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BIOLOGICAL EFFECTS OF EF24, A CURCUMIN DERIVATIVE, ALONE OR COMBINED WITH MITOTANE IN ADRENOCORTICAL TUMOR CELL LINES

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Background: Curcumin is a polyphenol extracted from the plant *Curcuma longa L.* It has numerous properties and is used in many preclinical conditions, including cancer. Curcumin has been tested in colorectal, lung, breast, liver and many others tumor cell lines. It is known that curcumin has low bioavailability, while its derivative EF24 showed enhanced solubility. However, its effects have been never explored in adrenocortical tumor cell models.

Aim: This work analyzed the efficacy of EF24, a curcumin derivative, in 2 adrenocortical tumor cell line models, SW13 and H295R.

Results: EF24 reduced cell viability by MTT with IC50 of 6.5 ± 2.4 µM and 4.9 ± 2.8 µM for SW13 and H295R cells, respectively. Combination index (EF24 associated with mitotane) suggested an additivity effect in both cell lines. Cell cycle analysis revealed an increase of subG0/G1 phase, while motility assay showed a decrease in migratory cell capacity after drug treatment and similarly clonogenic assay indicated that EF24 (alone or combined with mitotane) could reduce colonies number. Also, Wnt/β-catenin, NF-κB, MAPK and PI3k/Akt pathways were modulated by western blot analysis when treating cells with EF24 alone or combined with mitotane.

Conclusions: This work analyzed for the first time a derivative of curcumin, EF24, in adrenocortical tumor cell lines. These results suggest that EF24 could potentially impact on adrenocortical tumors, laying the foundation for further research.

Note: