The Role of O-GlcNAcylation on Human Melanoma Cell lines Migration.

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Melanoma is the most aggressive skin cancer, characterized by the malignant transformation of melanocytes. The disease can progress through different stages: Radial Growth (RGP), Vertical Growth (VGP) and Metastatic Growth Phases (MGP). It is a deadly cancer, especially if diagnosed at the metastatic stage. Therefore, it is very important to understand the mechanisms involved in migration, and metastasis of this cancer.
The O-GlcNAcylation is a type of intracytoplasmic dynamic glycosylation, where an *O*-linked β-*N*-acetylglucosamine (O-GlcNAc) is linked to a serine or threonine residue in different proteins. Previous studies have shown a deregulation of O-GlcNAcylation in different cancers leading, in most cases, to malignancy and poor prognosis. The aim of this work is to compare the migration and invasion capacity of three different human melanoma cell lines, and to investigate the role of O-GlcNAcylation on the melanoma cell motility.
The migration of the human melanoma cell lines (WM983A - VGP; WM983B – MGP; WM852 - MGP) was analyzed initially by a wound healing assay. WM852, the most aggressive melanoma during its clinical stage, presented the fastest migration. The VGP line, WM983A, had the slowest migration time, while the other metastatic line, WM983B, had an intermediate time for closing the scratch space. The cell motility was also determined by the area of phagokinetic tracks on gold sol particle-coated plates for the melanoma cell lines incubated with an inhibitor of O-GlcNAcase (OGA), an enzyme that removes the O-GlcNAc from proteins, therefore, increasing the total O-GlcNAcylation levels. When compared to the control cells without the drug, the incubation with the OGA inhibitor decreased the motility of all melanoma lines. These results indicate that the O-GlcNAcylation can play a role on the cell motility, and may participate in the final stages of melanoma progression leading to metastasis.

Palavra chave: Melanoma, migration, O-GlcNAcylation
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