



**Center of Biomedical Research Excellence (COBRE)
in Protein Structure and Function
External Advisory Board Meeting
March 2 & 3, 2006**

Meeting Sites:

- March 2: Simons Auditorium, Simons Research Laboratories, 8:00 a.m.-1:30 p.m.
 Structural Biology Center, 1:30-4:10 p.m.
 Multidisciplinary Research Building, 4:10-4:45 p.m.
- March 3: Smissman Research Laboratories Building, Room 152, 8:00-11:00 a.m.

COBRE PARTICIPANTS

COBRE Investigators (* = graduated)

Brian Blagg (KU)*	Identification of Hsp90 Cochaperones, Immunophilins, and Client Proteins
Roberto De Guzman (KU)	NMR Studies of Protein-Protein Recognition in Blood Cell Development
Heather Desaire (KU)*	Structural Characterization of Glycoproteins using Mass Spectrometry
Susan Egan (KU)*	Protein-Protein Interactions Required for Transcription Activation by RhaR
Audrey Lamb (KU)	The Structural Biology of Pyoverdin Biosynthesis
Jennifer Laurence (KU)	Redox Effects on the Structure and Dynamics of PRL-1
Julian Limburg (KU)	Structure and Function of Bacterial Prolyl-4-Hydroxylase
William Picking (KU)*	Subversion of Eukaryotic Cell Function by Shigella
Emily Scott (KU)	Structure and Function of Mammalian Cytochromes P450
Jeffrey Staudinger (KU)*	Crystallization of Pregnane X Receptor Splice Variants
Liskin Swint-Kruse (KU School of Medicine)	Elucidating Structural Elements that Fine-Tune the Functions of Members in a Genetic Regulatory Protein
Anna Zolkiewska (KSU)*	Structure and Function of Cell Adhesion Domain of ADAM12

Pilot Project Directors

James Bann (WSU)	Structure and Mechanism of CS1 Pilus Assembly
Xue-Wen Chen (KU)	Computational Proteomics: Protein Interaction Prediction
David Eichhorn (WSU)	Synthesis of Model Complexes for Nitrile Hydratase
Shiguang Liu (KU School of Medicine)	Identification of Inhibitors and Substrates of Phex
Silvia Mora (KSU)	Protein Interactions that Regulate Leptin Secretion
Robert Rowland (KSU)	Structure and Nucleolar Function of SARS N Protein
Irina Smirnova (KUMC)	Role of Posttranslational Protein Modifications in Diabetic Cardiomyopathy
Qize Wei (KSU)	Role of MyoGEF and its Interacting Partners in the Regulation of Cytokinesis
Asma Zaidi (KU)	Trafficking of the Plasma Membrane Ca ²⁺ -ATPase to Rafts

Mentors for Current COBRE Investigators

Glen Andrews (KU School of Medicine-Swint-Kruse)	Bill Picking (KU-Lamb)
Andrew Borovik (KU-Limburg)	Mark Richter (KU-De Guzman)
Christian Schöneich (KU-Laurence)	Mario Rivera (KU-Scott)

COBRE PARTICIPANTS, cont.

External Advisory Board (* = no longer serving)

Philip Bourne	University of California San Diego
Kathryn Ely	Protein Connections
Lila Gierasch	University of Massachusetts, Amherst
Gary Gilliland	Centocor, Inc.
Brian Matthews	University of Oregon
Carol Post	Purdue University
Stephen Sprang	University of Texas Southwestern Medical Center
Gerald Carlson*	University of Missouri-Kansas City
Catherine Fenselau*	University of Maryland
Michael Rossmann*	Purdue University

Inter-Campus Liaisons

James Calvet	University of Kansas Medical Center
Gunda Georg	University of Kansas
William Hendry	Wichita State University
Michael Kanost	Kansas State University

Internal Advisory Board (formed 2005)

Heather Desaire	University of Kansas
William Picking	University of Kansas
Jeffrey Staudinger	University of Kansas

Core Personnel

Michail Alterman	Tatyana Duzhak	Boris Kornilaev
Cynthia Beall	Robert Hanzlik	Mary Lou Michaelis
Linda Carlyle	Weijun Huang	Yasufumi Yamamoto

