

HIGHER EXPRESSION OF AMPK AND PHOSPHO-THR172-AMPK IN HUMAN PAPILLARY THYROID CANCER AND CANCER CELL LINAGES

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Background/Purpose: The role of AMP-activated protein kinase (AMPK) in cancer cells is poorly understood. Recently, we described that AMPK activation decreases iodide and increases glucose uptake in rat thyrocytes. However, the participation of AMPK in thyroid cancer development and progression is not known. Our purpose is to evaluate the expression and phosphorylation of AMPK in papillary thyroid carcinomas and in thyroid cell linages NTHY, BcPAP and TPC-1.

Methods: We examined AMPK-a and phospho-AMPK by immunohistochemistry using an tissue microarray composed of tissues from 57 patients with papillary thyroid carcinomas (PAPCA) accompanied at the Clementino Fraga Filho University Hospital-UFRJ. The expression was compared with non-neoplastic tissue (NNT) from the same patient. Two different pathologists following previously established scores of intensity and proportion of staining analyzed the samples. The expression of AMPK in cell lineages was evaluated by western blot and RT-PCR.

Results: The results showed an increase in overall score of expression, due to an higher number of cells stained, for both AMPK-a and phospho-AMPK, in PAPCA compared to NNT. Also, we found a different pattern of AMPK isoforms and an increased in phospho-AMPK in Bcpap.

Discussion & Conclusion: Our results shows an increase in the number of cells expressing a higher content of total and phosphorylated AMPK in PAPCA in relation to their NNT counterpart. Also, there are different pattern of expression and activity of AMPK between culture thyroid cell linages. However, more studies are necessary to understand the pathophysiological role of AMPK in this thyroid tumor subtype.