Vanderbilt University
Center for Structural Biology

The Center for Structural Biology (CSB) is part of a major transinstitutional initiative started in the year 2000. The initiative was designed to significantly upgrade the capabilities in Structural Biology at Vanderbilt by bringing additional faculty and state-of-the-art instrumentation to campus. The CSB was developed to promote the broad use of structural biology approaches in all life science research and to provide a focal point that bridges medicine and biology to math, chemistry, and physics. The philosophy of the CSB at Vanderbilt is to integrate the application of all techniques that can provide the atomic resolution structure of biomacromolecules. Merging the application of traditional high resolution structural biology disciplines, X-ray crystallography and NMR spectroscopy, with cryo-electron microscopy, EPR spectroscopy and computational techniques, is especially unique but is being increasingly recognized as the necessary strategy to solve fundamental structural problems in medicine and biology. Establishing an environment that provides access to all available tools provides Vanderbilt investigators with key competitive advantages. This philosophy is being successfully applied in exciting ways in collaborations with investigators from a range of Departments in both the College of Arts and Science and The School of Medicine.

CSB Core Faculty

Richard Armstrong (Biochemistry)
Al Beth (Mol Physiol & Biophys)
Paul Bock (Pathology)
Walter Chazin (Biochemistry)
Martin Egli (Biochemistry)
Brandt Eichman (Biological Sciences)
Tina Iverson (Pharmacology)
Andrzej Krezel (Biological Sciences)
Borden Lacy (Microbiology & Immunology)
Terry Lybrand (Chemistry)
Hassane Mchaourab (Mol Physiol & Biophys)
Jens Meiler (Chemistry)
Chuck Sanders (Biochemistry)
Ben Spiller (Pharmacology)
Phoebe Stewart (Mol Physiol & Biophys)
Michael Stone (Chemistry)
Gerald Stubbs (Biological Sciences)
M. Sundaramoorthy (Nephrology)
Michael Waterman (Biochemistry)

CSB Staff

Dr. Walter Chazin - Director
Connie Chevalier - Director, Center Admin.
Dr. Jarrod Smith - Asst. Director (Computation)
Dr. Laura Mizoue - Asst. Director (Experimental)
Dr. Joel Harp - Director, Crystallography Operations
Markus Voehler -Director, NMR Operations
Dr. Eric Dawson - Computation Outreach
Veronda McClain - Executive Secretary
Lori Michalowski - Administrative Assistant

CSB

VANDERBILT UNIVERSITY
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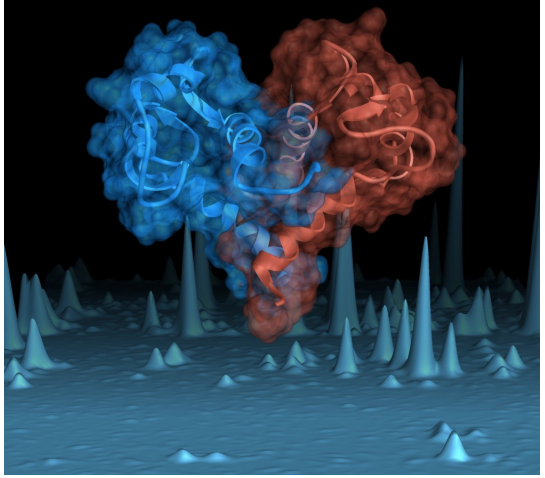

Center for Structural Biology
Vanderbilt University
5140 Medical Research Building III
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615-936-2209
http://structbio.vanderbilt.edu

CSB Facilities

The state-of-the art in Structural Biology is driven by technologies that span multiple disciplines. To stay at the forefront, the Center for Structural Biology operates facilities that provide for biomacromolecular structure determination, modeling, and analysis. The CSB outreach program promotes new structural biology projects. Teams of experts are created from among CSB Faculty and Scientific Staff to determine the best approach for each new problem. Researchers from the home laboratory are then provided access to expertise and tools in the areas of protein expression, purification, and characterization, X-ray crystallography, NMR, modeling, and visualization. Initial contact with the Center can be made with the Director, the CSB Core Faculty, the CSB Scientific Staff, or via our website:

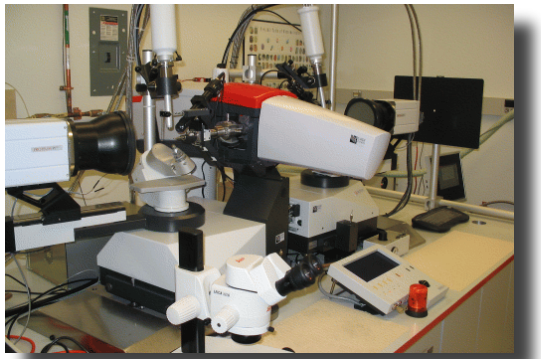
http://structbio.vanderbilt.edu/access.php

Protein Production and Characterization

The CSB runs two core facilities that focus on large-scale protein expression, purification and characterization. Access to and training for chromatography equipment, non-commercial expression vectors, fermentors, and an array of biophysical instrumentation are among the available tools. Visit http://structbio.vanderbilt.edu/wetlab or contact Facility Director Laura Mizoue, Ph.D. (mizoue@structbio.vanderbilt.edu) for details.

X-ray Crystallography

Crystallography allows for direct visualization of molecular structure at the atomic level. X-ray crystallography is the primary tool for the structural analysis of proteins and nucleic acids. This facility exists to make structural analysis by crystallography available to researchers on the Vanderbilt campus by providing state-of-the-art equipment and instrumentation, training, software, and support for all aspects of crystal structure solution. We strive to help crystallographers accomplish their work efficiently while being able to push the boundaries of the technology. For more information, visit our crystallography web site at http://structbio.vanderbilt.edu/xtal or contact Facility Director Joel Harp, Ph.D. (jharp@structbio.vanderbilt.edu), or Scientific Director Martin Egli, Ph.D. (martin.egli@vanderbilt.edu).



Biomolecular NMR

The principal mission of the Biomolecular NMR facility is to provide instrumentation for, and aid in obtaining data on the structure and dynamics of biological macromolecules. The Facility offers state-of-the-art instrumentation, training, software and assistance in designing experiments. We strive to help the Vanderbilt community realize the potential of biomolecular NMR and to stay current with the most recent experimental approaches. For more information, visit http://structbio.vanderbilt.edu/nmr or contact Facility Director Markus Voehler (markus@structbio.vanderbilt.edu), or Scientific Director Andrzej Krezel, Ph.D. (krezelam@structbio.vanderbilt.edu).

Structural Biology Computing

The CSB computing core offers access to a variety of equipment, training, and services. Our open-access, state-of-the-art molecular graphics and visualization lab with access to nearly 100 structural biology software applications is located in MRBIII. Hands-on workshops in the areas of molecular visualization and modeling are being offered in the molecular modeling teaching lab in Stevenson Center. Our systems administration staff offers service contracts and end-user support for UNIX-based workstations, providing Vanderbilt researchers all over campus with full access to the same software applications that are available at our local facilities. For more information, visit http://structbio.vanderbilt.edu/comp or contact Facility Director Jarrod A. Smith, Ph.D. (jsmith@structbio.vanderbilt.edu), or Scientific Director Terry P. Lybrand, Ph.D (lybrand@structbio.vanderbilt.edu).