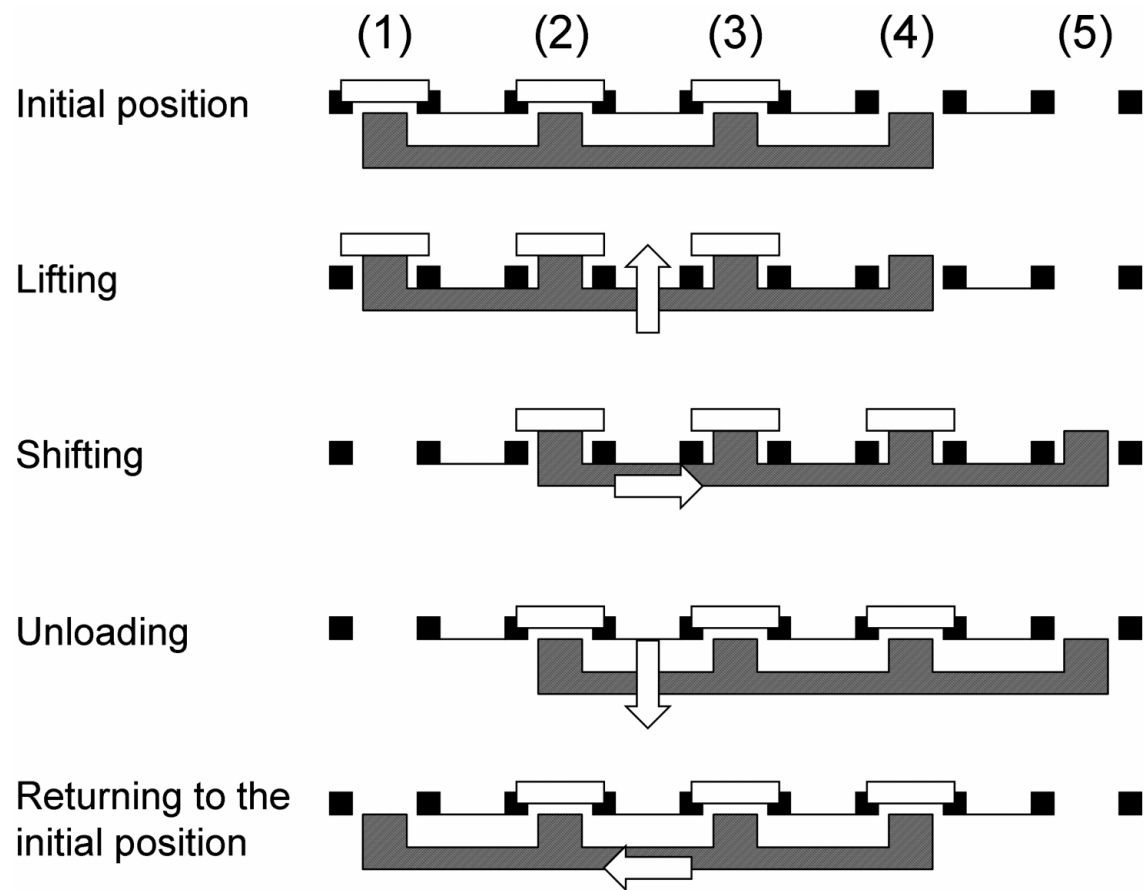


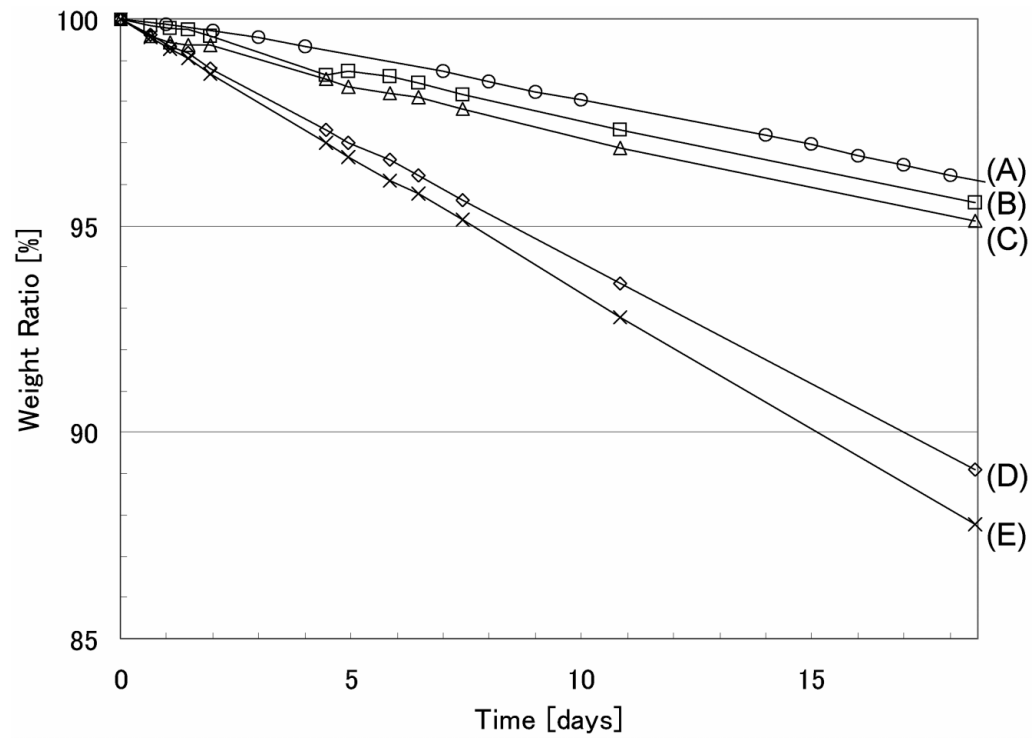
Supplementary Table 1. Diffraction experiments of example protein crystals obtained by the automated crystallization system, PXS

