〔Cell Biochem. Func., 7, 227 (1989)〕

The Mechanism of Placental Alkaline Phosphatase Induction In Vitro.

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The mechanism of placental alkaline phosphatase (PLAP) induction by prednisolone in a uterine cervical epidermoid cancer cell line SKG-IIIa was investigated in vitro by enzyme-cytochemistry, enzyme immunoassay, Northern and Southern blot analysis, and in situ hybridization. Enzyme-cytochemical alkaline phosphatase (ALP) staining and immunoassay revealed increased levels of PLAP (heat-stable ALP) in prednisolone-treated cells. Northern blot analysis and in situ hybridization showed increased amounts of PLAP mRNA. Southern blot analysis indicated that PLAP was not a product of an amplified or rearranged gene. These findings suggest that the induction of PLAP mRNA in SKG-IIIa cells by prednisolone in turn increased the levels of PLAPs.

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The mechanism of resistance of *Pseudomonas aeruginosa* to Chlorhexidine Digluconate (CG).

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MIC of CG used against CG-resistant *Pseudomonas aeruginosa* (CGR-*P. aeruginosa*) was measured and it was 4 times higher than that against CG-susceptible *P. aeruginosa* (CGS-*P. aeruginosa*). Change of cell shape of *P. aeruginosa* tested with CG was observed with CGS-*P. aeruginosa*, but CGR-*P. aeruginosa* seemed to be undameged. Phospholipid(PL), and fatty and neutral lipid (FNL) in cell wall of CGR-*P. aeruginosa* were higher than thosein CGS-*P. aeruginosa*. Adsorption doses of CG on celll wall (PL and FNL) of *P. aerugioosa* were identified by GC and GC-MS. In DGR-*P. aeruginosa* found in significantly higher amounts than in CGS-*P. aeruginosa*. Permeability of CG in cell wall seems lowered because of the increase of fatty acids. These results suggest that the mechanism of resistance of *P. aeruginosa* to CG is mainly due to the higher percentages of PL and FNL.

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The Mutagenicity of Refuse Leachate from a Municipal Incinerator.

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The mutagegenicity of refuse leachate from municipal incinerator was studied by liquid rec-assay and Ames assay. Volatile components were found to be negative, and nonvolatile positive in Ames assay, and the leachate was found to have DNA-dameging capacity in the liquid rec-assay with S-9 mix. PAHs derived from tobacco ash and carbonyl compounds generated by the putrefaction of foods were confirmed to be main contributors to DNA-damaging capacity and mutagenicity in refuse leachate.