

The Sigma Zetan

Volume LXXII

2006

Proceedings of the National Convention
McKendree College
Lebanon, Illinois
30 March–1 April 2006



The Sigma Zeta³

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Volume LXXII

Cary Guffey, Editor
Our Lady of the Lake University
San Antonio, Texas

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National Officers 5

2005-06 National Officers

Executive Director: Harold Wilkinson, Pi
President: Joe Burnell, Rho
President-elect: Bernadine Cochran, Beta Xi
Past President: Robb VanPutte, Beta
Treasurer: David Hahn, Alpha Gamma
Web Master: Bob Kistler, Beta Iota
Historian/Publicist: Cary Guffey, Sigma

2006-07 National Officers

Executive Director: Harold Wilkinson, Pi
President: Bernadine Cochran, Beta Xi
President-elect: Mike Henshaw, Beta
Past President: Joe Burnell, Rho
Treasurer: David Hahn, Alpha Gamma
Web Master: Bob Kistler, Beta Iota
Historian/Publicist: Cary Guffey, Sigma

Chapter Officers 6

2005-2006

Beta: McKendree College

President: Kellie Persons
Vice President: Stephanie Robbins
Secretary: Karla Johnson
Treasurer: Alicia Crow
Advisors: Robb VanPutte
Michael Henshaw
Alan Alewine

Rho: University of Indianapolis

President: Adam Everhart
Secretary: Meghan DuHadway
Treasurer: Tyler Arnold
Advisor: Joe C. Burnell

Sigma: Our Lady of the Lake University

President: Cynthia Sanchez
Vice President: Gemma Monroy
Secretary: Estrella De La Peña
Treasurer: Stephanie Rodriguez
Advisors: James Hall
Cary Guffey

Alpha Gamma: Malone College

President: Megan Sweet
Vice President: Christina Marian
Secretary: Jessica Johnson
Treasurer: Aaron Cochran
Advisor: David W. Hahn

Alpha Theta: Asbury College

President: Melissa Phillips
Vice President: Rachel Gibson
Secretary: Hadassah Hill
Treasurer: Phillip Fryman
Advisor: Ann Witherington

Alpha Nu: Oglethorpe University

President: Ronald Remington
Vice President: Veer Chahwala
Secretary: Pierceu Oliver
Advisor: John A. Cramer

Alpha Upsilon: Union University

President: Chelsea Mytyk
Vice President: Justin Hutto
Secretary: Alydia Murray
Treasurer: Allorie Smith
Advisor: Elsie Y. Smith

Alpha Psi: Hillsdale College

President: Vesna Pulko
Vice President: Zachary Kohley
Secretary: Shannon Stranglewicz
Treasurer: James Kasuboski
Advisor: Jim Peters

Beta Beta: George Fox University

President: Melissa Farmer
Vice Presidents: Holly Vanbrocklin
Secretary: Travis Lund
Treasurer: Andrea Bryan
Advisor: Carlisle Chambers

Beta Eta: Evangel University

President: Megan Rooney
Vice President: Jamie Lochner
Secretary: Allison Ragsdale
Treasurer: Amanda Gullick
Advisors: Glenner Richards
Michael McCorcle

Beta Theta: Belhaven College

President: Cathy Karlak

Gabrielle Pickle

Vice President: Brian Kirby

Secretary: Aubrey Voorbrood

Treasurer: Marlena Mattingly

Advisors: Al Chestnut

Phillip Kelly

Beta Iota: Bethel University

President: Munya Chimukangara

Vice Presidents: Jonathan Shelver

Secretary/Treasurer: Noël Santora

Communications: Brett Einerson

Activities Coordinator: Robyn Gilbertson

At-large: Owen Boldt

Zachary Schwartz

Advisors: James Reynhout

Kenneth Rohly

Beta Nu: Houghton College

President: Jason Shambach

Vice President: Laura Blackford

Secretary: Jennifer Olmstead

Treasurer: Lauren Phinney

Advisors: David Perkins

Martha Whiting

Beta Xi: Pikeville College

President: Emily Ruth

Vice President: Ashley Justice

Secretary: Christy Hopkins

SGA Representative: Amanda Goble

Advisor: Bernadine Cochran

Beta Rho: Castleton State College

President: Dona Turek

Vice President: Dakota Trufant

Secretary: Marcie Brown

Treasurer: Amy Taylor

Advisors: Brad Coupe

Catherine Garland

Dale Kreisler

List of Attendees

BETA CHAPTER

Dr. Robb VanPutte

Dr. Mike Henshaw

Dr. David Jennings

Dr. Kian Pokorny

Sara Rubenacker

Brandi Simmons

Stephen Gregory

Lora Nation

Kellie Persons

MCKENDREE COLLEGE

Jesse Gibbs

Michelle Mannino

Karla Johnson

Tyler Sondag

Alicia Crow

Stephanie Robbins

Jordan Smith

Aaron Rogier

Donielle Jordan

Eric Burge³

Dan Casper

Jen Scheibel

Aaron Povolish

Travis Shemwell

Amber Jackson

Laxman Pandey

Bryan Hopkins

PI CHAPTER

Dr. Harold Wilkinson

Dr. Anne Rammelsberg

MILLIKIN UNIVERSITY

Samantha Madlem

Tom Beckmeyer

Amy Wade

RHO CHAPTER

Dr. Joe Burnell

Josh Scheidler

UNIVERSITY OF INDIANAPOLIS

Adam Everhart

Jessica Brown

Tyler Arnold

Meghan Duhadway

SIGMA CHAPTER

Dr. James Hall

Dr. Cary Guffey

Stephanie Rodriguez

OUR LADY OF THE LAKE UNIVERSITY

Albert Affeldt VI

Estrella De La Peña

Jessica Hottenstein

Gemma Monroy

Andrew Martinez

ALPHA BETA CHAPTER

Glenn McQuaide

Steven Kim

CAMPBELLSVILLE UNIVERSITY

Jeff Huang

Eric Thompson

ALPHA GAMMA

Dr. David Hahn

MALONE COLLEGE**BETA GAMMA**

Dr. Frank Somer

COLUMBIA COLLEGE**BETA IOTA**

Dr. James Reynhout

Dr. Robert Kistler

Kelly Schwartzbauer

BETHEL UNIVERSITY

Natalie Johnson

Munya Chimukangara

Megan Schwartzbauer

Noël Santora

Brett Einerson

BETA XI

Dr. Bernadine Cochran

Bridgette Thacker

PIKEVILLE COLLEGE

Emily Ruth

Ashley Justice

Tonya Milam

Proceedings of the National Convention

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Executive Council Meeting Minutes Thursday March 30, 2006

Meeting Convened at 8:00 p.m. in room 212 of Pipen Academic Center, McKendree College, Lebanon, Illinois. President Joe Burnell brought the meeting to order.

ROLL CALL

Officers: Harold Wilkinson (Executive Director), Cary Guffey (Historian/Editor), Robb VanPutte (Past President), Joe Burnell (President), Bernadine Cochran (President-elect), David Hahn (Treasurer), and Bob Kistler (Web Master).

