

The major hurdle of conventional chemotherapeutics is the toxicity to normal tissue. The possible therapeutic advantage(s) of nano-particle encapsulated chemotherapeutics (nano-molecules) may be the enhanced permeability and retention (EPR) effect. Nano-molecules with increase volume may incorporated into the tumor tissue selectively, which is composed of rather sparse structure. EPR effect may cause of increased effectiveness with lower toxicity to normal tissue of nano-chemotherapeutics. In this study, Doxorubicin was encapsulated (nano-Dox) with 50~200nm PLE nano particle (poly (lactic acid)-poly(ethyleneglycol) copolymer) to treat the renal cell carcinoma in mice. In the Balb/c mice having subcutaneous grown RENCA tumor for 3 weeks, nano-Dox was i.v. injected (8 mg/kg) once. Three weeks after the injection, mice were sacrificed to observe the systemic immunity. The growth of tumor burden was measured from the beginning of the experiment, periodically. Electron microscopy indicated the existence of injected nano-Dox in the late stage tumor tissue. The growth of s.c. tumor was inhibited by the treatment of nano-Dox as well as naked-Doxorubicin(naked-Dox). No toxicity specific for nano-Dox was observed. Modulation of T and B cell proliferations, lymphocyte phenotypes and cytokine (IL-2, TNF- α) productions was observed in similar way for both nano and naked-Dox treatment. The data suggest the effectiveness of nano-Dox as an anti-tumor chemotherapeutics without specific toxicity. This study is supported by the "IMT 2000-Ministry of Health and Welfare" in Korea

[PB4-13] [2003-10-10 09:00 - 13:00 / Grand Ballroom Pre-function]

Ginsenoside Rg3 reduces the risk of neuronal cell death by attenuating reactive oxygen species and neurotrophins

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In regard to A β toxicity and AD, reactive oxygen species (ROS) are produced by macrophage families in response to A β stimulation. In addition to this, neurotrophins (NTs) regulate the neuronal function as well as cell survival and the growth of various types of neurons in both the peripheral nervous system (PNS) and central nervous system (CNS). As high expressions of the ROS and NTs are a routine findings in neuronal cell damage, we wanted to investigate whether Rg3 can inhibit the production of ROS and NTs in primary cell cultures. Results showed that 100 μ g/ml Rg3 effectively inhibited the production of hydrogen peroxide around 12h to 24h, and NTs were not produced when Rg3 was pre-treated up to 24h from 6h. In conclusion, those results suggests that Rg3 diminish the risk of cell death induced by high concentration of ROS and NTs from the activated microglia.

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Determination of the minimal sequence of bovine lactoferricin responsible for apoptosis induction

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We examined the minimal amino acid sequence of bovine lactoferricin (Lfcin-B), a cationic peptide corresponding to residues 17-41 near the N-terminus of bovine lactoferrin, to induce apoptosis in THP-1 human monocytic leukemic cells using synthetic peptides. A synthetic peptide (Lfc-17/29, amino acid sequence; FKRRWQWRMKKL) which is consist of 13 amino acids near the N-terminus of Lfcin-B induced cell death in THP-1 cells in a dose-dependent manner, showing apparent apoptotic changes such as hypodiploid forms of genomic DNA and apoptotic DNA fragmentation. However, another synthetic peptide (Lfc-30/41, amino acid sequence; GAPSITCVRRAF) consist of 12 amino acids near the C-terminus of Lfcin-B was inactive. The characteristics of Lfc-17/29-induced apoptosis was entirely identical with that of Lfcin-B-induced apoptosis, with regard to increased apoptosis with reduction of serum concentration, and inhibition of apoptosis by addition of Ca²⁺/Mg²⁺-dependent endonuclease inhibitor or antioxidants. In an analysis using various synthetic peptides having the partial sequences of Lfc-17/29, we found that a peptide consist of 10 amino acids (Lfc-17/26,