

[PD1-31] [04/19/2002 (Fri) 10:00 - 13:00 / Hall E]

New Drug Development Research using Diversity of Compounds

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Corporations, research institutes and universities pertaining to the new drug development are totally participated in operation of Korea Chemical Bank. Now Korea Chemical Bank has reserved 50,000 compounds consigned from over 100 institutions. From September of 2000 to the present, High Throughput Screening has been performed at 25 institutions with 50 targets. As a results, 12 hit compounds are derived, and subsequent research has been processing about 5 Hit compounds related to the intractable disease.

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Anticancer and antibacteria activities of monoterpenoids with significant alteration of antioxidant enzymes

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Monoterpenoids such as linalool, geraniol, citronellol, limonen with farnesol as reference, components of flavorful and edible plants, were investigated for their cytotoxicity against L1210 leukemic cells. The best anticancer candidate was found to be linalool with 92% cytotoxicity in 1ug/ml and 3 days culture condition. In addition to the anticancer activity they displayed considerable antibacterial actions against various strains giving rise to mainly food poisoning. Such antibacterial effects were far better than that of benzoic acid as shown in case of linalool exhibiting 30 fold that of benzoic acid against Bacillus cereus by agar diffusion method. With regard to the anticancer reaction mechanism of these monoterpenoids the significantly elevated amount of O₂⁻ ion and the concomitantly increased activities of antioxidant enzymes (SOD,GPx) implied that the anticancer reaction may be processed via toxic effect of reactive oxygen species (ROS) induced by monoterpenoids, which presumably attack cancer cell himself in spite of protective effort of antioxidant enzymes to overcome the toxicity of ROS.

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Methanol extracts of culinary herbs demonstrate cytotoxicity against L1210 cell with altered antioxidant enzyme activities

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Herbs have been used as horticulture vegetation, food and mild medicine for centuries. The present investigation was undertaken to study the anticancer effect of culinary herbs. Methanol extracts prepared from fresh leaves of culinary herbs displayed significant cytotoxicity against L1210 cells ranging 15-85% in 1μg/ml and 3 days culture condition. The best effect was obtained from the methanol extract of lemon berberna and peppermint. This anticancer effect was accompanied by the increased generation of O₂⁻ and the significant alteration of antioxidant enzyme activities known to scavenge the toxic reactive oxygen species (ROS). Such result suggest that ROS related metabolism may be involved in the process of cancer cell death by methanol extract of culinary herbs.