

E109

Effects of Ceramide on c-fos and c-jun Gene Expression during Differentiation of U-937 Cells.

김근철*, 김원호, 김미영¹, 최경희
중앙대학교 이과대학 생물학과, ¹약학대학 위생제약학과

Effects of ceramide on c-fos and c-jun gene expression during differentiation of U-937 cells were studied. Treatment of U-937 cells with a cell-permeable ceramide resulted in cell differentiation when non-specific esterase activities was monitored as a measure of cell differentiation. Ceramide caused a 50% inhibition of DNA synthesis. The analysis of cell-cycle distribution showed that cells in G1 phase increase from 57% to 73% after 72 hours treatment of ceramide. Moreover, we examined the effects of ceramide on the induction of c-fos and c-jun mRNA. The induction of c-fos and c-jun gene expression was observed in 15 min after treatment of ceramide. Treatment of cycloheximide (10 μ g/ml) led to two fold increases in c-fos and c-jun expression comparing to that without cycloheximide. These results indicate that ceramide induces the monocytic differentiation accompanied by the inhibition of DNA synthesis, cell-cycle arrest in G1 phase and the induction of c-fos and c-jun gene expression in U-937 cells.

E110

The Influence of Body Temperature on Jumping and Muscle Contractile Performance

최인호*, 이성호
연세대학교 문리대학 생물학과

Ectothermic animals experience a broad range of body temperature (T_b) daily and seasonally. It is crucial for these animals to exhibit normal behavior over the broad T_b range in order to escape predation, feed or mate. It is also important that the effect of temperature on muscle performance should be matched with that on whole-organism response since it is the muscle that generate force to power jumping. We test this hypothesis by examining jump velocity of a Korean frog species, *R. nigromaculata*, and contractile parameters (force, tetanic rise time, and rate of tetanic force production) of the iliofibularis muscle at test temperatures of 15, 20, 25 and 30 °C. We found the optimal temperature of jumping and force production matched very well and was between 20 and 25 °C. This range of temperature could be the one where these animals are most active in their habitat.