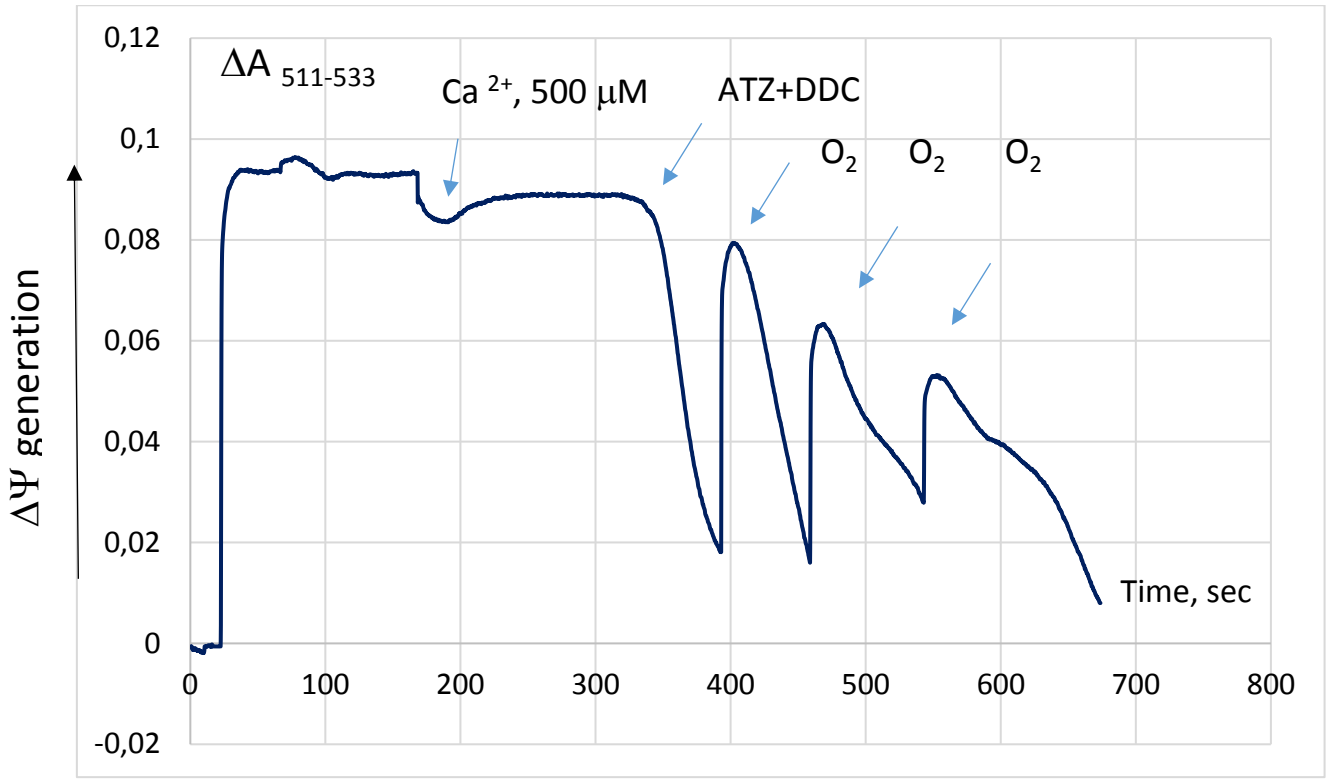


FIGURE S1. Effects of Ca^{2+}, ATZ, and DDC on the ΔΨ generated by the *E. magnusii* mitochondria respiring on a pyruvate+malate system. Additions and amounts are given in the figure by arrows. Incubation medium contained 0.4 M mannitol, 0.1 M KCl, 20 mM Tris-acetate, 20 μM safranin, pH 7.4, 0.4 mg of mitochondria protein. Figure has been published in [Deryabina, Y.; Isakova, E.; Antipov, A.; Saris, N.E. The inhibitors of antioxidant cell enzymes induce permeability transition in yeast mitochondria. J. Bioenerg. Biomembr. 2013, 45, 491-504. doi: 10.1007/s10863-013-9511-2].