Chapter Representatives: Jim Hall (Sigma), Jim Reynhout (Beta Iota), Glenn McQuaide (Alpha Beta) and Anne Rammelsburg (Pi).

Nine chapters are in attendance

APPROVAL OF PREVIOUS MINUTES

Minutes for the convention March 30-April 1, 2005 at Malone College were reviewed. Minutes were approved as published in the *Sigma Zetan*. A discussion of what to do with minutes in the future was concluded with the decision to publish the minutes in the *Sigma Zetan* as well as on the web. The location would be password protected for access by the Executive Council.

Minutes of the Advisors' meeting held February 12, 2006 at Keiss Hall, Gwendydd Mercy College were reviewed. Corrections were made and minutes were approved. A copy will be posted on the web site.

REPORTS FROM NATIONAL OFFICERS

Harold Wilkinson, National Executive Director: A summary report of the past year was presented. The group accepted the report. Noteworthy items include:

- 658 new members;
- 1 new chapter installed;
- continued faculty support with the addition of 11 new sponsors; and
- activation of Beta Gamma Chapter at Columbia, Missouri.

National Office Activity Report						
30 March 2005 through 1 April 2006						
Chapter	New Student Members	New Faculty Sponsors	Dues Received	Date of Last Election Report	Officer Report Received	Jewelry Dispersed
Beta	19		\$475	12/16/06	00-01	
Gamma			\$0			
Delta	6		\$150	10/9/05		6
Epsilon			\$0			
Lambda	1		\$25	3/17/05	99-00	
Mu			\$0			
Xi			\$0		98-99	
Pi	39		\$975	2/16/06	00-01	39
Rho			\$0		05-06	
Sigma	3		\$75	2/23/05	00-01	
Tau			\$0			
Upsilon	1		\$25	4/1/05		
Phi	6	2	\$150	3/2/05		
Chi			\$0			
Psi			\$0			
Alpha Beta	13		\$325	1/25/05	99-00	
Alpha Gamma			\$0	4/9/01	00-01	
Alpha Delta			\$0			
Alpha Epsilon			\$0			
Alpha Zeta			\$0			
Alpha Eta			\$0			
Alpha Theta	12		\$300	3/31/05	05-06	
Alpha Kappa			\$0	10/1/00	00-01	
Alpha Lambda			\$0			
Alpha Mu			\$0	4/12/05	99-00	
Alpha Nu	7		\$175	4/14/00	05-06	10
Alpha Xi	28		\$700	4/10/05	98-99	
Alpha Pi	15		\$375	2/15/05	00-01	
Alpha Rho	22		\$550	2/24/06	00-01	2
Alpha Sigma	9		\$225	4/24/06	99-00	9
Alpha Tau			\$0			
Alpha Upsilon	19		\$475	3/10/06	00-01	
Alpha Phi	43		\$1075	4/28/05	00-01	
Alpha Chi			\$0	3/1/01	00-01	
Alpha Psi	32	3	\$800	11/30/05	05-06	57
Alpha Omega			\$0			

National Office Activity Report

30 March 2005 through 1 April 2006

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Chapter	New Student Members	New Faculty Sponsors	Dues Received	Date of Last Election Report	Officer Report Received	Jewelry Dispersed
Beta Alpha			\$0		00-01	
Beta Beta	6		\$150	10/1/05	05-06	
Beta Gamma	11		\$275	10/5/05	05-06	
Beta Delta	6		\$150	1/2/04	05-06	6
Beta Epsilon			\$0	4/27/00		11
Beta Zeta	7	1	\$175	3/10/05		21
Beta Eta	51		\$1275	2/13/06	05-06	
Beta Theta	21		\$525	4/20/05	05-06	25
Beta Iota	22		\$550	12/6/05	05-06	10
Beta Kappa			\$0			
Beta Lambda	113		\$2825	12/1/05		
Beta Mu	19		\$475	4/27/05		19
Beta Nu	27	1	\$675	3/17/05	05-06	
Beta Xi	6	2	\$150	10/4/05	99-00	6
Beta Omicron	30	1	\$750	1/27/06	00-01	74
Beta Pi			\$0			
Beta Rho	38		\$950	3/29/06	05-06	13
Alpena (Associate)	22	1	\$550	3/2/06		22
Somerset (Associate)	4		\$100	2/28/06	98-99	4
No. of chapters	32	7	25	37	34	17
Total	658	11	\$16,475			334

David Hahn, Treasurer:**Report**

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The financial state of the national organization is good. I have revised our accounting of the development fund, so as to properly account for the interest that these accounts are accruing as income. This is summarized in the included tables [pages 13-16], and necessitated a revision of the financial report for July 1, 2003 to June 30, 2004. The interest from the development fund is now properly counted as income for the society.

During the period of July 1, 2004 to June 30, 2005, the society had income totaling \$15,553.91 and disbursements totaling \$12,872.31, bringing our total funds from \$53,034.35 to \$55,715.95. These amounts and the relevant accounts are detailed in the included chart.

Since June 30, 2005, the Capital One credit card has been closed, and the account at First National Bank in Columbia has been closed, thus consolidating our accounts to the Millikin account and the four accounts at Regions Bank.

One issue remaining is that Regions had been charging the checking account an internet banking fee. Dr. Wilkinson inquired and had this fee discontinued. However, they subsequently began charging us a \$10 per month service fee. I will inquire and have this fee discontinued.

The present status of our finances is detailed in the final chart. We need to find ways to spend more of our money, so that, as a non-profit, we are not bringing in more than we are paying out, and thus making money. I believe the best way to accomplish this is to grow our National Convention, and thus have greater disbursement to the attendees.

Comments on report

Motion to raise travel reimbursement to \$0.40/mile was approved. (See financial report on page 13.) Motion to accept the treasurer's report was seconded and passed.

Cary Guffey, Historian and Publicist:**Report**

As with last year, most of my efforts this year have been directed toward producing the proceedings of the previous year's national convention. As I've become more familiar with Microsoft Publisher, it has been somewhat easier to put together the *Sigma Zetan*. Last year the national officers discussed whether or not the organization should purchase a different software program in an effort to make this task easier. At this point, I'm not sure that doing so would be beneficial as other issues (discussed below) make production of the *Sigma Zetan* difficult to accomplish in a timely fashion.

