Supplemental Materials

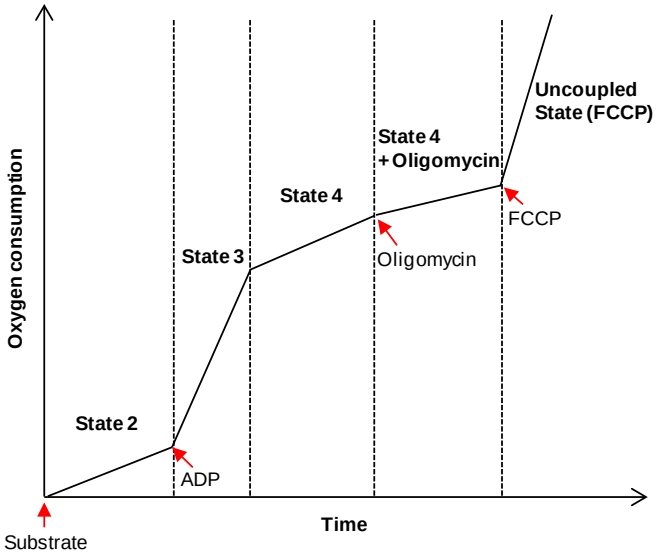

FIG S1 Schematic representation of rat liver mitochondrial oxygen consumption recordings. Mitochondrial oxygen consumption was measured polarographically with a Clark-type oxygen electrode as described by Silva and Oliveira (2012). In order to elicit State 2 respiration mitochondria where energized with 5 mM glutamate plus 2.5 mM malate (substrates that produce NADH, the Complex I substrate, in the mitochondrial matrix) or with 5 mM succinate (Complex II substrate) in the presence of 2 µM rotenone, a specific inhibitor of Complex I. State 3 respiration was elicited by addition of 125 nmol/mL of ADP and State 4 respiration was achieved after complete phosphorylation of the ADP added. Approximately 1 minute after the beginning of State 4 respiration, 1 µg/mL oligomycin was added to the system, in order to inhibit proton passive flux through the ATP synthase. After that, Uncoupled State respiration was driven by addition of 1 µM FCCP, a protonophore. Respiration rates were calculated assuming that the molecular oxygen (O_2) concentration in the respiration medium was 236 µM at 30ºC. The respiratory control ratio (RCR), an indicator of mitochondrial membrane integrity and energy-conserving capacity, was determined as the ratio between State 3 and State 4 respiration rates. As a measure of the oxidative phosphorylation efficiency, the ADP-to-oxygen ratio (ADP/O) was calculated as the ratio between the amount of ADP added to elicit Sate 3 and the amount of atomic oxygen consumed during State 3 respiration to phosphorylate all the ADP added to the system.

References:

Silva AM, Oliveira PJ. 2012. Evaluation of respiration with clark type electrode in isolated mitochondria and permeabilized animal cells. Methods Mol Biol. **810**:7-24.

