
Supplementary information

**Inactivation of the Kv2.1 channel through
electromechanical coupling**

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Inactivation of the Kv2.1 channel through electromechanical coupling

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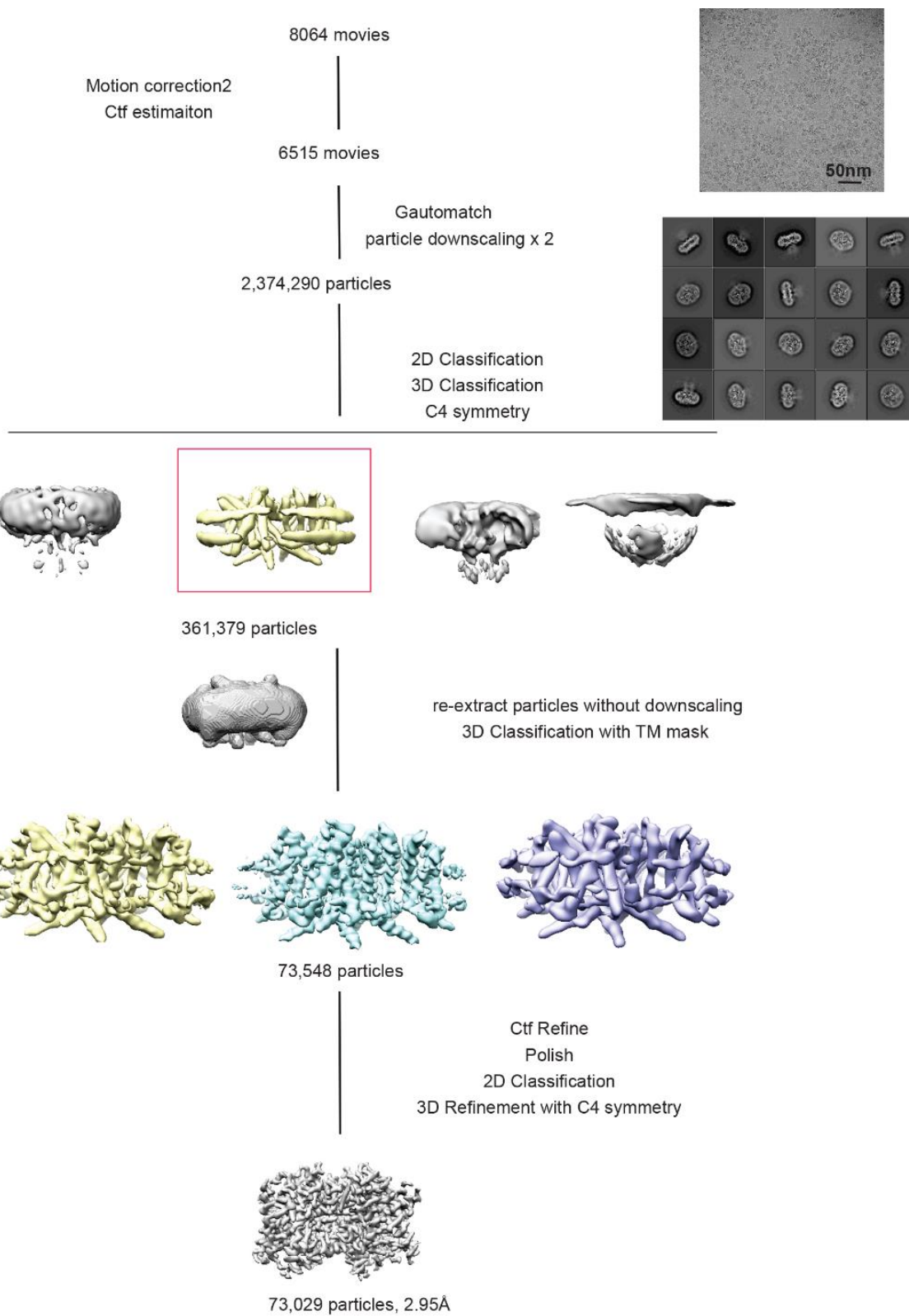
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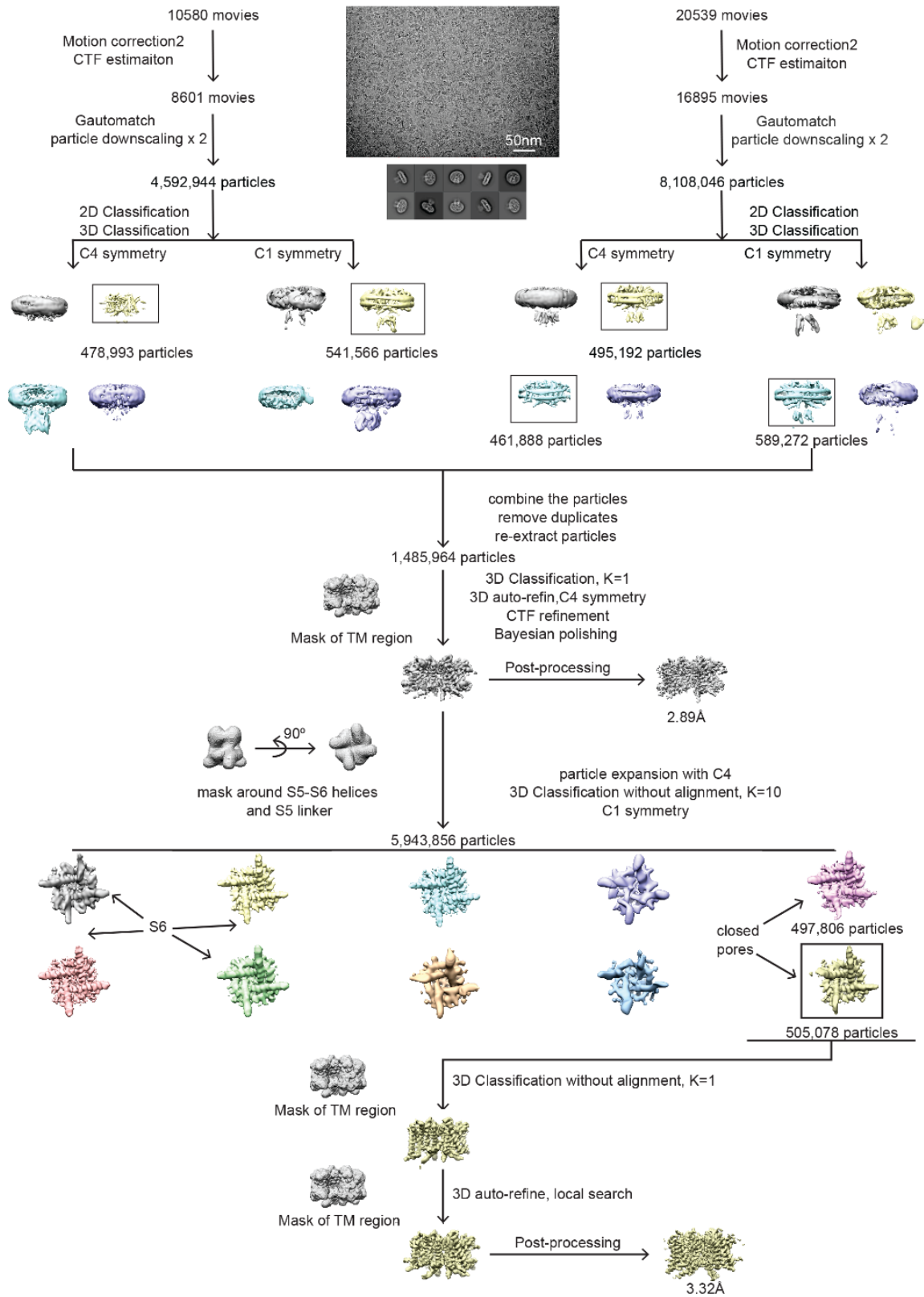
Table of Contents