Regions Savings Account
 Opened on March 5, 2002

Beginning Balance:	10000.00
Interest: (3/5/02-12/30/02):	61.35
Interest: (1/1/03-6/19/03)	18.31
Balance as of 6/30/03:	10073.89
Interest: (7/1/03-6/16/04):	10.76
Balance as of 6/30/04:	10084.65
Interest: (7/1/04-6/23/05):	11.44
Balance as of 6/30/05:	10096.09
Interest: (7/1/05-3/30/06):	13.21
Balance as of 3/30/06:	10109.30

Regions Certificate of Deposit # 1
 Opened on March 5, 2002

Beginning Balance:	15000.00
Interest: (2/5/03):	750.00
Balance as of 6/30/03:	15750.00
Interest: (2/5/04):	787.5
Balance as of 6/30/04:	16537.50
Interest: (2/5/05):	826.87
Balance as of 6/30/05:	17364.37
Interest: (2/5/06):	868.22
Balance as of 3/30/06:	18232.59

Regions Certificate of Deposit # 2
 Opened on April 29, 2003

Beginning Balance:	2814.27
Interest: (3/29/04):	84.43
Balance as of 6/30/04:	2898.70
Interest: (3/29/05):	86.96
Balance as of 6/30/05:	2985.66
Interest: (3/29/06):	89.57
Balance as of 3/30/06:	3075.23

Financial Report for Sigma Zeta National

July 1, 2003 - June 30, 2004
 (Revised 7/29/06 by ILL. Wilkinson, 2/27/06 by C. Guffey, and 3/24/06 by D.W. Hahn)

Balance Forward - July 1, 2003		
FNB - Columbia	\$6,800.20	
Millikin University	\$7,148.14	
Regions(UP) Savings	\$10,973.89	
Regions(UP) CD	\$15,750.00	
Total	\$39,902.23	
Income		
Chapter Income (Millikin)	\$18,135.50	
Interest:(Region Savings)	\$10.76	
Interest:(Region CD #1)	\$787.50	
Interest:(Region CD #2)	\$84.43	
Inactive Gamma Chapter(Region CD #2)	\$2,814.27	
Total	\$21,822.46	
Disbursements		
National Convention Travel(FNB)	\$2,385.28	
National Office Travel(FNB)	\$1,561.45	
National Office Expenses(FNB)	\$155.04	
Jewelry(FNB)	\$2,233.78	
Officer Expenses(M)	\$1,068.71	
Office Expenses(M)	\$151.64	
Miscellaneous(M)	\$604.44	
Total	\$8,100.34	
Transfers		
Millikin to FNB	\$10,000.00	
Ending Balance - June 30, 2004		
FNB - Columbia	\$10,054.65	
Millikin	\$13,468.85	
Regions(UP) Savings	\$10,084.65	
Regions(UP) CD #1	\$16,537.50	
Regions(UP) CD #2	\$2,898.70	
Total	\$53,024.35	

Financial Report for Sigma Zeta National
July 1, 2004 - June 30, 2005

Balance Forward - July 1, 2004		
FNB - Columbia	\$10,646.65	
Millikin University	\$13,458.85	
Regions(UP) Savings	\$10,084.65	
Regions(UP) CD #1	\$16,537.50	
Regions(UP) CD #2	\$2,808.70	
Total		\$53,034.35
Income		
Chapter Income(Millikin)	\$14,200.62	
Chapter Income(Regions)	\$302.00	
Interest(Regions Savings)	\$11.44	
Interest(Regions CD #1)	\$828.87	
Interest(Regions CD #2)	\$86.96	
Interest(Regions Checking)	\$11.22	
Other(Regions)	\$24.80	
Total		\$15,553.01
Disbursements		
National Convention Travel(FNB)	\$3,182.50	
National Convention Support(Millikin)	\$80.00	
National Officer Travel(FNB)	\$1,032.72	
National Officer Travel(Regions)	\$1,982.14	
Jewelry(Millikin)	\$2,812.23	
Office Expenses(FNB)	\$137.59	
Office Expenses(Millikin)	\$731.30	
Office Expenses(Regions)	\$402.75	
Fees(Regions)	\$80.88	
Capital One(FNB)	\$377.75	
Capital One(Millikin)	\$104.75	
Capital One(Regions)	\$31.31	
Miscellaneous(FNB)	\$1,179.90	
Miscellaneous(Millikin)	\$356.00	
Total		\$12,872.31
Transfers		
Millikin to Regions Checking	\$15,000.00	
Ending Balance - June 30, 2005		
FNB - Columbia	\$4,143.70	
Millikin University	\$7,795.19	
Regions(UP) Checking	\$13,330.94	
Regions(UP) Savings	\$10,006.00	
Regions(UP) CD #1	\$17,364.37	
Regions(UP) CD #2	\$2,985.66	
Total		\$56,715.95

Partial Financial Report for Sigma Zeta National
July 1, 2005 - March 30, 2006

Balance Forward - July 1, 2005		
FNB - Columbia	\$4,143.70	
Millikin University	\$7,795.19	
Regions(UP) Checking	\$13,330.94	
Regions(UP) Savings	\$10,006.00	
Regions(UP) CD #1	\$17,364.37	
Regions(UP) CD #2	\$2,985.66	
Total		\$56,715.95
Income		
Chapter Income(Millikin)	\$7,642.00	
Interest(Regions Savings)	\$13.21	
Interest(Regions CD #1)	\$868.22	
Interest(Regions CD #2)	\$89.57	
Interest(Regions Checking)	\$24.54	
Total		\$8,637.54
Disbursements		
National Officer Travel(Millikin)	\$403.81	
National Officer Travel(Regions)	\$1,718.47	
Office Expenses(Millikin)	\$655.57	
Fees(Regions)	\$40.09	
Total		\$2,817.94
Transfers		
Millikin to Regions Checking	\$10,000.00	
FNB to Regions Checking	\$4,143.70	
Current Balance - March 30, 2006		
FNB - Columbia	\$0.00	
Millikin University	\$4,377.81	
Regions(UP) Checking	\$25,740.62	
Regions(UP) Savings	\$10,109.30	
Regions(UP) CD #1	\$18,232.59	
Regions(UP) CD #2	\$3,075.23	
Total		\$61,535.55

I attended the national officers/advisors meeting in Philadelphia in February. At that meeting I clarified some of the information in the minutes from last year's Executive Council meeting and the group discussed ways that information could be delivered to me that would make it easier to put together the *Sigma Zetan*. The biggest problem is that information is contributed in a variety of formats. I have determined that converting all submitted files into plain text format and then formatting in Microsoft Word is the most efficient way of handling this information. There seemed to be consensus among the attendees that as much information as possible should be submitted via forms available on the web site so as to reduce the number of different formats received. I also need to make sure that I collect as many documents as possible at conventions. As I become more adept at putting the *Sigma Zetan* together and have a better grasp of what I need, I intend to put together a checklist for the convention to help with this.

I received 500 copies of the *Sigma Zetan* from the printer, for which the organization was charged the same price as last year—\$975. The quality of the final prints was not as good as last year, especially with regards to the photographs accompanying the text. The printer said that the photos proved difficult to reproduce this year and suggested that next year I submit a .pdf file along with hard copies so that the photographers used by the print shop can more easily adjust the quality of the images.

After last year's convention I polled the national officers and active advisors about the advisability of omitting chapter reports from the *Sigma Zetan*. All but one respondent felt that this would be fine, with the exception that those reports used as applications for the Founders Cup should be included. This change is incorporated in this year's *Sigma Zetan*.

I have not done much as Historian this year. I have begun scanning officer reports and chapter reports that I receive from local chapters. I'm storing electronic copies and hard copies of these documents. I have not yet prepared a presentation for the general meeting, but I will do so after tonight's meeting. I would appreciate any suggestions for what this presentation should include. For example, should it be a summary of the history of the organization or something of a more trivial, but entertaining, nature?