COBRE in Protein Structure and Function

External Advisory Board Meeting Agenda

Symposium and Poster Session

March 2 & 3, 2006

Thursday, March 2, 2006

8:00-8:30 Arrival and Refreshments

Oral Presentations

Simons Auditorium, Simons Research Laboratories

8:30-9:00 Robert Hanzlik Introductions and review of COBRE Center

9:00-9:25 Roberto De Guzman NMR studies of bacterial proteins involved in pathogenesis

9:25-9:50 Audrey Lamb The biosynthesis of pyoverdin, a siderophore from *Pseudomonas aeruginosa*

9:50-10:15 James Bann Mechanism of assembly of CS1 pili

10:15-10:30 BREAK

10:30-10:55 Jennifer Laurence Examining the effects of mutations and modifications on the structure and function of PRL-1

10:55-11:20 Qize Wei A novel guanine nucleotide exchange factor, MyoGEF, is required cytokinesis

11:20-11:45 Irina Smirnova Role of posttranslational protein modifications in diabetic cardiomyopathy

11:45-12:10 Silvia Mora Regulation of leptin trafficking and secretion in adipocytes

12:10-1:15 **LUNCH** Room 152, Smissman Research Laboratories (COBRE participants)
Novartis Conference Room, Simons Research Laboratories (EAB-KU administration)

1:15-1:30 Break

One-on-One Conferences

Structural Biology Center

	Kathryn Ely 109 SBC	Gary Gilliland 112 SBC	Brian Matthews 165 SBC	Carol Post 167 SBC	Stephen Sprang 169 SBC
1:30-2:00	Swint-Kruse	Rowland	Bann	De Guzman	Scott
2:00-2:30	Zaidi	Lamb	Chen	Mora	Liu
2:30-3:00	Smirnova	Laurence	Limburg	Eichhorn	Wei

3:00-4:00 **Poster Session** Room 180, Structural Biology Center

4:00-4:10 Robert Hanzlik Adjourn

4:10-4:45 **Tour** Multidisciplinary Research Building

6:30 **Dinner (EAB and Core COBRE)** Maceli's, 1031 New Hampshire

Friday, March 3, 2006

8:00-8:30	Arrival and Refreshments
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Core Laboratories Presentations

Room 152, Smissman Research Laboratories

8:30-9:00	Weijun Huang	COBRE Core B: Protein Structure Laboratory (X-ray Crystallography)
9:00-9:30	Michail Alterman	COBRE Core C: Protein Purification Group: 2002-2006: Core C above and beyond.
9:30-10:30		External Advisory Board Executive Session (Conference call with Dr. Bourne)
10:30-11:00	External Advisory Board Bob Hanzlik Mary Lou Michaelis	Wrap-up session: EAB and COBRE Leaders
11:00	Robert Hanzlik	Adjourn

External Advisory Board Meeting Poster Session

March 2, 2006, 3:00-4:00 p.m.

180 Structural Biology Center

Initial Characterization of CooB: Chaperone Protein Involved in the Assembly of CS1.

Pili. Anh L. Pham¹, Michael Zolkiewski², Li Jia³, **James G Bann**³, Department of Chemistry, Wichita State University, Wichita, KS¹, Department of Biochemistry, Kansas State University, Manhattan, KS², and Department of Biological Sciences, Wichita State University, Wichita, KS³.

Domain Based Protein-Protein Interaction Prediction Using Random Decision Forest Framework.

Xue-wen Chen and Mei Liu, Department of Electrical Engineering and Computer Science, The University of Kansas, Lawrence, KS.

Solution Structure of Monomeric BsaL, the Type III Secretion Needle Protein of Burkholderia pseudomallei.

Lingling Zhang, Yu Wang, Wendy L. Picking, William D. Picking, and **Roberto N. De Guzman**. Department of Molecular Biosciences, Division of Biological Sciences, The University of Kansas, Lawrence, KS.

Model Complexes for Thiolate Coordinated Metalloenzymes.

Bradley W. Smucker, Curtis E. Moore, Joshua Zimmerman, and **David M. Eichhorn**, Wichita State University, Department of Chemistry, Wichita, KS.

Iron and Cobalt Complexes of Thiosemicarbazone Ligands – Relevance to Nitrile Hydratase Modeling.

Anangamohan Panja and **David M. Eichhorn**, Department of Chemistry, Wichita State University, Wichita, KS.

Discover Protein Sequence Signatures from Protein-Protein Interaction Data.

