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Supporting information for article:

**The TELL automatic sample changer for macromolecular
crystallography**

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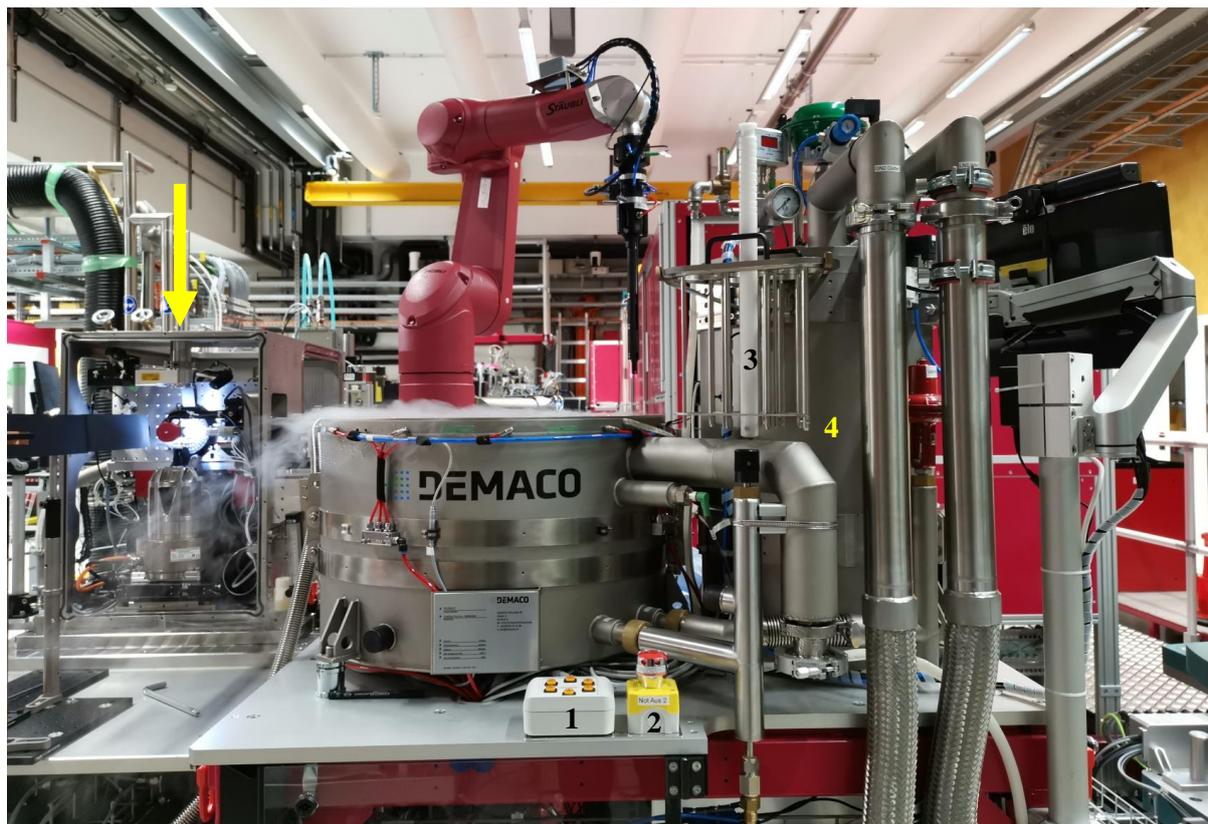


Figure S1 Picture of TELL at SwissFEL SwissMX, during commissioning beamtime in the Bernina hutch. The rotating lid is not present. The yellow arrow points at the entrance of the access valve for the robot gripper in the SwissMX chamber (the chamber is partly open). The Hexiposi interface (1), emergency stop (2) and puck loading tools (3) are visible at the front. The SwissMX TELL has a phase separator (4) installed on the support table.