I would like to seek advice as to what my duties as Historian should include. In particular, I wonder if we should continue to try to keep a physical scrapbook or if we should instead form digital scrapbooks stored on CD. After each of the last two conventions, I've received numerous photographs from attendees, but most of these have not been used in any way. (At most, only a dozen or so photographs, other

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than shots of presenters, are included in each *Sigma Zetan*. Also, I would like to request that any pictures submitted to me be accompanied by captions or indices that identify the people in the photographs.) Another alternative is that historical information could be stored on the organization's web site. I'm willing to entertain any other suggestions for storing and making available historical documents. I intended to bring the scrapbook to this year's meeting, but inadvertently left it in my office in San Antonio.

Respectfully submitted for consideration and approval,

Cary Guffey, Publicist/Historian
30 March 2006

Bob Kistler, Web Master:

Report

1. Site Statistics - <http://sigmazeta.org>:

Statistics for the site [see graphs on page 19] indicate a peak in access to the site right after the 2005 convention and then again in Jan – March 2006 in the time period leading up to the 2006 convention. Overall usage was down slightly from the previous Oct. 2004 – March 2005 period.

2. Site Revisions:

The site home page was revised with the removal of the static images and the rollover menus. A news area was added on the home page with an extended news page and archive linked from this news area. The redesign will allow me to add new photos and a more diverse layout to keep the site changing and hopefully entice "browsers" to visit and revisit the site. The addition of a QuickLinks as well as the left navigation menu make the site contents more easily accessible.

Added information to the convention page about travel subsidy and convention grants for chapters that have not attended in the previous three years.

Added information about convention planning to the convention page.

Added a trial version of the certificate form for review and suggestions. If we leave this online, seals will need to be purchased and applied to make these official.

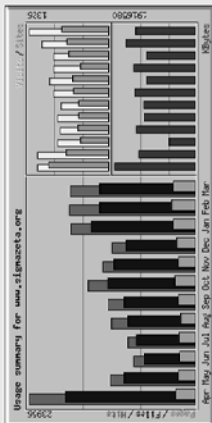
<http://www.sigmazeta.org/forms/certificate.doc> (original = certificate1.doc)

3. Future Plans:

Plan to also add a standardized Chapter Report Form that will be completed and submitted online.

Plan to add a map of the chapters.

Plan to convert all online forms to real online forms.



Month	Daily Avg			Monthly Totals						
	Hits	Pages	Visits	Hits	Pages	Visits				
Mar 2006	622	475	107	45	780	1417622	1326	3109	13776	18054
Feb 2006	646	491	118	39	699	1650218	1102	2359	13770	18094
Jan 2006	377	482	100	49	666	1450996	919	2140	14982	17892
Dec 2005	382	322	86	29	467	1456428	912	2668	10007	11852
Nov 2005	442	346	81	32	585	1151584	879	2418	11564	13280
Oct 2005	495	408	91	29	570	1440748	912	2819	12597	15183
Sep 2005	416	341	81	26	497	1210975	786	2442	10239	12509
Aug 2005	386	310	64	27	494	1208160	852	1991	9837	11869
Jul 2005	338	275	72	25	505	1304811	799	2257	8456	9571
Jun 2005	291	240	71	28	473	930585	841	2148	7268	8747
May 2005	396	257	78	30	484	1314941	814	2321	10331	12324
Apr 2005	791	624	92	39	892	1810180	1176	2781	18721	21936
Totals						15964678	11776	31244	34148	42392

Robb VanPutte, Past President:

Report

Much of my time this past year has been spent aiding the Beta chapter in its preparations for this year's convention. Preparations began this past September with the executive committee of our chapter deciding to create five committees that would oversee various components of the convention. These committees consisted of registration, field trips, food, and banquet speaker. Faculty within the department of biology were chosen to oversee the work of each committee. Student chairs were chosen for each committee and volunteers were taken

(Continued on page 20)

from the members of our chapter to round out each committee's membership. With the responsibility of each committee clearly defined, we began the work to prepare for the convention. To ensure that each committee was making regular progress, each chair was instructed to report at the bimonthly meetings of the chapter. In addition, student and faculty co-chairs of all committees met in between each bimonthly chapter meeting to discuss progress, issues, problems, or questions. The registration committee was responsible for creation of the convention registration form and abstract submission form which were uploaded to the national website in mid-January, 2006. This committee also worked on preparing all materials related to on-site check-in prior to the meeting including nametags, registration folders (which contained the convention schedule, list of abstracts, campus map, etc.), collection of registration fees, and the selling of convention t-shirts. The field trip committee was responsible for coming up with a list of possible field trips and working out the logistics of transportation to and from the field trip sites. The food committee was responsible for working with campus food services to organize the food for the banquet as well as taking care of breakfast food items and providing dinner Thursday evening. The speaker committee was responsible for the selection and organization of our banquet speaker. Our students have put in many hours preparing for the convention and it is our hope that everyone in attendance will have a great time!

Respectfully submitted for consideration and approval,

Robb VanPutte, Past President
30 March 2006

Joe Burnell, President:

Report

Sigma Zeta is sound as an organization. The work of Glenn McQuaide and David Hahn has restored the financial records to good order. The core chapter participation in the national convention is sound. Several chapters continue local activity and continue to communicate yearly membership to the Executive Director.

The major challenge for the organization is to expand leadership in Sigma Zeta. The organization has been fortunate in its recent past to have advisors of excellent ability active in national leadership. However, in each of the last two years, service to their home institution has limited the effectiveness of presidents. We need to expand national participation in Sigma Zeta to make sure that there is a pool of capable advisors to provide future leadership for the organization.

The major difference between Sigma Zeta and other science-related honor societies is its multidisciplinary focus. This is a feature that should be highlighted as we promote Sigma Zeta to move current chapters toward greater national activity and to recruit potential new chapters.

Regretfully, I did not attend the chapter advisors' meeting held in Pennsylvania this past February. The weather forecast was not very favorable for the trip and my husband, who had planned on coming with me to assist in the drive, became ill the day before, so I decided not to attempt the drive. After listening to the weather channel and receiving an e-mail from Dr. Wilkinson about being stranded there for an extra day, I am glad that I did not go. Hopefully, my absence did not cause any problems.

I sent an e-mail to the sponsor of Alpha Xi chapter of University of Virginia at Wise, Va. (formally Clinch Valley College) to personally invite him and his members to the National Convention. I was hoping that since I was an alumni from there that this would influence them to consider coming to the convention.

I mailed a letter to the division chairs of four colleges to introduce them to Sigma Zeta and invited them to visit the website. The colleges that I contacted were King College in Bristol, TN., Milligan College in Elizabethton, TN., Emory and Henry College in Emory, VA and Mars Hill College in Mars Hill, NC. I visited their websites and it appeared that they did not have an honor society for science and mathematics so I thought that they may be good prospects for new chapters.

