

Expression data of FOS and JUN genes and FTIR spectra provide diagnosis of thyroid carcinoma

Renata de Azevedo Canevari¹, João Paulo da Silva Queiroz¹, Breno Pupin¹, Tanmoy Bhattacharjee², Miyuki Uno³, Roger Chammas³, and Marco Aurélio Vamondes Kulcsar³

¹Universidade do Vale do Paraíba

²University of Otago Sir John Walsh Research Institute

³Universidade de Sao Paulo Instituto do Cancer do Estado de Sao Paulo

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Abstract

We explore the feasibility of using FOS and JUN gene expression and ATR-FTIR + for diagnosis of thyroid cancer. For the study, 38 samples (6 non-neoplastic (NN), 10 papillary thyroid carcinoma (PTC), 7 follicular thyroid carcinoma (FTC), and 15 benign tumors (BT) were subjected to RNA extraction followed by quantitative real time PCR (qRT-PCR) and 30 samples (5 NN, 9 PTC, 5 FTC, and 11 benign) were used for Attenuated Total Reflectance – Fourier Transform Infrared (ATR-FTIR) followed by multivariate analysis. We found FOS and JUN expression in malignant tumor samples to be significantly lower than NN and benign. ATR-FTIR after multivariate analysis could identify the difficult to diagnose PTC § with 93% efficiency. Overall, results suggest the diagnostic potential of molecular biology techniques combined with ATR-FTIR spectroscopy in differentiated thyroid carcinomas (PTC and FTC) and benign tumors.

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