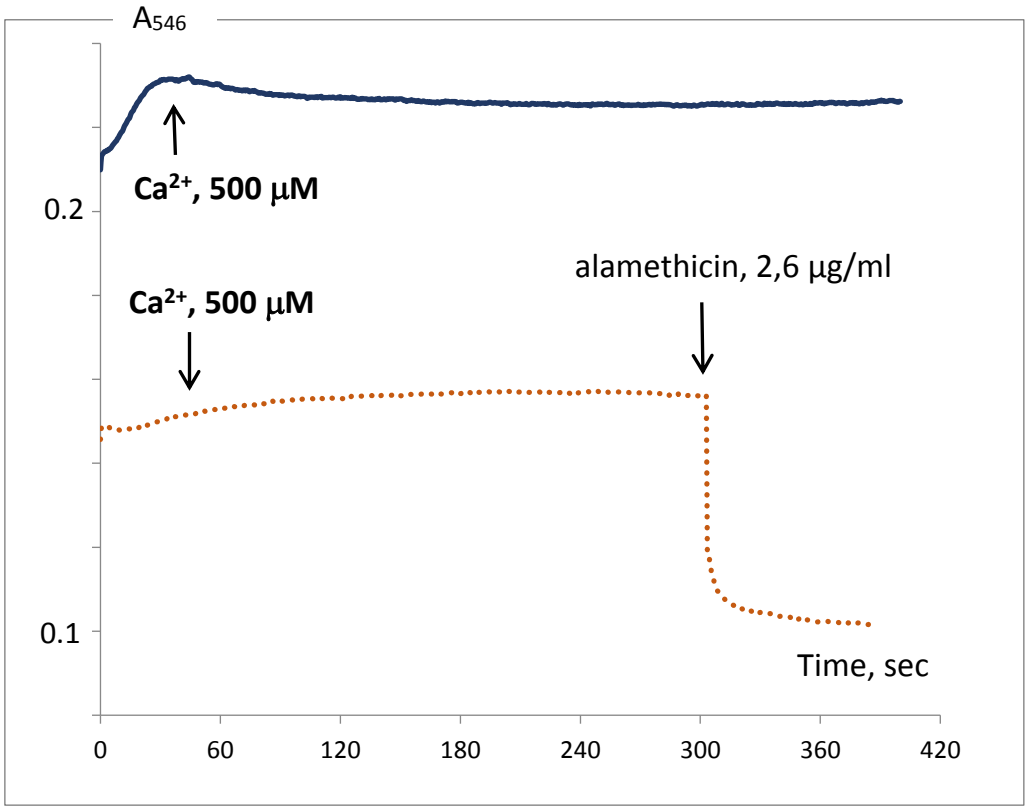


FIGURE S2. Mitochondria swelling. Arrow indicates addition of Ca^{2+}. Mito is shortening for mitochondria. Experimental conditions are described in **Fig. S1.**

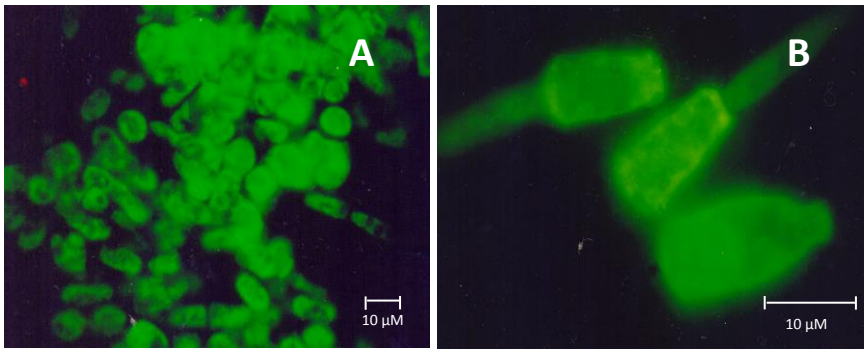


FIGURE S3. Fluorescence micro-images of *E. magnusii* cells raised at the mid-logarithmical growth phase labeled with PI (100 µg/ml). A – control cells (magnification 100×); B – pre-incubation with 4 mM DDC and 4 mM ATZ (magnification 40×).

