

# Werner Westreicher: Abstract

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## **Cytotoxic effect of a new flavonoid (DF) on prostate cancer cell lines**

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On the basis of the fact that flavonoids are known for their positive and cancer prophylactic effects, they are interesting research objects. Also prostate cancer was a proximate choice, because it is the most common malign tumor among men in Austria.

The present study aims to assess the antiproliferative and cytotoxic effects of a new flavonoid (DF) on prostate cancer cell lines.

With this objective we used three molecular biological methods:  $^3\text{H}$ - Thymidin-test, Western Blot and flow cytometric test. These experiments were performed with DF treated cells and untreated cells for control.

We confirmed that DF induced in steadily increasing concentration (0-100  $\mu\text{g/ml}$ ) an antiproliferative effect, manifested in a reduction of the  $^3\text{H}$ - Thymidin-Incorporation in all cell lines (ATCC, PC-3 and DU-145) in contrast with untreated prostate cancer cells. During this process the cell line ATCC was highly sensitive; the cell line PC-3 and DU-145 exhibited more resistance to the treatment.

In the second part of the study we examined the effect of DF with Western Blot to figure out a cytotoxic influence on intracellular proteins. These experiments revealed that all tested cell lines responded to the treatment with an accumulation of cPARP, which is one of the most important indicator of apoptosis. Moreover ATCC cells manifested an inhibition of androgen receptor.

Many flow cytometric tests were performed to quantify the apoptosis-induction of DF. We were able to show a reduction of cells in the S-phase as well as a rising of the sub G1-phase cells (apoptosis). So we verified the results of the Western Blot.

These data validate the suitability of the flavonoid DF to inhibit cell proliferation and induce apoptosis on prostate cancer cell lines.