Expression of nucleoside transporters and hydrogen peroxide-induced thymidine incorporation in astrocytes

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We have found that cultured differentiated astrocytes pretreated with *N*^{6}, *2'-O*-dibutyryladenosine 3',5'-cyclic monophosphate (DBcAMP), a permeable analogue of cAMP, incorporate thymidine, but not uridine, via nucleoside transporters into TCA insoluble fraction for repair on DNA injury in the presence of hydrogen peroxide (H_2O_2) at an early time, and these phenomena are specific in differentiated astrocytes, but not undifferentiated astrocytes and neurons.

We studied expression of nucleoside transporters in cultured astrocytes by RT-PCR, western blot analysis and immunocytochemistry. We could confirm CNT2, that is pyrimidine selective nucleoside transporter, CNT3, that is non-selective nucleoside transporter, ENT1, that is hypersensitive nucleoside transporter, and ENT2, that is low-sensitive nucleoside transporter, but not CNT1, that is purine selective nucleoside transporter and confirmed non-presence in brain, in cultured astrocytes.

These results indicate that H_2O_2-induced thymidine incorporation could pass through specific nucleoside transporters, existed in cultured astrocytes.

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