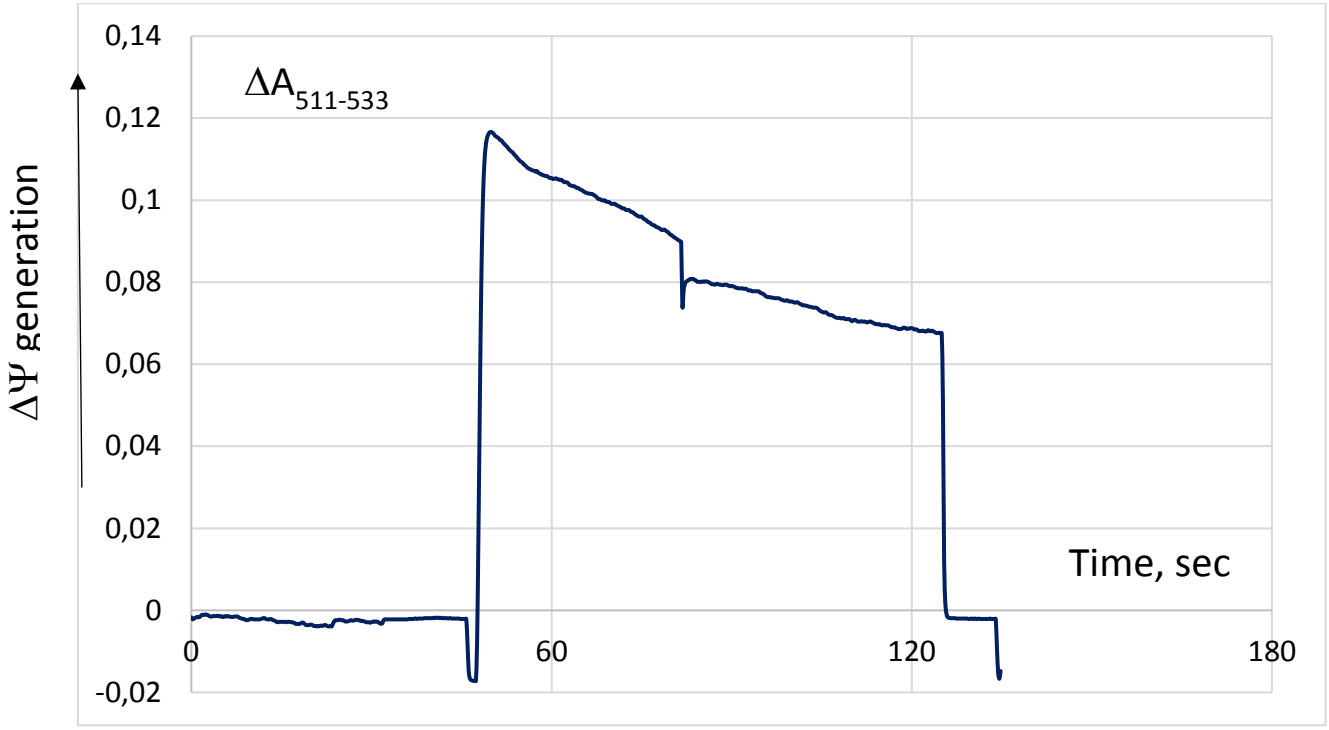


FIGURE S4. Generation of ΔΨ upon oxidation of α-glycerophosphate. Mito is shortening for mitochondria. Experimental conditions are described in **Fig. S1.**