Sample No. ¹⁾	1	2a	2b	3a	3b	4	5a	5b	6	7	8
Origin	human	yeast	yeast	mouse	mouse	mouse	human	human	human	human	mouse
MW (kDa)	16.1	26.2	26.2	30.6	30.6	49.4	36.4	36.4	17.0	16.9	22.5
Precipitant ²⁾	CS1-6	PI-6	PI-8	WizII-39	CS1-15	Nat-10	WizI-6	SF-13	CryoII-31	PI-25	CS2-38
Beamline ³⁾	NW12A	6A	6A	NW12A	NW12A	NW12A	NW12A	NW12A	NW-12A	5A	6A
Temperature (K)	100	95	95	100	100	100	100	100	100	100	100
Wavelength (Å)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.97895
Space group	<i>P</i> 2 ₁ 2 ₁ 2 ₁	<i>P</i> 2 ₁	<i>P</i> 2 ₁	<i>P</i> 2 ₁ 2 ₁ 2 ₁	<i>P</i> 2 ₁ 2 ₁ 2 ₁	<i>P</i> 6 ₅	<i>C</i> 2	<i>P</i> 3 ₂ 21	<i>P</i> 6 ₁ 22	<i>C</i> 222	<i>P</i> 6 ₅ 22
Unit-cell parameters											
<i>a</i> (Å)	40.89	54.12	54.05	44	44	80	95.7	56.3	80.6	83.88	66.06
<i>b</i> (Å)	54.65	55.75	55.89	88	88	80	77.4	56.3	80.6	114.1	66.06
<i>c</i> (Å)	58.71	77.65	77.98	120	120	130	95.5	190.6	243.6	46.98	379.99
α (°)	90	90	90	90	90	90	90	90	90	90	90
β (°)	90	108.81	108.65	90	90	90	103.2	90	90	90	90
γ (°)	90	90	90	90	90	120	90	120	120	90	120
No. of molecules in A.U.	1	2	2	1	1	1	2	1	2	1 or 2	2
Resolution limit (Å)	1.39	1.85	1.65	2.3	2.3	8	4.4	3.7	2.9	2.5	3.2

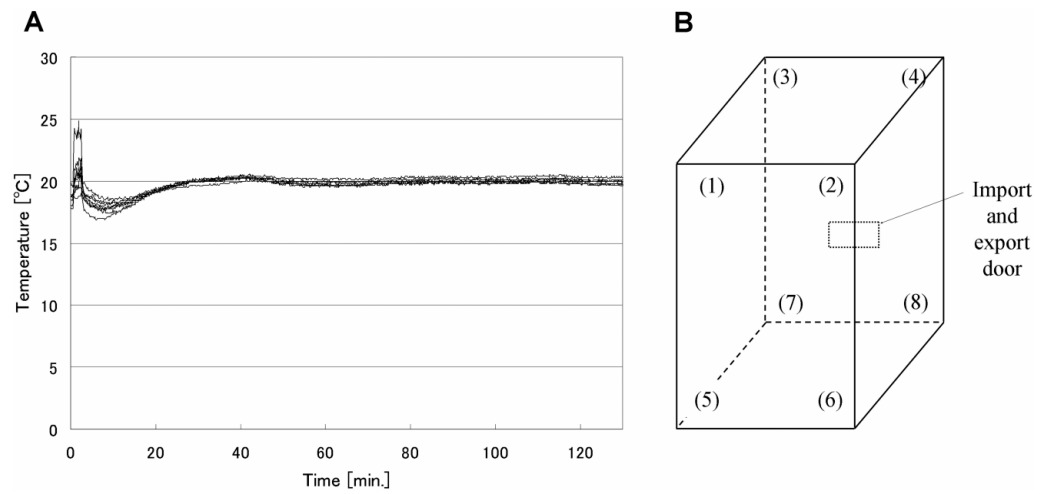
¹⁾ The numbers with attached alphabet letters indicates that they are same protein but different crystal. ²⁾ Abbreviations used are CS1 (Crystal Screen), CS2 (Crystal Screen 2), PI (PEG-ION Screen), WizI (Wizard I), WizII (Wizard II), Nat (Natrix) and SF (Stura Footprint Screen). ³⁾ Diffraction data were collected at the KEK-PF (Tsukuba, Japan) beamlines, BL-5A, BL-6A and AR-NW12A.