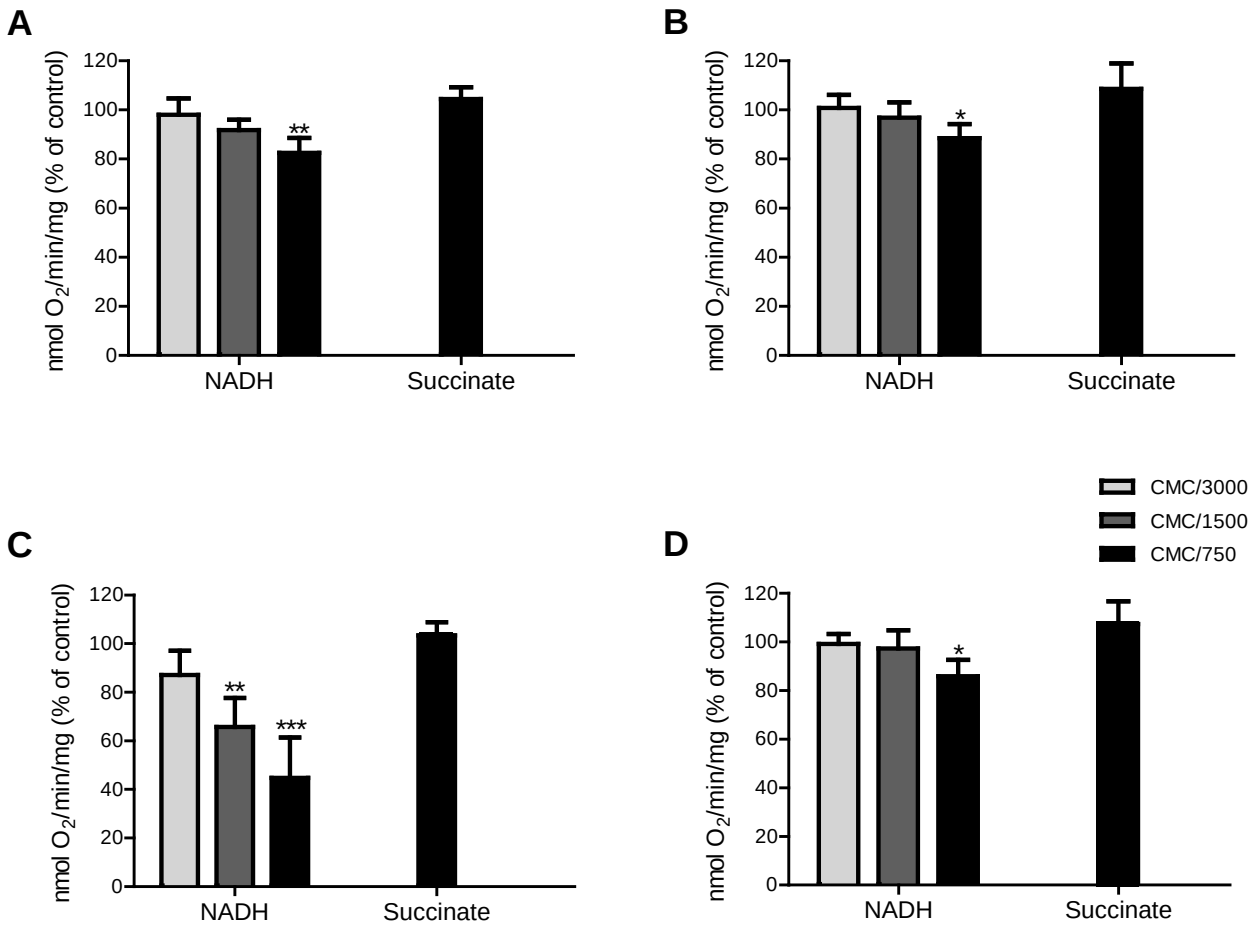

FIG S2 Effects of QAC on the respiratory activity of disrupted mitochondria. In order to evaluate the effects of cationic surfactants on mitochondrial Complex I activity, mitochondria were energized with 10 mM NADH, the Complex I substrate. The mitochondrial inner membrane was made permeable to NADH by repeated freeze-thaw cycles. The effects of C_{10}TAB (A), C_{12}TAB (B), C_{12}PB (C) and C_{12}BZK (D) on the oxygen consumption rate were determined after 5 minutes of exposure. Data are presented as Mean ± SD of at least 4 independent experiments. * $p < 0.05$, ** $p < 0.01$ and *** $p < 0.001$, significantly different from the respective control.

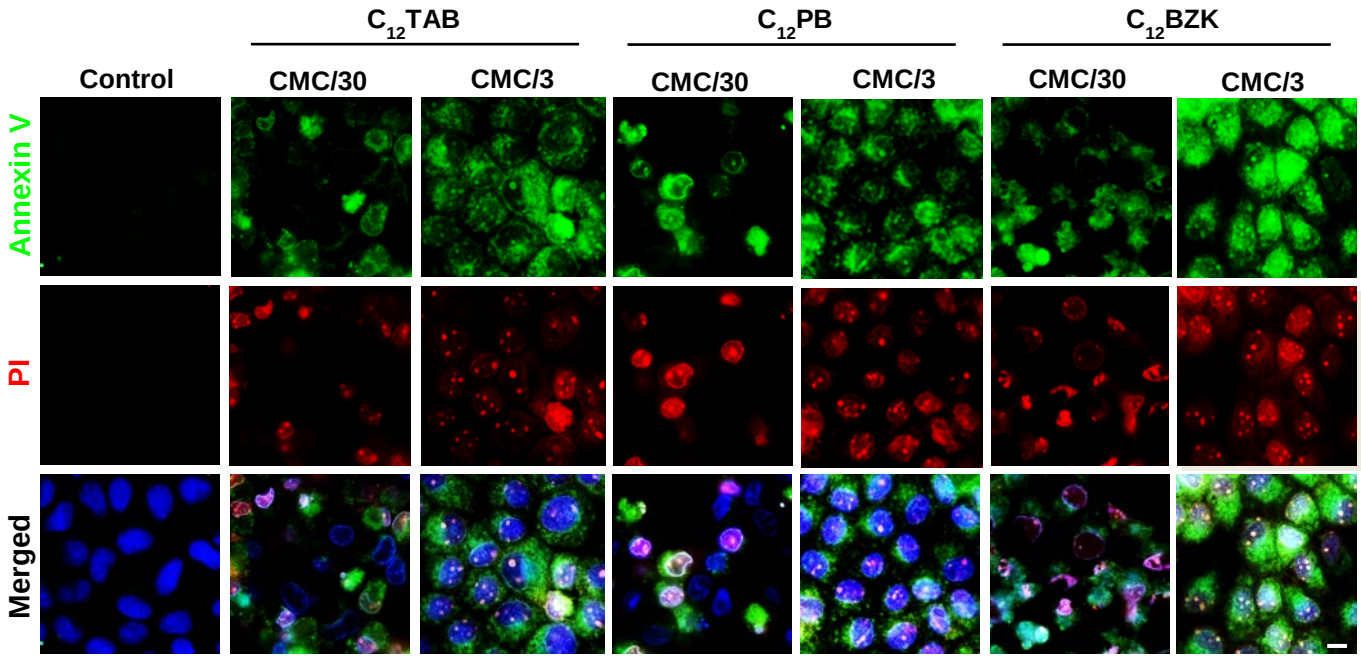

FIG S3 QAC-induced cell death in MDCK cells. Representative fluorescence images showing apoptotic cells stained with annexin V (green) and necrotic cells with PI (red) after 3 hours incubation with different QAC concentrations. Nuclei were visualized by Hoechst 33342 staining (blue). Scale bar corresponds to 10 µm.