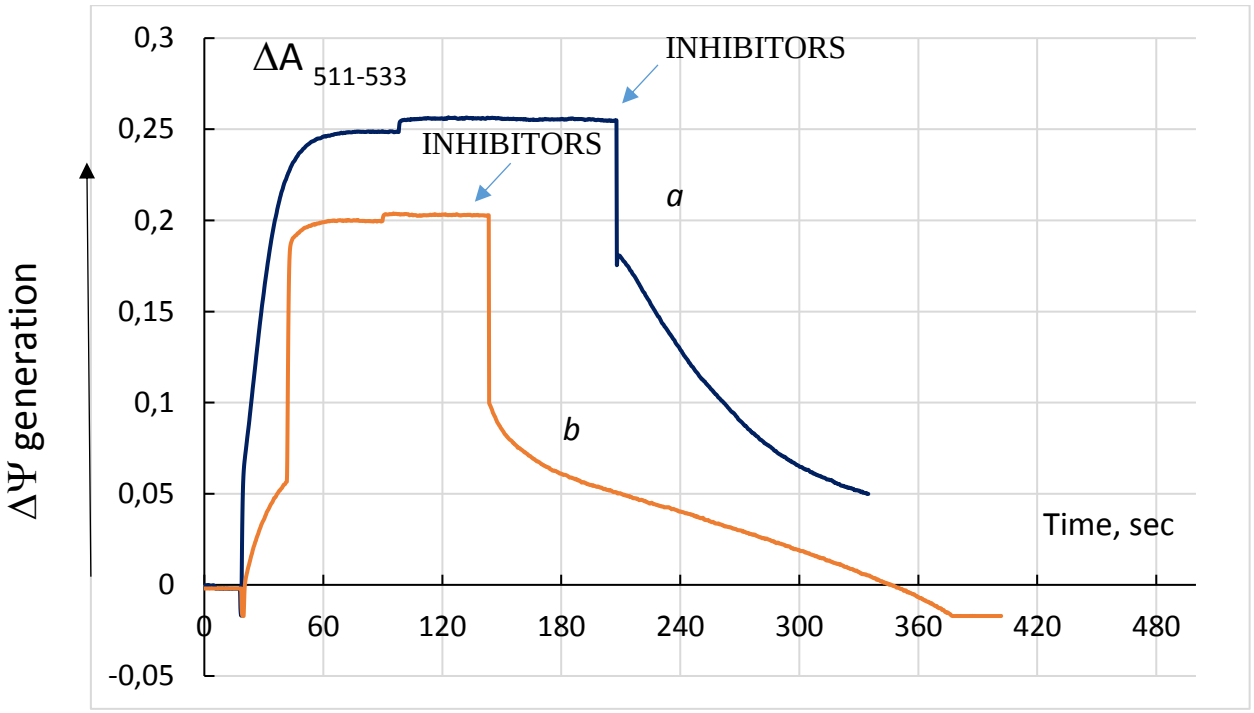


Figure S5. Effects of 5 mM Pi on non-specific permeability transition induction in the *E.magnusii* mitochondria respiring on a α-ketoglutarate (a) and succinate (b) in the presence of the antioxidant enzymes inhibitors. The incubation medium was the same as that in Fig.S1. Addition of the inhibitors mixture (4 mM DDC and 4mM ATZ) is indicated by the arrow.

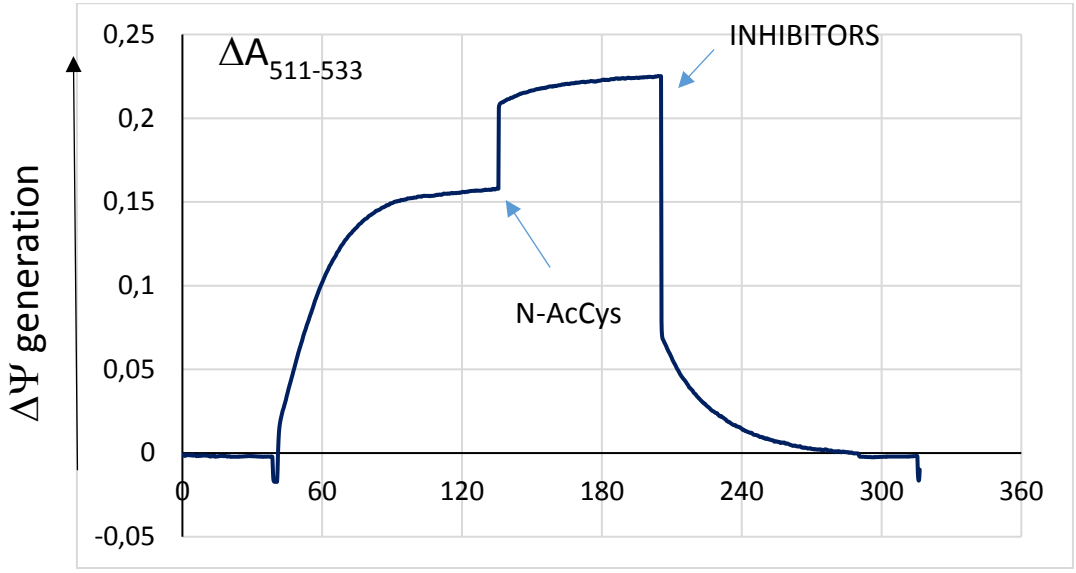


Figure S6. Effects of 5 mM *N*-acetylcysteine on non-specific permeability transition induction in the *E.magnusii* mitochondria respiring on the ΔΨ generated by the *E. magnusii* mitochondria respiring on a pyruvate+malate system in the presence of the antioxidant enzymes inhibitors. The incubation medium was the same as that in **Fig.S1**. Addition of the inhibitors mixture (4 mM DDC and 4mM ATZ) is indicated by the arrow.

