (Poster)

H. J. Gulley,* H. A. Bullen. “Impact of Aqueous-Metal Oxide Interfaces on Biofilm Formation: ATR-FTIR as an In-Situ Approach to Probe Bacterial Adhesion” ACS National Meeting, San Diego, CA, March 2005. (Poster)

NKU Celebration of Student Research and Creativity April 2005. (Poster)

J. Ankenbaue*r and S. Paula. 2005. Correlations between Cardiac Glycoside Structure and Inhibitory Potency of Sodium/Potassium ATPase Activity. Annual Meeting of the Kentucky Academy of Science, Richmond.

Cox, E. J.; Bergren, A. J.; Edwards, G. A.; Porter, M. D.; “The Reproducible Preparation of Self-Assembled Alkanethiolate Monolayers on Gold: Mass Transfer Effects” 208th Meeting of The Electrochemical Society, Los Angeles, CA; October 2005 presentation

Bergren, A. J.; Edwards, G. A.; Cox, E. J.; Porter, M. D.; “Surprising Odd-Even Oscillation in the Heterogeneous Electron Transfer Rate of Solution-Based Redox Couples at Short-Chain Alkanethiolate Monolayers on Gold” 208th Meeting of The Electrochemical Society, Los Angeles, CA; October 2005 presentation.

A. Ketron* and D. McGill. One Discipline, Two Studies: Bioanalytical Chemistry Techniques for the Determination of Two Disparate Analytes. Merck Summer Celebration, NKU, September 2005.

D. Downing* and D. McGill. Quantification of Inhibitor Studies of Na⁺, K⁺-ATPase and H⁺, K⁺-ATPase Chimera.

Merck Summer Celebration, NKU, September 2005.

Kentucky Academy of Sciences Meeting, Richmond, KY November 2005

A. Bray* and E. Ferraris* (D. McGill, mentor). Quantification and Functional Studies of H⁺,K⁺ ATPase/Na⁺,K⁺ ATPase Chimeras in HeLa Cells. National American Chemical Society Meeting, San Diego, March 2005 (abstract # 859).

M. Wiggers* and S. Sherritt* (D. McGill, mentor). Attempts at Constructing Novel Na,K ATPase/H,K ATPase Expression Vectors.

Posters at the Capitol, Frankfort, KY, February 2005

National American Chemical Society Meeting, San Diego, March 2005 (abstract #757).

Celebration of Student Research and Creativity, NKU, April, 2005.

A. Bray* (D. McGill, mentor). Measurement of Enzyme Activity of Na,K ATPase and H,K ATPase Chimeras. Posters at the Capitol, Frankfort, KY, February 2005.

Millette, J*.; Oehrle, S.A.; and Barton, H.A.; "The Chemical Basis of Bacterial Survival in Extremely Starved Environments"; Presented at the Merck AAAS Fellowship Program, October 2005

David Roach*, Pete Suer*, Areej Saqr*; (Mentor: K.C. Russell) "Synthesis and Characterization of Flavin Annulenes". Northern Kentucky University Celebration of Student Research and Creativity, Highland Heights, KY; April 2005

Crystal Campbell*, Derek Downing*, Matthew Evans*, Eric Ferraris*, Heather Gulley*, Kris Giles*, David Hahn*, Noah Meeks*, David Roach*, Chris Yungbluth* (Mentor: K.C. Russell) "Tomorrow's World Today: Outreach from the Classroom to the Airwaves". Northern Kentucky University Celebration of Student Research and Creativity, Highland Heights, KY; April 2005

Senai Negassi*; (Mentor: K.C. Russell) "Progress in the Synthesis of Donor-Acceptor [14]-Dehydroheteroarylannulenes" Northern Kentucky University Celebration of Student Research and Creativity, Highland Heights, KY; April 2005

Shelley Stamper*, Senai Negassi*, Aaron Munzy* and K.C. Russell "Towards the Synthesis of o-dehydroheteroarylannulenes" Northern Kentucky University Celebration of Student Research and Creativity, Highland Heights, KY; April 2005

James Leslie*, Matthew Lauer*, Sara Schultz* and K.C. Russell "Synthesis of Aromatic Nitrogen Heterocycles Using a New Tellurium Catalyzed Cyclization Technique". Northern Kentucky University Celebration of Student Research and Creativity, Highland Heights, KY; April 2005

FACULTY PRESENTATIONS

S. A. Beetem*; N. L. King*; A. Shiveley*; K. Kinman*; K. A. Walters "New Building Blocks for Supramolecular Photochemistry," 16th International Symposium on Photochemistry and Photophysics of Coordination Compounds, Pacific Grove, CA, July 2005.

