CSB NEWS REPORT

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VANDERBILT UNIVERSITY CENTER FOR STRUCTURAL BIOLOGY

DIRECTOR'S CORNER

The spring semester is a generally a busy time of year, and 2013 has been no exception. The highlight of all this activity was the preparation of the application for the 5-year renewal of the Molecular Biophysics NIH T32 training grant. The entire CSB staff as well as Robert Dortch was mobilized to help in the submission process, in particular for the preparation of the notorious tables of data on faculty, trainees and applicant pool.

Besides supervising and cross-checking all 12 tables, I was responsible for preparing the primary descriptions of the background, program plan, diversity plan, RCR plan and the progress report. I am especially grateful for the trainees being attentive to my demands for information, and for the input received from Hassane Mchaourab and Ben Spiller for work on revising the requirements and from Hassane and David Piston for appreciated input on the QCB and CPB programs. Chuck Sanders, Brandt Eichman and Anne Kenworthy provided valuable proofreading and comments along the way. And I am especially grateful to Al Beth for stepping to the plate with very short notice to read a late draft of the entire text and providing invaluable commentary and edits.

Now cross your fingers and hope for a fundable score!!!!

IN THE SPOTLIGHT

Congratulations to **Paul Barrett**, of the Sanders Lab, for being named the 2013 recipient of The Anne Karpay Award in Structural Biology. "It is a great honor to be selected for the Karpay Award," Barrett said.

Barrett is a member of the Sanders Lab and began his career learning how to perform NMR experiments. From there he became involved in studies investigating the ability of the C99 protein to bind Gamma Secretase Modulators (GSMs) in the treatment of Alzheimer 's disease and determining the 3D structure of C99 using NMR spectroscopy.

Since completing his structural studies in 2012, he has collaborated with Vanderbilt researchers Dr. Bruce Carter, Professor of Biochemistry, and Dr. Anne Kenworthy, Associate Professor of Molecular Physiology and Biophysics, to create new hypotheses regarding the function of C99.

The Karpay Award was established in 2010 to honor the memory of Dr. Anne Karpay who died after a four-year battle with breast cancer. It recognizes one senior graduate student who is a well-rounded colleague and scientist, who is collaborative and collegial and who has performed exceptional research in the field of structural biology. Karpay exemplified each characteristic and demonstrated a passion for science, for friendship and for life in general.

"Although I did not have the pleasure of knowing Anne, I have heard only amazing things about her from faculty members as well as close friends she had at Vanderbilt," said Barrett. "This award is very special."

The Karpay Award is funded entirely by donations to an endowment managed through the Development Office of the Vanderbilt University School of Medicine. Make donations to the fund through the Vanderbilt Gives (http://giving.vanderbilt.edu) website. Contact Karen D. Davis (karen.d.davis@vanderbilt.edu) in the CSB for more information or assistance in making a donation.

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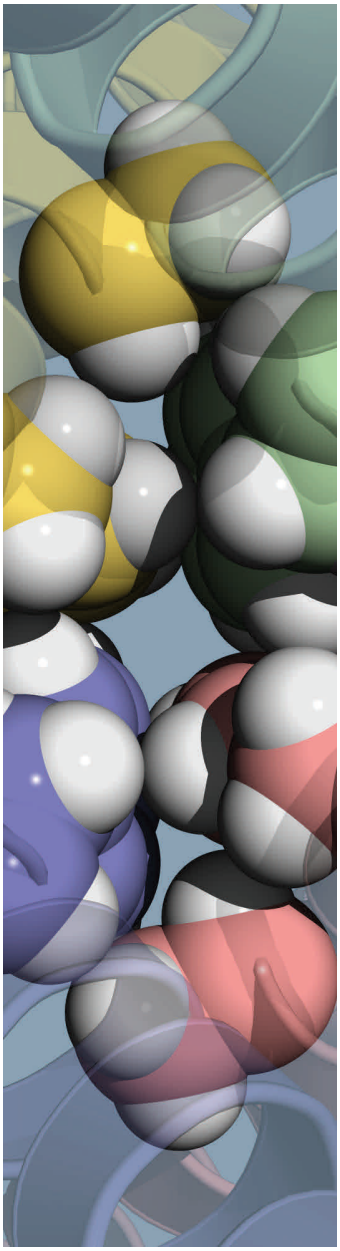

IN THE SPOTLIGHT

Congratulations to CSB researcher **Chuck Sanders**, Ph.D., on winning the 2013 Hans Neurath Award from The Protein Society. He shares the honor with Jennifer Doudna, Ph.D., of the University of California, Berkley.

