

**Effect of all trans retinoic acid and 9-cis-retinoic acid  
on human breast cancer MCF-7 cell proliferation.**

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We have examine the effect of all trans retinoic acid and 9-cis-retinoic acid on human breast cancer cell proliferation using SRB assay and cell cycle analysis. 1) In MCF-7 cells, in the presence of phenol red, either all trans retinoic acid or 9-cis-retinoic acid treatment showed the inhibition of the cell proliferation over control cells and also inhibit the estrogen stimulated cell proliferation when it was given together with estrogen. When either all trans retinoic acid or 9-cis-retinoic acid treatment in the presence of tamoxifen, it did not affect the effect of tamoxifen. 2) In MCF-7 cells, in the absence of phenol red, all trans retinoic acid alone treatment showed slight increase in cell proliferation over control cells and inhibit the estrogen stimulated cell proliferation when it was given together with estrogen. 9-Cis-retinoic acid alone treatment did not affect the cell proliferation but inhibit the estrogen stimulated cell proliferation when it was given together with estrogen. When either all trans retinoic acid or 9-cis-retinoic acid treatment in the presence of tamoxifen, it did not affect the effect of tamoxifen. 3) The cell cycle analysis results showed that either all trans retinoic acid or 9-cis-retinoic acid treatment showed increase in G2-M phase and When either all trans retinoic acid or 9-cis-retinoic acid treatment in the presence of estrogen, it did not affect the effect of estrogen. When either all trans retinoic acid or 9-cis-retinoic acid treatment in the presence of tamoxifen, it did not affect the effect of tamoxifen. 4) The mRNA of cycline D1 was increased by either all trans retinoic acid or 9-cis-retinoic acid treatment both in the phenol red + and - medium.