cos de tireoide, 22 lesões benignas (LBT) e 13 tecidos não neoplásicos adjacentes a tumores (TN). Pacientes com CBDT que evoluíram com recidiva foram definidos como de prognóstico ruim (n=25) e pacientes com CBDT que não apresentaram sinais de recidiva em um seguimento mínimo de cinco anos foram definidos como de bom prognóstico (n=97). Resultados: Os ensaios de PIRO-BIS foram realizados, avaliando a metilação do DNA de CpGs específicas correspondente às sondas previamente identificadas. Nessa abordagem, foi possível observar uma hipermetilação e hipometilação significativa da CpG1 e CpG2, respectivamente, nos carcinomas de pior prognóstico em relação aos carcinomas de bom prognóstico e tecidos não malignos (TN/LBT) (PConclusões: A investigação da metilação do promotor de um dos genes do trio pode ser útil como marcador prognóstico e na estratificação de risco de pacientes com carcinoma bem diferenciado de tireoide.

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CÓDIGO: 340

TÍTULO: FTIR spectroscopy: a valuable tool to diagnose cutaneous tumors

CATEGORIA: BÁSICO TRANSLACIONAL

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Resumo::

Biological molecular bonds with an electric dipole moment that can change by atomic displacement due to natural vibrations are infrared active and therefore are quantitatively measured by Fourier transform Infrared Spectroscopy (FTIR), which is a rapid and label-free analytical tool that has been used to study the chemical interactions between biomolecules. The potential of FTIR spectroscopy as a diagnostic tool to discriminate cancerous from healthy tissue in a non-subjective manner has been well demonstrated. However, translation into clinical practice has been relatively slow, mainly due to the expensive and fragile infrared substrates required to perform the measurements. Thus, this study aims to demonstrate the ability of FTIR microspectroscopy to discriminate healthy skin from hyperplastic, papilloma and squamous cell carcinoma using standard H&E stained samples placed on glass slides.
After approval of the ethics committee for research on animals (Comite de Etica no Uso de Animais, CEUA) of Instituto de Pesquisas Energéticas e Nucleares (IPEN) (project no. 164/15-CEUA-IPEN/SP), cutaneous neoplastic lesions were chemically-induced in the back of Swiss mice using a well-stablished two-stage carcinogenesis protocol [1]. Healthy tissue was collected from animals non-exposed to chemicals and different diseased stages (hyperplastic epidermis, papillomatous lesions and squamous cell carcinoma (SCC)) were obtained by varying the exposure time of the animals to carcinogenenic factors.Tissue sections of 5 µm thickness were obtained from formalin-fixed paraffin-embedded (FFPE), hematoxylin & eosin stained and placed on glass slides. FTIR images were acquired in transmission mode over the spectral range 3000-3800 cm-1 with a pixel size of 6.25 × 6.25 µm at a spectral resolution of 4 cm-1. Spectral data were vector normalised and subjected to smoothing using Savitzky–Golay filtering with a polynomial of second order in an eleven point window. Principal components analysis (PCA) was applied and the PC scores were used as input data for linear discriminant analysis (PC-LDA) in a binary classification test. The groups were pairwise compared and the method was validated by leave-one-out cross-validation (LOOCV). All pre-processing and spectral analysis were performed on Matlab® R2017. Considering the sensitivity as the proportion of spectra collected from healthy tissue correctly identified in the healthy group and specificity as the proportion of spectra measured from neoplastic skin correctly associated to neoplastic group, the performance of classification obtained by PC-LDA was calculated for each pairwise comparison: Healthy × Hyperplastic, Healthy × Papilloma, Healthy × SCC, Hyperplastic × Papilloma, Hyperplastic × SCC, Papilloma × SCC. Sensitivity and specificity values over 90% were obtained for all groups compared, indicating that the information retained by bands peaking at 3000-3700 cm-1 in the infrared spectra — associated with the stretching vibrational modes of N-H, O-H and C-H chemical bonds on biological tissue — can discriminate normal and malignant tissue using H&E stained samples placed on glass slides. Thus, FTIR spectroscopy associated to PC-LDA as a binary classification test may be used as a complementary tool to help physicians to detect early stages of skin cancer, as well as to differentiate different types of cutaneous tumors.
[1] Abel, E. L. et al. Nat Protoc. 2009;4(9):1350-62.

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CÓDIGO: 92

TÍTULO: NON-CANONICAL ACTIVATION OF PROTEASE--ACTIVATED RECEPTOR 1 (PAR1) IN MELANOMA CELL LINES

CATEGORIA: BÁSICO TRANSLACIONAL

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Resumo::

Introduction: Melanoma is a type of skin neoplasia originated from transformed melanocytes, which may acquire the capacity of vertical invasion through dermis. Despite of its low incidence (232.000 cases globally, in 2012 -GLOBOCAN), it is one of the most lethal cancers (55.500 deaths in 2012-GLOBOCAN). One of the factors that correlates with melanoma malignant phenotype is the presence of Protease-Activated Receptor 1 (PAR1), which is overexpressed in melanoma and in metastatic lesions (Tellez et al, 2003). PAR1 can be activated in two different ways: 1) the canonical pathway – when the receptor is cleaved by thrombin at