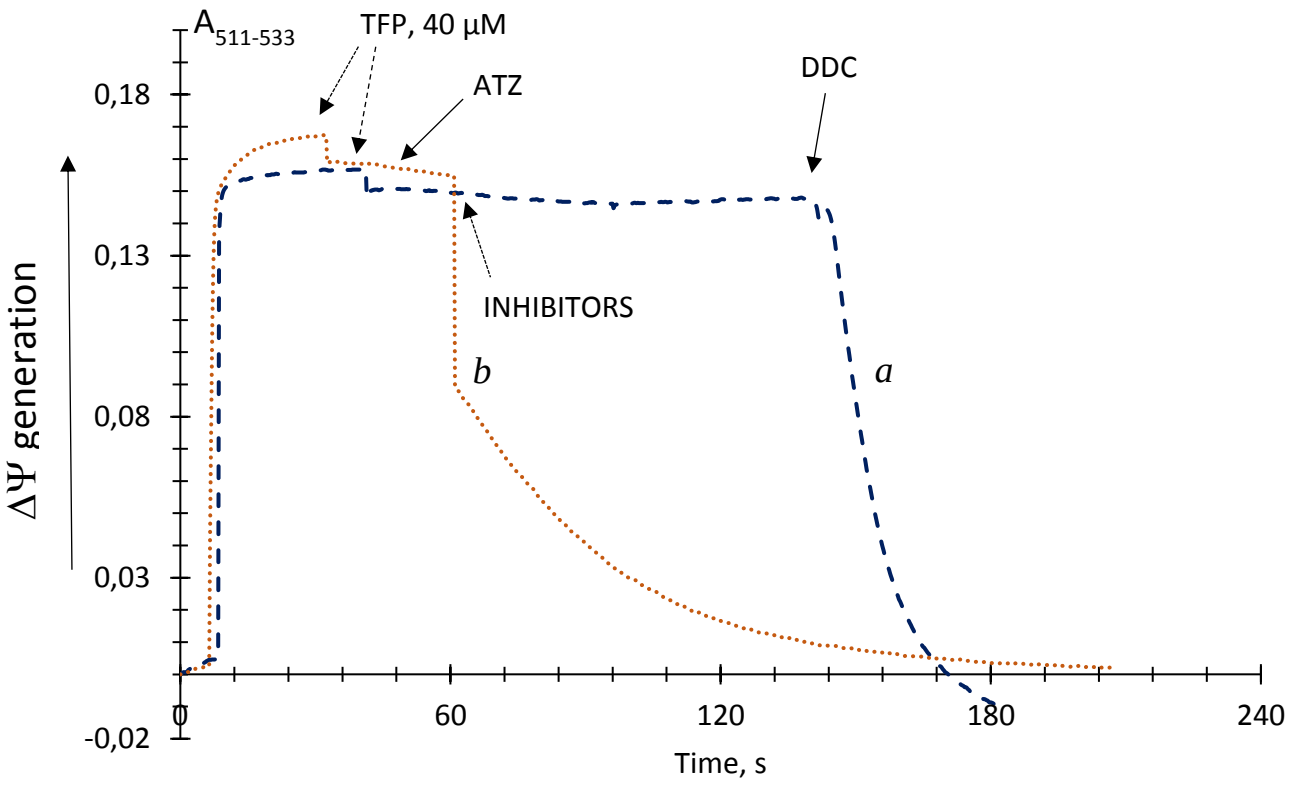


Figure S7. Effects of the lipid peroxidation inhibitor, trifluoroperasine (TFP), on the induction of non-specific permeability transition in the *E.magnusii* mitochondria promoted by the application of the antioxidant enzymes inhibitors. The incubation medium was the same as that in **Fig S1**. The dotted line shows the results of the inhibitors mixture application after 40µM TFP addition, the dashed one demonstrates the successive application of both 4 mM ATZ and 4 mM DDC after the TFP addition. Addition of the inhibitors is indicated by solid arrows.

