

### **3'-OLEOYL-N-OLEOYL-DOPAMINE - A PRODRUG OF N-OLEOYL-DOPAMINE**

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N-oleoyl-dopamine (OLDA) is a novel dopamine-like acting agent with a potential therapeutic use in the field of neurodegenerative diseases. However, it is metabolized by methylation by the catechol-O-methyl-transferase giving another, weaker 3'-O-methyl derivative (OMeOLDA). The aim of the present study was to prove whether a blockade of the 3'-hydroxyl group by an oleic ester to 3'-oleoyl-N-oleoyl-dopamine (OLOLDA) would protect the compound from methylation without a change in its activity and in this way serve as a prodrug of OLDA. We found that 3'-oleoyl-N-oleoyl-dopamine (OLOLDA) penetrates into the brain where it decomposes to OLDA in a limited way and shows a prolonged stability *in vivo*. In biochemical experiments we found that OL-OLDA diminishes the peroxidation of serum lipids both *in vivo* and *in vitro* which indicates its strong antioxidant properties. In *in vitro* experiments, a decrease in concentration of lipid peroxidation products of 40% as compared to non-treated rats was observed. OLDA itself gave only a 20-25% decrease. However, in respiratory experiments we found that OL-OLDA does not change the respiratory response to hypoxia neither one nor twenty-four hours after the systemic administration of the compound. This indicates that does not exercise typical for OLDA dopamine-like properties. We conclude that OL-OLDA stabilizes the molecule of OLDA and increases its antioxidant properties. It can be a prodrug of OLDA of prolonged action as it does not decompose in bioactive quantities prior at least to 24 hours.