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# Oleandrin

National Cancer Institute

## Source

National Cancer Institute. *Oleandrin*. NCI Thesaurus. Code C90586.

A lipid soluble cardiac glycoside with potential antineoplastic activity. Upon administration, oleandrin specifically binds to and inhibits the alpha3 subunit of the Na/K-ATPase pump in human cancer cells. This may inhibit the phosphorylation of Akt, upregulate MAPK, inhibit NF-kb activation and inhibit FGF-2 export and may downregulate mTOR thereby inhibiting p70S6K and S6 protein expression. All of this may lead to an induction of apoptosis. As cancer cells with relatively higher expression of the alpha3 subunit and with limited expression of the alpha1 subunit are more sensitive to oleandrin, one may predict the tumor response to treatment with lipid-soluble cardiac glycosides such as oleandrin based on the tumors Na/K-ATPase pump protein subunit expression. Overexpression of the alpha3 subunit in tumor cells correlates with tumor proliferation.