

E127 Epidermal Growth Factor Decreases the Level of DNA Topoisomerase II α in Human Carcinoma A431 Cells

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Human epidermoid carcinoma A431 cells have an extraordinarily large number of epidermal growth factor (EGF) receptors. But their growth is inhibited by EGF resulting in growth arrest at G1 phase. EGF was used to investigate the relationship between the A431 cell growth-inhibition and DNA topoisomerase II(topo II) expression. By analysis of immunoblotting and Northern blotting, EGF decreases the expression of 170 kDa topo II (topo II α) but not 180 kDa (topo II β). On the other hand, A431 cell variant resistant to the growth inhibitory effect by EGF showed no decrease in topo II α by EGF treatment. These results suggest that EGF-induced growth arrest of A431 cells is closely related to the depletion of topo II α .

E201 Structure and Expression of cDNA Encoding 1-Aminocyclopropane-1-Carboxylate Oxidase in Rice

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In order to isolate rice ACC oxidase cDNA clone, polyA⁺ RNA purified from etiolated rice shoots and a set of mixed oligonucleotide primers corresponding to two conserved amino acid sequences (DACENWG and TNGKYKS) found ACC oxidase of other species were used for polymerase chain reaction-based amplification of cDNA fragments. We obtained about 630 bp fragments and used these PCR fragments for screening a rice coleoptile cDNA library and were able to obtain two types of ACC oxidase clones, pOS-ACO1 and pOS-ACO2, respectively. pOS-ACO2 is a 1294 bp full-length clone and contains a single open reading frame encoding 319 amino acids, while pOS-ACO1 is 1073 bp long and is a partial cDNA clone encoding 315 amino acids. The deduced amino acid sequences from these two genes share 69% identity, and display considerable sequence conservation (63-70%) to other ACC oxidase from various plant species. To investigate the tissue-specific expression patterns of pOS-ACO1 and pOS-ACO2, Northern blot analysis was performed with gene specific probes. pOS-ACO1 transcript was present in the internode and young leaf, while only minor expression was found in the root and older leaf tissue. Ethylene and partial submergence greatly increased the level of both ACO transcripts in rice internode. When excised shoot segments were treated with IAA, a marked increase in the level of pOS-ACO1 transcript was observed.