

THE IMPORTANCE OF FNDC5 ON ENERGY EXPENDITURE AND METABOLISM WITH IMPACT ON NEURAL DIFFERENTIATION

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FNDC5 (Fibronectin Type III Domain Containing 5) which identified to be a mediator of adipocyte differentiation has attracted attention due to its specific role in connection between bodily exercise and the cognitive function of brain. To our knowledge, particular endurance exercise has beneficial effects on brain health and cognitive function specially to improve neurological disease states like Alzheimer's disease. We have shown an increase in the expression of *Fndc5* after retinoic acid treatment during the process of neural differentiation. There by using short hairpin RNA (shRNA) encoding vector we performed the knockdown of *Fndc5* in neural differentiation of mouse embryonic stem cells. Data have shown that decreased *Fndc5* expression significantly reduced expression of neural precursor cells and mature neuronal markers which modulated neuronal differentiation concluding that *Fndc5* expression is required for the appropriate neural differentiation. These data confirm the importance of *Fndc5* in the generation and development of the nervous system.

Keywords: *Fndc5*, Neural differentiation, shRNA, Neural differentiation.



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