

with 10mg/kg fumonisin B1(FB1), and kidney, liver, heart, lung, brain and serum were collected for sphingolipid analysis. Free sphingosine and free sphinganine were determined by HPLC. The concentrations of free sphingoid bases in control rats were approximately 1595 pmol > 898 pmol > 651 pmol > 642 pmol > 563 pmol/100mg wet weight in lung > kidney > liver > brain > heart, while free sphinganine were 294 pmol > 99 pmol > 81 pmol > 76 pmol > 63 pmol in lung > heart > brain > liver > kidney, respectively. FB1-treated rats showed that amounts of elevated free sphinganine were 10.6 nmol > 5.3 nmol > 3.4 nmol > 2.2 nmol > 0.2 nmol in kidney > liver > lung > heart > brain, respectively. Thus, these results indicate that 1) *de novo* sphingolipid biosynthesis is the most active in lung and 2) the most sensitive organ of fumonisin B1 is kidney, while the least sensitive one is brain. Sphinganine 1-phosphate (Sa1P) elevation in FB1 exposure to rats was highest in kidney and lung, and lowest in brain. FB1 increased Sa1P concentration by 678 pmol/100µl serum compared to 6 pmol in control serum. In conclusion, FB1 sensitivity to sphingolipid metabolism are organ-specific and related to the fumonisin toxicity.

[PA3-12] [ 04/17/2003 (Thr) 14:00 – 17:00 / Hall P ]

### Distribution of Arsenic in Korean Human Tissues

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Arsenic is a ubiquitous element that ranks 20th in abundance in the earth's crust, 14th in the sea water, and is a component of several hundred minerals. Arsenic and its compounds are mobile in the environment. Groundwater contamination by arsenic is a serious threat to mankind all over the world and it can also enter food chain. Humans are exposed to this toxic arsenic from air, food and water. The current study was performed to investigate the levels of arsenic in the internal organs and to find out correlation with age and interrelationship between tissues in Korean human bodies who had lived in Seoul or Kyonggi do and Honam district. The tissues from 43 Korean cadavers were digested with microwave digestion system and arsenic was determined by ICP-MS. The mean recovery percentages of arsenic in liver were about 80% and arsenic concentrations in human tissues were almost uniform. The mean level of arsenic in internal tissues were as follow ; liver 44.556±25.199ppb, kidney cortex 42.652±22.082ppb, lung 31.020±17.504ppb, cerebrum 35.703±22.591ppb, muscle 43.415±26.619ppb and skin 42.106±25.831ppb. No significant difference was found in the levels of arsenic between sexes. Significant differences between districts where they had lived were found in all tissues tested. The levels of arsenic in the tissues of cadavers who had lived in Seoul Kyonggi do were higher than those of Honam district. And Positive correlation with age was observed only in the cerebrum(p<0.05). A significantly high correlations between tissues were observed in all tissues tested. This result also shows that the distribution of arsenic is uniform in internal tissues.

[PA3-13] [ 04/17/2003 (Thr) 14:00 – 17:00 / Hall P ]

### Effect of Arsenic on Acetylcholine-Induced Relaxation in Blood Vessels

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Several epidemiological studies suggested that arsenic exposure was strongly correlated with the development of cardiovascular disease such as hypertension. In order to examine whether