Surface Sialo-Glycoconjugates Change during the Apoptosis of Embryonic Rat Cortical Neuron Cells

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The cell surface expression of sialoglycoconjugates during the camtothecin-induced apoptosis of embryonic rat brain cortical neuron cells was analyzed by fluorescence microscopy using sialic acid-specific lectins. The cortical neuron cells were isolated from the primary cultures of embryonic brain cortex tissues obtained from 16-day old embryos of SD rats. The neuron cells reacted strongly with the FITC-labeled *Maackia amurensis* (MAA) and rhodamin-labeled *Sambucus nigra* (SNA) lectin, which specifically recognize terminal α2,3- and α -2,6-linked *N*-acetylneuraminic acid residues, respectively, of glycoproteins, and the binding of these lectins to the neuron cells was significantly decreased by the pre-treatment of these cells with *N*-acetyl neuraminidase of *Vibrio cholerae*, indicating that embryonic rat brain cortical neuron cells heavily express sialylated oligosaccharides-containing glycoproteins on their surfaces. The fluorescence microscopic analysis showed that the binding of both FITC-labeled *Maackia amurensis* (MAA) and rhodamin-labeled *Sambucus nigra* (SNA) lectins to the camtothecin-induced apoptotic neuron cells exhibited significant reduction comparing to that of normal cells. The results of this study suggested that cell surface expression of sialomolecules of embryonic rat brain cortical neuron cells

changes during the camtothecin-induced apoptosis and that the cell surface molecules with the a-2,3-linked and a-2,6-linked *N*-acetylneuraminic acids may exert certain roles to the programmed cell death processes and development of brain cortex neuron cells of rat embryos. [Supported by grants from the KOSEF]