

sclerosis.

Although set of transcription factors and cytokines are known to regulate TH¹⁷ differentiation, the role of noncoding RNA is poorly understood. MicroRNAs represent a large family of endogenous noncoding RNAs that comprise a fundamental layer of post-transcriptional regulation of gene expression. The aim of this work is to identify main miRNAs in the pathway of Th17 differentiation by means of bioinformatics databases.

Materials and Methods. Bioinformatics studies revealed several miRNAs played important roles in the naïve T cell differentiation to mature Th17 cells. These miRNAs could induce or inhibit the pathway of Th17 differentiation. For this purpose, we gathered information about different miRNAs in variant autoimmune diseases that Th17 was involved with. In other studies we have identified 64 genes which affect different pathway of Th17 differentiation. Eventually, the interaction between miRNAs and genes by means of 10 variant database was analyzed.

Results. Based on our results, we have several miRNAs that eight of them had strong interactions with related genes. One of them was miR-106a which revealed to be involved in other autoimmune diseases like Psoriasis and Inflammatory bowel disease. miR-106a probably inhibit positive regulators of Th17 differentiation and suppress this pathway. The genes that miR-106a may interact with are: SMAD7, STAT3, TSC1, STAT1 and Hif1a.

Conclusion. According to this result, miR-106a could be a key miRNA in reduction of symptoms of Multiple Sclerosis by suppressing the differentiation of naïve T cell to mature Th17 and had High clinical value. However *in-vitro* and *in-vivo* experiments are needed to confirm our computational analysis which is an ongoing research of our team.

Key words: Mir-106a; Th17 subset; Differentiation; Autoimmune disease, Multiple Sclerosis

Study of the effects of environmental color on pain in mental retarded (Down syndrome) children in the age of 6-9

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Introduction. Improvement of acute pain threshold by intervention of changing the environmental color is one of the effective instances which is related to mental retarded children's routine life and improve their feeling. This research studies the variation of the acute pain threshold that is affected by color environment.

Materials and Methods. Witness group including twenty students at 6 age, triable group including twenty Down syndrome children, four degrees Celsius cold water, Pink LED lamp in order to change color of the room.

By performing the cold water test (Harris et al, 1983) on the both hands of the child, the acute pain threshold has been examined in both groups outdoor with normal white and then the pink light. A week before the test and during

it, they have been in the pink light four hours a day.

Results. Consequently, the acute pain threshold was higher in the Down syndrome children at normal light. ($p < 0.01$) The witness group's acute pain threshold didn't have a tangible change in the pink light as is the triable group it did increase significantly. ($p < 0.05$)

Conclusion. Based on this study and other researches, less react of triable group into pain in normal and pink environment and higher influence of triable group under the pink color factor in increasing the acute pain threshold is probably related to the 2 pain transfer paths:

1- Path of spinal-cord-mesencephalon-amygdales and 2- Path of spinal cord-hypothalamic which is related with autonomic supraspinal cord controller and endocrine complex. Further investigations of this theory on mental retarded children are highly recommended.

Keywords: Cold pain test; Down syndrome; Thermal acute pain

Study of classic music effects on human's pain process

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Introduction. Pain's sensorial instances include spine's inhibitory neurons and thalamus. Experiences indicate that light music activates these inhibitory neurons.

Materials and method. In this research, treated caesarean operated and surged 2 or 3 day age children have been studied on in order to check consumption of palliative medicines, used in both witness and triable group. Furthermore, brain imaging have been performed on both groups using the PET method.

Results. Immense reduction in pain and palliative has been achieved in either adults or children.

Conclusion. Existence of acoustic harmony might have regularized the uncoordinated parts of organism. It might also adjusted blood pressure, sufficient oxygenation to the brain, and increased production of cerebral neurotropic in them.

Keywords. Pain – Music – PET method – Central nervous system