

ORGANOTELLURANES RT-07B AND RT-07C EFFECTS ON MITOCHONDRIAL BIOENERGETICS

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The action of organotellurium compounds (telluranes) named RT-07b and RT07c) on mitochondrial bioenergetics was investigated and compared with the effects of previously investigated RT-03 and RT-04 that differed from RT-07b and c relative to the tellurium (IV) ligands). Similarly to RT-03 and RT-04, RT-07b and c induced RCR decrease and the opening of the mitochondrial permeability transition pore (MPTP) regulated by Ca^{2+} and inhibited by CsA. RT-07b was effective in the same concentration range in which RT-03 and RT-04 damaged mitochondria (1-10 μM). Above 15 μM , due to the low solubility, RT-07b promoted extensive mitochondria aggregation. RT-07c was soluble at the concentration range 5-50 μM and induced MPTP and RCR decrease in a concentration-dependent manner. At the concentrations ranges in which RT-07b and c promoted mitochondrial swelling and RCR decrease, it was observed depletion of the membrane thiol content without significant depletion of GSH. RT-07b and c did not cause significant changes in the membrane fluidity and did not promote lipid oxidation. These results suggest that RT-07b and c are preferentially partitioned into mitochondrial membranes and cause impairment of mitochondrial function due to reactivity with membrane thiol groups.

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