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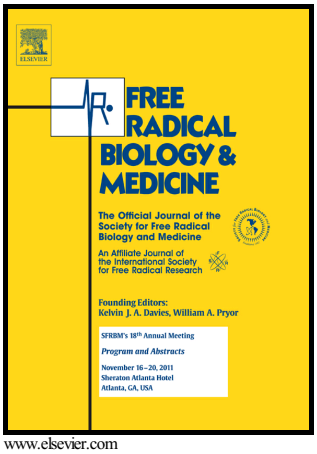

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VAOS, a novel vanadyl complexes of alginate saccharides, inducing apoptosis via activation of AKT-dependent ROS production in NSCLC

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Abstract

Previous studies have confirmed that protein tyrosine phosphatase 1B (PTP1B) can promote tumour progression in non-small cell lung cancer (NSCLC). Vanadyl alginate oligosaccharides (VAOS) is a new coordination compounds that possesses a good PTP1B inhibitory activity. However, the potent anticancer efficacy of VAOS in human NSCLC requires further study. In this study, VAOS exhibited effective inhibitory effects in NSCLC both in cultured cells and in a xenograft mouse model. VAOS was further identified to induce NSCLC cell apoptosis through activating protein kinase B (AKT) to elevate intracellular reactive oxygen species (ROS) levels by increasing in oxygen consumption and impairing the ROS-scavenging system. Neither silencing of *PTP1B* by siRNA nor transient overexpression of *PTP1B* had an effect on the AKT phosphorylation triggered by VAOS, indicating that PTP1B inhibition was not involved in VAOS-induced apoptosis. Through phosphorus

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