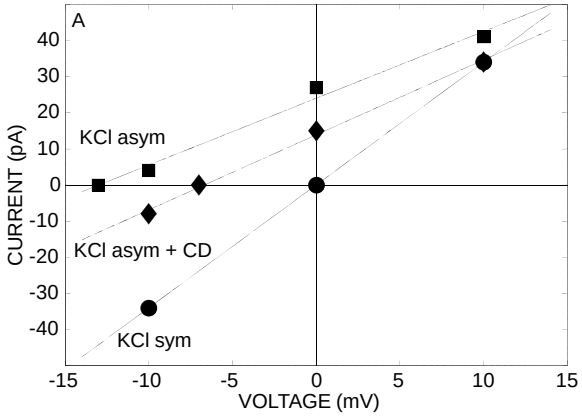
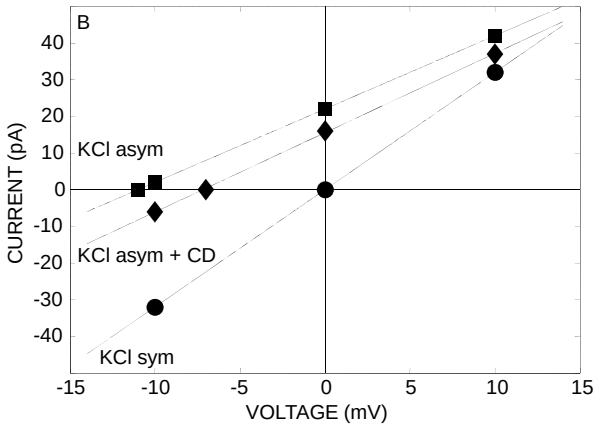
Biophysical Journal, Volume 99

Supporting Material

MODULATION OF PLANT MITOCHONDRIAL VDAC BY PHYTOSTEROLS

Lamia Mlayeh, Sunita Chatkaew, Marc Leonetti, and Fabrice Homble





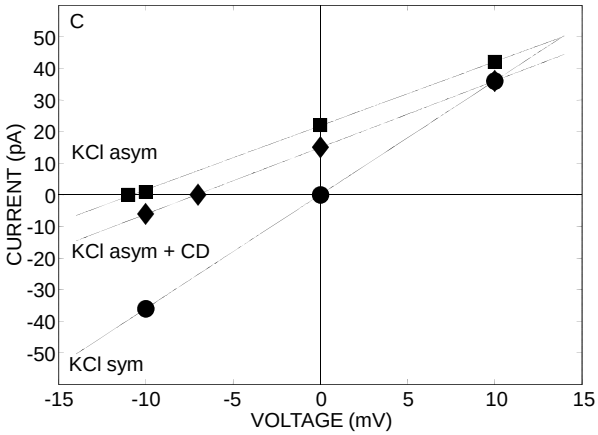


Fig. S1. Current-voltage curve of a single VDAC channel. The lipid bilayer contained a sterol fraction that gives a maximum reversal potential shift in the presence of a KCl gradient: A) 15% stigmasterol, B) 15% sitosterol and C) 20% cholesterol. The channel was reconstituted in the lipid bilayer in the presence of symmetrical 0.81 molal KCl (KCl sym) condition. Then, the cis compartment was perfused three times its volume to get an asymmetrical 0.81/0.062 molal KCl condition corresponding to tenfold KCl activity gradient (0.5/0.05; trans/cis). Finally, 10μM methyl-β-cyclodextrin (final concentration) was added to the cis compartment (KCl asym+CD) to remove the sterol from the lipid bilayer. A linear least square regression was used to fit the data to a straight line ($R^2 \geq 0.998$).

