**Supplementary file 1 | Cryo-EM data collection, refinement and validation statistics.**

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| **Data collection and processing**  |  |
| Voltage (kV) | 300 |
| Electron exposure (e–/Å2) | 60 |
| Defocus range (μm) | -0.8 to -2.4 |
| Pixel size (Å) | 1.3 |
| Symmetry imposed | C1 |
| Initial particle images (no.) |  |
| Structure | L1 | L2(adp) | C1(ATP) | C2(ATP) | C3(adp) | C4(ADP) | C5(ATP) |
| Final particle images (no.) | 13,013 | 16,067 | 23,856 | 85,840 | 47,312 | 66,617 | 102,741 |
| Map resolution (Å) FSC threshold 0.143 | 4.1 | 4.0 | 3.9 | 3.5 | 4.0 | 3.6 | 3.4 |
| Map resolution range (Å) | 3.4 - 10 | 3.5 - 10 | 3.3 - 10 | 3.0 - 9 | 3.3 - 10 | 3.1 - 9.5 | 2.8 - 8 |
| EMDB accession code | EMD-21996 | EMD-22006 | EMD-22012 | EMD-22039 | EMD-22043 | EMD-22044 | EMD-22045 |
| **Refinement** |  |  |  |  |  |  |  |
| Model composition Non-hydrogen atoms Protein residues Nucleic acid residues Ligands | 35,9684,3141133 (1 Mg2+, 2 Zn2) | 36,0584,3161134 (1 Mg2+, 2 Zn2+, 1 ADP) | 36,0784,3161134 (1 Mg2+, 2 Zn2+, 1 ATP) | 36,0554,3161115 (2 Mg2+, 2 Zn2+, 1 ATP) | 36,0194,3161124 (1 Mg2+, 2 Zn2+, 1 ADP) | 36,0864,3161135 (2 Mg2+, 2 Zn2+, 1 ADP) | 36,0754,3151135 (2 Mg2+, 2 Zn2+, 1 ATP) |
| *B* factors (Å2) Protein Nucleic acid Ligands | 127.1216.4154.1 | 100.09166.3183.15 | 107.4152.3114.8 | 66.56123.8347.00 | 100.2216.798.44 | 83.93144.0182.98 | 50.34104.132.07 |
| R.m.s. deviations Bond lengths (Å) Bond angles (°) | 0.0081.109 | 0.0081.138 | 0.0091.196 | 0.0100.989 | 0.0091.197 | 0.0060.949 | 0.0050.810 |
|  Validation MolProbity score Clashscore Poor rotamers (%)  | 2.0712.030.0 | 2.5410.770.0 | 1.999.220.06 | 2.019.520.0 | 1.989.260.06 | 1.968.830.0 | 1.897.700.03 |
|  Ramachandran plota Favored (%) Allowed (%) Outliers (%) | 92.297.690.02 | 92.247.730.02 | 91.718.270.02 | 90.419.520.07 | 92.047.920.05 | 91.977.990.05 | 92.367.590.05 |
| PDB accession code | 6X26 | 6X2F | 6X2N | 6X43 | 6X4W | 6X4Y | 6X50 |

a Refinement/validation parameters as calculated by PHENIX real\_space\_refine (Adams et al., 2010) and MOLPROBITY (Chen et al., 2010).