I continually work with Pikeville College's chapter Beta Xi and I have brought four students with me to the convention and at least two of them will be presenting papers. Our chapter is returning the Founder's Cup that we proudly displayed in Armington Science Building's trophy case.

I look forward to serving as President of the national organization. With the guidance of past and present officers, I hope to meet the expectations of that task.

Respectfully submitted,
Bernadine Cochran, President-elect
30 March 2006

OLD BUSINESS

Future Convention Sites: 2006—Bethel University; 2007—University of Indianapolis.

Advisor's Handbook

A motion was made to organize a committee at the advisors' meeting, the purpose of which would be to review and update the Advisor's Handbook. The motion was seconded and passed.

Committee Assignments

Founders Cup

Jim Hall, Sigma (Chair)
Emily Ruth, Beta Xi
Tyler Arnold, Rho
Adam Everhart, Rho
Jeff Huang, Alpha Beta
Noël Santora, Beta Iota
Gemma Monroy, Sigma
Amy Wade, Pi

Nominations

Cary Guffey, Sigma (Chair)
Ashley Justice, Beta Xi
Jessica Brown, Rho
Steve Kim, Alpha Beta
Kelly Schwartzbauer, Beta Iota
Stephanie Rodriguez, Sigma

Awards

Anne Rammelsburg, Pi (Chair)
David Hahn, Alpha Gamma
Frank Somer, Beta Gamma

Resolutions

Jim Reynhout, Beta Iota (Chair)
Tonya Milam, Beta Xi
Estrella De La Peña, Sigma
Albert Affeldt, Sigma
Meghan DuHadway, Rho
Eric Thompson, Alpha Beta
Brett Emerson, Beta Iota
Karla Johnson, Beta
Samantha Madlem, Pi

Auditing

Glenn McQuaide, Alpha Beta (Chair)
Joshua Scheidler, Rho
Bridgette Thacker, Beta Xi
Jessica Hottenstein, Sigma
Munya Chimunkangara, Beta Iota
Tom Beckmeyer, Pi



Executive Director Harold Wilkinson at the Opening Session of the 2006 National Convention

Opening Session

Friday March 31, 2006

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Opening Session

President Burnell called the National Convention to order at 9:00 a.m. in the Piper Academic Center auditorium. He introduced the host chapter representative, Dr. Robb VanPutte. Dr. VanPutte introduced Provost Gerald Duff, who gave the opening address.

Committee assignments were announced and members were instructed to make plans for meeting times and for carrying out their responsibilities.

Paper Session – The meeting was adjourned for individuals to attend the paper sessions that were conducted between 9:30 and 12 noon. A separate poster session was held from 6:30-7:00 pm.

Field Trips

Friday afternoon was spent attending field trips. One group visited the Gateway Arch and the Anheuser-Busch Brewery, while a second group went to the St. Louis Zoo.

Banquet

The banquet speaker was Dr. Joseph Coelho, Assistant Professor of Biology at Quincy University. He gave a highly entertaining talk titled, "Sex, Bugs, and Rock 'N' Roll".

Closing Business Meeting

Saturday April 1, 2006

A continental Breakfast was provided outside the Piper Academic Center auditorium. The call to order was at 9:00 with student presentations until 11:00.

President Joe Burnell called the closing business meeting to order. There were 64 in attendance. He thanked Robb VanPutte, Michael Henshaw, and the students of Beta Chapter for the excellent meeting. He also thanked Harold Wilkinson, Sigma Zeta Executive Director for his service. Cary Guffey, Historian and editor of *Sigma Zeta*, and Bob Kistler, Webmaster, were also recognized for the changes in the communication media of the organization. Special thanks also was given to the drivers for the field trips on Friday.

(Continued on page 24)

Dr. Burnell then presented a brief State of the Organization address. He said that the organization is healthy with strong core of nationally active chapters, consistently participating chapters at the local level, and the organization is financially healthy. One thing we need to do is to get more chapters actively attending the National Convention. He encouraged students who are juniors to contact friends at other schools and tell them about the organization.

The next order of business was a roll call of chapters:

Chapter	University	Number of Attendees	
		Faculty	Students
Beta	McKendree	4	22
Beta Xi	Pikeville	1	4
Rho	U. of Indianapolis	1	5
Sigma	Our Lady of the Lake	2	6
Alpha Beta	Campbellsville	1	3
Alpha Gamma	Malone	1	0
Pi	Millikin	2	3
Beta Iota	Bethel	2	6
Beta Gamma	Columbia College	1	0
TOTAL		15	49

Committee Reports

Auditing Committee

Glenn McQuaide, Chair, introduced the committee members and gave the following report.

The Auditing Committee has examined the records and accounting practices of Sigma Zeta and finds the summary of income, expenditures, and balances to be in excellent order. Dr. David Hahn is to be commended for his exemplary work over this past year. Our records are returning to the quality maintained by Dr. Millard Niver, one of the icons of our organization.

Harold Wilkinson moved to accept the committee's report. The motion was seconded by Robb VanPutte and passed by consenting vote.

Resolutions Committee

Jim Reynhout, Chair, introduced the committee and the resolutions were read by Samantha Madlem.

Be it resolved that:

1. the video projector be protected from building vibration to help limit viewer eyestrain;

2. all national conventions should include a brewery tour and allow for every member to become an honorary brewmaster; 25
3. every school should allow themselves one extra hour for deer collisions and grass fires;
4. teams hosting the Final Four tournament (or other major sporting events) should be exempt from the national meeting;
5. social interaction would be more fun if students from the chapters participated in group activities; games like a campus-wide scavenger hunt and charades are always welcome;
6. all students should have a vote on the movie shown at the social;
7. Papa John's pizza was great, but purchasers should know that pepperoni-eaters outnumber cheese-eaters 100 to 1;
8. shoes, shirts, and noseplugs should be worn at all times during the Anheuser-Busch tour; also, if the Arch rocks, just keep on rolling—it's all part of the plan;
9. to increase socialization and networking, hotel occupancies should be the same across the board for all chapters;
10. all members of Sigma Zeta now know that honey has recreational properties and honey will never be mentioned again at a Sigma Zeta convention;
11. "Sex, Drugs, and Rock 'N' Roll"—what more needs to be said?
12. before going to a zoo during spring, members should know that "love is in the air";
13. the returning president cannot keep the official gavel indefinitely;
14. each national officer will now be required to start with a joke...each time they speak;
15. the chapter returning the Founders Cup needs to return it in one piece;
16. if the weather is perfect, the convention should be moved outside;
17. the warm, sunny weather be stored and imported to Minneapolis for next year's convention;
18. the speakers be interesting enough to prevent the executive officers and faculty members from falling asleep during the talk;
19. "I think, therefore I am" is no longer applicable to Sigma Zeta; rather, "I think, therefore Darwinism";
20. a session on name pronunciation should be held for all faculty members during the opening meeting;
21. the official Sigma Zeta lab coat be covered with all manner of plants and animals, to include a few insects;
22. Dr. Joseph Coelho be thanked for his unique and informative presentation—insects rule!; and
23. Beta Chapter be congratulated for hosting a very fine convention!

