PubMed

Format: Abstract

Oncogene. 1996 Feb 15;12(4):753-63.

17 beta-Estradiol overcomes a G1 block induced by HMG-CoA reductase inhibitors and fosters cell cycle progression without inducing ERK-1 and -2 MAP kinases activation.

Bonapace IM[1], Addeo R, **Altucci** L, Cicatiello L, Bifulco M, Laezza C, Salzano S, **Sica** V, **Bresciani** F, Weisz A.

Author information

[1]Istituto di Patologia generale e Oncologia, Facoltà di Medicina e Chirurgia, Seconda Università di Napoli, Italy.

Abstract

HMG-CoA reductase inhibitors, such as Lovastatin and Simvastatin, cause cell cycle arrest by interfering with the mitogenic activity of mitogens present in culture media. Cells are induced to pause in G1 and can readily resume growth upon removal of the enzymatic block. Estrogens, acting via their nuclear receptor, are mitogens for different normal and transformed cell types, where they foster cell cycle progression and cell division. In estrogen-responsive MCF-7 human breast cancer cells, but not in non responsive cells, 17 beta-estradiol (E2) induces cells arrested with Lovastatin or Simvastatin to proliferate in the presence of inhibitor, without restoring HMG-CoA reductase activity or affecting the protein prenylation pattern. Mitogenic stimulation of G1-arrested MCF-7 cells with E2 includes primary transcriptional activation of c-fos, accompanied by transient binding in vivo of the estrogen receptor and/or other factors to the ERE and the estrogen-responsive DNA region of this proto-oncogene, as detected by dimethylsulphate genomic footprinting analysis. Mitogenic stimulation of growth-arrested MCF-7 cells by E2 occurs, under these conditions, without evident activation of ERK-1 and -2 kinases, and thus independently from the mitogen-responsive signal transduction pathways that converge on these enzymes.

PMID: 8632897

[PubMed - indexed for MEDLINE]

Publication Types, MeSH Terms, Substances

LinkOut - more resources

PubMed Commons

PubMed Commons home

0 comments

How to join PubMed Commons