

□ 1: [J Steroid Biochem Mol Biol.](#) 2007 Mar; 103(3-5): 726-30. Epub 2007 Jan 12.

1alpha,25-Dihydroxyvitamin D and fish oil synergistically inhibit G1/S-phase transition in prostate cancer cells.

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Laboratory and epidemiological studies have indicated that 1alpha,25-dihydroxyvitamin D(3) [1alpha,25(OH)(2)D(3)] and dietary omega3-polyunsaturated fatty acids (PUFAs) are capable of inhibiting prostate cancer at the initiation and progression stages.

The objective of this study is to investigate the influence of 1alpha,25(OH)(2)D(3) and PUFAs in the form of fish oil applied alone or in combination on cell cycle kinetics in the exponentially growing androgen-dependent and -independent prostate cancer cells.

Our data indicate that the high passage androgen-independent cell line, LNCaP-c115 had a much greater inhibitory response at the level of the G(1)/S-phase transition in response to fish oil treatment than androgen-dependent low passage LNCaP-c38 cells.

When LNCaP-c38 and LNCaP-c115 cells were treated with fish oil (**50mug/ml**), 1alpha,25(OH)(2)D(3) (10(-8)M)

or fish oil (50mug/ml)+1alpha,25(OH)(2)D(3) (10(-8)M),

a **synergistic growth inhibitory effect** was observed with 1alpha,25(OH)(2)D(3)+fish oil group in LNCaP-c115 cell line at the levels of the G(**1**)/**S-phase transition and cell division**.

This interaction appears to be specific for androgen-independent prostate cancer cell lines.

Based on these results, **we hypothesize** that dietary components, such as **omega3PUFAs and Vitamin D, have the potential to delay the progression of prostate cancer cells to an aggressive and untreatable state.**

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