A motion to accept the report of the Resolutions Committee was seconded and passed by unanimous vote.

Nominations Committee:

The Nominations Committee presents the following slate of National Officers for 2006-2007:

National Executive Director—Harold Wilkinson, Pi
 National Treasurer—David Hahn, Alpha Gamma
 National Publicist/Historian—Cary Guffey, Sigma
 National Webmaster—Bob Kistler, Beta Iota
 National President-elect—Mike Henshaw, Beta
 National President—Bernadine Cochran, Beta Xi
 National Past President—Joe Burnell, Rho

Motion—To close nominations. Seconded and passed.

Motion—To accept the slate of officers as presented. Seconded and passed.

Voting results—Chapter delegates voted unanimously to elect these officers.

Honor Award:

The Beta Iota chapter of Bethel University is pleased to honor Brett Einerson for the Honor Award. While all chapter officers have designated responsibilities and duties to perform, Brett served as our chapter communications officer and has done a very fine job in keeping all officers and members informed of our meetings in advance. Moreover he has almost single-handedly recruited all of the new members of our chapter this year. Brett has done a fine research project at Bethel and is reporting on his findings, entitled "Sequence of expression of the FGF-10 gene in *Xenopus laevis*" at this convention. He has also been accepted into medical school at Wake Forest and he and his wife are ready to migrate south and start this new adventure. We are fully confident that he will succeed in this endeavor as he has shown at Bethel and are proud to present this award.

Presentation Award:

This is a new award presented for the best scientific report at the convention. All presenters were evaluated on a number of criteria. Representatives from almost every discipline were evaluated. The winner of the award was chosen by the Awards Committee.

Anne Rammelsburg (Chair) presented two awards to the following presenters: Tyler Sondag (Beta) and Munya Chimunkangara (Beta Iota). Each was presented with \$100.

Founders Cup:

Members of the committee read the history and rules that govern the presentation of the Cup. (This history can be found in the Constitution.)

Two factors played a major roll in the final decision: Number

of presenters at the national meeting and the various achievements at the chapter level. The 2006 Founders Cup was presented to the Beta Chapter from McKendree College, Lebanon, Illinois. The committee report read as follows:

"The Committee feels that the 2006 recipient of the Founders Cup, Beta Chapter, accomplished the most important goal of Sigma Zeta—encouraging scholarly achievement in the natural sciences, computer sciences, and mathematics. Six members of Beta Chapter presented papers at the National Convention. In addition, the chapter was locally active, working with faculty to finish renovation of the university greenhouse. Using the greenhouse, members of Beta Chapter held a major fundraiser in the spring, planting, growing, and selling potted plants."

Executive Director Harold Wilkinson noted significant items in the report and suggested the audience read it in this issue of the *Sigma Zetan*. A representative from the Beta Xi chapter (current holders) transferred the trophy to the Beta chapter officer. The Beta chapter was reminded that they have the responsibility of inscribing the trophy with the chapter name and year of winning.

Founders Cup Plaque

A plaque recognizing the Beta Xi chapter as 2005 recipients of the Founders Cup was presented to chapter officers. This is a permanent symbol of their accomplishment.

Host Award:

A recognition plaque stating "The Executive Council of SIGMA ZETA extends sincere appreciation and gratitude for the excellent hosting of the March 30 –April 2, 2006 National Convention by the Beta Chapter at McKendree College, Lebanon, Il" was also presented to Beta Chapter for their hosting of the April 2006 National Convention.

President's Award:

A special paperweight was presented (prematurely) to President, Dr. Joe Burnell, for his three years of service in the national presidency.

Cary Guffey give a short presentation on the organization. He presented a PowerPoint history of the organization as a whole and also the history of the Beta chapter.

Harold Wilkinson presented a brief history of the gavel pointing out that it is built from wood contributed by the first seven chapters of the organization. Joe Burnell then passed the official gavel to Bernadine Cochran with the words "I hereby pass this gavel and the authority of the president to Ms. Bernadine Cochran."

As the new president, Professor Cochran extended thanks to all that attended. She expressed thanks to everyone for coming and for the excellent presentations. She congratulated the recipients of the various awards and encouraged members to continue to promote activities in the organization. She expressed looking forward to serving as president and pledged to do her best to up old the traditions of the organization.

The site of next year's convention will be Bethel University, St. Paul, Minnesota. The advisor/leadership meeting will be the first week in February 2007.

Motion – To adjourn the 2006 meeting. Seconded and passed at 12:15 p.m.

Founders Cup Application

Beta Chapter McKendree College

Local Activity

1. Meetings were held biweekly, with 20 to 25 students attending each meeting, along with 4 to 5 advisors.

Each meeting addressed National Convention issues, usually beginning with updates from the chairpersons of assigned committees. There were 5 committees: food/banquet, registration, IT, speaker, and field trips, and each committee consisted of 5-10 students. Any new problems or ideas regarding the convention were brought up for discussion, followed by any news and information on other events within the chapter.

Every week, the chairpersons would meet to review what tasks needed to be done that week for the convention.

2. This year, members of Beta Chapter organized monthly seed planting gatherings to prepare the greenhouse for the spring plant sale. This plant sale is scheduled for later in the semester, and is open to the entire campus/town. Prior to planting, members worked together with faculty to clean up and enhance the greenhouse after its renovation.

Also, members held a discussion/vote on a Sigma Zeta Beta Chapter t-shirt that would be available for any McKendree student to purchase. The theme was "The Evo-

lution of the Bearcat". We also agreed upon the t-shirt design for the 2006 National Convention. 29

3. The Speaker Committee contacted multiple candidates for the convention speaker. They agreed upon Quincy University's Joe Coelho to speak on "Insects and Rock 'n' Roll Music" at the banquet.

4. Some ideas, mostly regarding the convention, that could be helpful to other chapters, are we decided to bring back the student mixer after the banquet at a local bowling alley. This gave the students another opportunity to become acquainted with one another, and also to celebrate the last night of the convention.

Another great idea for a fundraiser would be the plant sale we organized. Especially in the spring season, many people are looking for flowers and plants to accentuate their gardens. Since we have the greenhouse, it provided the perfect opportunity to grow strong, healthy plants for the public.

National Activity

1. Since we hosted the convention, we had a total of 20 students and 4 faculty that attended the convention.
2. Beta Chapter had 6 student presenters, 3 in biology, and 3 in computer science.
3. Annual reports were sent to the National Office regarding new members and chapter activities. All information about the National Convention was sent via e-mail, and any requests/problems were personally answered by an advisor.
4. We cooperated with other chapters to ensure our convention would cover all areas/bases, and to ensure that this year's convention was a successful one.