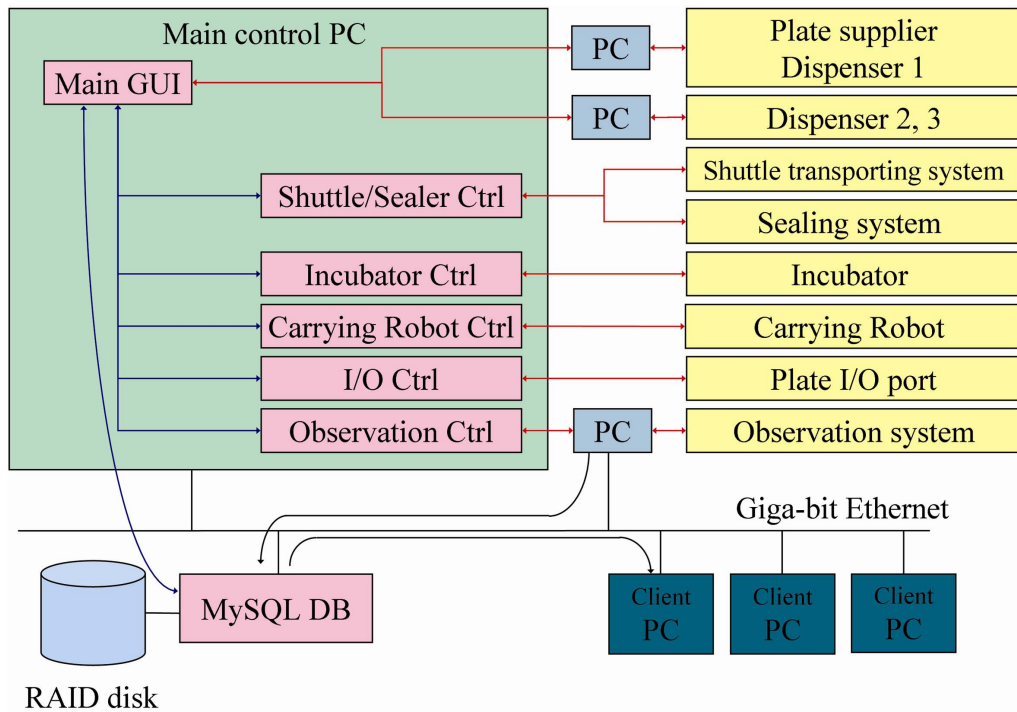
Supplementary figure 1



Supplementary figure 2



Supplementary figure 3



Supplementary figure 4

Supplementary Figure Legends

Supplementary Figure 1

Schematic presentation of the movements of the shuttle transporting system. A transporting shuttle base (hatched object) has four trays on which the crystallization plates (open boxes) are placed. It can carry up to four plates at a time. Numbers shown at the top are the positions of the subsystems: (1) input port from the plate supplier, (2) dispenser 1, (3) dispenser 2, (4) dispenser 3 and (5) the transfer port to the sealer. Open arrows indicate the movements of the shuttle base.

Supplementary Figure 2

Comparison of permeability of sealing materials on the KEK crystallization plate. After dispensing 100 μ l of water into 24 of the 96 wells of the KEK crystallization plate, the top of the plate was sealed with each sealing material and the resultant plates were kept at 20°C. The weight of the sealed plates was measured at the indicated days. The decreased ratio was calculated from the decreased weight of the water. (A) Improved sealing material which was developed by collaboration between KEK and Lintec, Ltd., (B) “HT Sheet” manufactured by JT Science, Ltd., (C) “Crystallization Seal” supplied by 3M Ltd., (D) our prototype seal and (E) general purpose seal supplied by Lintec, Ltd.

Supplementary Figure 3

(A) Time course of the temperature drift of the incubator. From the turning on the switch of the incubator, the temperatures at eight different positions in the incubator were recorded every 10 seconds. The temperature was set at 20°C and the room temperature was about 27°C during these measurements. (B) Schematic drawing of temperature measuring positions in the incubator. We set thermocouples at eight corners (1) - (8) in the

temperature-controlled chamber.

Supplementary Figure 4

Modular architecture of the system control software with flows of commands and image data. Magenta and yellow boxes are software modules and system components, respectively. Flows of commands are indicated by blue (XML or SQL) and red (dot NET, digital I/O or RS232C) arrows. Black arrows indicate flows of image data captured by the observation system.