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Supplementary Material

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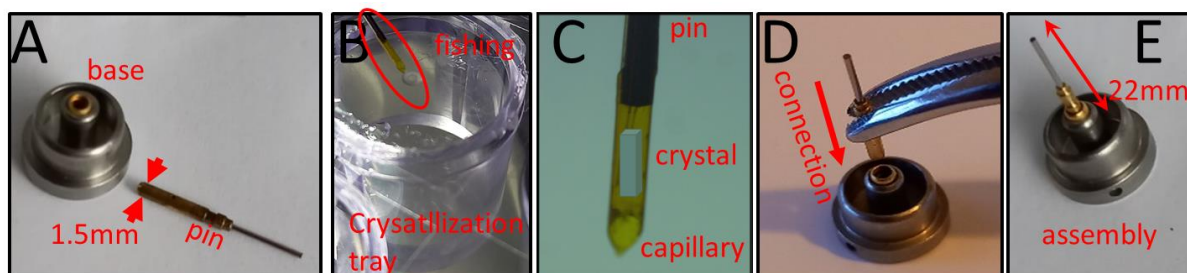


Figure S1: Connectable “MX-HP-Cool Sample Support” from MiTeGen (Ithaca USA). A) Pin and base disconnected. B) Crystal fishing in crystallization tray. C) Schematic view of a crystal inside a capillary. D) Pin and base connection. E) MX-HP-Cool Sample Support spine-standard.

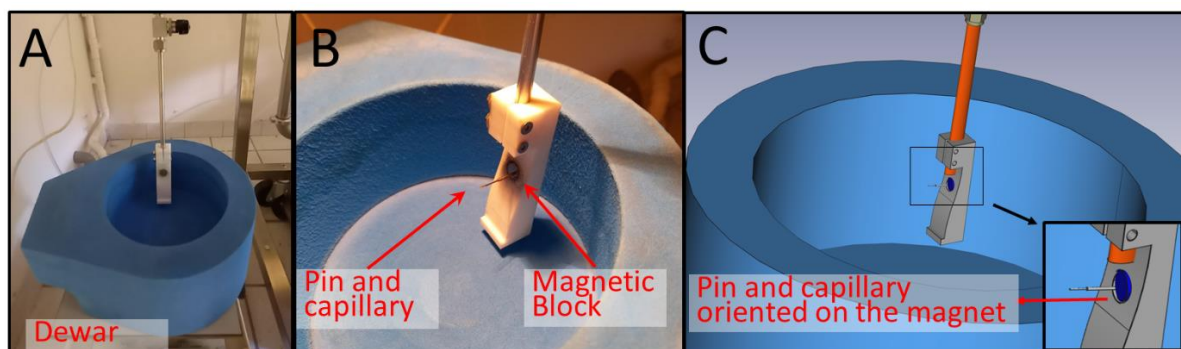


Figure S2: Magnetic system to capture the sample-holders in LN₂. A) Overview of the magnetic block in the foam-made Dewar. B) Close view of the magnetic block with a pin captured by the magnet. C) Three-dimensional drawing of the system.

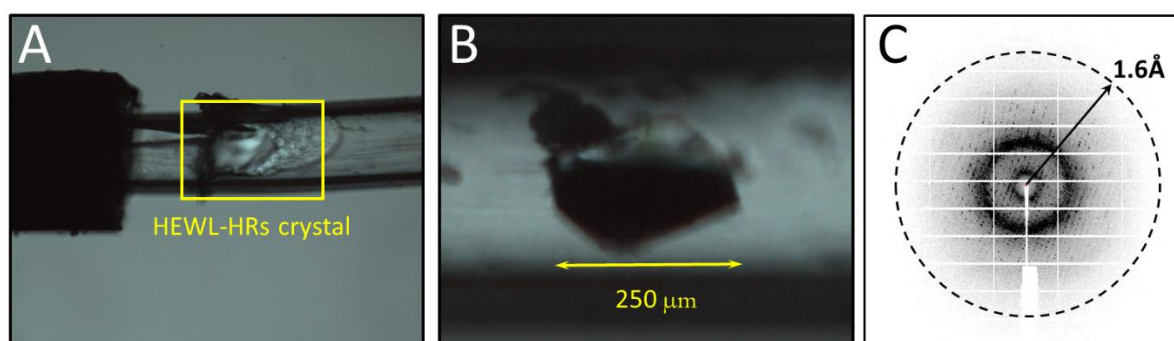


Figure S3: Diffraction of crystals of HEWL-HRs. A) Crystals of HEWL-HRs flash-cooled in a capillary. B) Close view and focus on the HEWL-HRs crystal aligned in the X-ray, with typical morphology of 250 μm length. C) Diffraction image showing spots at 1.6 \AA .