Page 3	Supplementary Information Figure 1 Data processing workflow for the structure of Kv2.1 (1-598)
Page 4	Supplementary Information Figure 2 Data processing workflow for the structure of the L403A mutant of Kv2.1 (1-598).
Page 5	Supplementary Information Table 1
Pages 6-7	Supplementary Information Figure 3 Structure-based sequence alignment of Kv, Cav and Nav channels
Page 8	Supplementary Information Figure 4 Uncropped gel from Extended Data Fig. 1d



Supplementary Information Figure 1|

Data processing workflow for the structure of Kv2.1 (1-598)



Supplementary Information Figure 2 |

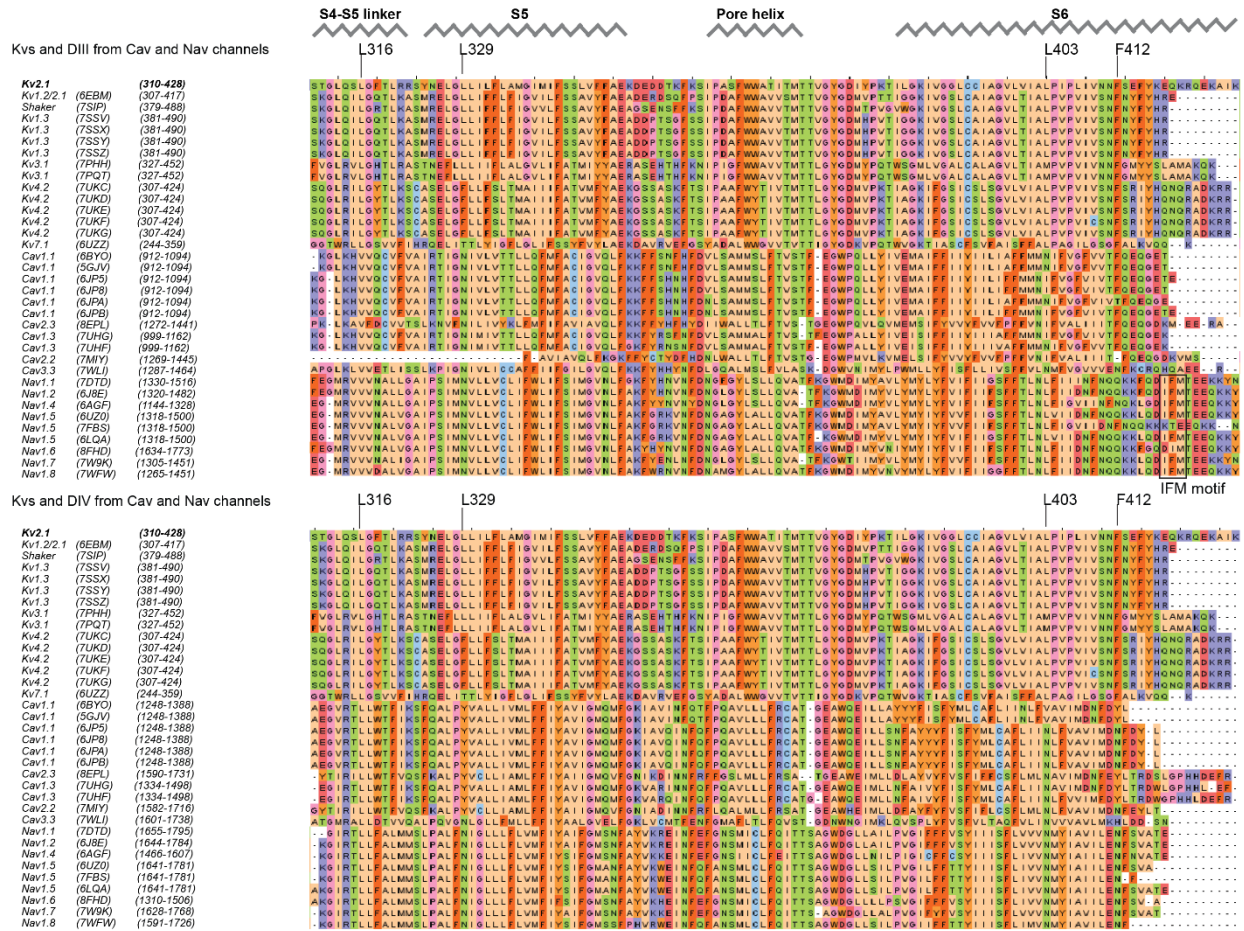
Data processing workflow for the structure of the L403A mutant of Kv2.1 (1-598)

