

alcohol dehydrogenase (ADH). In this study, ADH gene encoding a 104-kDa (p104) protein was identified and characterized. The deduced amino acid sequence of pneumococcal ADH shows homology with other members of the ADH family, and particularly with *Entamoeba histolytica* ADH2 and *E. coli* ADH. *S. pneumoniae* adh is composed of 883 amino acids and its estimated isoelectric point is 6.09. Although ADH is conserved between *S. pneumoniae* and *E. coli*, immunoblot analysis employing antisera raised against pneumococcus ADH demonstrated no cross-reactivity with ADH analog in *Escherichia coli*, *Staphylococcus aureus* and human HeLa cells. Also secretion of ADH was demonstrated by subcellular fractionation and immunoblot analysis of proteins. These results suggest that *S. pneumoniae* ADH could be a highly feasible candidate for both diagnostic marker and vaccine.

Poster Presentations – Field C3. Cell Biology

[PC3-1] [ 10/19/2001 (Fri) 09:00 – 12:00 / Hall D ]

**Caspase-dependent apoptosis by naphthoquinone analog in HL-60 cells**

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Menadione has been known to exhibit a broad spectrum of antitumor activity in rodent and human cancer cells. Previous study showed that 2,3-dichloro-5,8-dihydroxy -1,4-naphthoquinone, one of the synthesized naphthoquinone analogs, have a anticancer effect on mouse leukemic L1210 and sarcoma-180 cells. Here we investigated the cellular effects and biochemical changes by naphthoquinone analog in human leukemic HL-60 cells. Naphthoquinone analog(NA) induced apoptotic cell death in HL-60 cells, which was shown by DNA ladder of fragments, a characteristic morphological change associated with apoptotic cells. NA induced the activation of caspases, release of mitochondrial cytochrome c into cytosol and upregulation of pro-apoptotic Bax protein but had no effect on anti-apoptotic proteins like Bcl-2 and Bcl-xL. The caspase inhibitor, z-VAD-FMK inhibited caspase activation and Bid cleavage by naphthoquinone analog but not cytochrome c release. These results show that naphthoquinone analog induces apoptosis through activating caspases and regulating Bcl-2 family proteins in HL-60 cells.

[PC3-2] [ 10/19/2001 (Fri) 09:00 – 12:00 / Hall D ]

**Studies on the Anticarcinogenic effects of Solanum tuberosum extracts**

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Studies on the Anticarcinogenic effects of Solanum tuberosum extracts

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In this study, we performed to investigate the effects of cytotoxicity and quinone reductase(QR) induced activity of Potato(*Solanum tuberosum*) peel extracts on several human cancer cells, such as HepG2, HeLa and MCF-7. We extracted the peel of *Solanum tuberosum*(STP) with methanol and the methanol extract(STPM) was partitioned with n-hexane(STPMH), ethylether(STPMEE), ethylacetate(STPMEA), n-