

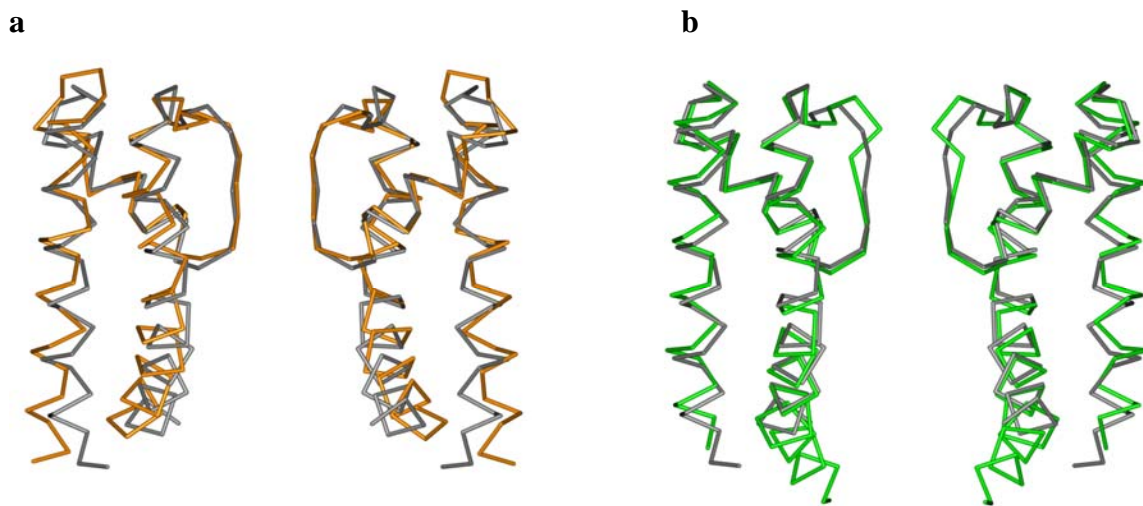
## Novel insights into $K^+$ selectivity from high resolution structures of an open $K^+$ channel pore

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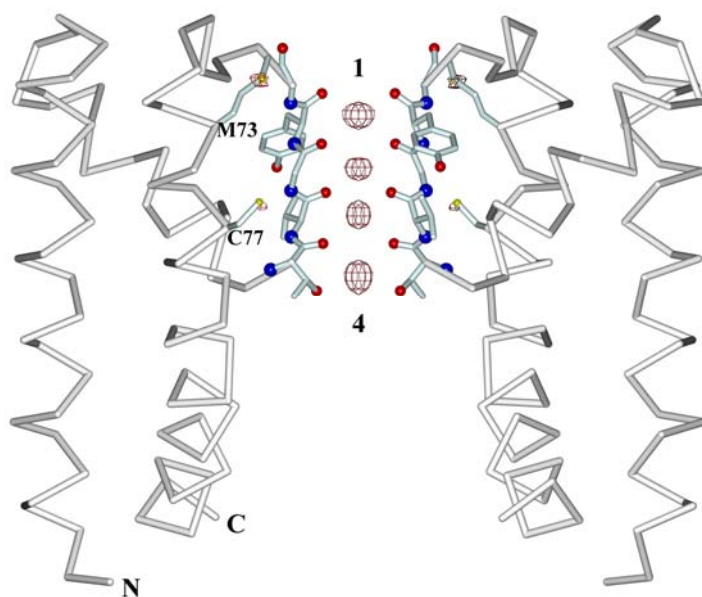
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**Supplementary Figure 1.** Conservation of pore-opening mechanics in tetrameric cation channels. **a**, Superimposition of  $C\alpha$  atoms between the isolated MthK pore (grey) and the pore region of the full-length MthK structure (gold, PDB code 1LNQ). **b**, Superimposition of  $C\alpha$  atoms between the isolated MthK pore (grey) and the non-selective NaK channel (green, PDB code 3E86).



**Supplementary Figure 2.** Anomalous difference Fourier map of K<sup>+</sup> complex (in 100 mM K<sup>+</sup>). All major peaks ( $> 5\sigma$ , red mesh) are from K<sup>+</sup> ions in the selectivity filter and sulfur atoms from Met73 and Cys77.

**Supplementary Table 1**

Anomalous scattering factors (F' and F'') of all elements in MthK pore crystals

Elements	Wavelength (Å)	F' (e <sup>-</sup> )	F'' (e <sup>-</sup> )
K <sup>+</sup>	0.9794	0.2698	0.4634
S	0.9794	0.1827	0.2341
Na <sup>+</sup>	0.9794	0.0569	0.0490
C	0.9794	0.0042	0.0033
N	0.9794	0.0088	0.0067
O	0.9794	0.0163	0.0122