**Table S1. Data collection and refinement statistics**

|  |  |  |
| --- | --- | --- |
| Data collection |  |  |
|  Construct Space group | SYT1C2A CaR 3 :H | SYT1C2A CdR 3 :H |
|  a, b, c, Å α, β, γ, ° Resolution, Å Rpim CC1/2 Ι/σ(Ι) Completeness, % Redundancy | 69.13 69.13 115.6790 90 12041.59-2.10 (2.16-2.10)0.023 (0.706)0.999 (0.551)14.3 (1.1)100.0 (100.0)6.6 (6.8) | 70.94 70.94 116.3190 90 12042.23-2.00 (2.06-2.00)0.053 (1.041)0.997 (0.449)7.6 (0.8)99.5 (99.1)3.4 (3.5) |
| Refinement |  |  |
|  Resolution, Å No. of reflections Rwork/Rfree | 41.59-2.10 (2.18-2.10)2401020.7/26.9 (35.8/38.9) | 42.23-2.00 (2.16-2.00)1457318.6/21.1 (34.3/35.1) |
|  No. of atoms |  |  |
|  Protein Calcium/Cadmium ions Zinc/Nickel ions Chlorine ions Ethylene glycol Water molecules Average B factors | 1054211-1092.23 | 107422122862.98 |
|  rmsd |  |  |
|  Bond lengths, Å Bond angles, º Ramachandram plot | 0.0090.97196.0% in the core4.0% in the allowed | 0.0080.91796.85% in the core3.15% in the allowed |

Highest-resolution shell is shown in parenthesis