

Sample management system of frozen crystals at the SPring-8

RIKEN Structural Genomics Beamlines

理研構造ゲノムビームラインにおける大量凍結試料管理システム

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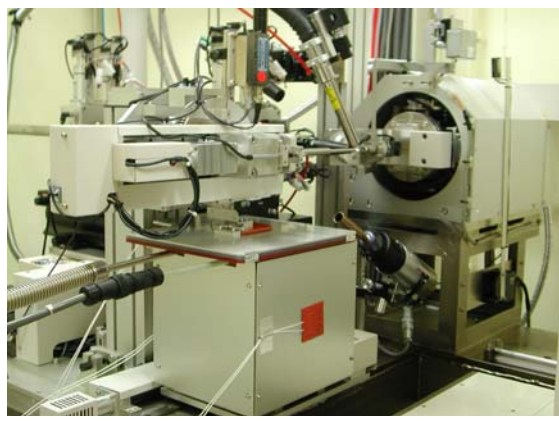
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RIKEN Structural Genomics Beamline I & II (BL26B1&B2) at SPring-8 have been developed for high throughput protein crystallography. The target of the beamline development is focused on the automatic beamline operation, including sample mounting, beamline control, and data collection. The beamline is based on the SPring-8 standard optics design for the bending magnet, which is simple and remote-controllable optics.

The sample management system of the RIKEN Structural Genomics Beamlines consists of the database of sample crystals and sample-handling robots named SPACE (SPring-8 Precise Automatic Cryo-sample Exchanger) installed at both beamline and laboratory.

Sample crystals are previously stored into sample tray using the laboratory robot. The tray ID and content information are registered in the database. The screening of all sample crystals is executed at the beamline by successively exchanging the crystals with the SPACE. The screening is finished within the daytime, and the data is transferred to the database for scientists to qualify the crystals. For selected sample crystals, the automatic data collections are executed in the night-time. During the commissioning operation started in October 2003 at the BL26B2, the SPACE at laboratory and beamline have been reliably working. More than twenty samples a day in average were constantly processed at the beamline. A number of datasets automatically collected were good enough to solve the protein structures.



The SPACE sample changer robot