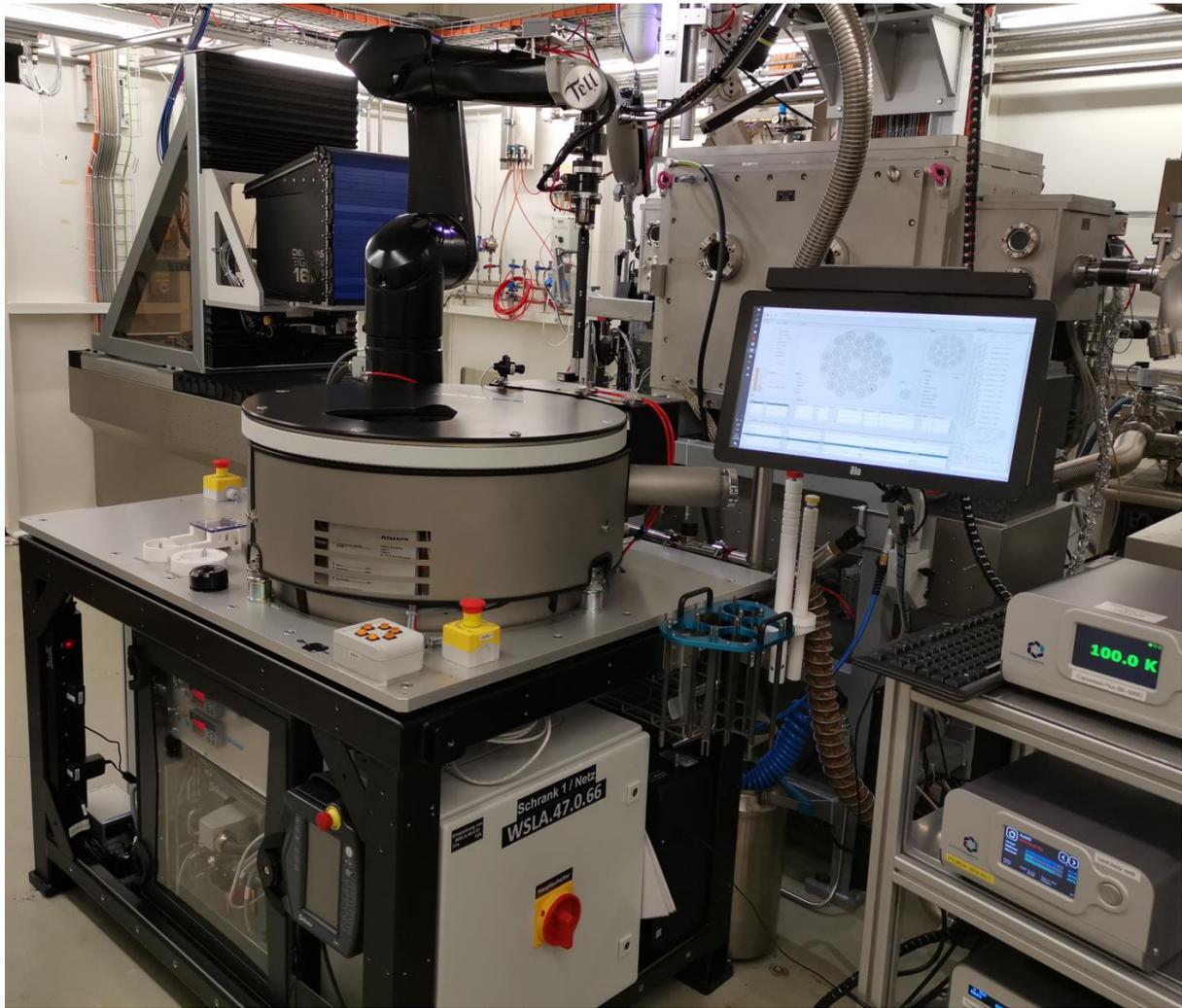


Figure S2 Picture of TELL installed at X06SA-PXI, Swiss Light Source. Elements are described in Figure 1 of the main manuscript.



Figure S3 Picture of TELL installed at X10SA-PXII, Swiss Light Source. Elements are described in Figure 1 of the main manuscript.