The award recognizes individuals who have made a recent contribution of exceptional merit to basic protein research, including - but not restricted to - the chemistry, design, folding, structure or biological function of proteins.

Chuck has made numerous contributions to membrane protein structural biology and the application of NMR to the study of membrane protein structure and function. His work is epitomized by the 2012 paper published in Science on the amyloid precursor protein and its avid binding of cholesterol.

The award will be presented during the 27th Annual Symposium of The Protein Society in Boston, Massachusetts, taking place July 20-24, 2013.

CSB NEWS

Al Beth and **Hassane Mchaourab** were elected fellows of the American Association for the Advancement of Science (AAAS). They are among seventeen Vanderbilt University faculty members and 703 scientists nationwide to be elected fellows this year.

Stephanie Hirst-DeLuca gave a talk on RosettaEPR at the 2013 Biophysics Conference in South Korea which was held in May.

Amanda Duran, of the Meiler Lab, passed her Ph.D. qualifying exam in Chemistry.

Brandt Eichman and colleagues were recommended by *Faculty of 1000* for their article "Non-productive DNA damage binding by glycosylase-like protein Mag2."

Jens Meiler and colleagues were recommended by *Faculty of 1000* for their article "EM -fold: de novo atomic-detail protein structure determination from medium-resolution density maps."

The **Meiler Lab** hosted the 2012 Rosetta Workshop at Vanderbilt University. The goal of the event was to educate and train users on the Rosetta Software suite which is a unified software package for protein structure prediction and functional design.

Michael Stone was elected as Member-at-Large of the Executive Committee of the American Chemical Society Division of Toxicology.

RESEARCH HIGHLIGHTS

CSB researcher **Galina Lepesheva**, Ph.D., and colleagues were featured in the VUMC Reporter for their recent findings on the Trypanosoma cruzi protozoan parasite which causes Chagas disease. The deadly tropical infection is transmitted by biting insects called "kissing bugs" and is spreading around the world.

Although there is no cure or vaccination for the chronic form of the disease and the existing drugs for the acute form are toxic, the study reports curing both forms of the infection in mice with a small molecule, VNI.

About 8 million people have been infected with T. cruzi, mostly in Latin America, but kissing bugs have been found across the southern United States. The finding in mice opens new opportunities for a potentially curative treatment.

Find the VUMC Reporter article online: http://news.vanderbilt.edu/2013/02/chagas-cure-kissing-bug/

GRANTS AND AWARDS

Amanda Duran, of the Meiler Lab, received a fellowship from NSF to explore computational design of membrane protein ligand interactions.

Gordon Lemmon, Ph.D., of the Meiler Lab, received a fellowship from Emerging Leaders in Biosecurity Initiative to facilitate meetings with leaders in biosecurity.

Aaron Mason, Ph.D., of the Eichman Lab, was awarded a 3-year postdoctoral fellowship from the American Cancer Society for his work to understand how cells repair stalled replication forks.

The **Meiler Lab** received a High Performance Computing Grant to collaborate with researchers at Oak Ridge National Laboratories (ORNL).

Chrystal Starbird, of the Iverson Lab, received a NSF graduate fellowship to investigate the mechanisms of assembly and covalent flavinylation of the respiratory Complex II.

WELCOME

Welcome **Mariena Silvestry Ramos**, Ph.D., as the newest CSB staff member. Mariena joins the center as the Manager of the Cryo-EM Facility following her recruitment from the New York Structural Biology Center.

Mariena obtained her B.S. in Biology at the University of Puerto Rico-Mayaguez and pursued undergraduate research at UPR-Mayaguez, Rutgers University and the University of Massachusetts. She completed her Ph.D. at Vanderbilt with Phoebe Stewart. After postdoctoral training in NMR with Gary Shaw at the University of Western Ontario, she returned to the Cryo-EM field as an applications scientist at the renowned NYSBC.

She brings to the CSB a vast experience in electron microscopy instrumentation and analysis, including structure determination of viruses and membrane proteins.

LIFE IN THE LAB

Cheryl Law, of the Sanders lab, won the Sanders Lab 2013 NCAA Men's Basketball Tournament Bracket Championship and was the only lab member to correctly pick two of the final four teams, including eventual champions, University of Louisville.

RECENT PUBLICATIONS

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