

EFFECT OF SYDNONE (SYD -1) ON PHAGOCYTTIC ACTIVITY, NITRIC OXIDE,
AND SUPEROXIDE ANION PRODUCTION BY MOUSE PERITONEAL
MACROPHAGES

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Mesoionic compounds constitute a distinctive group of heterocyclics with potential biological activity. Their structural features allow interaction with biomolecules, as well as *in vivo* cell membranes permeability. In previous studies with rat liver mitochondria, we showed that the mesoionic derivative SYD-1 (3-[4-chloro-3-nitrophenyl]-1,2,3-oxadiazolium-5-olate), causes inhibition of the respiratory chain and an uncoupling effect, which could be involved with its already known anti-tumour action. Sydnonones also have been described as potential anti-inflammatory drugs. Considering the important role of macrophages in inflammatory response, we now investigate the effect of SYD-1 (5-100 μ M) on phagocytic activity, nitric oxide and superoxide anion production by mouse peritoneal macrophages. The phagocytic activity was decreased by SYD-1 in a dose-dependent form, reaching ~50% at the highest concentration (100 μ M). Incubation with SYD-1 (100 μ M) for 2 h increased O_2^- production by ~20%. The concentration of NO_2^- , taken as a measure of nitric oxide, was decreased by ~70% after incubation with SYD-1 (100 μ M) for 48 h. In conclusion, besides the anti-tumor effects of SYD-1, our results suggest that the mechanism of action for the mesoionic compound is complex, including biological responses similar to those of immunosuppressive drugs.

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