H. A. Bullen "Adventures in Chemistry: Combining Materials Science and Bioanalytical Research" Albion College, Albion, MI April 2005.

D. McGill. "The Nobel Prize in Chemistry: 2005" Fourth Annual Nobel Prize Symposium, NKU, Invited speaker November, 2005.

D. McGill. "Life as a Female Scientist" Cincinnati Chapter of AAUW Annual Spring Luncheon, Invited speaker May 2005.

PUBLICATIONS

S. Paula, N. Monson, and W. J. Ball, Jr. 2005. Structural modeling of the binding site of the human monoclonal anti-digoxin antibody 1B3. *Proteins: Structure, Function, and Bioinformatics*. 60: 382-391.

S. M. Keenan, R. K. Delisle, W. J. Ball, S. Paula, W. J. Welsh. 2005. A structural Model of the Digitalis Binding Site of the Na⁺,K⁺-ATPase. *Journal of Molecular Graphics and Modeling*. 23: 465-475.

S. Paula, M. R. Tabet, and W. J. Ball, Jr. 2005. Interactions between cardiac glycosides and sodium/potassium-ATPase: 3D structure-activity relationship models for ligand binding to the E₂-P_i form of the enzyme versus activity inhibition. *Biochemistry*. 44: 498-510.

Bardgett, M. E., Schultheis, P. J., McGill, D. L., Richmond, R. E., & Wagge, J. R. Magnesium deficiency impairs fear conditioning in mice. *Brain Res.* (2005) 1038, 100-106.

E. Ferraris* and D. McGill. Studies of an Engineered H⁺,K⁺ ATPase/Na⁺K⁺ATPase Chimeric Enzyme Expressed in HeLa Cells. *Norse Scientist*. (2005) 3, 35-40

2004

STUDENT PRESENTATIONS

I. Hensley* (D. McGill, mentor): Dietary Magnesium Depletion Appears to have no effect on Mouse Brain Serotonin Levels. Celebration of Student Research and Creativity, NKU, April, 2004.

E. Ferraris* (D. McGill, mentor). Quantification and Functional Studies of H⁺,K⁺ ATPase/Na⁺,K⁺ ATPase Chimeras in HeLa Cells. Kentucky Academy of Science Meeting, Murray, KY, November, 2004

M. Wiggers* (D. McGill, mentor). Attempts at Constructing Novel Na,K ATPase/H,K ATPase Expression Vectors. Celebration of Student Research and Creativity, NKU, April, 2004

Shelley A. Stamper*; Ashley Mynar*; Senai Negassi* (Mentor: K.C. Russell) "Progress in the Synthesis and Characterization of Novel Donor-Acceptor [14]-Annulenes". Kentucky Academy of Science Meeting, Murray KY, November, 2004

David Roach*; (Mentor: K.C. Russell) "Synthesis and Characterization of Flavin Annulenes: Differentially Protected Bisalkynyl Flavin DHA Precursors". Kentucky Academy of Science Meeting, Murray KY, November, 2004

James Leslie*, Matthew Lauer*, Sara Schultz* and K.C. Russell "Tellurium Catalyzed Cyclization of Heterocyclic Aromatic Eneidyne Under Mild Conditions". 89th Kentucky Academy of Science Meeting, Murray KY, November, 2004. Third Place, Physical Science.

C. H. McMillen*; K. A. Walters "Synthesis of a New Fullerene/Transition Metal Bridge for Charge Transfer Applications," ACS National Conference, Anaheim, CA, March 2004. [Also presented at the NKU Celebration of Research and Creativity, Highland Heights, KY, April 2004.]

S. A. Beetem*; K. Cilwa; K. A. Walters "Synthesis of a New Ligand to Facilitate Multi-Metallic Chains," ACS National Conference, Anaheim, CA, March 2004. [Also presented at the NKU Celebration of Research and Creativity, Highland Heights, KY, April 2004.]

