



The **SER-CAT** SPECTRUM

A Biannual Newsletter of the Southeast Regional Collaborative Access Team • Winter 2004

Director's Message

Bi-Cheng Wang



Happy New Year and welcome to the Winter 2004 issue of *The SER-CAT Spectrum*. It is a pleasure to share with you some of the activities that have occurred since our last newsletter, which I feel will set the stage for the most successful year yet at SER-CAT.

We are entering an exciting new phase at the SER-CAT beamlines. Our construction period has essentially come to a close. Testing is currently taking place at the BM beamline, and we are scheduled to declare the ID beamline operational this year. Since the last newsletter, users have been taking advantage of several improvements to the ID beamline. This includes the use of the new MAR 225 CCD detector, which arrived in July 2003.

Looking into 2004, we hope to realize our long-term goal of making our beamlines fully automated. The Operations Team is collaborating with ALS staff at the Lawrence Berkeley National Laboratory to develop a robotic mounting and alignment system for both the ID and BM beamlines. In addition, they are working with the Argonne Futures Lab to provide teleconferencing capabilities for participation of data collection at SER-CAT from member institutions. Work continues on a graphical user interface for data collection.

In addition to making great strides in the technical aspects of SER-CAT, we also progressed in our outreach activities during 2003. Our biannual newsletter was happily reintroduced and we had a successful booth presentation in the Exhibit Hall of the 2003 ACA Meeting in Cincinnati, Ohio. SER-CAT's Executive Board also voted to accept new industrial members and open up our research capabilities to a larger diversified membership.

In this newsletter we will reflect back on events in 2003 and share with you some of the research activities of our members. We also announce the upcoming research symposium and board meeting in March and

present some of the ways we are working to improve the benefits of SER-CAT Membership. I hope you enjoy the newsletter, and I welcome your comments and suggestions regarding future issues. Best wishes for a healthy, happy and prosperous 2004!



SER-CAT's booth at 2003 ACA Meeting. Left to right: Lisa Horanyi, Allen Orville, Stephen Foundling, Kathy Morris, Jim Fait.

Highlight on SER-CAT Researchers

In our last issue, we recognized the first five publications included in the APS Publications Database and resulting from data collected at SER-CAT. The respective researchers were contacted by *The SER-CAT Spectrum* and asked a few questions about their research and how the SER-CAT facility benefited their data collection activities. Read on for more information regarding some of the researchers who are pioneering the scientific programs at SER-CAT.



Dr. James Hurley

James Hurley, NIDDK, National Institutes of Health

Dr. James Hurley's lab at the NIH focuses on understanding fundamental biological regulatory mechanisms using structural biology and structural genomics. He uses structural genomics

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approaches to systematically characterize protein families involved in signaling and trafficking. Over the past four years, the lab characterized structures and functions of protein domains representing eight different protein families: START, GAF, VHS, IPP5C, SET, GAT, CUE, and GAE.

Data collected at SER-CAT aided in the discovery of domains representing both the GAT and CUE protein families and resulted in two publications, "Mechanism of Ubiquitin Recognition by the CUE Domain of Vps9p," and "Structure of GAT domain of human GGA1: A syntaxin amino-terminal domain fold in an endosomal trafficking adaptor," published in *Cell* and *Proceedings of the National Academy of Science*, respectively. When asked about his experiences at SER-CAT, Dr. Hurley responded, "This facility has become our structure solving workhorse. Since my lab is primarily engaged in x-ray crystallography, the facility is critical to every ongoing and future project, and is absolutely central to our work."

Dr. Hurley's research is funded by the NIDDK intramural program. For more information, visit www-mslmb.niddk.nih.gov/hurleygroup.html or contact him by email at hurley@helix.nih.gov.



Dr. Matt Redinbo

Matthew Redinbo, University of North Carolina at Chapel Hill

Dr. Matt Redinbo's paper, "Structural basis of heroin and cocaine metabolism by a promiscuous human drug-processing enzyme," was a result of data collected at SER-CAT and was published as a featured paper on the cover of the May 2003 issue of *Nature Structural Biology*.

"My laboratory uses structural biology as a tool to elucidate the molecular details of the development of human disease and how it can be effectively treated. Our current interests include the manner in which drugs are recognized by receptors in the body and eliminated by efficient drug metabolism enzymes," said Redinbo. "In addition, we are unraveling the mode of action of drugs targeted to the proteins central to DNA metabolism.

"The facilities at SER-CAT are vital to our research, as SER-CAT provides us rapid and well-supported access to high intensity, tunable synchrotron x-ray beamlines that yield the crystallographic data we need to answer basic biological questions," Redinbo commented, when asked about the benefits of SER-CAT.

Dr. Redinbo's research is funded by three R01 grants from the National Institutes of Health (CA98468, DK62229, CA90604) and by a Burroughs Wellcome Career Award in the Biomedical Sciences. For more information, visit www.chem.unc.edu/people/faculty/redinbomr/mrrindex.html, or contact Dr. Redinbo by email at redinbo@unc.edu.

How to Acknowledge SER-CAT

The publications mentioned in the previous article have one important thing in common – each one properly acknowledged SER-CAT and the APS in the text of the publication, and therefore were credited to SER-CAT in the APS database.