Jianwen Fang¹, Ryan J. Haas¹, Yinghua Dong¹, and Gerald H. Lushington^{1,2}. ¹Bioinformatics Core Facility and the ²Molecular Graphics and Modeling Laboratory, The University of Kansas, Lawrence, KS.

Application of Machine Learning in Drug Discovery: Support Vector Machines in HTS Data Mining-Type I MetAPs Inhibition Study.

Jianwen Fang¹, Yinghua Dong¹, Gerald Lushington^{1,2}, Qi-Zhuang Ye³, and Gunda I. Georg^{3,4}.

¹Bioinformatics Core Facility, ²Molecular Graphics and Modeling Laboratory, ³High Throughput Screening Laboratory, and ⁴Department of Medicinal Chemistry, The University of Kansas, Lawrence, KS.

The Reactive Metabolite Target Protein Database: A Web-Accessible Resource

Jianwen Fang², Bhargav Theertham², Yakov M. Koen¹ and Robert P. Hanzlik¹, ¹Department of Medicinal Chemistry and ²Bioinformatics Core Facility, The University of Kansas, Lawrence, KS.

Cloning, Expression, Purification and Characterization of SARS Coronavirus Nucleocapsid Protein.

Boris A. Kornilayev¹, J.B. Patton², **Raymond R.R. Rowland**². ¹The University of Kansas, Lawrence, KS, and ²Kansas State University, Manhattan, KS.

Expression of Collagen-Like (GPP)_n Peptides in *E. coli*.

Hidehiko Hirakawa and **Julian Limburg**, Department of Chemistry, The University of Kansas, Lawrence, KS.

Prolyl-4-hydroxylase from *Bacillus anthracis*.

Megen Miller and **Julian Limburg**, Department of Chemistry, The University of Kansas, Lawrence, KS.

FGF23: The Counter Regulatory Phosphaturic Hormone for Vitamin D-Mediated Hyperphosphatemia.

Shiguang Liu, Wen Tang, Jianping Zhou, L. Darryl Quarles, Internal Medicine/The Kidney Institute, University of Kansas Medical Center, Kansas City, KS

Screening of an Adipose cDNA Library to Identify Leptin Protein Interactions.

Jordi Saurat, Ke An, Shengzhi Wang and **Silvia Mora**, Division of Biology, Kansas State University, Manhattan, KS.

Ubiquitin as a fusion partner for expression of recombinant SARS-CoV nucleocapsid proteins. J.B.

Patton¹, **Boris A. Kornilayev**², Donald Robertson¹, **R.R.R. Rowland**¹. ¹Kansas State University, Manhattan, KS, and ²The University of Kansas, Lawrence, KS.

¹H NMR Studies of a peptide and its mutant of NLS (Nuclear localization signal) region in N (nucleocapsid) protein of SARS-CoV.

Om Prakash*; **Raymond R.R. Rowland****; Yu-Xi Gong*; Huaien Dai *, *Department of Biochemistry and **Department of Diagnostic Medicine and Pathobiology, Kansas State University, Manhattan, KS.

An aspartic acid residue at position 372 is involved in the cytoplasmic retention of the SARS-coronavirus nucleocapsid protein.

Vinita Chauhan, John Patton, Jessica M. Rowland, **Raymond R.R. Rowland***. Department of Diagnostic Medicine and Pathobiology, Kansas State University, Manhattan, KS.

Human Cytochrome P450 2A13: Correlation between a 2.35 Å Structure and Ligand Binding.

Brian D. Smith¹, Jason L. Sanders¹, C. David Stout², **Emily E. Scott**¹. ¹Department of Medicinal Chemistry, The University of Kansas, Lawrence, KS, and ²Department of Molecular Biology, The Scripps Research Institute, La Jolla, CA.

Functional Consequences of Domain Swapping Between the LacI/GalR Transcription Regulatory Proteins.

Liskin Swint-Kruse, Hongli Zhan, Sarah Meinhardt, and Sudheer Tungtur. The University of Kansas Medical Center, Kansas City, KS.

Compartmentalization of the Neuronal Plasma Membrane Ca²⁺-ATPase in Lipid Raft Microdomains.

Lei Jiang, Denzyl F. Fernandes, Nandini Mehta, Jennifer L. Bean, Mary L. Michaelis, and **Asma Zaidi**, Department of Pharmacology and Toxicology, The University of Kansas, Lawrence, KS.