Abstracts of Student Presentations 30

Mate Choice in *Neolamprologus multifasciatus*: Testing the Polygyny Threshold Model Kellie Persons McKendree College



Neolamprologus multifasciatus is a dwarf cichlid fish native to Lake Tanganyika in Africa, and is known for living in complex social colonies consisting of multiple reproductive males and females. These fish also settle in areas containing multiple empty *Neothauma* shells which is where breeding occurs. Females are particular about choosing mates, and factors such as mate size, territory quality, and mate behavior play a significant role in their decision. Since *N. multifasciatus* is a polygynous species with the females choosing the males, a set of experiments were performed to test a theory that corresponds with their mating habits known as the Polygyny Threshold Model. The PTM suggests females will choose a male based on the breeding situation quality (BSQ) the male offers. The BSQ refers to the male's territory and it's resources, and if the BSQ is great, then the female will settle there. However, there is some question as to if the number of females already in that territory affects a female's decision to settle there even if the BSQ is high. A series of observations involving video recordings were performed to test this issue to see if there is a significant correlation between the number of females already in a territory and another fish's decision to settle there. The expected observation is that in a territory with equal BSQ's, a fish will choose to settle in an area with fewer fish already present.

Surfactant Protein B and Surfactant Protein C Characterization and Expression in *Xenopus laevis*

Natalie Johnson
Bethel University



Surfactant Protein B (SP-B) and Surfactant Protein C (SP-C) are molecules expressed exclusively in lung tissue. They are expressed early on in lung development and continue to be expressed in the adult lung. Previously these two genes had only been sequenced in mammals. The internal gestation of mammals has made it difficult to research the early development of lungs, however. *Xenopus laevis* was therefore examined as a possible model for allowing easier access to, and manipulation of, the embryo during lung development. Sequence analysis of the coding regions of *Xenopus* SP-C and SP-B determined that they have high homology

with the human and mouse gene sequences. RT-PCR and *in situ* hybridization techniques showed that the expression of these genes in *Xenopus laevis* was located exclusively in the lung tissue and was also seen in the early stages of lung development. The expression patterns of SP-C and SP-B in *Xenopus laevis* are consistent with those seen in mammalian subjects. In light of these similarities it is believed that *Xenopus laevis* would be a good model for further study of SP-B and SP-C and may also be a good subject for further studies on lung development.

A Linux Cluster that Serves as a Windows Computer Lab

Tyler Sondag
McKendree College



Cluster computing allows computationally intense problems to be solved using inexpensive, commodity hardware rather than expensive, custom-built hardware. Clusters generally consist of a connected, dedicated group of computers. Clusters have a wide range of uses in several areas of study, some of which include: Biology, Chemistry, Physics, Medicine, Mathematics, and Computer Science. The goal in this project was to create a Linux cluster from a student computer lab currently running Windows XP (single hard drive). The lab needed to run Windows XP and connect to the campus network during the

day. The cluster was to be completely invisible to all students, both while in Windows XP and during the boot process. This was all to be accomplished with no additional hardware or software costs. This paper will explain the process of installing the operating system on the master node, configuring the master node (including the custom partitioning scheme), installing new compute nodes, creating boot disks, creating the windows partition, and installing Windows XP all in a way that allows them to co-exist on the same machine without conflicting with each other. Also, some basic information about getting started with programming for a cluster will be discussed, as well as some of the work currently in progress on the McKendree College CSI Department Cluster.

Development of Method

Aaron Rogier
McKendree College

The idea of a scientific method as a means of discovery is fairly recent conception having first really been used by Charles Darwin in his principal work, *On the Origin of Species*. In developing the work, Darwin used a logical structure of discovery that had not yet been applied to biology, and can be contrasted with the technique of proof in geometry and mathematics in general. Understanding the epistemologic limits of knowledge illustrates the importance of using a logically valid method of exploration in the life sciences as opposed to an attempt at proof using only limited empirical knowledge.



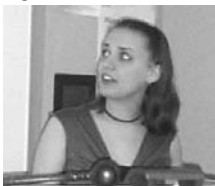
A Knowledge Space for the C++ Programming Language

Alicia Crow

McKendree College

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Knowledge space theory is a psychometric theory that uses mathematics to model human knowledge in a subject. Some concepts associated with knowledge space theory are knowledge states and knowledge structures. A knowledge state is a set of questions in the domain that the student is capable of answering. A knowledge structure is the collection of all knowledge states. A knowledge space is a special type of a knowledge structure that is closed under union. In this paper, a knowledge space is developed for part of the C++ programming language. A BNF (Backus-Naur Form) is chosen as a reference because, as opposed to questioning students or experts, it is an accurate source without human error. In this original research, it is hypothesized that a knowledge space can be built for part of the C++ programming language using a BNF. Considering topics that a student would typically learn in a first semester programming class, the BNF is reduced to a subset of the language and trees are formed from the BNF. Learning paths are then created for items that a student would learn. It is concluded that a knowledge space can be formed using this process.



Sequence and Expression of the FGF-10 Gene in *Xenopus laevis*

Lung Development

Brett Einerson

Bethel University



During lung bud morphogenesis, reciprocal interactions between the epithelial endoderm and the mesenchyme surrounding it lead to early branching of the pulmonary system. Members of the fibroblast growth factor (FGF) family, along with their receptors, have been shown to play an integral part in mediating these interactions. FGF-10 specifically has been shown to be an essential regulator in lung formation. The FGF-10 gene was isolated from *Xenopus laevis*, and its expression during lung development was examined. *Xenopus laevis* serves as an effective model organism

for this study. Gathering information about gene sequence and expression in this organism expands our understanding of pulmonary development.

The Effects of Carbohydrate Consumption on Cognitive Functioning in

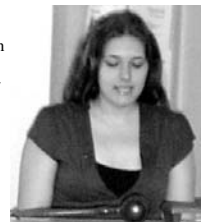
Rats

Sara Rubenacker

McKendree College

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What we eat has a bigger impact on us than just satiating hunger and providing us with energy. Dietary components have an effect on the functioning of our brains. This study focuses on the role of carbohydrates on memory in rats. Adult Sprague-Dawley rats were divided into two groups: the control group was fed a regular diet of laboratory chow (60% carbohydrate, 20% protein, 20% fat), while the experimental group was fed a low-carbohydrate chow (30% carbohydrate, 50% protein, 20% fat). Cognitive learning was assessed by using a Morris-type water maze task, consisting of three training days and one test day. Comparisons were made for time taken to reach platform (latency), number of crossings, and time spent in target quadrant. Learning occurred in both groups during the training period. While no difference between groups was found for the tasks of latency or number of crossings, statistical analysis for time spent in target quadrant found that a difference existed between the groups for this task. These findings indicate the possible role of carbohydrate consumption on memory modulation.



Serotonin Clearance by the GABA Transporter

Andrew Martinez

Our Lady of the Lake University

The serotonin transporter is an important target for many antidepressants and common drugs of abuse. Previous studies have shown that ethanol-induced inhibition of serotonin clearance in the rat is brain region-dependent. Ethanol does not inhibit serotonin clearance proportional to serotonin transport density. Another study was done using serotonin knock out mice. Even with the respective transporter knocked out, an inhibition of serotonin was observed, suggesting that ethanol inhibits serotonin clearance by means other than having a direct effect on the serotonin transporter. Our study was done to determine if the GABA transporter takes up serotonin. Nepacotic acid was used as the antagonist inhibiting the uptake of serotonin by the GABA transporter. The data from this study shows that the GABA transporter and the serotonin transporter both take up serotonin at the region of interest.



