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Novel Metal-Based Antioxidants as Therapeutic Candidates for Protectors Against Oxidative Stress

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A novel approach for the design of perspective candidates for the therapy of phatological states induced by oxidative stress is presented. The methodology is based on biomimetic construction of physiologically active biometals complexes and organometallic compounds with the ligands - analogues of natural antioxidants tocopherols.

The synthesis, physico-chemical properties and biological activity of novel compounds containing 2,6-dialkylphenols will be discussed. The physiological activity has been evaluated in the *in vitro, ex vivo, in vivo* experiments in peroxidation of lipids in mitochondria, neurons, rat and fish liver and brain homogenates, liposomes and lipids structural fragments, as well as in enzymatic reactions (xanthin oxidase, lipoxygenase, catalase, superoxide dismutase, cytochromes P450). The activity in oxidation reaction, solubility (logD), blood-brain barrier transfer (PAMPA, PAMPA BBB), inhibition of key enzymes of antioxidative defense system has been studied. The novel membrane-active compounds are perspective candidates as protectors against oxidative stress, mito- and neuroprotectors.

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