Supplementary Information Table 1.

Gating properties of epileptic encephalopathy mutations in Kv2.1.

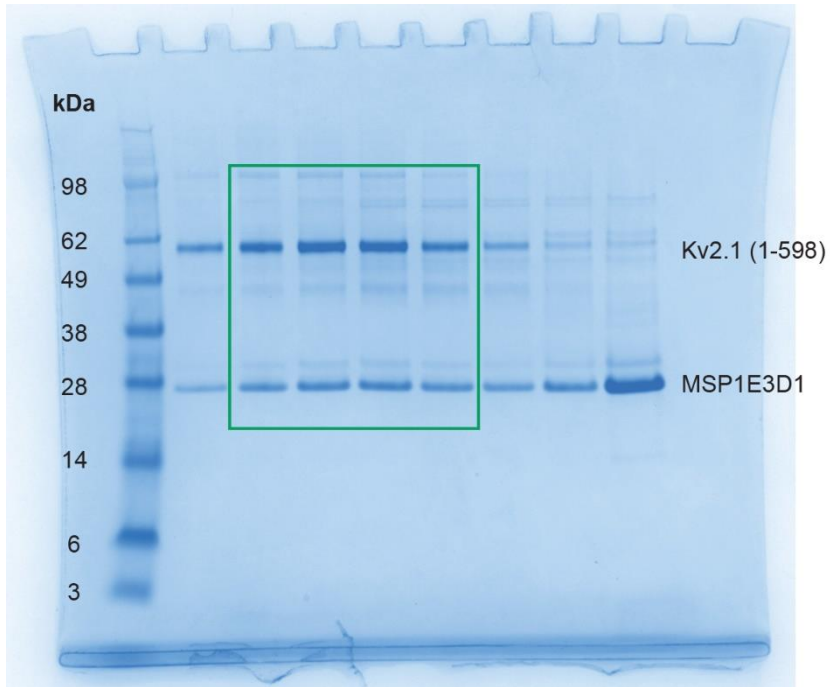
	$V_{1/2}$ (mV)	SEM	z	SEM	n	y
Kv2.1 WT	-4.8	2.0	3.7	0.2	4	2
S198F	51.1	3.3	1.1	0.1	5	2
T206K	13.7	4.5	1.0	0.1	3	2
T206M	11.1	4.6	1.7	0.3	3	2
L207P	-9.4	5.4	1.2	0.2	3	2
R302C	-82.0	3.5	1.6	0.4	5	2
R308H	71.6	3.3	0.9	0.0	6	4
K387N	-15.1	1.0	5.1	0.7	6	6

Voltage-activation (G-V) relations were obtained using tail current measurements in 100 mM external K^+ . The Boltzmann equation was fit to G-V relations to obtain values of $V_{1/2}$ (midpoint) and z (steepness). Values of n indicate the number of cells studied and values of y indicate the number of independent experiments.



Supplementary Information Figure 3 | Structure-based sequence alignment of Kv, Cav and Nav channels

Structure-based sequence alignment of residues from the S4-S5 linker to the end of S6 with residues colored based on side chain character. Residues identified within the hydrophobic coupling nexus are highlighted as well as other regions of interest (IFM motif).



Supplementary Information Figure 4|
Uncropped gel from Extended Data Fig. 1d