S4-1

Clinico-molecular Study of Gastric Cancer Using Tissue Array

KIM Woo Ho
Dept. of Biochemistry, School of Medicine, Seoul National University, Seoul, Korea

The tissue array method enables to analyze a large number of cancer specimens on the expression of different proteins. Core tissue biopsies (2 mm in diameter) were taken from individual paraffin-embedded gastric tumors (donor blocks) and arranged in a new recipient paraffin block (tissue array block). The rates of altered protein expression were as follow: 34.3% (107/312) in p53, 32% (99/309) in p16, 3.2% (10/310) in rb, 47.3% (142/300) in E-cadherin, 8.5% (27/318) in VHL, 21.1% (67/317) in KAI1, 13.3% (42/315) in MGMT, 20% (62/310) in PTEN, 49% (150/306) in FHIT, and 12.6% (40/317) in smad4. Of these protein expressions, overexpression of p53 and MUC1 ($p<0.01$) and loss of expression of smad4 ($p=0.04$), FHIT ($p=0.03$), MGMT ($p=0.01$), E-cadherin, KAI1 and PTEN ($p<0.01$) were significantly associated with poor outcome in gastric carcinomas. The pattern of TSG expression was significantly associated with WHO classification ($p=0.04$), pTNM stage, lymphatic invasion and patient survival ($p<0.01$). In conclusion, the tissue array method is valuable and efficient for analysis of protein expression in large cohort studies.

S4-2

Telomerase, a Cell Death Protector?

LEE Han-Woong
School of Medicine, Sungkyunkwan University, Suwon, Korea

The catalytic subunit of telomerase (TERT) protects dividing cells from replicative senescence *in vitro*. Here we show that expressi on of TERT mRNA is induced in the ipsilateral cortical neurons following occlusion of the middle cerebral artery in adult mice. Transgenic mice that overexpress TERT showed significant resistance to ischemic brain injury. Among excitotoxicity, oxidative stress, and apoptosis comprising of routes of ischemic neuronal death, NMDA receptor-mediated excitotoxicity was reduced in cortical cell cultures overexpressing TERT. NMDA-induced accumulation of cytosolic free Ca^{2+} ($[Ca^{2+}]_c$) was reduced in cortical neurons from TERT transgenic mice, which was attributable to the rapid flow of $[Ca^{2+}]_c$ into the mitochondria from the cytosol without change in Ca^{2+} influx and efflux through the plasma membrane. The conclusion that TERT enhanced mitochondrial Ca^{2+} accumulation as supported by the observation that FCCP (carbonyl cyanide p-trifluoromethoxyphenyl-hydrazone) released much more Ca^{2+} from the mitochondria. The present study provides evidence that TERT is inducible in postmitotic neurons following ischemic brain injury and prevents NMDA neurotoxicity through shift of the cytosolic free Ca^{2+} into the mitochondria, and thus plays a protective role in ameliorating ischemic neuronal cell death.