S. A. Beetem*; K. A. Walters "Synthesis of a New Ligand to Facilitate Multi-metallic Chains," Kentucky Academy of Science Annual Meeting, Murray, KY, November 2004. [Won first place in the physical sciences poster competition.]

N. King*; A. Shiveley*; N. Moore*; K. A. Walters "Synthesis of a Fullerene/Transition Metal Supramolecular System," Kentucky Academy of Science Annual Meeting, Murray, KY, November 2004.

Stamper, S*.; Bray, A*.; Russell, K.C. "Synthesis and Characteristics of Dehydroarylannulene Precursors". Northern Kentucky University Celebration of Student Research and Creativity, Highland Heights, KY; April 2004.

FACULTY PRESENTATIONS

H.A. Bullen, M. D. Porter. "Polymeric Femtoliter-volume Arrays as High Throughput Screening Platforms" Pittcon Conference, Chicago, IL, February 2004. (Talk)

D. McGill. "The Nobel Prize in Chemistry: 2004" Third Annual Nobel Prize Symposium, NKU, Invited speaker November, 2004

D. McGill. "Research with Undergraduates at NKU: Why do it?" Celebration Kickoff, NKU, Invited speaker October 2004.

D. McGill. "Studies of Ion Affected Processes" SAACS-sponsored forum on NKU faculty research. April 2004. CURE (Chemistry Undergraduate Research Experience) Seminar, NKU, July 2004

Russell, K.C.. University of Kentucky "Heteroarene-diyne: Their Reactivity and Incorporation into Push – Pull Annulenes" Lexington, KY, 2004 Oct 29

Russell, K.C.. Cornell University (REU) "The Multifaceted Arene-diyne" Ithaca, NY, 2004 July 31

Russell, K.C.. Xavier University "Ene-diyne: Their reactivity and use as Precursors for Novel Materials" Cincinnati, OH. 2004 Feb 20

PUBLICATIONS

S. Paula and W. J. Ball, Jr. 2004. The molecular determinants of thapsigargin binding to SERCA Ca^{2+} -ATPase: A computational docking study. *Proteins: Structure, Function, and Bioinformatics*. 56: 595-606.

S. Paula, M. R. Tabet, A. B. Norman, and W. J. Ball, Jr. 2004. Modeling of Cocaine Binding by a Novel Human Monoclonal Antibody. *Journal of Medicinal Chemistry*. 47: 133-142.

P.J Schulthies, T.J. Hagen, K.K. O'Toole*, A. Tachibana, C.R. Burke*, D.L. McGill, G.W. Okunade, G.E. Shull. Characterization of the P5 subfamily of P-type transport ATPases in mice. *Biochem. Biophys. Res. Comm.* (2004) 323, 731-738.

Jones, G. B., Russell, K.C. "Chapter 29: The Photo-Bergman Cycloaromatization of Eneidyne." In *The CRC Handbook of Photochemistry and Photobiology*, 2nd ed.; Horspool & Lenci, eds.; CRC Press 2004.

K.C. Russell, Hein and Arena; *Foundations of College Chemistry* - 11th ed.; John Wiley & Sons, Inc. pubs. 2004.

K.C. Russell, Hein, Best, Pattison, and Arena; *Introduction to General, Organic, and Biochemistry* – 8th ed.; John Wiley & Sons, Inc. pubs. 2004

D. McGill. Double-Dipping as a Means of Creating Research Time. *CUR Quarterly* (2004) 24, 176.

Andrew M. Lauer*; Ken Mousseau*; K.C. Russell "Towards Synthesis of Novel Eneidyne Anti-Cancer Drugs". *Norse Scientist*, 2004, 2, 67 - 74.

Shelley A. Stamper*; Anthony Martinez*; K.C. Russell "Synthesis and Characteristics of Dehydroheteroarylannulene (DHA) Precursors". *Norse Scientist*, 2004, 2, 75 - 80.

Adrian J. Bray*; Shawn McAvoy*; K.C. Russell "Towards the Synthesis of Dehydrobenzoannulenes". *Norse Scientist*, 2004, 2, 81 - 85.

Anne M. Vollmar*; Amanda Trout*; K.C. Russell "Towards the Synthesis of a DNA Cleaving Eneidyne". *Norse Scientist*, 2004, 2, 87 - 91.