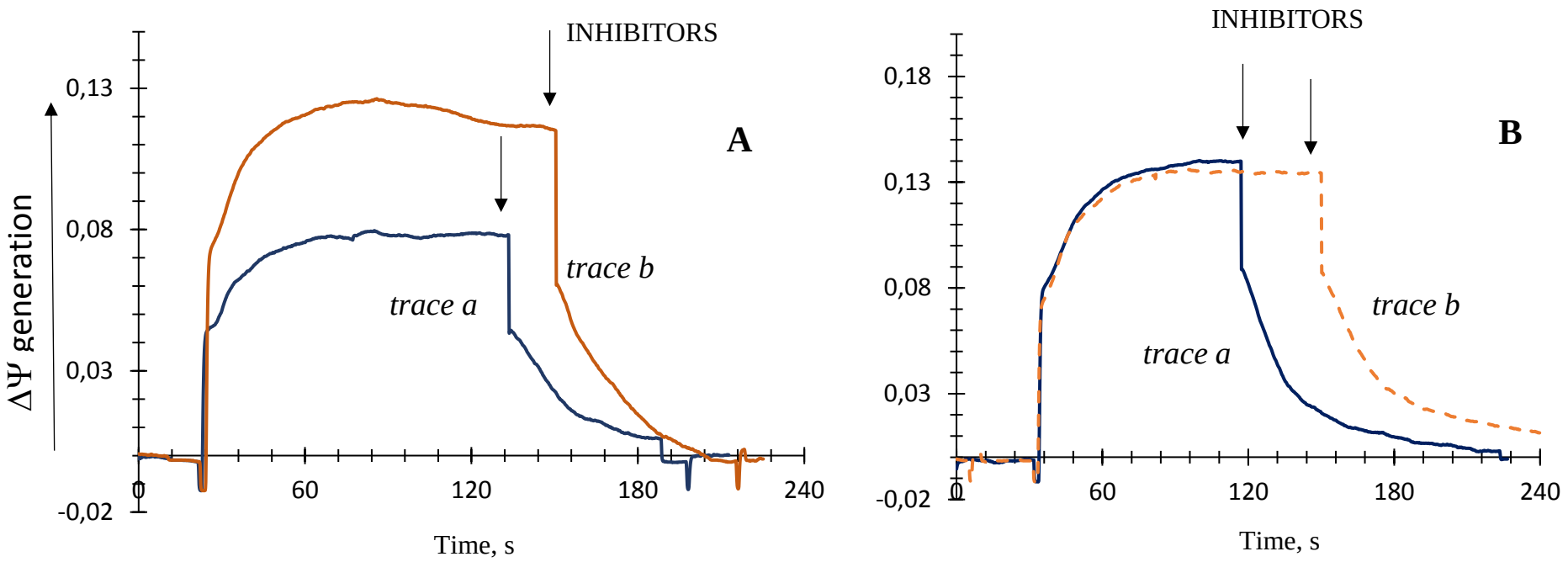
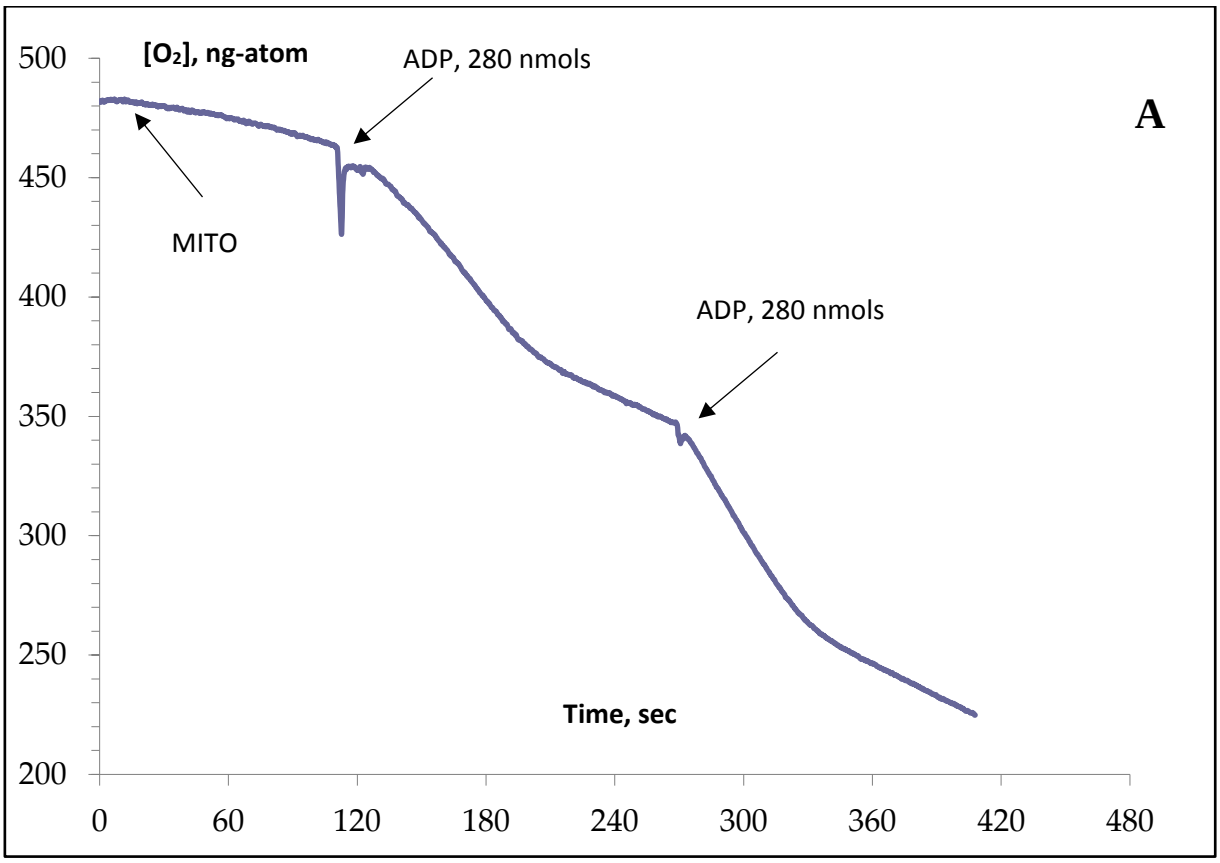


