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Developing a High Throughput Crystallization Pipeline for Structural Genomics Applications at the Southeast Collaboratory for Structural Genomics. J. Rose, Z.-J. Liu, J. Habel, W. Zhou, S.-H. Chang, J. Nguyen, D. Lee, L.R. Chen, W. Tempel, A. Shah, B.C. Wang, Southeast Collaboratory for Structural Genomics, Dept. of Biochemistry and Molecular Biology, Univ. of Georgia, Athens, GA, USA.

A high throughput protein-to-structure pipeline has been developed at SECSG (Southeast Collaboratory for Structural Genomics), one of the NIH PSI Centers. High throughput is achieved by a combination of novel methodologies, home and synchrotron X-rays, robotics and data management.

Key to this effort is the production of diffraction quality crystals and SECSG has assembled a crystallization pipeline capable of processing 10 protein samples per day in a normal 40-hour week. The pipeline consists of a variety of commercial systems for solution preparation (Tecan Genesis), initial crystal screening trials (Cartesian Systems Honey Bee), crystal optimization (Douglas Instruments ORYX), crystal imaging (Discovery Partners Crystal Farm), and crystal diffraction characterization (Rigaku/MSA Actor). A locally developed data management system is used to integrate the various activities. Details of the crystal production pipeline will be presented.

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