GMAP210

Gliomas are the most common malignant tumors of the brain and are characteristic of severe migration and invasion. Glial cell line-derived neurotrophic factor (GDNF) promotes glioma development process. However, the regulatory mechanisms of promoting occurrence and development of glioma have not yet been clearly elucidated. In the present study, the mechanism by which GDNF promotes glioma cell migration and invasion through regulating the dispersion and location of the Golgi apparatus (GA) is described. Following GDNF treatment, a change in the volume and position of GA was observed. The stack area of the GA was enlarged and it was more concentrated near the nucleus. Golgin-160 and Golgi microtubule-associated protein 210 (GMAP210) were identified as target molecules regulating GA positioning. In the absence of either golgin-160 or GMAP210 using lentivirus, the migration and invasion of U251 cells were decreased, while it was increased following GDNF. It was also found that the GA was decreased in size and dispersed following golgin-160 or GMAP210 knockdown, as determined by GA green fluorescence assay. Once GDNF was added, the above phenomenon would be twisted, and the concentrated location and volume of the GA was restored. In combination, the present data suggested that the regulation of the position and size of the GA by golgin-160 and GMAP210 play an important role in U251 cell migration and invasion ¹⁾.

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Tang CX, Luan L, Zhang L, Wang Y, Liu XF, Wang J, Xiong Y, Wang D, Huang LY, Gao DS. Golgin-160 and GMAP210 play an important role in U251 cells migration and invasion initiated by GDNF. PLoS One. 2019 Jan 29;14(1):e0211501. doi: 10.1371/journal.pone.0211501. eCollection 2019. PubMed PMID: 30695072.

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