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Effects of cyclic AMP on the differentiation and bioenergetics of rat C6 glioma cells

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levation in the level of intracellular cAMP is Eknown to induce astrocytic differentiation of C6 glioma cells by unknown mechanisms. Therefore, cytoskeletal protein genes (phalloidin) fluorescents to investigate morphological changes, cell proliferation assay, MTT assay, flow cytometry, western blotting, in-cell western, immunecytochemical (protein expression and localization), and oxygen electrodes (oxygen consumption rate) after a treatment with 0.25 mM dbcAMP were conducted. Undifferentiated cells (media without dbcAMP) showed a flat polygonal appearance, whereas those cultured in the presence of 0.25 mM dbcAMP exhibited a more differentiated astrocytic morphology. They had more numerous neurite-like thin processes. The cell proliferation of differentiated c6 glioma reduced at day 2 and then started to increase at day 3 till day 5 compared to undifferentiated c6 glioma cells. In terms of flowcytometry data, dbcAMP had no apoptotic effect on the C6 glioma cells. There was an increase in

the protein expression GFAP (specific marker for astrocytes). There was no significant effect between undifferentiated and 5-day differentiation regarding their response to glucose 10 mM. In addition, there were no significant effects of glucose on the basal of 5-day differentiation of C6 glioma cells. However, there was a significant correlation between the concentration of glucose and inhibition of the basal oxygen consumption. Finally, glucose 10 mM did not stimulate NAD (P)H levels of C6 glioma cells. The above results showed that cAMP induce C6 glioma cells differentiation without affecting its bioenergetics. Therefore cAMP is considered to be the best differentiating agent.

Speaker Biography

Ahmed Hisab have completed his MPhil in Pharmacology and cell Physiology at the age of 32 years from Nottingham University, UK. He is a master student in computational biomedicine of South Denmark University, Denmark. He has published over 6 publications in very scientific journals.

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