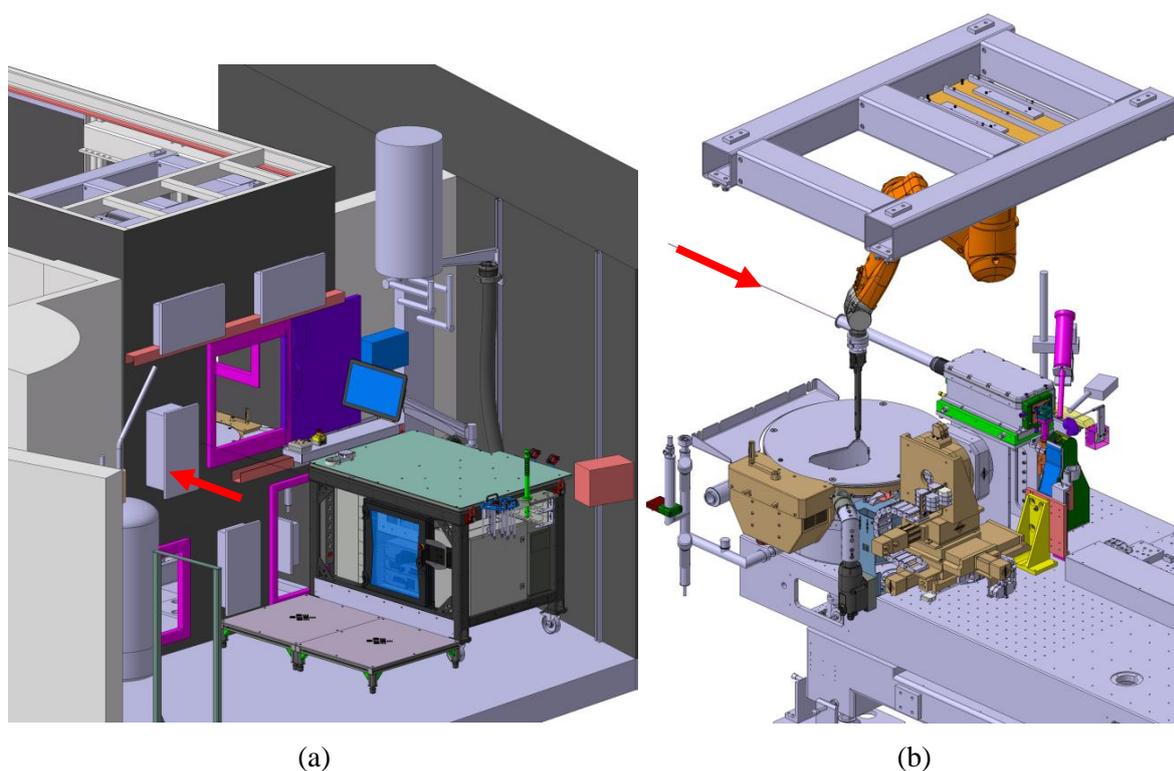


Figure S4 CAD drawings of the on-going implementation of TELL at X06DA-PXIII, Swiss Light Source. (a) View outside the mini-hutch, showing the table containing the control systems. Puck loading is performed through the pink window with a purple lid, through which the dewar lid is partly visible. (b) View inside the mini-hutch, with the robot attached to the ceiling and the dewar. Red arrows show the X-ray beam direction (the beam transport tube is not or only partly shown for clarity).

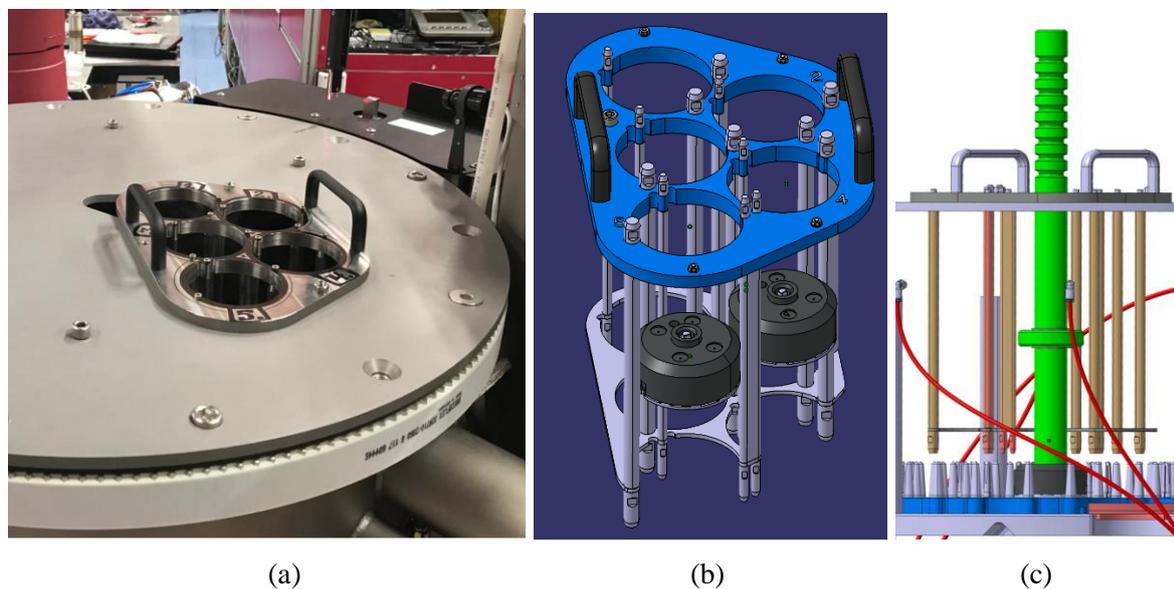


Figure S5 Puck loading tools. (a) View of the guiding tool inserted in the dewar lid. The dewar lid can be rotated with the guiding tool in place. (b) 3D construction of the guiding tool with 2 Unipucks half-way through. The puck orientation is enforced in the guiding tool by one of the rods fitting in the vertical groove of the Unipuck. (c) Puck handle (green) used for loading and unloading, inserted in the guiding tool and screwed on a Unipuck (black).



Figure S6 Picture of the home-developed room temperature gripper operated with TELL during SwissMX commissioning beamtime. The room temperature gripper can grab Spine bases from the Unipuck base visible at the bottom right, or from the room temperature sample storage area. The metal jaws enclose the chip mounted on the Spine base. Chip dimensions are up to 12.5 mm x 25 mm for the narrow version, compatible with the entrance valve to the He chamber, or 25 mm x 25 mm for the large version for air operation without a valve. In the background, the SwissMX chamber (partly open) and the Jungfrau 16M detector attached to a robotic arm are visible.