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Melatonin Affect to Cell Proliferation by Clock-controlled Gene Unlocking in the Check Point of Cell Cycle

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Melatonin (*N*-acetyl-5-methoxytryptamine) was long thought to be a neurohormone found exclusively in vertebrates. However, the finding of melatonin in photosynthesizing organisms prompted research on this compound in order taxa, opening up a new field of knowledge. So far, melatonin has been detected in bacteria, protozoans, algae, plants, fungi and invertebrates. Here we performed to address the cellular mechanism of melatonin in the cell division and differentiation of fibroblast, prior to application of grape extract which is a putative potential candidate of melatonin-enriched edible plant. In addition, melatonin significantly increased the expression level of clock genes (clock, bmal1, per1/2, and cry1), which were considered as important regulating factors in cell cycle machinery.

Key words) *Melatonin, Neurohormone, Cell division/differen tiation, Clock gene, Cell cycle*

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