

Histochemiluminescent Evaluation of Biomarkers

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INTRODUCTION: Biomarkers can be defined as a characteristic that is objectively measured and evaluated as an indicator of normal biological processes, pathogenic processes or pharmacological responses to a therapeutic intervention. Among many procedures to characterize biomarkers reported in the literature chemiluminescence (CL) has been widely employed in biological fluids. **OBJECTIVES:** Here it is presented a CL method applied to histological preparations. **MATERIAL AND METHODS:** Proteins (lectins and antibodies) conjugated to acridinium ester were used as probes to detect the biomarkers. Then they were incubated with histological tissues samples that were afterwards exposed to H_2O_2 in alkaline conditions and the emitted light (quantified in RLU – Relative Light Unit) was captured by luminometer. At the same time histological tissues samples were treated either for classical Hematoxylin and Eosin Staining Protocol or probes conjugated with peroxidase. Normal, fibroadenoma, and infiltrating duct carcinoma of mammary tissues; normal prostate, benign prostatic hyperplasia (BPH) and prostatic adenocarcinoma tissues; normal skin and cutaneous tumors tissues were investigated. **RESULTS AND DISCUSSION:** The results demonstrated that RLU presented a linear relationship with the labeled protein as well as the tissue area. The glycode of the transformed tissues was quantitatively evaluated and compared with the normal tissues. Furthermore, the presence of galectin-3 and Her-2 were also quantitatively measured in the tissues and compared with the normal tissues. Furthermore, some parameters (number of biomarkers per area and affinity constants) were estimated from the data. **CONCLUSIONS:** These results demonstrated histochemiluminescence as an important auxiliary tool for histopathology analysis since allowed a sensitive, specific and simple procedure to investigate biomarkers in Cell differentiation/dedifferentiation.

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