***In vivo* Correction of Complement Regulatory Protein Deficiency with an Inhibitor Targeting the Red Blood Cell Membrane**

Jesse Gibbs

McKendree College



Because of the complement system's involvement in many human diseases and potential complications associated with its systemic blockade, site-specific regulation of this effector system is an attractive concept. We report on further developments of such an approach using a single-chain antibody (Ab) fragment as a vehicle to deliver complement regulatory proteins to a defined cell type. In a model system in which red blood cells (RBCs) deficient in complement receptor 1-related gene/protein y (Crry) are rapidly cleared after injection into wild-type animals by a complement-

dependent mechanism, we selectively reconstituted these cells with N- and C-terminally targeted recombinant forms of Crry. Transfusion of Crry-coated knockout RBCs into C57BL/6 mice extended their *in vivo* half-life from <5 min to approximately 2 days. Maintenance of protective levels of Crry (by a combined treatment of donor and recipient RBCs) led to nearly normal RBC survival. Uniform *in vitro* and *in vivo* coating of the RBCs and the more efficient complement inhibitory capacity of C-terminally tagged Crry were other interesting features of this experimental system. These results suggest the possibility of using the single-chain Ab fragment-mediated targeting concept of complement regulatory proteins to restrict complement inhibition to the site of its excessive activation.

Telomeres, Telomerase, and Cellular Fusions

Jessica Brown

University of Indianapolis



Telomeres are the protective end caps of chromosomes that help maintain genomic stability by preventing end-to-end fusions. Throughout the lifespan of the cell, telomeres shorten due to an end replication problem. When the telomeres are too short, they are seen as damaged DNA and enter senescence. In some cells, telomeres do not shorten but are maintained by the enzyme telomerase. Telomerase is a ribonucleoprotein that adds TTAGG repeats onto the end of the DNA strand. This essentially makes the cell immortal, because it does not enter senescence. Typically telomerase is only found in cancerous cells, stem cells, and cord cells. Previous studies have

shown that a fusion between an immortal cell and a mortal cell results in a mortal cell. This indicates that telomerase control is negative and that in normal cells telomerase is turned off. The purpose of this experiment was to use cellular fusions between telomerase positive cells and telomerase negative cells to study the control of telomerase. A TRAP (telomeric repeat amplification protocol) was used to assess the level of telomerase present in the fused cells. Endothelial stem cells, or progenitor cells, were used as the telomerase positive cells and were fused with mortal cells. If telomerase could be regulated, these stem cells could be used in vasculature repair for victims of heart attacks or older adults who have had damage to their vasculature system.

The Effects of Opioid Antagonist Naltrexone in Animals Motivated to Eat by Taste
Munyaradzi Chimukangara
Bethel University



It is well known that the opioid system plays a significant role in the regulation of palatable food intake. Generally speaking, opioid agonists increase feeding while opioid antagonists decrease feeding in non-food restricted animals. These drugs however have a substantially reduced effect in food-deprived animals. This data is predominantly based on studies performed on the peripheral opioid system. Not much is known about the effects of these drugs when administered into the opioid receptors of the central nervous system.

However there is data suggesting that food intake regulation is also dependent on brain sites in the hypothalamus. The hypothalamus is known to have nuclei associated with energy and reward related feeding. In this study I was therefore trying to find out if the administration of Naltrexone in the hypothalamic paraventricular nucleus (PVN) would decrease food intake more effectively in a food restricted (energy needs related) model than in a non-food restricted (reward related) model. My results suggest that Naltrexone more effectively decreases intake of food in the food-restricted model than in the non-food restricted model. The data also suggests that the PVN is primarily involved in energy needs driven food intake in comparison to reward driven food intake.

Abstracts of Student Posters
31 March 2006

A Comparison of Cellulose Acetate Electrophoresis and Morphological Measurements for Identification of Deer Mice (*Peromyscus maniculatus*) and White-footed Mice (*P. leucopus*) in Eastern Kentucky and Northwestern Minnesota
Bridgette Thacker
Pikeville College



Cellulose acetate electrophoresis was used in comparison to external morphological measurements to determine the presence of *Peromyscus* species in eastern Kentucky and northwestern Minnesota. *Peromyscus maniculatus*, the deer mouse, and *Peromyscus leucopus*, the white-footed mouse, are two of the most widely distributed species of small mammals. The two are so similar morphologically, especially under syntopic conditions, that in-field classification of these mice is often unreliable. Most commonly, the two are classified by comparing external measurements of the mouse's hind foot, ear, tail, and mass to standard measurements. In this study, saliva samples were used to detect unique

allozymes of each species through electrophoresis to provide a more useful and reliable non-lethal way of positively identifying species of *Peromyscus*. One hundred eleven saliva samples were collected from various sites in eastern Kentucky and 136 samples from northwestern Minnesota. Of those giving usable data (from both states combined) 88 were identified as *P. maniculatus* and 130 as *P. leucopus* through the electrophoresis method. Using classification by external measurements, 32 would have been identified as *P. maniculatus* and 68 as *P. leucopus*. Seventy-nine of the mice had considerable overlapping of measurements, so identification based on external morphology could not be accurately determined. Cellulose acetate electrophoresis can be used quickly and reliably to properly assess the presence and distribution of both species of *Peromyscus* through the use of salivary amylase collected in the field from individual mice.

Identification and Status of Allegheny Woodrat (*Neotoma magister*) Populations and Associated Populations of Small Mammals in Eastern Kentucky
Ashley Justice
Pikeville College

Allegheny woodrat (*Neotoma magister*) populations are considered stable in Kentucky, however, there is not much documentation from field studies to support this conclusion. The Allegheny woodrat is usually found associated with rock outcrops, cliffs, talus slopes, and caves. The species was formerly distributed from southeast New York to northern Alabama and west across the mid-Ohio River Valley. Threats such as the introduction of predators, disease, loss of connectivity among subpopulations, and habitat loss may explain the population decline in recent years. Although Pike county and the counties immediately surrounding it have appropriate woodrat habitat, no populations have been documented in the past. In a study conducted during spring and summer of 2005, various

locations throughout eastern Kentucky, specifically in Pike, Floyd, and Johnson counties, were live trapped for the Allegheny woodrat as well as other small mammals that might use these rocky habitats. The purpose of this study was to identify previously undocumented Allegheny woodrat populations and to gain a better understanding of their population status in eastern Kentucky. Additionally, we wanted to document the small mammal community associated with these rocky habitats to determine if there were differences in the composition of communities depending on the presence or absence of woodrats. During the course of sampling, only one location, in Jenny Wiley State Park, Floyd County, resulted in the capture of woodrats. The only other small mammals encountered were white-footed mice (*Peromyscus leucopus*), eastern chipmunks (*Tamias striatus*), and one cottontail rabbit (*Sylvilagus* sp.). We recommend further study to better determine the status of the population in Floyd County and continued search for populations in surrounding counties in eastern Kentucky.