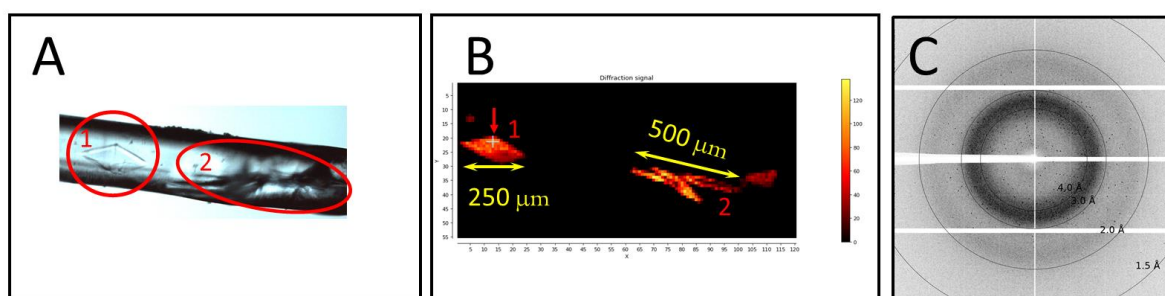


Figure S4: Diffraction of anoxic crystals of MiaE. A) Anoxic crystals of MiaE flash-cooled in a capillary. Sample 1 is a crystal form with a diamond shape of 250 μm length, sample 2 is a crystal form with a needle shape of 500 μm length. B) X-ray mapping of the capillary showing the best diffraction area (red arrow) on the crystal 1). C) Diffraction image of the diamond crystal revealing spots at 1.59 \AA .

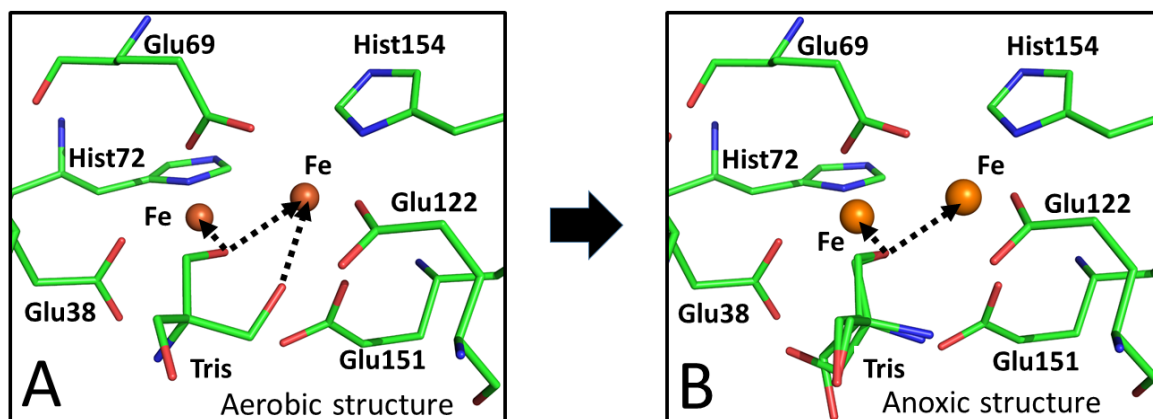


Figure S5: Comparison between aerobic and anoxic structures of MiaE. A) Aerobic structure of MiaE showing a Tris molecule making three ligand binding in the coordination of the di-iron centre (pdb id 6zmb). B) Anoxic structure with a disordered Tris molecule making a simple bridge between the two iron atoms (pdb id 8AFJ).