Figure S8. Effect of the inhibitors of VDAC (**Panel A**) and oligomycin (**Panel B**) on non-specific permeability transition induction due to antioxidant systems inhibition in the *E. magnusii* mitochondria. **Panel A** *trace a* – effect of 5,4 μM erastine added before the inhibitors application; *trace b* – effect of octylguanidine added before the inhibitors application; **Panel B**: *trace a* – control; *trace b* – effect of oligomycin added before the inhibitors application.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MITO
ADP, 280 nmols
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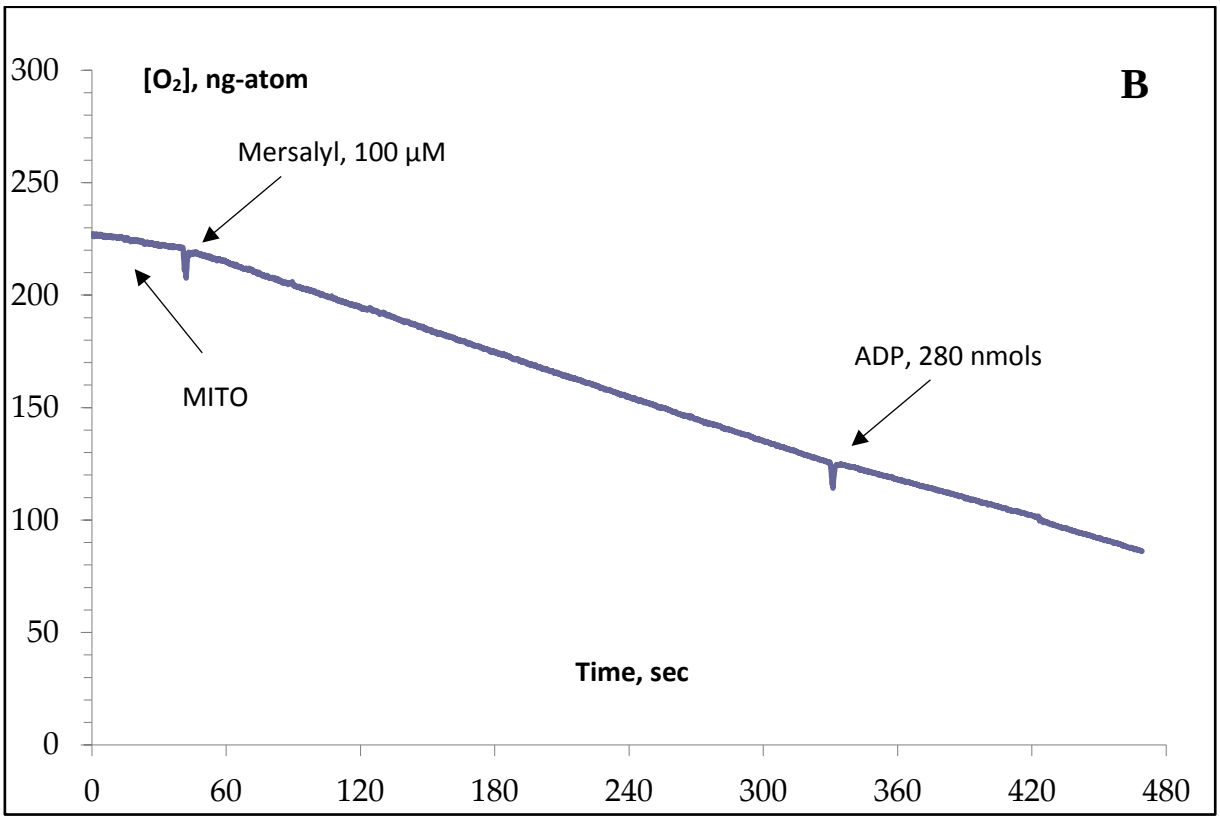
180
240
300
360
420