SER-CAT is in a very competitive field of synchrotron science and it is our responsibility to properly document the use of SER-CAT's facility at the APS. The Department of Energy, to a large degree, judges the success of a beamline facility by the number of properly acknowledged and recorded publications in the APS database. Entries in the Protein Data Bank (PDB) are valid measurements of a CAT's performance; however, the actual publication(s) resulting from the PDB entries must specifically cite the use of the facility within the acknowledgment section of the publication. In addition, it must be added to the APS Publications Database in order to be counted towards SER-CAT's progress. The exact wording for the acknowledgment may be found at www.ser-cat.org, by clicking on "How to Acknowledge SER-CAT and the APS." Once your article is accepted for publication, please be sure to forward it to SER-CAT's User Support Coordinator, Marie Graham (marie@anl.gov), for proper entry into the system.

Likewise, we at SER-CAT would like to ensure that you are acknowledged for your research activities, both among your colleagues and at your institution. We welcome the opportunity to feature your research in a future issue of *The SER-CAT Spectrum* and are willing to send copies of our newsletters and/or press packets to your institution to review. If you have other ideas on how SER-CAT may better serve you along these lines, please let us know.

Member Biosketch Database

Many of you may have received an email from our External Funding Committee Chairman, Charlie Carter, requesting biographical information. The purpose of gathering this information is to put SER-CAT in a better position to quickly respond to funding opportunities that may arise.

The Administrative Office is working to create a database of biosketches on all SER-CAT researchers. While a lot of information has been received, the database is not yet complete. If you have already forwarded us a copy of your biosketch, thank you. If you did not receive the previous request from Charlie Carter, please forward a copy of your latest biosketch, preferably in NIH 398 format, to Lisa Horanyi at the Administrative Office (lhoranyi@BCL4.bmb.uga.edu) to be included in the database.

Please contact the SER-CAT Administrative Office with any further suggestions for the External Funding Committee.

New Features on SER-CAT Website

If you have not visited www.ser-cat.org recently, please be sure to take a look at the new features now available. We have added a "Members Only" section for viewing items such as internal documents and previously approved minutes, plus provided a new searching feature for easier navigating. If you have any comments or suggestions on how we might make the site more user friendly, please feel free to email Lisa Horanyi at lhoranyi@BCL4.bmb.uga.edu.

Sector Review Results

On November 25, 2003, a preliminary report was received from the APS for the SER-CAT Sector Review held on June 2, 2003. Overall, the initial report was favorable. However, as part of the review process, the SER-CAT Administrative Office must forward a response to APS to address any questions raised by the review committee. This response, along with the preliminary report, will be forwarded to the Associate Laboratory Director, Murray Gibson, and the APS Scientific Advisory Committee (SAC). A final recommendation meeting is scheduled at the APS for January 20-22, 2004.

The administrative office would like to especially thank SER-CAT members Fred Dyda (NIH), Carla Mattos (NCSU) and James Liu (UGA) for presenting their research and SER-CAT's strengths to the Scientific Review Committee. As the final results are available from the APS, a copy will be provided to the members for review.

Construction Comes to a Close

Based on the Construction Report presented by Gerd Rosenbaum at the last SER-CAT Board Meeting, the construction on 22-ID and BM beamlines will be completed well within the approved budget. The ID beamline is steadily running with members being scheduled on a regular basis. Testing activities are continuing on the BM beamline and commissioning activities are progressing as expected.

As the construction period draws to a close, we would like to take this opportunity to again recognize the construction staff members that have made SER-CAT's beamline facility possible. During the SER-CAT Board Meeting at the APS on October 18, 2003, appreciation plaques were presented to construction team members Gerd Rosenbaum, Project Director; James Fait, Beamline Scientist; John Gonczy, Lead Engineer and John Unik, Project Administrator. Thanks to the dedicated efforts of each of you, SER-CAT is now able to realize its goal of having a state of the art research facility for macromolecular crystallography. We commend and thank you for your hard work during SER-CAT's construction activities.

As SER-CAT moves into full operations, James Fait and John Gonczy continue to work full-time on the Operations Team. Gerd Rosenbaum will be working part-time as Senior Beamline Scientist to ensure a smooth transition during the commissioning of the BM beamline and other activities on beamline operation and upgrades.



B.C. Wang presents a plaque to Construction Project Administrator, John Unik.

Farewell to John Unik

John Unik, who has been an exceptional Project Administrator for the Construction Team, officially completed his activities with SER-CAT on December 31, 2003. John has provided SER-CAT with strong leadership capabilities and financial expertise and has been a tremendous asset to our group. Therefore, we would like to fondly say, "Thank you, John, and best wishes to you in your future endeavors!"

University of Alabama at Birmingham to Host Next SER-CAT Board Meeting

The next SER-CAT Research Symposium and Biannual Board Meeting will be held at the University of Alabama at Birmingham, Friday and Saturday, March 19-20, 2004. A block of rooms is reserved under the name of "SER-CAT" for the nights of March 18, 19, and 20 at the Pickwick Hotel located at 1023 20th Street South, Birmingham, Alabama 35205. Reservations at the group rate of \$85.99 may be made no later than February 19 by calling 800-255-7304 or 205-933-9555. Reservations made after the cut off date are at the standard rate on a space available basis.

Additional information will be posted on the SER-CAT website at www.ser-cat.org and distributed to the members as it becomes available.

The SER-CAT Spectrum is the biannual newsletter of the SER-CAT group. Additional information about SER-CAT and the Advanced Photon Source at Argonne National Laboratory can be found at our website www.ser-cat.org or by contacting the SER-CAT Administrative Office at 706-542-3384.

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