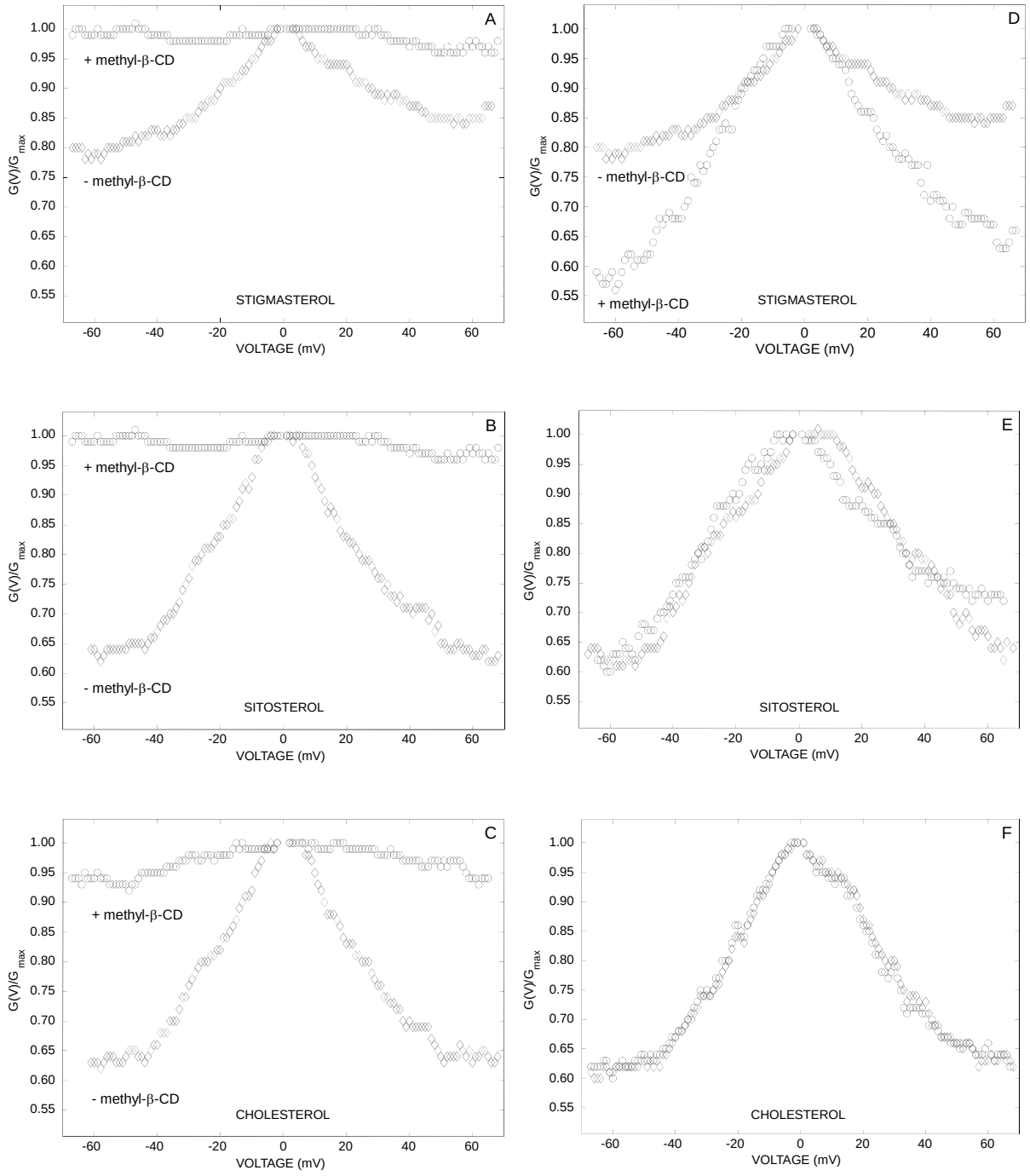


Fig. S2. Effect of methyl-β-CD on the VDAC voltage-dependence measured in 0.133 molal KCl (A-C) or 0.81 molal KCl (D-F). The VDAC channels were reconstituted in planar lipid bilayer containing 5% sterol. The voltage-dependence was measured before (diamond) and after (circle) addition of 10 μM methyl-β-CD. In the presence of sterol (-methyl-β-cyclodextrin, diamond) there is no effect of the KCl concentration on the voltage-dependence.