480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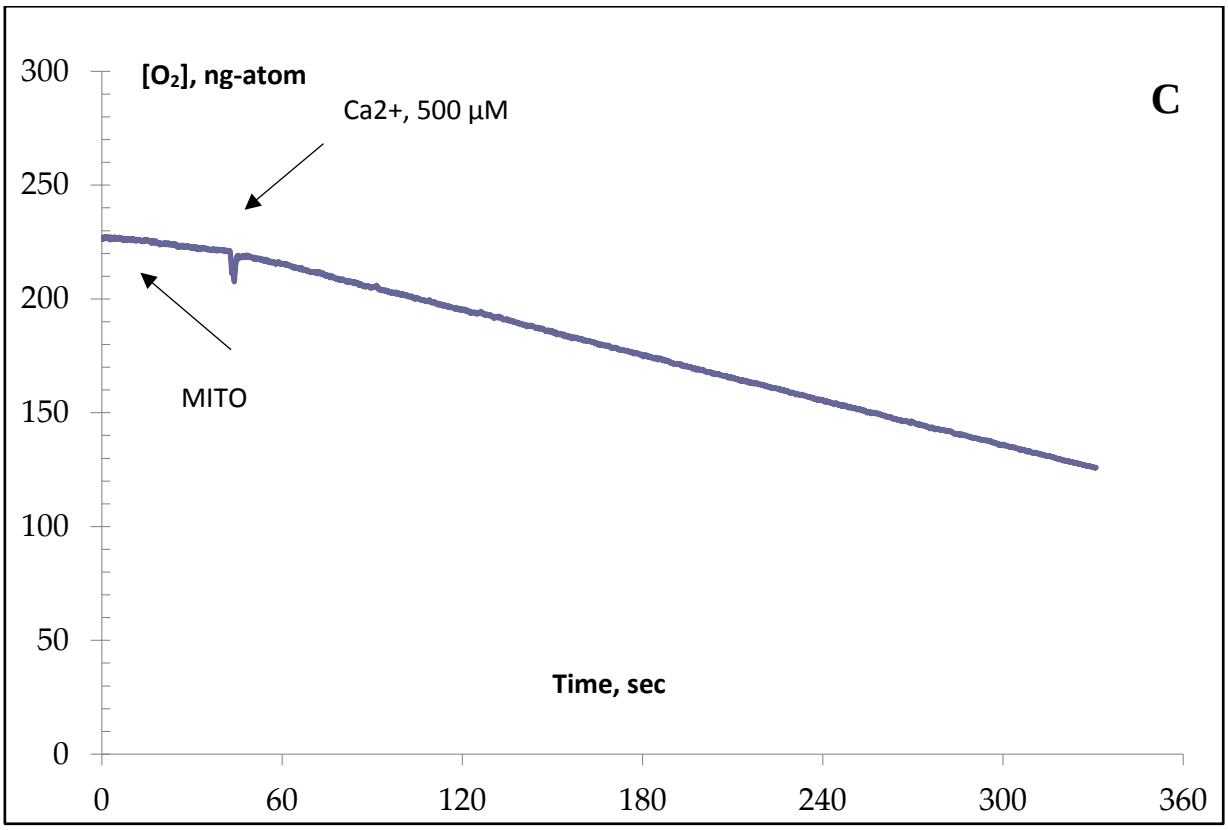

Figure S9. Amperometric recording of oxygen consumption by the *E. magnusii* mitochondria respiring on pyruvate + malate. Numbers adjacent to traces are respiration rates in ng-atoms of O/min/mg of mitochondrial protein. **Panel A** - The incubation medium contained 0.6 M mannitol, 0.2 mM Tris-**phosphate**, pH 7.2; 20 mM pyruvate + 5 mM malate as respiratory substrates, and mitochondria corresponding to 0.5 mg mitochondrial protein, added at MITO. **Panels B, C** - The incubation medium contained 0.4 M mannitol, 0.1 M KCl, 20 mM Tris-acetate, 20 mM pyruvate + 5 mM malate as respiratory substrates, 0.4 mg of mitochondria protein, pH 7.4.