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A novel metabolite from an extremophile *Streptomyces* with apoptosis regulator function

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Kavir-48, a protein with a molecular weight of 44 KDa., isolated from an extremophile *Streptomyces* was investigated for anti proliferative activity on 10 human cell lines. 5000 cells were plated in 96 well plates. After 24h. Kavir -48 was added in five dose levels (0.01-100 µg/ml). After 4 days of continuous exposure, the cellular DNA content and morphology was determined, using propidium iodide staining, the resulting fluorescence correlates with a number of leased cells.

A selective growth inhibition (Mean IC 70) observed for the large cell Lung cancer cell line and mammary cell line. The antitumor activity as well as tolerability of product was evaluated in In-vivo testing on lung cancer cells, (Xenograft in nude mice) since there might be a selective antitumor effect after 21 days of administration. Neither lethality nor body weight loss was observed in all group of tested animal, and in the large cell lung cancer model, a clear antitumor effect observed after only five days of administration. Amino acid sequencing of protein suggest that the compound consist of a fusion proteins NISOD and a Tat protein combination.

Expression of the enzymatic activity of the transduced Tat-SOD fusion proteins is essential for therapeutic application; for several reasons, such as the size and instability of the SOD enzyme these attempts to develop the natural enzyme for clinical use have been largely unsuccessful.

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