

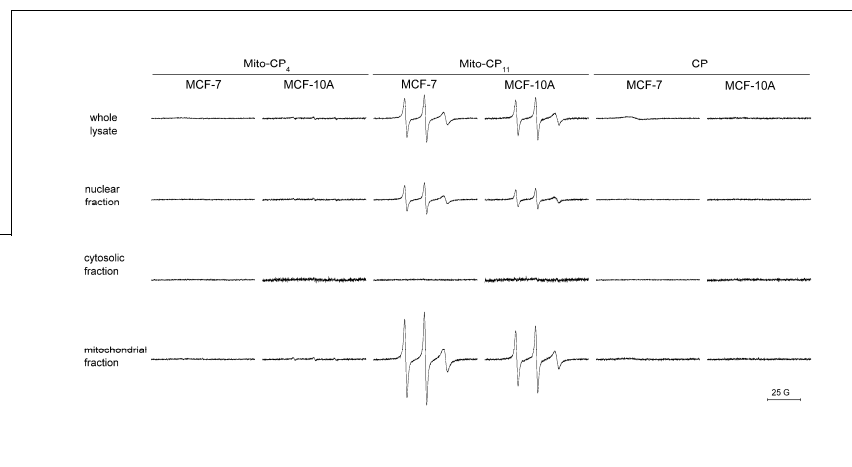
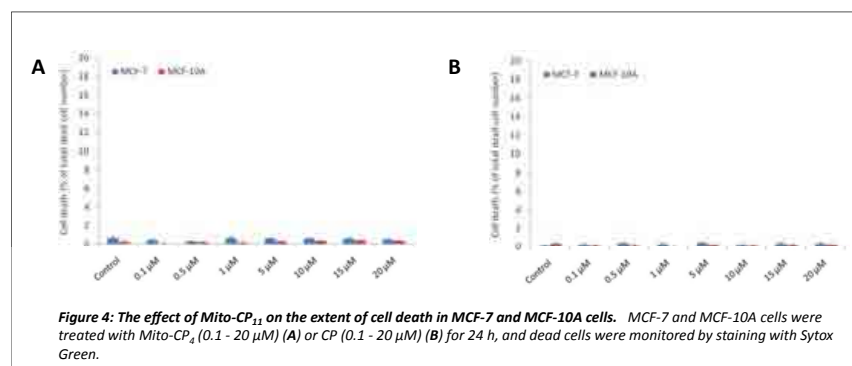
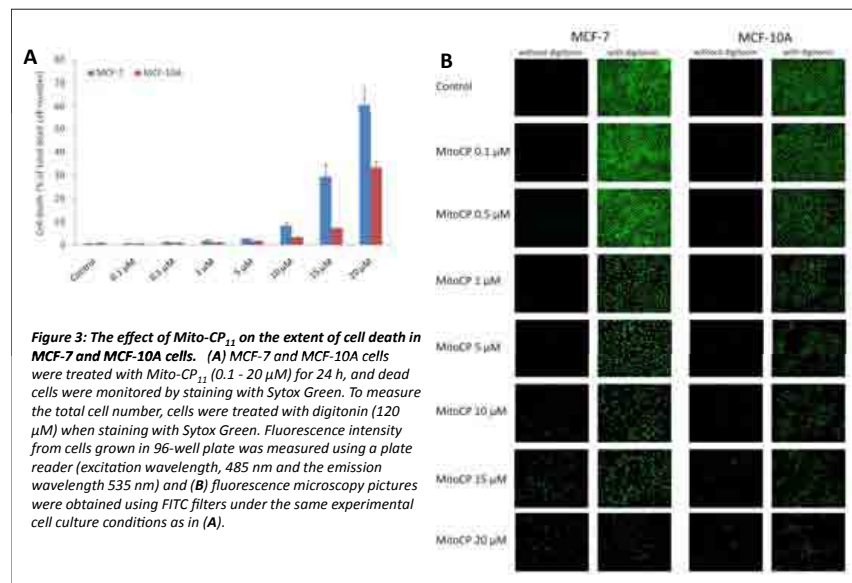
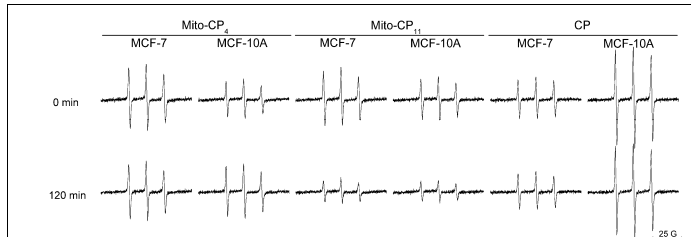
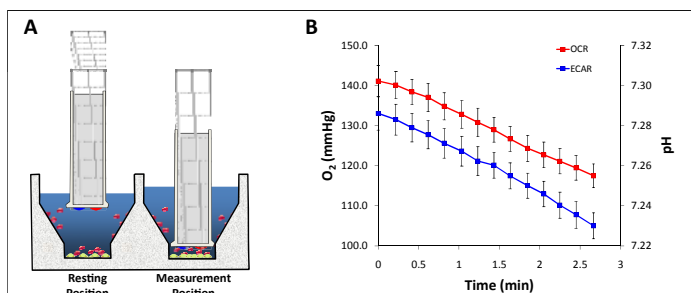
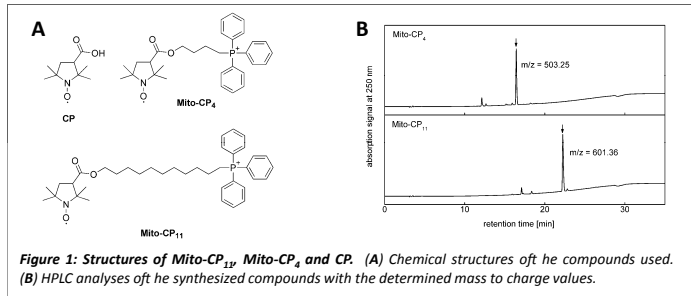
Uptake, subcellular localization, bioenergetic effects and antiproliferative properties of triphenylphosphonium-linked nitroxides in breast cancer cells.

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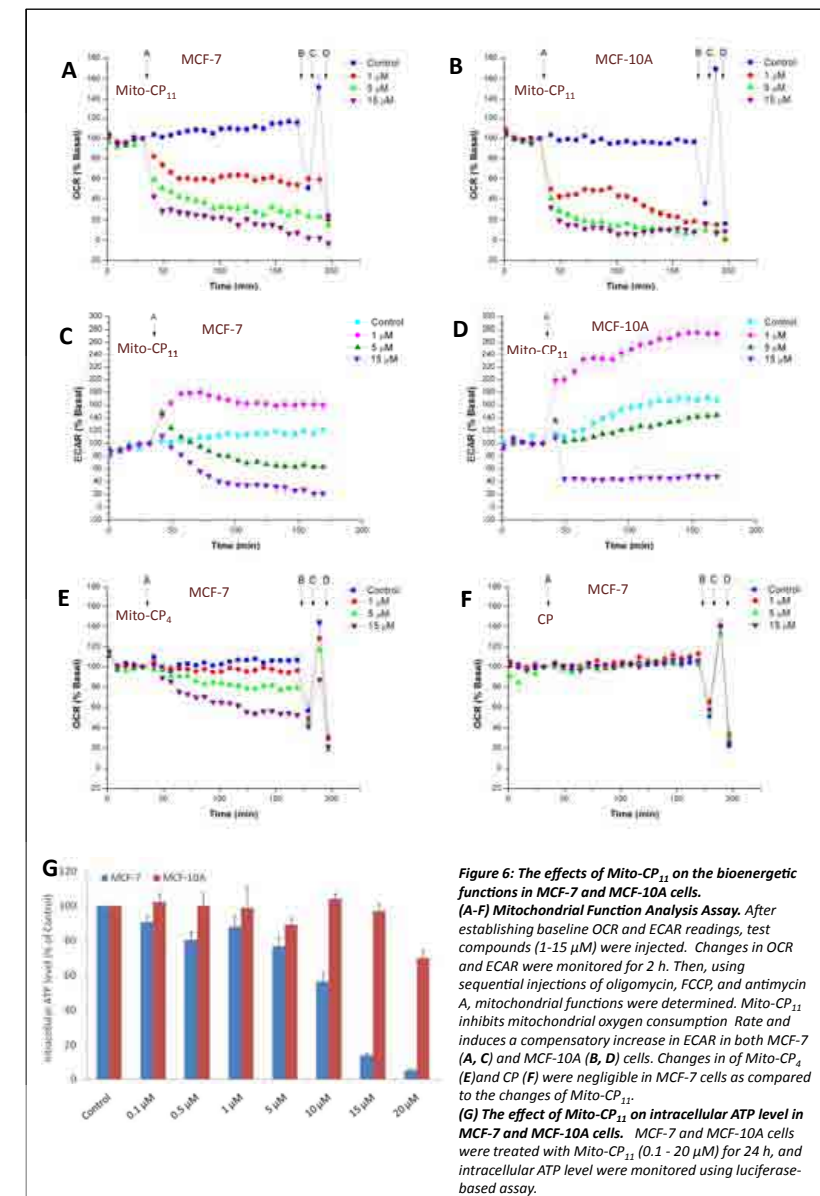
Introduction

- Mito-Carboxy Proxyl₁₁ (Mito-CP₁₁) is a triphenylphosphonium-linked nitroxide which has been used as mitochondria-targeted superoxide dismutase (SOD) mimetic.
- SOD mimetics have been shown to inhibit tumor proliferation in vivo models.
- We thus hypothesized that Mito-CP₁₁ would inhibit proliferation in breast cancer cells.
- In this study, we synthesized Mito-CP₁₁, its short-chain analog Mito-CP₄ and the simple nitroxide CP, and treated the breast cancer cell line MCF-7 and the non-cancerous epithelial cell line MCF-10A with these compounds.

Methods



Results



Conclusions

- These data suggest that the selectivity of Mito-CP₁₁ towards MCF-7 cells is not due to differential uptake or subcellular localization.
- However, this differential cytotoxicity may be mediated by the control of ATP synthesis in MCF-7 cells as compared to the MCF-10A control cells.
- Further experiments will test the mechanism by which ATP levels are maintained in MCF-10A, and whether this mediates the cytoprotection from Mito-CP₁₁.